
Syllabus.

SEYMOUR v. OSBORNE.

1. The invention of William H. Seymour and of Palmer & Williams, explained and defined.
2. The grant of letters patent by the commissioner of patents when lawfully exercised, is *prima facie* evidence that the patentee is the first inventor of that which is described and claimed in them.
3. The settled practice in equity is to require a respondent to give notice in his answer of the names and residence of those persons whom he intends to prove to have possessed a prior knowledge of the invention, and where the same had been used.
4. Recitals in letters patent in the absence of fraud are conclusive evidence that the necessary oaths were taken before the patent was granted.
5. Where an invention does not embrace an entire machine, the part should be specified and pointed out, as *ex. gr.* the coulter of the plough, or the divider or sweep rake of a reaping machine, so that another party may construct the plough or reaping machine, provided he does not use the part specified.
6. Neither reissued nor extended patents can be abrogated by an infringer in a suit against him for infringement, upon the ground that the letters patent were procured by fraud in prosecuting the application for the same before the commissioner.
7. The act of the commissioner in accepting a surrender and granting a reissue is final and conclusive, and not re-examinable in a suit in the Circuit Court, unless it is apparent upon the face of the patent that he has exceeded his authority, or that there is such a repugnancy between the old and the new patent that it must be held as matter of *legal construction* that the new patent is not for the same invention as that embraced and secured in the original patent.
8. Interpolations in a reissued patent of new features or ingredients or devices, which were neither described, suggested, nor substantially indicated in the original specifications, drawings, or patent office model, are not allowed.
9. Parol testimony as to the scope of an original invention, is not allowable on an application for a reissue as the basis of interpolation of new matter.
10. The identity of invention in the original and reissued patent in such suits, is a question of comparison of the two instruments to be made by the court, aided or not by the testimony of experts, as it may or may not appear that one or both may contain technical terms requiring the assistance of such persons in defining them.
11. To raise such a question, the defendant in a patent suit must introduce the original patent.
12. A claim which might otherwise be held to be bad as covering a function or result, when containing the words "substantially as described," must

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- be construed in connection with the specification and be limited thereby; and when so construed it may be held to be valid. The claims in this case, when so construed, were so held.
13. Changes in the construction and operation of an old machine, so as to adapt it to a new and valuable use which the old machine had not, are patentable, and may consist either in a material modification of old devices, or in a new and useful combination of the several parts of the old machine.
 14. Utility, in the sense of the patent law, does not require such general utility as to supersede all other inventions that can accomplish the same object.
 15. Crude and imperfect experiments do not confer a right to a patent. He is the first inventor who first perfects and adapts an invention to use.
 16. Desertion of an alleged prior invention, consisting of a machine never patented, may be proved by showing that the inventor, after constructing it, broke it up or laid it aside, as something requiring more thought and experiment; provided it appears that those acts were done without any definite intention of resuming his experiments.
 17. Under the act of Congress allowing reissues in divisions, it may require the use of several reissues to constitute a complete machine, and on a proceeding for infringement these may be introduced in one bill.
 18. A description in a prior publication, in order to defeat a patent, must contain and exhibit a substantial representation of the patented improvement in such full, clear, and exact terms, as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention patented. It must be an account of a complete and operative invention, capable of being put into practical operation.
 19. The extent to which either the inventor of a device or of an entire machine, or of a mere combination, can invoke the aid of the doctrine of equivalents, is the same, except that a combination is not infringed unless by a machine containing all the material ingredients patented, or proper substitutes for one or more of such ingredients, *well known to be such* at the time when the patent was granted.
 20. A question of infringement is best determined by the court, by a comparison of a defendant's machines with mechanism described in patent, and of their modes of operation.
 21. The use of one post and a supporting frame attached thereto in a reaping machine, is an obvious equivalent for the two posts specifically mentioned in the patent of Palmer and Williams.

APPEAL from the Circuit Court for the Northern District of New York.

The suit below was on a bill by W. H. Seymour and D. S. Morgan, for the infringement by Osborne of five patents owned by them, for improvement in reaping machinery.

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Two of these patents covered the inventions of Seymour—one (No. 72) relating to the shape or construction of the grain platforms, and its special location in reference to the cutting apparatus—the other (No. 1683) involving the gathering-reel as an additional element to the combination just named.*

The other three patents in controversy were granted to secure inventions made by Palmer and Williams, assignors of the complainants. Two of the latter patents (No. 1682 and No. 4) were for the employment of a discharging sweep-rake in connection with the peculiarly shaped platform, which was conceded to have been the invention of Seymour.†

The third patent of Palmer and Williams (No. 10,459) was for the means of sustaining the reel or grain-gathering device, consisting of a prolonged axle and two supporting posts, placed at one end of the reel only, leaving the other end free.‡

The court below was of the opinion that the proofs of the complainants did not show any infringement, and so dismissed the bill. From this decree the complainants took this appeal.

The leading parts or features of a reaping machine are three in number.

First. The part which gathers or presses the standing

* Seymour's patent was granted July 8th, 1851, and this patent was reissued July 10th, 1860, in decisions 1003, 1004, 1005. Reissue No. 1005 was again surrendered and reissued May 7th, 1861, numbered reissue 72, which was in this suit. Reissue No. 1003 was also surrendered and reissued May 3d, 1864, as reissue No. 1683, which was also in this suit.

† Palmer and Williams obtained original patent dated July 1st, 1851. This was surrendered April 10th, 1855, which was again surrendered January 1st, 1861, and reissues 4 and 5 granted. Reissue 5 was surrendered May 31st, 1864, and reissue 1682 granted in lieu thereof. Reissues 4 and 1682 are concerned in this suit.

‡ Palmer and Williams obtained a separate patent for reel-support, January 24th, 1854, numbered 10,459, which patent is in this suit.

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grain to the cutting apparatus, and this has been called a reel. (Fig. 1.)

Second. The cutting apparatus which severs the stalk;

FIG. 1.

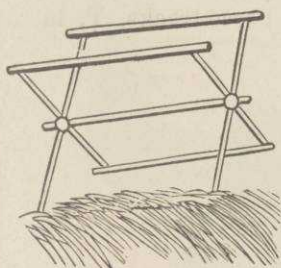
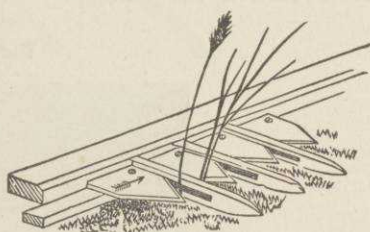


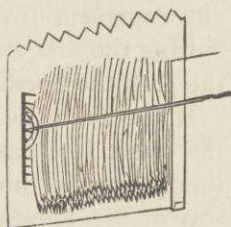
FIG. 2.



which cutting apparatus usually consisted of a vibrating scalloped sickle, sliding through a series of fingers or guards. (Fig. 2.)

Third. A platform on which the grain is received, after it has been severed from the stalk. (Fig. 3.) In connection with the platform there is also to be noticed, its shape, and the arrangements for removing the grain therefrom, and depositing it on the ground in gavels or bundles ready for the binder. The latter arrangement usually consisted, in practice, prior to the patents in controversy, of a hand-rake and device for supporting the body of the raker on the machine, as shown in Figure 5, further on.

FIG. 3.



These several parts in the machine were necessarily so arranged with reference to each other as to co-operate in producing the desired result, viz., that of cutting the grain and depositing it on the ground in bundles, adapted to being readily bound into sheaves.

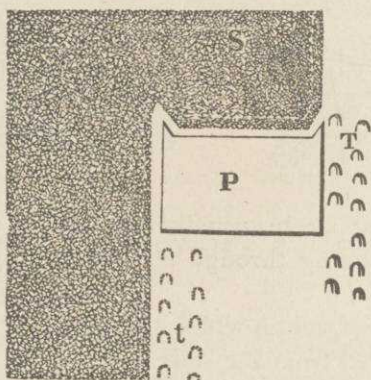
The reaping machine, when doing its work, passes around the field, the horses being attached in front, and to one side of it, and if, while cutting the first swath, the grain was to

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pass directly back and fall on the ground in the rear of the sickle, as the horses came around with the machine to cut the second swath, they would walk over and trample upon this grain which had been just cut.

Thus, if S represents the standing grain and P the platform, and if the distinctly-marked horse-tracks, T, in the

FIG. 4.



cut, represent the path just passed over by the horses, in cutting the first swath, then the dotted horse-tracks, t, show the path the horses will pass over on their next round.

If the grain be thrown from the platform so as to fall on the track just passed over by the horses (*i. e.*, on the distinctly-marked horse-tracks T), it will then be out of the way of the horses on their next round. If, however, the grain be discharged directly backwards, immediately behind the sickle, it will be in the way of the horses on their second round, and, in that case, binders must be employed to follow the machine and bind the grain into sheaves and lay it to one side, before the horses come around with the machine to cut the succeeding swath.

