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the more ready to do in the present case, as no specific exceptions were taken to the action of the court in refusing or in giving instructions. *Reagan v. Aiken*, 138 U. S. 109.

There were other assignments of error, but we think they do not merit special notice.

The judgment of the court below is

Affirmed.

DASHIELL v. GROSVENOR.CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE FOURTH
CIRCUIT.

No. 569. Argued January 9, 10, 1896. — Decided April 18, 1896.

The first claim in letters patent No. 425,584, issued April 15, 1890, to Samuel Seabury for an improvement in breech-loading cannon, viz.: for "The combination, with a breech-loading cannon and a breech-block for the same, which is withdrawn in a rearward direction, of a breech-block carrier hinged to the breech, and a breech-block retractor hinged to the breech separate from said carrier to move independently of said carrier to draw the breech-block thereinto and push it therefrom, but capable of moving the said carrier while the breech-block is therein, substantially as set forth;" must, in view of the state of the art at the time of the invention, be limited to the precise mechanism employed: and, being thus limited, it is not infringed by the device patented to Robert B. Dashiell by letters patent No. 468,331, dated February 9, 1892.

THIS was a bill in equity by the appellees against Dashiell for the infringement of letters-patent No. 425,584, issued April 15, 1890, to Samuel Seabury, a lieutenant in the United States Navy, for an improvement in breech-loading cannon. In his specification the patentee made the following statement of his invention:

"This improvement relates to breech-loading cannon in which a screw breech-block, which is withdrawn in a rearward direction, is employed, with a swing carrier or receiver hinged to one side of the breech of the gun, and into which the breech-block is withdrawn, and which serves as a guide for

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directing the breech-block into and from its seat in the breech and as a support for the breech-block while out of the gun. In such a gun there are three movements necessary to open the breech—namely, first, the turning of the breech-block to unlock it; second, the withdrawal of the breech-block backward into the receiver; and, third, the swing aside of the receiver with the breech-block in it. These three movements have hitherto been separately performed by hand, the breech-block having been first turned to unlock it by hand and then pulled by hand back into the receiver, and the receiver having been then swung aside by hand with the breech-block in it to open the breech.

“The object of this improvement is to provide for the more rapid working, loading and firing of such breech-loading cannon by effecting all these movements in succession by a continuous movement of a single lever.”

The plaintiff relied only upon the first claim of the patent, which reads as follows:

“1. The combination, with a breech-loading cannon and a breech-block for the same, which is withdrawn in a rearward direction, of a breech-block carrier hinged to the breech, and a breech-block retractor hinged to the breech separate from said carrier to move independently of said carrier to draw the breech-block thereinto and push it therefrom, but capable of moving the said carrier while the breech-block is therein, substantially as set forth.”

The plaintiffs were Seabury, the patentee, and certain others, who were assignees of interests under the patent. The defendant was, when the suit was begun, an ensign in the United States Navy, and the infringing acts were admitted to have been done under his authority and procurement, under a contract between himself and the Navy Department, through which he was to be paid a stipulated sum for each gun manufactured, embodying the infringing device. For this device letters patent No. 468,331 had been issued to him February 9, 1892.

Upon a hearing, upon pleadings and proofs, the Circuit Court was of the opinion that the Seabury patent was valid, and the Dashiell patent an infringement thereon, and it entered a decree to that effect. 62 Fed. Rep. 584.

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On appeal to the Court of Appeals, that court was of opinion that an injunction would prohibit the officers in charge of the navy yard from manufacturing guns for use upon the war vessels of the United States, and for that reason ought not to be granted. The bill of complaint also relied upon certain allegations of fraud which the court held were material to be proved, and were not sustained; and for those reasons it reversed the decree of the court below and dismissed the bill. 25 U. S. App. 227.

Application was thereon made to this court for a writ of certiorari, which was granted.

Mr. William H. Singleton for appellant.

Mr. Samuel F. Phillips for the United States. *Mr. F. D. McKenney* was on his brief.

Mr. William A. Jenner and *Mr. William G. Wilson* for appellees.

MR. JUSTICE BROWN, after stating the case, delivered the opinion of the court.

The question of infringement in this case turns largely upon the construction to be given to the first claim of the Seabury patent. If, as set forth in his specification, he is entitled to claim broadly, by the continuous operation of a single lever, the performance of the three movements necessary to open the breech of a breech-loading gun, viz., unlocking the breech-block, pulling it back into the receiver, and swinging it to one side, the Dashiell patent, which effects the same movements in substantially the same way, would probably be an infringement. It is claimed that, prior to the Seabury patent, those three movements were separately made by hand, and that the novelty of his invention consists in their successive performance by the single sweep of a lever.

