

HYNDMAN *v.* ROOTS.

This case involves merely questions of fact; and the court finds that letters-patent No. 106,165, granted Aug. 9, 1870, to William G. Hyndman, for an "improvement in rotary blowers," infringe the first, second, third, and fourth claims of reissued letters-patent No. 3570, granted July 27, 1869, to P. H. Roots and F. M. Roots, for an "improvement in cases for rotary blowers," upon the surrender of original letters No. 80,010, dated Aug. 11, 1868.

APPEAL from the Circuit Court of the United States for the Southern District of Ohio.

The facts are stated in the opinion of the court.

The drawings of the machines of the respective parties therein referred to are as follows:—

P. H. & F. M. Roots.

ROTARY BLOWER CASE.

Reissued July 27, 1869.

No. 3570.

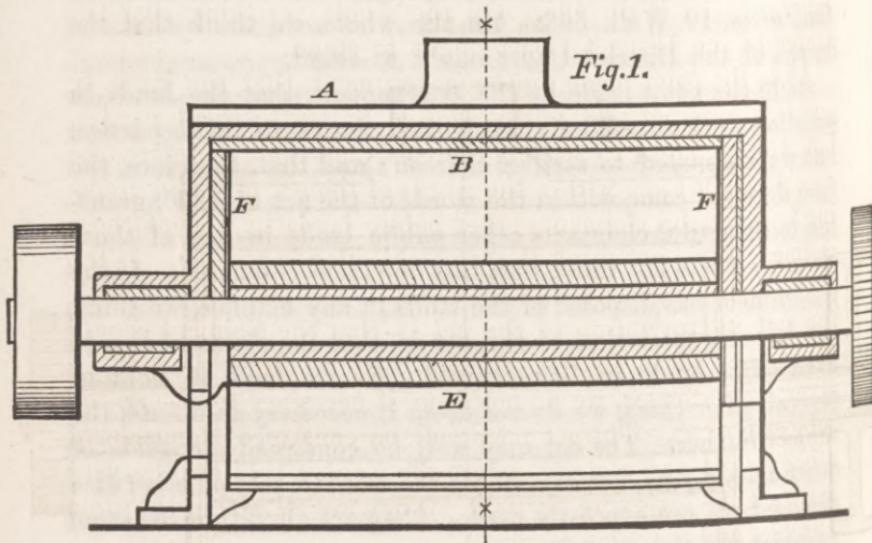
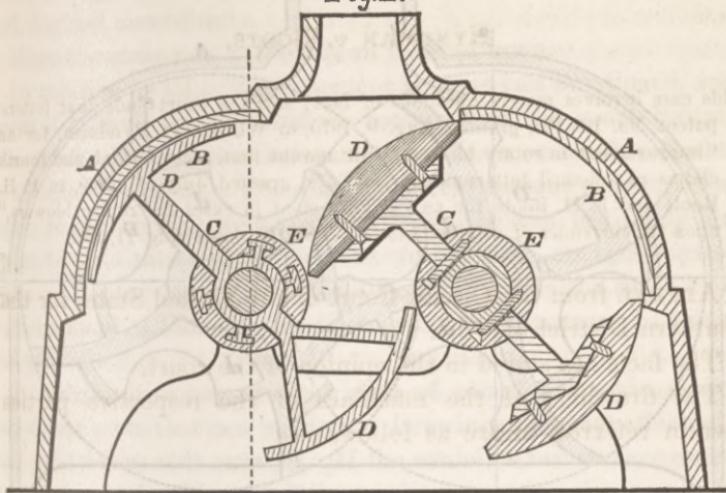
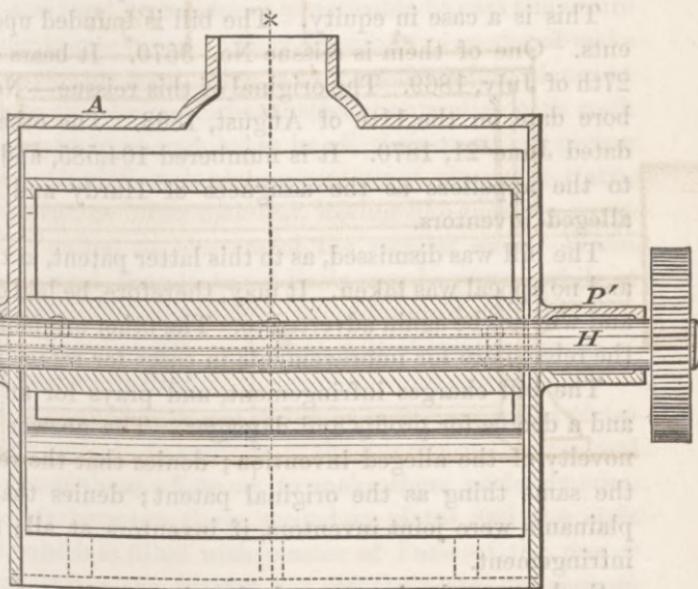