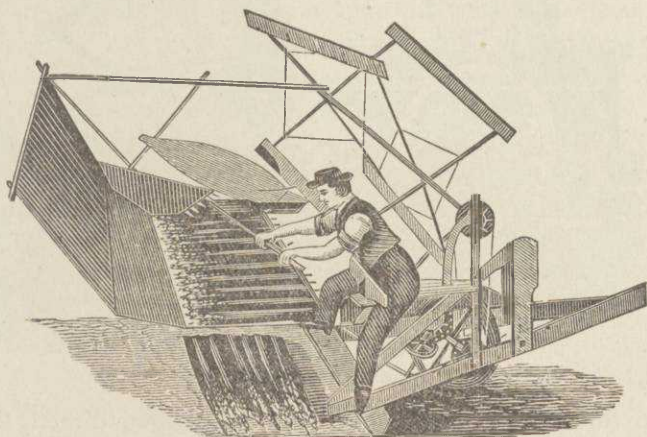
It is evident that the proper place to discharge the grain is in the path just passed over by the horses; and behind the horses, because it will then be out of the way of the horses on their next round.

Perhaps the most usual mode of discharging grain prac-

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ticed prior to the patent in controversy here, is shown in the accompanying sketch.

FIG. 5.



The plate represents the arrangements for discharging the grain, and also the relative position of cutter, reel and platform, as well as that of the gavel or sheaf deposited on the ground. The raker is supported upon that machine by a seat or stand which sustains the lower part of his body, leaving the upper part of his body free, to enable him to operate the hand-rake with his arms. From this position he reaches the cut grain on the platform back of the reel, and by a sweep of his arms delivers it on the ground, either diagonally or more or less at right angles to the track in the path passed over by the horses.

This mode of delivering the grain, however, was fatiguing to the raker, and frequently the grain was deposited in a straggling manner upon the ground, and more or less obliquely to the track or path of the machine.

Obed Hussey, one of the earliest inventors of reaping machines, constructed his machines without a reel, and with a square platform, and discharged the grain when cut immediately in the rear of the platform, as shown in the drawing, Figure 6.

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FIG. 6.



Obed Hussey's Machine.

In this machine, the grain was discharged directly into the path to be passed over by the horses in their next round, and had therefore to be gathered up immediately as fast as cut. Some machines were also constructed by Hussey with a straight guideboard on the platform, which was adjustable within certain limits, and which, to a certain extent, caused the cut grain to be pressed to one side sufficiently for a single horse or tandem team to pass on the next round without trampling on the cut grain. Hussey also made machines with two platforms—one platform attached to the rear of the other—and employed two men, one to rake the grain back, and the other to discharge it to one side. He likewise made a reaping machine with a square platform, to the rear of which was bolted an angular addition, giving to the whole where the addition was attached an angular form. This machine was made in 1848, and after being made, it was removed in the latter part of the summer of 1848, from Hussey's shop in Baltimore, of which place he was at the time a resident, to the railroad depot, and (as the witnesses understood) to be shipped for trial, but they did *not know* where it was to go, or whether, in fact, it was ever so shipped or tried. Some time in 1849, or later, this machine reap-

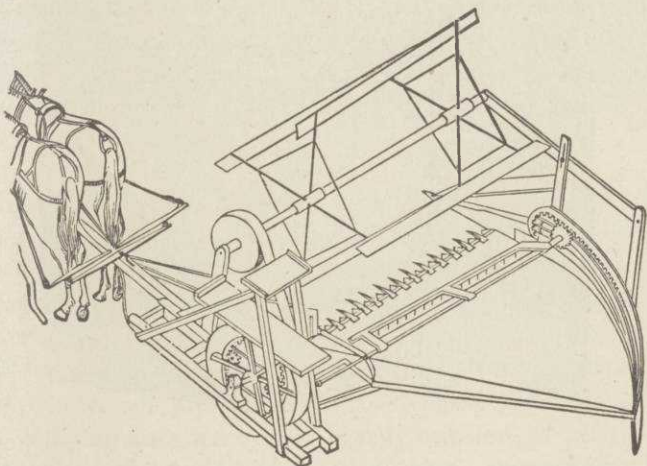
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peared at the shop of Hussey, and had the appearance of having been used some little. On its return to the shop it was set aside, and nothing more was done to it, or with it until it was looked up in connection with this suit.

An important question arose upon this state of facts as to whether that last machine, even if conceded to be the same in principle with that of the complainants, amounted in view of law to an anticipation of their invention.

The invention of Seymour consisted in constructing the platform upon which was received the grain in the shape of a quadrant or sector of a circle, and placing it just behind the cutting apparatus, and in such relation to the main frame that the cut grain could be swept around on the arc of a circle, and dropped on to the ground behind the horses, so as to be so far removed from the standing grain as to leave room for the horses and frame to pass between the standing grain and the gavels, thereby obviating the necessity of taking up the cut grain as fast as cut, and at the same time doing the work more perfectly. It is here shown.

FIG. 7.



Seymour's Machine.

Such being Seymour's invention, he obtained an original patent dated July 8, 1851, and by successive reissues and

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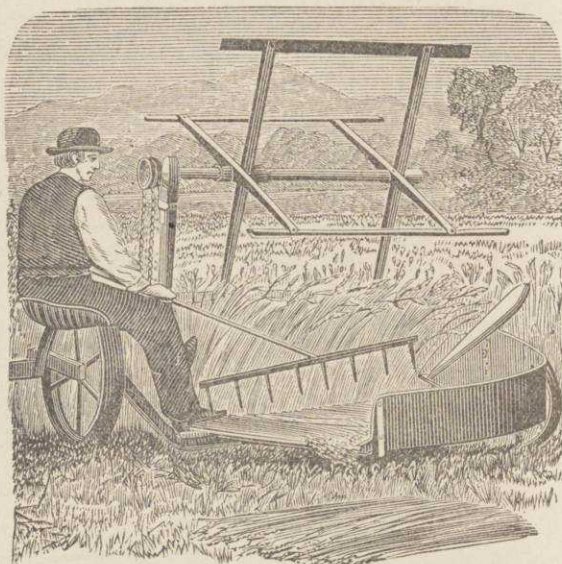
divers divisions thereon, among other things, two claims were allowed to him, one in reissue No. 72, as follows, viz.:

"A quadrant-shaped platform, arranged relatively to the cutting apparatus substantially as herein described, for the purpose set forth."

The other claim allowed to him was in reissue No. 1683, on the basis of the same original patent, as follows, viz.:

"The combination in a harvesting machine of the cutting apparatus (to sever the stalks) with a reel, and with a quadrant-shaped platform located in the rear of the cutting apparatus, these three members being and operating as set forth."

FIG. 8.



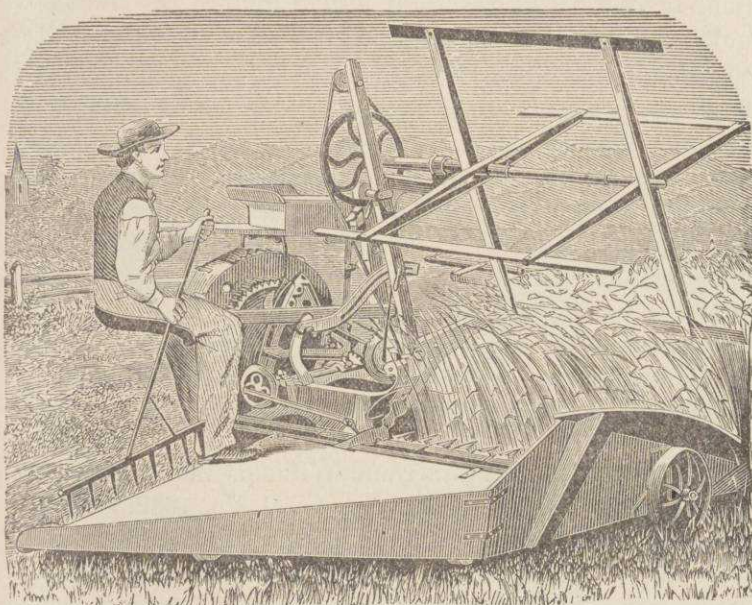
In Figure 8 is shown a quadrant platform cutting apparatus, and the operation of discharging the grain by hand-sweeping it in the arc of a circle. The relative position of the parts also to the reel is shown, the discharging hand-

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rake striking the cut grain immediately after it is deposited by the reel on the platform.

The complainants alleged that the defendants infringed these two claims by the use of a machine such as is shown in the following sketch.

FIG. 9.



The Defendant's Hand-rake.

This machine was used with a hand-rake. The defendants contended that the complainants' claim was for a quadrant-shaped platform only, and that their own platform was composed of two straight side pieces placed together at an angle.

The court below decided that although this form of the platform made it *in effect* a quadrant-shaped platform; yet that in view of Hussey's, and of Nelson Platt's platform, the complainants were only legally entitled to hold under their claim the *precise shape* of platform invented and described by Seymour, and that as so limited, it had not been infringed by the defendants, and that the doctrine of equivalents could not be invoked in such a case on behalf of plain-

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tiff's patent, relying on *Burr v. Duryee*. The position thus assumed by the court below was pressed upon this court by the counsel of the defendants, the now appellees.

The machine of Hussey last above referred to, with the angular piece bolted to the platform, was urged as having been a full and complete anticipation of Seymour's invention.