To ascertain whether he is entitled to this broad claim, it is necessary to consider somewhat at length the state of the art at the time the Seabury patent was issued. In modern war-

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fare breech-loading guns have largely supplanted the old muzzle-loading patterns, and the skill of the inventor has been applied to perfecting the mechanism, whereby the breech may be effectually closed, to prevent the escape of gas, and at the same time rapidly and easily opened and thrown back for the reception of another cartridge. Various forms of breech-block are used, but the patent in suit relates to what is known as the mutilated or slotted screw form, which consists of a circular plug of metal, with equal parts of its threads cut away. The interior surface of the breech or bore is also fitted with a corresponding screw, equal parts of which are also cut away. When the block is in the gun in position for firing, the screw of the breech-block is interlocked with the corresponding threads in the interior of the gun, so that the breech-block is held so firmly to the gun itself as to be substantially a solid body of metal. After firing, the breech-block is turned partly around, so that the threads of the screw are released and brought opposite the smooth portion of the bore. This admits of the breech-block being withdrawn from the gun, where it rests upon what is known as the carrier, which is hinged to the breech and swung to one side, to leave the bore free for the reception of another cartridge. Formerly the three movements of turning the block, withdrawing it from the chamber, and swinging it to one side, had been separately performed by hand. Was Seabury the first to effect these three movements by the single and continuous operation of a lever?

John P. Schenkl purported to do this in the patent issued to him August 16, 1853, performing the movements "through the intervention of appropriate cams, catches and springs, by the motion of a single lever, worked by the hand of a gunner." The movement of the lever was not continuous, and the gun was of a different class, opening in the middle of its length, tipping up its breech and receiving the cartridge at the muzzle of its rear section, like the ordinary muzzle loader. The lever is necessarily given a backward and forward motion to support the two portions of the gun, and turn the breech portion upward, and the same lever is also given another backward and

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forward motion, to again connect the two portions of the gun together. Obviously it is not an anticipation.

The patent to Cochran, of November, 1859, throws no light upon the question in this case. The same may be said of the patent to Goodwin of May, 1864. While the patent to Driggs and Schroeder of April 5, 1887, shows a decided advance in the method of breech loading, there is nothing in the invention to indicate that the patentee had in mind the peculiar features claimed for the Seabury patent. The English patent to Farcot, a French engineer, issued the same day as the Driggs and Schroeder patent, relates to an apparatus so arranged that, by the rotation of a single axis, the successive movements necessary for introducing or withdrawing the breech-block are performed with ease, rapidity and exactness. Mechanical means are utilized to operate the breech-block in all three of its movements, for opening as well as closing, and all of them are performed through a crank handle. Its appearance marks a step in advance in the development of the breech mechanism, and the accomplishment of the three motions in one.

British patent No. 9813 to Albert Sauvée, issued May 4, 1888, also exhibits mechanical gearing for operating a slotted screw breech-block, by a continuous movement in a given direction. In this patent the rotation of the breech-screw, its extraction and the rotation of the carrier succeed each other, while the hand-crank is being turned in the same direction. The breech is closed by working the handle in the opposite direction.

The British patent to Sauvée of July 4, 1887, No. 9453, also discloses a breech mechanism for operating a slotted screw-breech block, giving all the three necessary movements of rotation, retraction and swinging aside, by the continuous movement of a simple hand lever. The breech-block in this patent is of conical form and not cylindrical, as in the other patents. The general arrangement shows a lever attached to the breech-block near its middle, and connecting with the carrier by means of a fulcrum, so that power applied to the end of the lever will cause the breech-block to move

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forward and backward in the carrier, and into and out of the gun. Besides this, the necessary gear-wheels are fitted to provide necessary rotation to the block at the proper time. When the block is fully withdrawn upon the carrier, the latter is swung to one side by the continued motion of the same lever.

British patent No. 7435, granted February 12, 1889, to Canet, also described, in the first claim, "an improved construction, whereby the opening of the breech of guns can be effected completely by a rotary movement always in the same direction, the rotation of the breech-screw being effected by the action of a rack mounted upon an endless screw, upon a toothed sector on the breech-block; the longitudinal movement of the breech-screw being effected by the direct action of a pinion upon the threads of the breech-screw; and the pivoting of the bracket being effected by the direct action of the operating shaft upon the endless vertical screw."