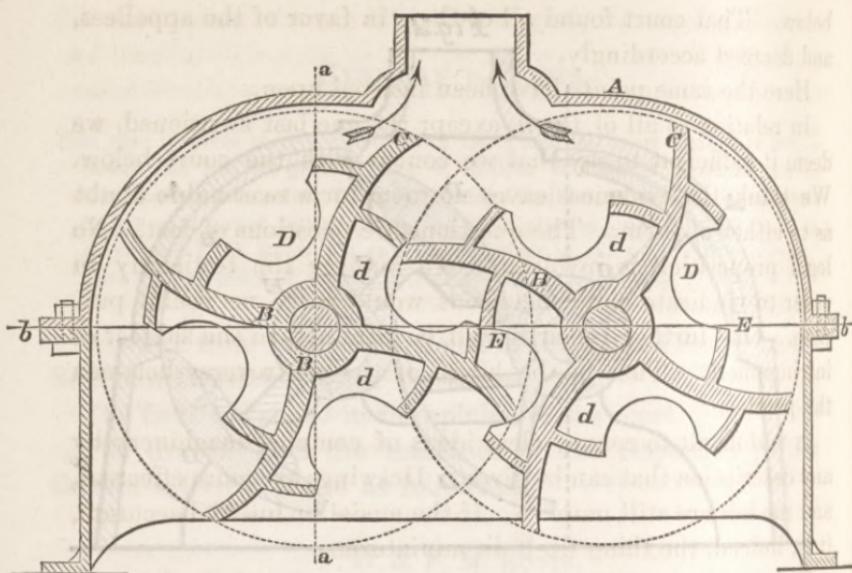
Fig. 2.



W. G. HYNDMAN.
ROTARY BLOWER.
 Patented Aug. 9, 1870.

No. 106,165.





Mr. E. E. Wood for the appellant.

Mr. James Moore, contra.

MR. JUSTICE SWAYNE delivered the opinion of the court.

This is a case in equity. The bill is founded upon two patents. One of them is reissue No. 3570. It bears date on the 27th of July, 1869. The original of this reissue—No. 81,010—bore date on the 11th of August, 1868. The other patent is dated June 21, 1870. It is numbered 104,585, and was issued to the appellees as the assignees of Hardy and Wood, the alleged inventors.

The bill was dismissed, as to this latter patent, at the hearing, and no appeal was taken. It may, therefore, be laid out of view, and will not be again adverted to. The other original patent and the reissue are for improvements in cases for rotary blowers.

The bill charges infringement, and prays for an injunction and a decree for profits and damages. The answer denies the novelty of the alleged invention; denies that the reissue is for the same thing as the original patent; denies that the complainants were joint inventors, if inventors at all; and denies infringement.

Such were the issues made by the appellant in the court

below. That court found all of them in favor of the appellees, and decreed accordingly.

Here the same points have been insisted upon.

In relation to all of them, except the one last mentioned, we deem it sufficient to say that we concur with the court below. We think the evidence leaves no room for a reasonable doubt as to either of them. The questions are questions of fact. No legal proposition is involved. To analyze the testimony in order to vindicate our conclusions would serve no useful purpose. Our further remarks will be confined to the subject of infringement. That is the hinge of the controversy between the parties.

It is difficult to convey clear ideas of complex machinery by any description that can be given. Drawings are more effectual, and models are still more so. If the model be full and accurate, it is, indeed, the thing itself in miniature.