The complainants, or now appellants, on the other hand, contended that Seymour's invention of the quadrant platform was complete in or before the harvest of 1849; that Hussey's machine, with the angular rear piece, had no reel, and was therefore no answer to reissue No. 1683, which had a reel as part of its claim; and that as to reissue No. 72, Hussey was *not proved* to have anticipated Seymour as an inventor, and that his platform was, in point of law, an abandoned or incomplete experiment.

A machine of one Burrell was set up in the answer but not in the argument. Irrespective of plain want of identity it was proved to be posterior in date. It need not be described.

The inventions of Palmer and Williams involved in this suit are embraced in reissue No. 4 and No. 1682, and pertain to the employment of an automatic sweep-rake in combination with the quadrant platform, which as a separate device was conceded as between these two inventors to have been the invention of Seymour.

The annexed description and Figure 10 (p. 527) is taken from Palmer and Williams's patent; and the claim concerned in this case under reissued patent No. 4 was as follows:

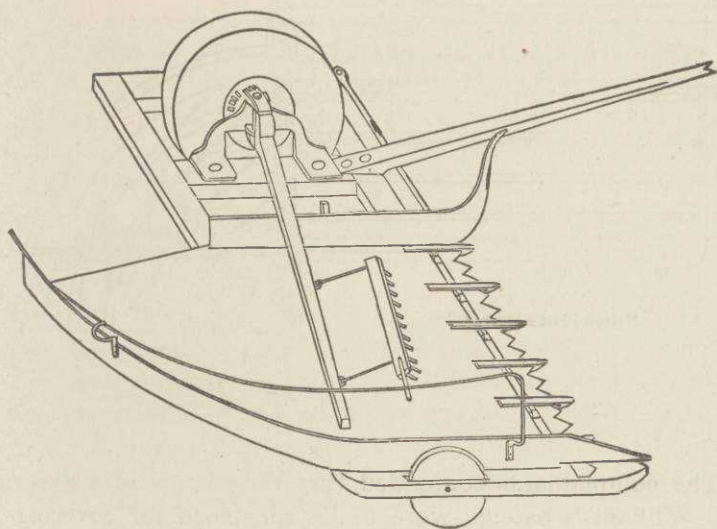
"Discharging the cut grain from a quadrant-shaped platform, on which it falls as it is cut, by means of an automatic sweep-rake, sweeping over the same substantially as described."

The defendants contended that this was a claim for a function or result, and as such was bad in law, and that the patent was, therefore, void.

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The defendants also contended that there was no novelty in the invention, and that Palmer and Williams had been anticipated by Nelson Platt's patent, and although Palmer and Williams's machine differed from Platt's, yet there was no invention in the change from Nelson Platt's rake to the complainants'; that all that Palmer and Williams had in fact done was to take Platt's automatic sweep-rake and put it upon Seymour's quadrant-shaped platform; and that doing this was not invention, but merely the exercise of ordinary mechanical skill.

FIG. 10.



Palmer and Williams's Machine.

This latter view was adopted by the Circuit Court.

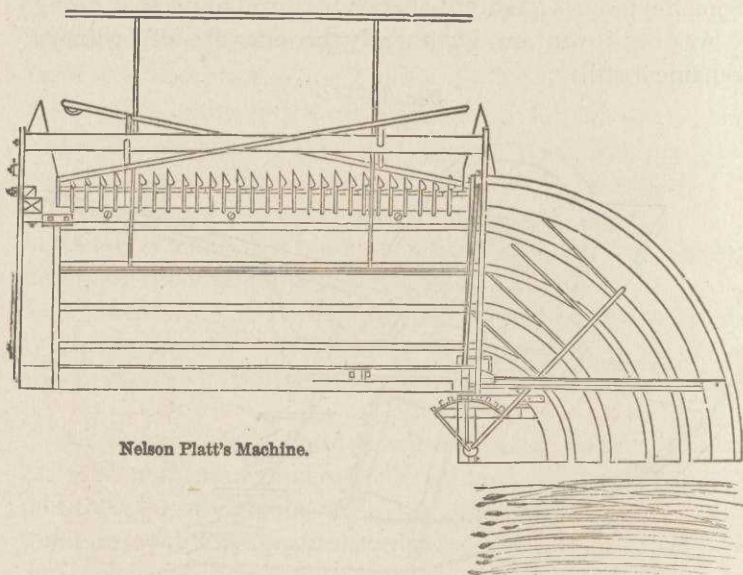
Nelson Platt's patent was granted June 12th, 1849, for a self-raking reaper, which is shown in Figure 11, on page 528.

In this machine the platform was propelled from the rear, and the grain, after being cut, was deposited on a rectangular platform, and was then raked across the rectangular platform, by one set of rakes acting from below, on to a second quadrant-shaped platform. The grain was then discharged from that second quadrant-shaped platform by a

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vibrating rake, which swept across it in the arc of a circle, on to the ground, the heads of grain lying towards the machine. The defendants did not insist that this was identical in construction with the complainants' invention, but that the skill of the mechanic only was required to change it to their invention. The court below adopted this view.

FIG. 11.



Nelson Platt's Machine.

The complainants contended that the claims of Palmer and Williams's patents were to be construed for covering substantially the "*means*" described for discharging the grain "*as specified*"—that "*this means*" was a combination of mechanism. The elements of the combination are a *quadrant-shaped platform*, a *cutting apparatus*, and an *automatic sweep-rake*, and that these elements must sustain to each other, to constitute the thing patented, the following relations:

First. The quadrant-shaped platform must be directly behind the cutting apparatus.

Second. The automatic sweep-rake must traverse the platform so as to sweep the grain from where it falls, as cut, round to the place of its destiny upon the ground.

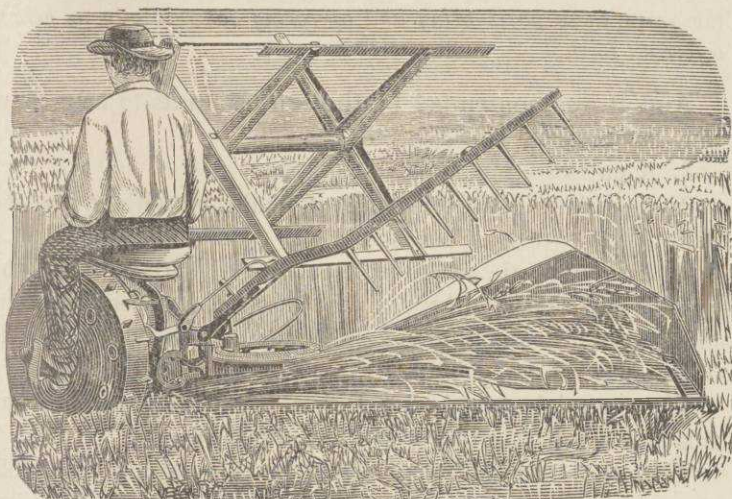
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Third. To accomplish this, the rake must have a certain relation to the cutting apparatus, to the platform, and to the material which has been laid upon the platform.

The complainants further contended, that while, upon the one hand, the claim was for an entirely different invention from Platt's, yet that one form of the defendants' machine known as their Automatic Sweep-Rake Machine, was a clear infringement.

The defendants' automatic sweep-rake machine, alleged to infringe, is here shown.

FIG. 12.



Defendant's Self-raking Machine.

The automatic rake in that machine swept over the platform from the cutter to the place of delivery. It was used with a platform of the same shape as referred to above in connection with the defendants' hand-raking machine. The automatic rake swept the cut grain from where it fell on the platform to the point of delivery.

The peculiar mechanism or gearing by which the sweep-rake in the defendants' machine was made to traverse their platform was admitted by the complainants to be different from that in their patent.

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Upon the latter difference, the Circuit Court decided that defendants' automatic rake did not infringe the claims now in question, thereby limiting this claim of the complainants to the specific driving mechanism or machinery for gearing and actuating the sweep-rake in its movement.

The claim of the complainants' patent reissue No. 1682, was in the following words:

"The combination of the cutting apparatus of a harvesting machine with a quadrant-shaped platform arranged in the rear thereof, and a sweep-rake operated by mechanism in such manner that its teeth are caused to sweep over the platform in curves when acting on the grain, these parts being and operating substantially as hereinbefore set forth."

And it was contended by the complainants to be a claim to a combination consisting of

1. A cutting apparatus.
2. A quadrant-shaped platform combined with and placed behind the cutting apparatus.
3. An automatic sweep-rake connected with the frame by a pivot and operated by cog-wheels, so as to sweep over the platform while moving the grain towards the delivery side of the platform.

The complainants insisted that the difference between this claim and that of reissue No. 4 was in this:

That the combination claimed in this patent, No. 1682, appertained exclusively to the operation of cutting the grain, receiving it upon and removing it from the platform. It did not (unless incidentally) include the means of carrying the rake back to seize a new gavel. The claim of No. 4 included also the means of carrying the rake back to get a new gavel after delivering the former one.

The defendants insisted that this patent was void, as being identical with the claim of reissue No. 4, and as also being obnoxious to the objections urged against reissue No. 4.

Patent No. 10,459, granted to Palmer and Williams, was also alleged to have been infringed.

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This patent merely related to the mode of supporting the reel. When a reel is supported at each end by a post or bearer, the post or bearer which is on that side or end of the reel which runs into the standing grain encounters obstructions, and these collect upon and impede the rotation of the reel. To avoid this, Palmer and Williams devised the mode of supporting the reel wholly on that side of the machine which did not run into the standing grain, and no support was provided at the other end of the reel. The claim for this invention was in these words:

"The method of hanging the reel so as to dispense with any post or reel-bearer next to the standing grain, as herein described, thereby preventing the grain from getting caught and being held fast between the divider and a reel supporter."

The defendants' machine had but one post. The reel axle, however, was prolonged, and it was supported wholly on that side or end of the reel and by means of two bearings attached to that post. This mode of support is shown *supra*, in Figure 9, and was argued by the complainants' counsel to be substantially the same as that claimed in re-issue 10,459.

The only alleged prior invention set up in the proofs against this particular patent was what is called the Ogle Machine. The only evidence of this machine was contained in the "Mechanics' Magazine," published in London in 1825.

A copy of the description and drawing from this book was put in evidence by the appellees.

An expert of the defendant testified as to this publication:

"I do not understand that it has any reel support at the grain side of the machine, it being represented as having two reel supports at the stubble side of the machine."

But the expert did not say positively that the reel had not any support on the grain side of the machine, but that he did not so understand it; and gave his reasons why he did

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not so understand it, which was because there were *two supports* on the stubble side; or, in other words, because there were two reel supports on the stubble side he inferred that there was none on the grain side.

On the other hand, the complainants contended that the presence of two reel bearings on the stubble side of the machine was not conclusive evidence of the absence of a bearing also on the grain side, because there might have been two on the stubble side to better support the shaft toward the centre and keep it from sagging, as well as one on the grain side, and that for such purpose they might obviously be useful.

The experts of the complainants testified that these drawings, taken with the printed part of the description in the "Magazine," did not show what is described in this patent of the complainants and specified in the claim in controversy, and that they did not suggest the idea of this invention.

The counsel of the complainants insisted that the description in the first publication, to be available, must be such as to enable the public to practice the invention.*

In addition to the points above, as to novelty and infringement, other grounds of objection were taken by the defendants to the validity of these reissued patents, among them, these:

That Palmer and Williams never made oath to the application on which the reissued patent was granted, and therefore the reissue was void:

That the patentees did not specify and point out in their specifications and claims the parts which they claim as their respective inventions:

That the commissioner of patents had no jurisdiction to receive the surrender of the originals or grant the reissued patents thereon, because no evidence was produced before him to show that the originals were "inoperative and invalid:"

* Citing Curtis on Patents, § 378; Betts v. Menzies, Hall v. Evans, 6 Law Times, N. S. 90.

Opinion of the court.

That the reissued letters patent were void because they were not granted for the same invention as the original patents.

Messrs. Gifford and Stoughton, for the appellants, the complainants below. Mr. D. Wright, contra.

Mr. Justice CLIFFORD delivered the opinion of the court.

Controversies respecting the infringement of letters patent possess, in many cases, a degree of importance much beyond the profits or damages claimed for the alleged unlawful use of the invention, as the pleadings usually put in issue, in one form or another, the validity of the letters patent alleged to be infringed, and frequently involve, directly or indirectly, the same inquiry in regard to the letters patent set up in defence as superseding the patent on which the suit is founded. Such being the state of the pleadings, the result, whatever it may be, whether for the party suing or for the party defending, must oftentimes determine rights of property of much greater value than the amount of the profits or damages claimed for the alleged infringement of the letters patent.

Inventions secured by letters patent are property in the holder of the patent, and as such are as much entitled to protection as any other property, consisting of a franchise, during the term for which the franchise or the exclusive right is granted.

Letters patent are not to be regarded as monopolies, created by the executive authority at the expense and to the prejudice of all the community except the persons therein named as patentees, but as public franchises granted to the inventors of new and useful improvements for the purpose of securing to them, as such inventors, for the limited term therein mentioned, the exclusive right and liberty to make and use and vend to others to be used their own inventions, as tending to promote the progress of science and the useful arts, and as matter of compensation to the inventors for their labor, toil, and expense in making the inventions, and reducing the same to practice for the public benefit, as con-

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templated by the Constitution and sanctioned by the laws of Congress.

Five several letters patent were owned by the complainants when the present suit was commenced, and they allege in the bill of complaint that the respondents have infringed their exclusive rights as secured to them in each and every one of those letters patent. Four of the letters patent are reissued letters patent, and are numbered and described as follows: (1.) Reissued letters patent No. 4, dated January 1, 1861, for a new and useful improvement in harvesters, being one of a second reissue in two separate patents, on amended specifications, as more fully explained in the pleadings and the patents annexed to the printed record. (2.) Reissued letters patent No. 1682, dated May 31, 1864; also for a new and useful improvement in harvesters, being the second reissue from the before-mentioned reissue when the invention was divided into two parts. They both purport to be founded upon the original patent granted to Aaron Palmer and Stephen G. Williams, dated July 1, 1851, which was for a new and useful improvement in harvesters, and the reissued patents were fully extended for seven years from the expiration of the original term.

(3.) Reissued letters patent No. 72, dated May 7, 1861, being a reissue of one of three parts of a prior reissue of the original patent, dated July 8, 1851, which was granted to William H. Seymour for a new and useful improvement in reaping machines. (4.) Reissued letters patent No. 1683, dated May 31, 1864, being a reissue of another of the three parts of the prior reissue of that patent, as more fully explained in the pleadings; the charge being that the respondents have infringed the first claim. (5.) Superadded to those several charges against the respondents is the further one that they have also infringed certain original letters patent owned by the complainants, dated January 24, 1854, which secures to them, as assignees of Palmer and Williams, certain other new and useful improvements in grain harvesters besides those embodied in the several reissued letters patent to which reference has been made.

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Founded upon those several letters patent, the bill of complaint, which is drawn in the usual form, alleges that the respondents have unlawfully made, and used and vended to others to be used, the respective inventions therein described, and the complainants pray for an account and for an injunction. Service was made upon the respondents, and they appeared and filed an answer, setting up several defences to each of the patents described in the bill of complaint. Responsive to the answer the complainants filed the general replication, and the cause being at issue they put in evidence the five several letters patent on which the suit is founded, the respondents consenting that copies of the same, and of the respective certificates of extension mentioned in the pleadings, might be substituted in the record in the place of the originals as introduced in evidence.

Other proofs were introduced and the parties were fully heard, but the Circuit Court was of the opinion that the proofs introduced by the complainants were not sufficient to show any infringement of their rights, and accordingly entered a decree for the respondents, dismissing the bill of complaint. Dissatisfied with that conclusion the complainants appealed to this court and now seek to reverse that decree.

Separate defences having been set up in the answer to each of the five letters patent, it will be necessary to a clear understanding of the controversy and to prevent any misunderstanding as to the views of the court, to describe somewhat more fully the nature of the several inventions and the objects which they were designed to accomplish.

I. Explained in general terms, the invention secured in the first-mentioned reissued patent, numbered four, consists in arranging an automatic sweep-rake in a harvesting machine in such relation to a quadrant-shaped platform, upon which the cut grain falls as it is cut, that it shall vibrate over the same at suitable intervals to discharge the cut grain in gavels upon the ground.

Specific description is given, in the first place, of the frame of the machine, which, as represented, is composed

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of three longitudinal beams and two transverse beams securely fastened to each other at their points of intersection. Next follows a reference to the driving wheel, which, as represented, is placed between the outer longitudinal beam and the central beam, having its bearings on arched supports or brackets rising from each of the beams composing the frame. Guard fingers through which a sickle vibrates are secured upon the front edge of a platform shaped like a quadrant or sector of a circle, of which the arm or lever that carries the rake-head forms the radius, and the fulcrum-pin on which the arm or lever vibrates constitutes the centre, the whole operating so that the grain is swept round, on an arc of a circle, and discharged in gavels upon the ground behind the driving wheel.

Minute details of all the other elements of the machine are also given in the subsequent parts of the specifications, and of their modes of operation, and the specification concludes with the claim which, in substance, is discharging the cut grain from a quadrant-shaped platform on which it falls as it is cut, by means of an automatic sweep-rake vibrating over the same, substantially as described, which must be understood as referring back to the description contained in the body of the specification.

II. Two combinations are mentioned in the specification of the reissued letters patent No. 1682, but it is only necessary to refer to the first, as it is not alleged that the respondents have infringed the second claim. Described separately the ingredients of the first claim are as follows: (1.) The cutting apparatus to sever the standing stalks of grain. (2.) The quadrant-shaped platform arranged behind the cutting apparatus to receive the severed stalks of grain as they fall. (3.) The sweep-rake and the described mechanism to operate the same in such manner that the teeth shall move in circular curves over the platform when they are acting on the grain.

Reference must also be made to the other two reissued letters patent embraced in the pleadings. Both have respect to an improvement made in reaping machines, and they

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were both granted to secure material parts of an original invention once before surrendered and reissued because the letters patent were defective and inoperative. Before the term of the original patent expired the patents were extended for the further term of seven years.