The appellees, as the case is before us, confine their claims to improvements in the shell or case of blowers. The internal mechanism is in no wise in question. They say the objects of their invention were to avoid the necessity of boring out the interior concave surfaces of the case, and of facing off or planing the head-plates, and to render it practicable to cast the entire outside casing in one piece. They describe two modes of making the blower-heads true. One is to form them into planes at right angles to the shafts of the abutments, parallel with each other, equidistant from each other in all their parts, by giving to the inner surface of each plate a coating of plaster of Paris, hydraulic cement, or other material, having like plastic properties. This is suited to blowers of the smaller sizes. When this method is used, the plaster of Paris may be put on while in a plastic condition, by means of a sweep made to turn in the boxes of the blower-shafts, so that it will shape the linings of the ends as may be desired.

The second method is to use inside or secondary metal plates made in their outlines to conform to the interior of the case, and to face or plane them off so as to make them perfectly true. A space is left between these secondary plates and the ends of the case, which is filled with plaster of Paris of the proper consistency. After the plaster has set, the plates are secured

in their places in any suitable manner. In making the inner surface of the arcs of the case true, the usual way of the patentees is to work from the centre of the shaft-journals as fixed points.

They give the inner part of the concaves a coating of plaster of Paris, and work it into the proper shape and proportions while it is setting, by means of a sweep attached to a shaft turning in the journal-boxes of the blower, as in the case of the head-plates when plaster is applied to them. While the plaster or other similar material is becoming set, they slowly move the sweep, so as to give the coating exactly the required shape and thickness. Sometimes, instead of using the sweep, they use a cylinder of a diameter corresponding with the sweep or the circles to be described by the pistons. The cylinder is hung on a central shaft resting in the journal-boxes. The plaster is then poured into the intervening space between the cylinder and the case and the "metal guards,"—which are small projections on the inner surface of the case, intended to support the coating. When the plaster is set the cylinder is removed, and leaves the required arcs of a circle.

They do not cast very large blowers in a single piece. Those ordinarily used by blacksmiths and medium-sized foundry blowers are so cast.

If the case of a rotary blower be cast in one piece, it is necessary that the concave arcs of the case should be of such dimensions, and so placed on one side of the plane of the axis of the shafts, as to allow the removal of enough of the head-plates of the case to afford a sufficient opening for the introduction or removal of the abutments without interfering with any part of the case otherwise than to remove or replace the boxing which holds the shafts. By making the concave arcs a little more than a quarter of a circle, and placing them chiefly on one side of the plane of the shafts, the opening on the opposite side of the plane is correspondingly increased, allowing ample room for putting in and taking out the abutments, and also allowing the reduction of the end-plates on the open side of the plane, where they would otherwise interfere. If the concave arcs were materially increased and divided near equally on the

two sides of the plane of the shafts, the abutments of a case so made could not be taken out or replaced without taking the case apart, and the case would need to be made accordingly.

The claims are,—

1. A rotary blower-case, the interior of which is made true by means of plaster of Paris, or its equivalent, applied as described.
2. Such a blower-case, the ends of which are made true by the application of plaster, or a like material, as described.
3. Such a blower-case, the concaves of which are made true by the use of such material, applied as described.
4. Such a blower-case, having the concave arcs in combination with the end-plates, so arranged as to admit of the abutments being introduced or removed without requiring the case to be taken apart, as described.
5. A rotary blower-case, the ends of which are made true by the use of secondary inside metal plates, as and for the purposes described.
6. The metal guards in the inside of the concaves, as described.

The specification sets forth in strong terms the great value of the invention claimed.

There is a marked difference between a fan blower and a rotary blower. They operate on different principles. The former makes from one hundred to three hundred revolutions per minute; the latter, from three thousand to six thousand in the same time. The appellees are the original inventors of the rotary blower. Such is their proof, and there is none to the contrary. Its value in the useful arts is evinced by its tested capabilities, and the ardor of this litigation. No patent of the appellees is in any wise involved in this controversy but the one we have analyzed.

The appellant has a patent also. It bears date on the 9th of August, 1870, and is No. 106,165. It covers both the shell or case and the inner machinery. The claims are for,—

- “1. The blower-case A, made to support the abutting pistons, the circle or sweep of which in the surrounding case is lined with a cement of beeswax and resin or brimstone, retained

without the use of guards or ledges ; all substantially as herein set forth.

" 2. The pistons B B, composed of the blades C C, guards E E, concavities D D, with the lining applied in a liquid condition, while heated, to form a continuous contact of the blade surfaces ; all substantially as herein set forth."