III. Number seventy-two consists in constructing the platform of a reaping machine, upon which the cut grain falls as it is cut, in the shape of a quadrant, or of a sector of a circle, placed just behind the cutting apparatus, and in such relation to the main frame that the grain, whether raked off by hand or by machinery located behind the cutting apparatus, can be swept around on the arc of a circle and be dropped, heads foremost, on the ground far enough from the standing grain to leave room for the team and machine to pass between the gavels and the standing grain without the necessity of taking up the gavels before the machine comes round to cut the next swath.

IV. They also acquired title to the invention secured in the remaining reissued letters patent mentioned in the bill of complaint, to wit, number 1683; but it will be sufficient to refer to the first claim of the same, as the second is not the subject of controversy in this suit.

As described in the specification the ingredients of the first claim are the cutting apparatus to sever the stalks, the reel to incline the heads of the stalks towards the cutting apparatus, and the quadrant-shaped platform, located in the rear of the cutting apparatus, to receive the cut stalks as they fall before the operation of the sweep-rake begins.

Designed as the improvements were to accomplish the same object as the other two improvements previously described, the patentees or owners of the several letters patent elected to compromise rather than litigate, and the result was that the entire interest became ultimately vested in the appellants.

V. Patented improvements in the method of transferring motion from the driving wheel of a reaping machine to the rake on the platform of the machine, and in the method of hanging the reel so as to dispense with any post on the side

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of the machine next the grain, were also acquired by the appellants as a part of the same arrangement, and they charge in the bill of complaint that the second claim of the original letters patent, embodying that improvement, is also infringed by the respondents.

Power to grant letters patent is conferred by law upon the Commissioner of Patents, and when that power has been lawfully exercised, and a patent has been duly granted, it is of itself *primâ facie* evidence that the patentee is the original and first inventor of that which is therein described, and secured to him as his invention.*

Persons seeking redress for the unlawful use of letters patent, in which they have an interest, are obliged to allege and prove that they, or those under whom they claim, are the original and first inventors of the improvement embodied in the letters patent on which the suit is founded, and that the same have been infringed by the party against whom the suit is brought.

Undoubtedly the burden to establish both of those allegations is, in the first place, upon the party instituting the suit, as they lie at the foundation of every such claim, but the law is well settled that the letters patent in question, where they are introduced in evidence in support of the claim, if they are in due form, afford a *primâ facie* presumption that the first-named allegation is true, and the rule is equally well settled that that presumption, in the absence of satisfactory proof to the contrary, is sufficient to entitle the party instituting the suit to recover for the alleged violation of the exclusive rights secured to him in the letters patent.

Availing themselves of that rule of law the complainants in this case introduced the five several letters patent on which the suit is founded, and they contend, and well contend, that their effect as evidence is to cast the burden of proof upon the respondents to show that the respective patentees are not the original and first inventors of the im-

* White et al. v. Allen et al., 2 Clifford, 228.

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provements embodied in the several letters patent, as they have alleged in their answer.

Parties defendants, sued as infringers, are not allowed in an action at law to set up the defence of a previous invention, knowledge, or use of the thing patented, unless they have given notice of such a defence thirty days before the trial, and have stated in the notice "the names and places of residence of those whom they intend to prove to have possessed a prior knowledge of the thing, and where the same had been used;" and the settled practice in equity is to require the respondent, as a condition precedent to such defence, to give the complainant substantially the same information in his answer.*

Notices of the kind were given by the respondents in this case, but it will be more convenient to examine certain special defences set up in the answer before entering upon that inquiry, as the decree must be affirmed, in any event, if any one of those defences is well founded, whether the issues of novelty and of infringement are determined in favor of the complainants or respondents.

All of the special defences apply to the original patent, as well as to those which have been reissued, except such as are founded upon the acts or omissions of the commissioner in granting the reissues, which of course are not applicable to the former. They are eight in number, as exhibited in the answer, the respondents alleging in each that the letters patent are void and of no effect for the reasons therein set forth; and they will be briefly examined in the order in which they are pleaded.

1. That the letters patent are void and of no effect because the patentees did not make oath, before the patents were granted, that they did verily believe that they were the original and first inventors of the improvements for which the letters patent were solicited.

Congress possesses the power to pass laws to secure to inventors, for limited times, the exclusive right to their in-

* *Agawam Co. v Jordan*, 7 Wallace, 596; *Teese v. Huntingdon*, 23 Howard, 10.

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ventions, and Congress, in pursuance of that article of the Constitution, has conferred the power to grant letters patent for that purpose upon the Commissioner of Patents. Persons who have made an invention, and who desire to obtain an exclusive property therein, may make application in writing to the Commissioner of Patents, and the provision is that the commissioner, on due proceedings had, may grant a patent for the said invention.

Inventors of machines are required, before they receive a patent, to deliver a written description of their inventions, and of the manner and process of making, constructing, and using the same, in such "full, clear, and exact terms" as to enable any person skilled in the art or science to make, construct, and use the same, and fully to explain the principle by which the invention may be distinguished from others of like kind; and they are also required to specify and point out the part, improvement, or combination which they claim as their invention.

Doubtless these several requirements may be regarded as conditions precedent to the right of the commissioner to grant the application, as they must appear on the face of the letters patent, and are always open to legal construction as to their sufficiency.

Drawings are also required in certain cases, and where the invention is such that it may be represented by a model, the applicant for a patent is required to furnish a model of the same; and the further requirement is that he shall make oath or affirmation that he does verily believe that he is the original and first inventor of the improvement for which he solicits a patent, and that he does not know that the same was ever before known or used.

Importance, it is conceded, must be attached to the latter requirement, but it is certain that the oath or affirmation may be taken elsewhere than before the commissioner, as the same section provides that it "may be made before any person authorized by law to administer oaths."*

* 5 Stat. at Large, 119.

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Extended examination of the question, however, is unnecessary, as every one of the letters patent on which the suit is founded contains the recital that the required oath was taken before the same was granted, and the court is of the opinion that those recitals, in the absence of fraud, are conclusive evidence that the necessary oaths were taken by the applicants before the letters patent were granted.

2. That the letters patent are void and of no effect because the patentees did not specify and point out in their specifications and claims the parts, improvements, or combinations which they claim as their respective inventions.

Grant the theory of fact assumed in the proposition and the conclusion would follow, but the whole theory of the proposition as applied to the present case is founded in error.

Inventions secured by letters patent sometimes, though rarely, embrace an entire machine, and in such cases it is sufficient if it appear that the claim is coextensive with the invention. Other inventions embrace only one or more parts of a machine, as the coulter of a plough, or the divider or sweep-rake of a reaping machine; and in such cases the part or parts claimed must be specified and pointed out so that constructors, other inventors, and the public may know how to make the invention, and what is withdrawn from general use.

Patented inventions are also made which embrace both a new ingredient and a combination of old ingredients embodied in the same machine. Even more particularity of description is required in such a case, as the property of the patentee consists, not only in the new ingredient, but also in the new combination, and it is essential that his invention shall be so fully described that others may not be led into mistake, as no other person can lawfully make, use, or vend a machine containing such new ingredient or such new combination. They may make, use, or vend the machine without the patented improvements, if it is capable of such use, but they cannot use either of those improvements without making themselves liable as infringers.

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Improvements in machines protected by letters patent may also be mentioned, of a much more numerous class, where all the ingredients of the invention are old, and where the invention consists entirely in a new combination of the old ingredients, whereby a new and useful result is obtained, and many of them are of great utility and value, and are just as much entitled to protection as those of any other class.*

Such a combination is sufficiently described if the ingredients of which it is composed are named, their mode of operation given, and the new and useful result to be accomplished pointed out, so that those skilled in the art and the public may know the extent and nature of the claim, and what the parts are which co-operate to produce the described new and useful result. Tested by these rules, it is clear that the objection under consideration cannot prevail in respect to any one of the several letters patent on which the suit is founded.

3. That the reissued letters patent are void and of no effect, because the Commissioner of Patents never obtained jurisdiction to receive the surrender of the originals, nor to grant the reissues, as no evidence was produced before him to show that the originals were inoperative or invalid for any reason or cause whatsoever.

Whenever any patent is inoperative or invalid, by reason of a defective or insufficient description or specification, if the error arose by inadvertency, accident, or mistake, and without any fraudulent or deceptive intention, it is lawful for the commissioner, upon the surrender to him of such patent, and of the payment to him of a certain duty, to cause a new patent to be issued to the inventor *for the same invention* for the residue of the term then unexpired, in accordance with the patentee's corrected description and specification.†

Whether adjudged to be valid or invalid, it is clear that

* *Union Sugar Refinery v. Matthiessen*, 2 Fisher's Patent Cases, 605.

† 5 Stat. at Large, 122.

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the several reissued letters patent are all in due form, and that they contain all the usual recitals asserting a compliance with the requirements specified in the patent act, and it is equally certain that the respondents did not introduce any proofs to establish the theory of fact assumed in the answer.

Authority to accept the surrender of original patents in certain cases, and to grant new patents to the inventor, was conferred upon the commissioner by the act of the 3d of July, 1832, and in a case arising under that act it was held by this court, more than thirty years ago, that where an act was to be done or a patent granted, upon proofs to be laid before a public officer, upon which he was to decide, the fact that such public officer had done the act or granted the patent was *prima facie* evidence that the proofs had been regularly made, and that they were satisfactory, even though the patent did not contain any recitals that the prerequisites to the grant had been fulfilled; and such continued to be the rule until the question came up again for consideration under the existing patent act, when it was held by this court that the fact of the granting of the reissued patent closed all inquiry into the existence of inadvertence, accident, or mistake, and left open only the question of fraud for the jury.*

Since that time it has been definitively settled that neither reissued nor extended patents can be abrogated by an infringer, in a suit against him for infringement, upon the ground that the letters patent were procured by fraud in prosecuting the application for the same before the commissioner.†

Where the commissioner accepts a surrender of an original patent and grants a new patent, his decision in the premises, in a suit for infringement, is final and conclusive, and is not re-examinable in such a suit in the Circuit Court, unless it is apparent upon the face of the patent that he has exceeded his authority, that there is such a repugnancy be-

* *Railroad v. Stimpson*, 14 Peters, 458; *Stimpson v. Railroad*, 4 Howard, 384; 4 Stat. at Large, 559.

† *Rubber Company v. Goodyear*, 9 Wallace, 797; S. C., 2 Clifford, 375.

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tween the old and the new patent that it must be held, as matter of legal construction, that the new patent is not for the same invention as that embraced and secured in the original patent.*

4. That the reissued letters patent are void and of no effect because they were not granted for the same invention as that embodied in the original letters patent, nor for any invention made by the patentees before the original letters patent were granted.

Reissued letters patent must, by the express words of the section authorizing the same, be *for the same invention*, and consequently where it appears on a comparison of the two instruments, as matter of law, that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid, as that state of facts shows that the commissioner, in granting the new patent, exceeded his jurisdiction. Power is unquestionably conferred upon the commissioner to allow the specification to be amended if the patent is inoperative or invalid, and in that event to issue the patent in proper form; and he may, doubtless, under that authority, allow the patentee to re-describe his invention and to include in the description and claims of the patent not only what was well described before but whatever else was suggested or substantially indicated in the specification or drawings which properly belonged to the invention as actually made and perfected. Interpolations of new features, ingredients, or devices, which were neither described, suggested, nor indicated in the original patent, or patent office model, are not allowed, as it is clear that the commissioner has no jurisdiction to grant a reissue unless it be for the same invention as that embodied in the original letters patent, which necessarily excludes the right on such an application to open the case to new parol testimony and a new hearing as to the nature and extent of the improvement, except in certain special cases, as provided in

* *Battin v. Taggart*, 17 Howard, 83; *O'Reilly v. Morse*, 15 Id. 111, 112; *Sickles v. Evans et al.*, 2 Clifford, 222; *Allen v. Blunt*, 3 Story, 744.

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a recent enactment not applicable to the case before the court.*

Corrections may be made in the description, specification, or claim where the patentee has claimed as new more than he had a right to claim, or where the description, specification, or claim is defective or insufficient, but he cannot under such an application make material additions to the invention which were not described, suggested, nor substantially indicated in the original specifications, drawings, or patent office model.

Prior to the decision of this court that a person sued as an infringer cannot abrogate a reissued or extended patent by showing that the commissioner had been induced to grant it by fraudulent representations, it had sometimes been supposed that every such new patent was open to that defence and that the question was one of fact dependent upon evidence, but since it has been determined that such a party cannot be heard to make such a defence to the charge of infringement, it has come to be regarded as the better opinion that all matters of fact involved in the hearing of an application to reissue a patent, and in granting it, are conclusively settled by the decision of the commissioner granting the application. Matters of construction arising upon the face of the instrument are still open, but all matters of fact connected with the surrender and reissue are closed in such a suit by the decision of the commissioner in granting the reissued patent.†

Letters patent reissued for an invention substantially different from that embodied in the original patent are void and of no effect, as no jurisdiction to grant such a patent is conferred by any act of Congress upon the commissioner, and he possesses no power in that behalf except what the acts of Congress confer. Whether a reissued patent is for the same invention as that embodied in the original patent

* 16 Stat. at Large, 206; *Cahart et al. v. Austin*, 2 Clifford, 536; *Curtis on Patents* (3d ed.), 276; *Woodworth v. Stone*, 3 Story, 753.

† *Rubber Co. v. Goodyear*, 9 Wallace, 796; *Stimpson v. Railroad*, 4 Howard, 404; *Railroad v. Stimpson*, 14 Peters, 458.

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or for a different one is a question for the court in an equity suit to be determined as a matter of construction, on a comparison of the two instruments, aided or not by the testimony of expert witnesses, as it may or may not appear that one or both may contain technical terms or terms of art requiring such assistance in ascertaining the true meaning of the language employed.*

Where the specification and claim, both in the original and reissued patents, are expressed in ordinary language, without employing any technical terms or terms of art, the question whether the reissued patent is for the same invention as that described in the original patent or for a different one is purely a question of construction, but where both or either contain technical terms or terms of art the court may hear the testimony of scientific witnesses to aid the court in coming to a correct conclusion. Cases doubtless arise where the language of the specification and claim, both of the surrendered and reissued patents, is so interspersed with technical terms and terms of art that the testimony of scientific witnesses is indispensable to a correct understanding of its meaning. Both parties in such a case would have a right to examine such witnesses, and it would undoubtedly be error in the court to reject the testimony, but the case before the court is not of a character to render it expedient to pursue the inquiry.†

Apply the rule to the present case, that the question is one of construction, and it is clear that the defence under consideration is not open to the respondents, as they did not introduce in evidence the original letters patent from which the reissued patents were derived.

Persons owning reissued letters patent, and seeking redress from those who have invaded their exclusive rights, are not obliged to introduce in evidence the surrendered patent, and, if the old patent is not introduced by the party sued, he cannot have the benefit of such a defence.

* Sickles v. Evans et al., 2 Clifford, 203.

† Bischoff v. Wethered, 9 Wallace, 814; Betts v. Menzies, 4 Best & Smith, Q. B. 939.

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5. That the several letters patent are void and of no effect because the claims therein patented are for an effect, and not for any particular machinery.

Founded, as the defence is, upon an obvious misconstruction of the claims of the several patents, it does not seem to require much explanation. Omit the words "substantially as described," or "substantially as set forth," and the question presented would be a very different one, but inasmuch as those words, or words of equivalent import, are employed in each of the claims, the defence is without merit. Where the claim immediately follows the description of the invention it may be construed in connection with the explanations contained in the specifications, and where it contains words referring back to the specifications, it cannot properly be construed in any other way.*

6. That the several reissued letters patent are void and of no effect because the claims therein made are too broad and embrace that of which the patentees were not the original and first inventors prior to the granting of the original letters patent.

Properly understood the defence is substantially the same as that set up in the fourth defence, and it must be overruled for the same reasons, which need not be repeated.

7. That the several letters patent are void and of no effect because what is claimed therein as new was in public use, with the consent and allowance of the original patentees, more than two years before they applied for the several patents.

Such a defence set up in a case where the complainants file the general replication is of no avail unless sustained by proof, and the respondents did not introduce any proofs to sustain it, which is all that need be said upon the subject.

8. That the combination claimed in each of the several letters patent is a combination of old parts, the combining of which involved no invention, but merely the skill of an intelligent mechanic or other person skilled in the manufacture and use of harvesting machines.

* Curt's on Patents (3d ed.), secs. 225-227.

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Reduced to a proposition the defence, as set up in the answer, is that the several improvements were old and not patentable on that account, as no improvements were made which required invention. Specific objection is made under this head to each of the four reissued letters patent, but the grounds of the several objections are substantially the same, so that the several propositions may be considered together.

New and useful machines are the proper subjects of an application for a patent, and so, by the express words of the act of Congress, are new and useful improvements on any machine. All of the patents embraced in the suit fall under the second clause of the provision, and are of the fourth class of patents before described, that is, they consist of a new combination of old elements whereby a new and useful result is obtained.

Particular changes may be made in the construction and operation of an old machine so as to adapt it to a new and valuable use not known before, and to which the old machine had not been, and could not be, applied without those changes, and, under those circumstances, if the machine, as changed and modified, produces a new and useful result, it may be patented, and the patent will be upheld under existing laws.*

Such a change in an old machine may consist merely of a new and useful combination of the several parts of which the old machine is composed, or it may consist of a material alteration or modification of one or more of the several devices which entered into its construction, and whether it be the one or the other, if the change of construction and operation actually adapts the machine to a new and valuable use not known before, and it actually produces a new and useful result, then a patent may be granted for the same, and it will be upheld as a patentable improvement.†

Improvements for which a patent may be granted must

* *Bray v. Hartshorn*, 1 Clifford, 541; *Losh v. Hague*, 1 Webster's Patent Cases, 207; *Hindmarsh on Patents*, 95; *Phillips v. Page*, 24 Howard, 166; *Norman on Patents*, 25.

† *Park v. Little*, 3 Washington Circuit Court, 196.