The specification refers three times to the invention of the appellees. It says, with respect to the shell, "the upper section is cast in one piece, without the ordinary guards or ridges used to hold a lining, such as is set forth in the patent of P. H. and F. M. Roots, dated Aug. 11, 1868. . . . I am aware blower-cases have been made, all cast in one piece, such as are shown in the patents of P. H. and F. M. Roots. I do not, therefore, claim a blower-case broadly. I am also aware that plaster of Paris has been used in lining blower-cases, as described in the patents of P. H. and F. M. Roots of Aug. 11, 1868. I do not, therefore, claim the lining of blower-cases broadly. What I do claim is," &c. He then sets forth his claims as we have quoted them.

It is difficult to read the specifications of the parties in the presence of the models, and resist the conviction that the appellant has carefully studied the invention of the appellees as described in their reissue, not with any view to its improvement, but solely for the purpose of evasion. It is not, however, what the appellant has said in his specification with which we have to do in this controversy. What he has done affecting the rights of the appellees is the material point, and we pass to the consideration of that subject. His patent is not without value as an auxiliary in that process.

The appellees' first, second, and third claims, with respect to the alleged infringement, may be considered together. They are for truing the interior of the case by means of plaster of Paris, or its equivalent, applied as described ; for truing the end-plates in the same way, and for truing the concaves or arcs of the circles by the same means. The material to be used is "plaster of Paris, hydraulic cement, or other material having the properties referred to." These properties are plasticity when the material is applied, and firmness and brittleness afterwards. The reducing or truing process is also included

in these claims. The appellant did all that is embraced in these claims. What was done differs in nothing from the process and other means employed by the appellees, except that he used a compound of glycerine and litharge instead of plaster of Paris. The former is a mere equivalent for the latter. Both are plastic when applied. Both become indurated afterwards. No chemical change takes place in either, and time alone is necessary to produce the desired hardness of the substance. The compound used by the appellant is clearly within the alternative terms of the specification of the appellees in this respect. The proofs in the record on all these points are so conclusive, that it would be a waste of time to pursue the subject further. The appellant is guilty of infringing these claims.

The essence of the fourth claim is a combination of the arcs with the end-plates, so arranged as to permit the abutments to be put in or taken out without taking the case apart. The peculiar features and advantages of what is embraced in this claim are clearly set forth in the testimony in the record.

The end-plates have no contraction at the opening for the admission of air. They therefore permit, without further change, so far as they are concerned, the removal of the pistons. The concave arcs are reduced to less than half a circle, and so provide at the air entrance a space sufficient to permit the introduction or withdrawal of the pistons without disturbing the case. The introduction of the sweep, and its necessary operation upon the plastic material, are, also, thus provided for. The air entrance, which is bounded by the ends of the arcs and the end-plates, permits the lining to be renewed at pleasure. The case, by reason of the contraction of the arcs and the configuration of the end-plates, permits the requisite shaping of the plastic material by sweeps or otherwise, so as to make the arcs perfectly true, and the end linings exactly at right angles with them. All the difficulties previously experienced in the construction of double-cylinder rotary blowers are thus obviated. This is regarded as an important result.

Turning now to the appellant's shell or case, the evidence

shows that the concaves or arcs are less than half a circle in extent. The revolving pistons act against them in combination with the end-plates, which have no interior projections. The entire case is such as to admit of its being cast in one piece, and to admit also of the introduction and removal of the pistons, without the case being taken apart. It is of such a character as to permit in its complete state the introduction of the sweep, and its full operation upon the plastic material intended to be applied to the arcs and the end-plates. This is regarded as one of the most valuable features of the appellees' invention. The appellant's case is cast in two parts. There is a joint or division on the axial plane through the journal-boxes. It is in proof that this is neither reasonable nor necessary. Where the case is large, and too heavy for convenient handling, it may be useful, and for such cases it is suggested in the patent of the appellees. The patent of the appellant prescribes it for all his cases, and he so makes them. Why is this, and what are his object and purpose? We can imagine none but to gather where another had sown, and escape by simulation and subterfuge the consequences which the act of Congress has prescribed for the unlawful appropriation of such property. There is scarcely a thought expressed in the work of the appellees, so to speak, that is not found substantially transferred or closely copied in that of the appellant.

The points of identity are palpable and conclusive. The proofs leave no doubt in our minds that the appellant is guilty of the infringement of this claim, as well as of the first, second, and third. This controversy does not concern the appellees' fifth and sixth claims.

Decree affirmed.