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be new and useful, within the meaning of the patent law, or the patent will be void, but the requirement of the patent act in that respect is satisfied if the combination is new and the machine is capable of being beneficially used for the purpose for which it was designed, as the law does not require that it should be of such general utility as to supersede all other inventions in practice to accomplish the same object.*

Unsuccessful in those defences the respondents in the next place attack the respective inventions as destitute of originality, and allege that the patentees were not the original and first inventors of the several improvements supposed to be secured in the letters patent. Separate defences of the kind are set up in the answer to each of the letters patent, but the nature and character of the objections are such that the whole series may properly be considered together.

Prior notice in the answer is required in such a case as a condition precedent to the right to introduce proofs to support such a defence, and it is certainly proper that the respondent should be allowed to comply with that requirement, but it is an abuse of the privilege to give such notices without some reason to suppose that such a defence can successfully be made, and that the proofs, if required, can be obtained, as it exposes the complainant to unnecessary expense and trouble in preparing his case for trial. Where no proofs were introduced in support of the answer no mention will be made of the notices, as a notice without proof to support it is of no avail.

Out of all the alleged prior inventions set up in the answer, only four were made the subject of proof to any substantial extent. Two of these are the inventions of Obed Hussey and of Thomas D. Burral, of the combination of the quadrant-shaped platform located behind the cutting apparatus. Those patents were introduced as tending more particularly

* *Lowell v. Lewis*, 1 Mason, 182; *Bedford v. Hunt*, Id. 302; *Many v. Jagger*, 1 Blatchford, 372; *Barrett v. Hall*, 1 Mason, 447.

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to supersede the reissued patent number seventy-two, before described.

Strong doubts are entertained whether any of the patents given in evidence by the respondents as superseding the particular patent of the complainants, involved in this issue, are of a character to have that effect, even if the inventions which they purport to secure were of prior date, but it is not absolutely necessary to decide that point, except as to one of the exhibits, as the court is of the opinion that none of the others antedate the invention secured in that patent. Conclusions are all that will be useful on this branch of the case, especially as the question is one of fact dependent upon the proofs, which are somewhat conflicting, and where a full analysis of the evidence would hardly be practicable, as it would extend the opinion to an unreasonable length.

Proofs entirely satisfactory to the court are exhibited by the complainants showing that their invention, as described in the patent in question, was perfected early in the summer of 1849, as a material part of a harvesting machine, and that the same was reduced to practice as an operative machine during the harvesting season of that year.

Hussey, from 1839 or earlier to the time of his death, in the summer of 1860, was much engaged in the manufacture of reaping machines of various kinds. Most of his machines, however, were constructed without any reel and with square platforms, so as to drop the cut grain at the rear of the platform, differing so widely from the patented machine of the complainants as to require no argument to show that they afford no support to the present defence. Other machines were constructed by him with a straight guide-board on the platform, which was adjustable within certain limits, and the apparatus was doubtless capable, to a limited extent, of causing the cut grain to be moved sufficiently out of the path of the machine to give room for a single team.

Evidence to show that the invention of the complainants is embodied in those machines is entirely wanting, and it is quite clear that if any such had been introduced it could not have been credited, as the differences between them are too

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palpable and material to be overcome by parol evidence. Machines were also made by him with two platforms, or with a platform in two parts, the one being attached to the rear of the other, but it required two men to do the work which, with the complainants' machine, is easily and much better accomplished by one, which is certainly all the explanation which need be given of those machines in the present case.

Apart from these he also made one experimental machine, with a square platform, to which was bolted an angular addition, giving the whole, when the addition was attached, an angular form. Examined when the addition is bolted to the main platform, irrespective of the other ingredients of the combination, it approaches much nearer to the invention of the complainants than any of the other exhibits introduced in evidence by the respondents. Conceding all that, still it would not be difficult to show that the two are substantially different in several respects; but it is unnecessary to enter that field of inquiry, as the proofs are entirely satisfactory to the court, that the machine, as constructed, was merely an experiment, and that it was never reduced to practice as an operative machine. Undoubtedly it was built in the autumn of 1848, subsequent to the close of the harvest season; but the respondents' testimony shows that it was not used for cutting grain during that harvesting season.

Some obscurity surrounds its early history, nor is it of much importance that it should be better known. It appears that it was sent to the railroad depot to be transported to some other place for trial; but there is no positive evidence that it was ever forwarded or used, or that it was capable of any beneficial use. Where it was transported, if at all, from the depot, does not appear; but it does appear that it was returned the next year to the shop of the maker, and that it was set against the wall by the side of the street, in front of the shop, where it remained for some time; that it was then removed to the new shop of the maker, where it remained until it was taken to pieces and broken up by his order, and never restored till long subsequent to the complainants' patent.

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Original and first inventors are entitled to the benefit of their inventions if they reduce the same to practice, and seasonably comply with the requirements of the patent law in procuring letters patent for the protection of their exclusive rights. Crude and imperfect experiments are not sufficient to confer a right to a patent; but in order to constitute an invention, the party must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form.

Desertion of an invention consisting of a machine, never patented, may be proved by showing that the inventor, after he had constructed it, and before he had reduced it to practice, broke it up as something requiring more thought and experiment, and laid the parts aside as incomplete, provided it appears that those acts were done without any definite intention of resuming his experiments, and of restoring the machine with a view to apply for letters patent.*

He is the first inventor in the sense of the patent law, and entitled to a patent for his invention, who first perfected and adapted the same to use, and it is well settled that until the invention is so perfected and adapted to use it is not patentable under the patent laws.†

Argument is hardly necessary to show that nothing else introduced in evidence by the respondents as having been constructed by that inventor is of a character to interfere, in any substantial respect, with the novelty of the invention held by the complainants, as the weight of the evidence plainly tends to disprove the allegations of the answer, and the inferences to be drawn from a comparison of the exhibits would establish the opposite theory even if the other proofs were less decisive to that effect.

Prior invention by Thomas D. Burrall is the next defence set up by the respondents to the particular patent under consideration. They attempt to show that he constructed a

* *Johnson v. Root*, 2 Clifford, 123; *Gayler v. Wilder et al.*, 10 Howard, 438; *Parkhurst v. Kinsman*, 1 Blatchford, 494; *White et al. v. Allen et al.*, 2 Clifford, 230.

† *Washburn v. Gould*, 3 Story, 122; *Cahoon v. Ring*, 1 Clifford, 612.

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harvesting machine having a square platform, to which he attached an apron, quadrant formed, which would deliver the cut grain, heads foremost, at the side of the machine and out of the way of the team in cutting the next swath.

Concede the fact that the machine, together with the circular apron, was constructed by the person named as alleged, and that the machine in that form antedates the invention held by the complainants, still the court is of the opinion that it is not of a character to defeat the complainants' patent, as it had no reel, was not a self-raker in any view of the case, and consisted beyond doubt of a substantially different combination. Compared with that, the invention described in the complainants' patent is both new and useful, and is plainly sufficient to support a patent as a new arrangement.

Suppose it to be otherwise, still the conclusion as to this defence must be the same, as the court is unhesitatingly of the opinion from the proofs that the supposed inventor did not construct the circular apron, and attach the same to the square platform, and use the two in conjunction until after the complainants' invention was perfected and reduced to practice as an operative machine.

Evidence was also introduced by the respondents respecting the invention of Nelson Platt, but extended discussion upon that topic is unnecessary, as it is hardly contended by the respondents that the machine contains a quadrant-shaped platform with, and immediately behind, the cutting apparatus, and in such relation to the main frame as that described in the specification of the complainants' patent. They appear to shrink from that proposition, which is the only one involved in this defence, and seek shelter under another, of a very different character, which is that the difference between the two is so very slight that it required no invention to pass from the former to the latter, which is a matter appertaining to another head of the defence that has previously been fully considered and the point distinctly overruled.

Properly understood, that machine does not contain a combination of the quadrant-shaped platform with the cutting apparatus in any practical sense. On the contrary, it

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has a square platform combined with the cutting apparatus, and the quadrant-shaped platform is combined with the square platform; nor does it contain any quadrant-shaped platform to receive the grain as it falls, but the ingredients of the invention, as well as the combination, are different from those in the complainants' machine, and the mode of operation is also different, which is all that need be said in response to that defence.

Substantially the same defences were also set up to the other reissued letters patent, to the extent that those patents were put in issue in the pleadings, but it will not be necessary to restate the objections to their originality nor to present any response to the same, as to do so would only be to repeat what has been said in respect to the one more particularly assailed in argument.

Attempt is also made to show that the original letters patent described in the bill of complaint are also invalid, because the patentees are not the original and first inventors of the improvements therein secured. Whether they were or were not the original and first inventors of the improvement in the first claim is a matter of no importance in this case, as the pleadings do not put that claim in issue. They only put in issue the second claim, which embodies the described method of hanging the reel so as to dispense with any post or reel-bearer next to the standing grain, to prevent the grain from getting caught between the divider and the reel-supporter, and the only evidence introduced of prior invention is what is contained in an article published in London, in the *Mechanics' Magazine*. Expert witnesses were examined in respect to it by both sides. One examined by the respondents testified that he did not understand that it had any reel-support on the grain side of the machine, which in that respect is like the machine of the complainants, but three expert witnesses examined by the complainants testify that neither the description nor the drawings of the same, as exhibited in that magazine, show anything which is embodied in the complainants' patent, and the court is of the same opinion.

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Patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. Mere vague and general representations will not support such a defence, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. Whatever may be the particular circumstances under which the publication takes place, the account published, to be of any effect to support such a defence, must be an account of a complete and operative invention capable of being put into practical operation.*

None of these defences, however, were sustained in the court below, but the circuit judges were of the opinion that the proofs failed to show that the respondents had infringed the letters patent of the complainants.

Actual inventors of a combination of two or more ingredients in a machine, secured by letters patent in due form, are entitled, even though the ingredients are old, if the combination produces a new and useful result, to treat every one as an infringer who makes and uses or vends the machine to others to be used without their authority or license.†

They cannot suppress subsequent improvements which are substantially different, whether the new improvements consist in a new combination of the same ingredients, or of the substitution of some newly-discovered ingredient, or of some old one, performing some new function not known at

* Webster's Patent Cases, 719; Curtis on Patents (3d ed.), § 278, a; Hill v. Evans, 6 Law Times, N. S. 90; Betts v. Menzies, 4 Best & Smith, Q. B. 999.

† Pitts v. Whitman, 2 Story, 619; Ames v. Howard, 1 Sumner, 487

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the date of the letters patent, as a proper substitute for the ingredient withdrawn from the combination constituting their invention. Mere formal alterations in a combination in letters patent, however, are no defence to the charge of infringement, and the withdrawal of one ingredient from the same and the substitution of another which was well known at the date of the patent as a proper substitute for the one withdrawn, is a mere formal alteration of the combination if the ingredient substituted performs substantially the same function as the one withdrawn.

Patentees, therefore, are entitled in all cases to invoke to some extent the doctrine of equivalents, but they are never entitled to do so in any case to suppress all other substantial improvements, and the rule which disallows such pretensions, if properly understood and limited, is as applicable to the inventor of a device, or even of an entire machine, as to the inventor of a mere combination, except that the inventor of the latter cannot treat any one as an infringer whose machine does not contain all of the material ingredients of the prior combination, as in that state of the case the subsequent invention is regarded as substantially different from the former one, unless the latter machine employs as a substitute for the ingredient left out to perform the same function some other ingredient which was well known as a proper substitute for the same when the former invention was patented.*

Bonâ fide inventors of a combination are as much entitled to suppress every other combination of the same ingredients to produce the same result, not substantially different from what they have invented and caused to be patented, as any other class of inventors. All alike have the right to suppress every colorable invasion of that which is secured to them by their letters patent, and it is a mistake to suppose that this court ever intended to lay down any different rule of decision. Guided by these rules the remaining question for the determination of the court is whether the respond-

* *Prouty v. Ruggles*, 16 Peters, 341; *Johnson v. Root*, 2 Clifford, 123.

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ents have infringed the several patents described in the bill of complaint.

Infringement is alleged by the complainants, and the burden is upon them to prove the allegation, as it imputes a wrongful act to the respondents. All controversy as to the character of the machines made and sold by the respondents is closed by their admission set forth in the record. Exhibit six, it is conceded by the respondents, is an accurate representation of the machines which they made and sold, and the complainants accept the admission as correct. Absolute certainty, therefore, attends that inquiry, and there is very little, if any, more difficulty in ascertaining the construction of the patented machines made and furnished to the public by the complainants, so that the only substantial inquiry is whether the machines made and sold by the respondents infringe the patented machines of the complainants, as the latter embody all the inventions of the complainants, except the claims pointed out as not infringed, and the proofs satisfy the court that the exhibits are constructed in accordance with the mechanism described in the several letters patent.

Properly construed the reissued patent number four is the combination of a quadrant-shaped platform located behind the cutting apparatus of the harvester so as to receive the grain as it falls after it is cut, with an automatic sweep-rake so constructed as to sweep over the platform in circular curves, and to move forward and backward, or towards and from the cutting apparatus, so as to seize upon the grain as it falls, after being cut, sweeping it over the platform in circular curves and delivering it upon the ground behind the machine with its stalks at right angles, or nearly so, with the line of progression of the machine, and to return by a forward movement towards the cutting apparatus to the original position when the first operation commenced.

Number 1682 is divided into two parts, the first of which may be used without the second, and it is not charged that the second part has been infringed by the respondents. Briefly described it consists of a combination of the cutting apparatus of a harvester with a quadrant-shaped platform

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arranged in the rear thereof, and with a sweep-rake operated by mechanism in such a manner that its teeth are caused to sweep over the platform in curves when acting on the grain and to discharge the stalks crosswise to the direction of the swath and out of the way of the team on the return of the machine.

Two combinations are also contained in the reissued patent 1683, but the respondents are not charged with infringing the second, so that it is only necessary in this connection to refer to the first and describe its operation. It consists of a combination of the cutting apparatus with a reel and with a quadrant-shaped platform located in the rear of the cutting apparatus, operating as follows: The cutting apparatus severing the grain, the reel bearing the grain against the cutting apparatus and insuring its delivery upon the quadrant-shaped platform in the rear thereof, and the quadrant-shaped platform receiving the grain from the cutting apparatus and reel, and supporting it in such a manner that it can be moved from the cutting apparatus, heads foremost, swept round in a curve and discharged upon the ground crosswise to the direction of the swath and out of the track of the horses when the machine comes round to cut the next swath.

Patent numbered seventy-two is also an arrangement of the quadrant-shaped platform immediately behind the cutting apparatus of a reaping machine, so that the platform will receive the grain as it falls from the cutting apparatus, and will support it in such a manner that it may be swept round in a curvilinear path and discharged, heads foremost, upon the ground at the side of the platform out of the path of the horses when they return.

Reference will only be made to the second part of the original patent embraced in the suit, as it is not charged that the respondents have infringed the other claim. Separated from the second claim the first consists in a mode of hanging the reel in a reaping machine so as to dispense with any post or reel-bearer on the side next to the standing grain, without any projection of the reel-shaft or bearing

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therefor on that side of the machine, so that the reel overhangs the bearings on the one side and is without support on the other side.

Prior to the act of Congress allowing several patents to be issued for distinct and separate parts of the thing patented, it is not probable that a bill of complaint joining five several patents in the same charge of infringement would have escaped objection from the respondent, but it will be noticed that all the claims appertain to the same general subject, and that it requires all of the inventions in question to constitute a complete self-raking harvester or reaping machine, and that they are all embodied in the machines which the complainants make and furnish to the public. Viewed in that light the court is of the opinion that the objection, if it had been made, could not have been sustained.*

Where the invention or inventions are embodied in a machine the question of infringement is best determined by a comparison of the machine made by the respondent with the mechanism described in the complainant's patent or patents, where more than one is embraced in the same suit.†

Comparisons of the kind have been carefully made by the court, aided by the evidence of the expert witnesses, as exhibited in the record, and the court is of the opinion that the several inventions of the complainants, excepting the claims pointed out as not infringed, are embodied in the machines made and sold by the respondents. Two of the expert witnesses testify to that effect without qualification, and the reasons which they assign for that conclusion are, in the opinion of the court, decisive of the question. Some attempt was made in the cross-examination of those witnesses to elicit an answer that the sweep-rake employed by the respondents operated differently from the corresponding device of the complainants in the several reissued patents, but the attempt was wholly unsuccessful, and called forth explanations which confirm the conclusion that the two devices have substantially the same operation.

* 5 Stat. at Large, 192.† *Blanchard v. Putnam*, 8 Wallace, 426.

Syllabus.

Special reference is made in the opinion of the district judge to the means employed by the respondents in supporting the reel, as showing that the machines which they have made and sold do not infringe the second claim of the original patent. His view is that their machines do not infringe that claim because they do not employ but one reel-post instead of two, as shown in the complainants' patent, but it is so obvious that the one post with the frame attached to the upper end is substantially the same thing that it is not deemed necessary to pursue the argument.

For these reasons we are all of the opinion that the complainants are entitled to a decree that their several patents are valid, and for an account and for a perpetual injunction, except as to such, if any, as have expired.

DECREE REVERSED with costs, and the cause remanded for further proceedings

IN CONFORMITY TO THE OPINION OF THE COURT.

HALLIDAY v. HAMILTON.

A. in St. Louis having a standing agreement with B. & Co., in New Orleans, to ship produce to them, drawing against the shipments—the balance of any draft on one shipment not discharged by its proceeds, to be paid from the proceeds of any other shipment—bought of C., residing at Cairo, on the Mississippi, a hundred miles and more below St. Louis, a specific number of sacks of corn, then lying at a landing on the river somewhat above Cairo, though much below St. Louis, and received an order for its delivery. He did not pay for it, though the transaction was impliedly one for cash. A. delivered his order to the agents of a steamer at St. Louis, then about to go down the river to New Orleans. These gave to him a regular bill of lading, agreeing to deliver the specified number of sacks of corn to B. & Co., in New Orleans. On the same day A. drew his bill of exchange on B. & Co., in New Orleans, telling them to charge the draft to the account of this specific shipment; and attaching to his bill of exchange, the bill of lading thus received, sold the draft in the market. Being forwarded, it was paid at maturity by B. & Co., in New Orleans; they having had no notice of any difficulty. They were at the time in advance to A. on account of other shipments. The steamer set off on her voyage, and stopping at