Still another system, in which the three motions required of the breech-block are accomplished by a single movement of a lever, is found in the British patent No. 7195 to Nordenfeldt, May 17, 1887. In its general principle of effecting these movements, it bears a closer resemblance to the Seabury patent than any other exhibit. "The invention," says the patentee, "relates to breech-loading guns in which the breech is closed by a block entering the breech opening, and having spaced screw-threads upon it engaging corresponding spaced screw-threads, within the breech of the gun. In such guns I give all the necessary movements to the breech-block by means of a lever handle and axis rotating through the arc of a circle. The same movement also actuates an extractor and gives the necessary movement to it for withdrawing the cartridge case from the chamber of the gun."

The patentee Nordenfeldt thus describes the operation of his device:

"In opening the breech, as soon as the lever handle is moved sufficiently far to disengage the screw-threads, a shoulder upon or moving with the lever handle comes against another shoulder upon the withdrawing arm, and this then commences

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to turn with the hand lever moving rearwards from the breech of the gun. In this movement it draws back the breech-block out of the gun, the breech-block being engaged with the disengaging arm in the manner already described. In this way the breech-block is landed upon the tray or support, and, as soon as this is the case, the tray or support also commences to move round with the lever handle carrying the breech-block to the rear, and at the same time conveying it to one side so as to leave the breech opening unobstructed. In closing the breech the same movements take place in reversed order. First, all the parts move together, whilst the breech-block is brought back into position to enter the breech opening, then the tray or support remains stationary whilst the breech-block is thrust from off it by the withdrawing arm, and finally this arm remains at rest during the last part of the movement of the lever handle, whilst the rotary movement is imparted to the breech-block requisite to cause the engagement of the screw-threads."

The lever in that patent is entirely separate from the carrier, and moves independently of it, except when the breech-block is fully supported by the carrier, at which time it moves with the latter. The breech-block is rotated by a rack sliding on the face on the breech of the gun, connecting with an arm or projection on the driving shaft. A large model of the breech mechanism of this patent, made from the drawings at the Navy Department, was put in evidence, with written directions for working it.

It is claimed by the plaintiffs in this connection that the model of the Nordenfeldt patent, so made and exhibited, is inoperative, and hence cannot be said to be an anticipation of the first claim of the Seabury patent; and such seems to have been the view of the learned judge who delivered the opinion of the Circuit Court. It does not clearly appear, however, whether this inoperativeness is due to a fault in the original construction of the machine, or to a slight defect in the model made from the drawings in the Navy Department. This model was constructed largely of wood, and might very possibly have become so worn by experimental use, as to fail to

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perform perfectly all its functions. It does not seem probable that the patentee would have taken out a patent for a wholly inoperative combination, especially in view of the fact that there were at least half a dozen operative devices already in existence upon which his was claimed to be an improvement. Inoperative devices are frequently set up as anticipations, but they are usually such as have proven to be so far failures that the inventor has not taken out patents for them, and are resuscitated for the purpose of showing that other machines similar to the one patented have been invented before. The very fact that a machine is patented, is some evidence of its operativeness, as well as of its utility, and where a model is constructed after the design shown in a patent which is not perfectly operative, but can be made so by a slight alteration, the inference is, that there was an error in working out the drawings, and not that the patentee deliberately took out a patent for an inoperative device.

But, however this may be, it is clear that the model in question could be made operative by a very trifling alteration, increasing the friction between the bolt and the guideway in the withdrawing arm. Either the filling piece was made a little too small or else it had become worn by constant use of the model. That this was simply a question of friction was readily demonstrated by slipping a thin piece of paper between the filling piece and the bottom of the guideway, when the device appeared to be fully operative. The conclusion is irresistible that the alleged inoperativeness was not one due to any inherent defect in the mechanism described in the patent, but to a want of exactness in the model, due either to imperfect construction, or to the employment of another material than was contemplated in the patent.

As several of the patents above described show that, at the date of the Seabury invention, it was no longer a novelty to perform the three movements necessary to open and close the breech by the continuous movement of a single lever, it follows that the first claim of this patent cannot receive the broad construction claimed, but must be limited to the precise mechanism described. This is for a combination, 1. Of a

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breech-loading cannon and a breech-block capable of being withdrawn in a rearward direction from the gun. 2. A breech-block carrier hinged to the breech. 3. A breech-block retractor hinged to the breech separate from its carrier. 4. That the retractor shall move independently of the carrier, to withdraw the breech-block thereinto and push it therefrom. 5. And that it shall be capable of moving with the carrier, while the breech-block is therein.

It may be doubtful whether, in view of the Nordenfeldt patent, there is any novelty even in the exact combination described in this claim, since in both cases there is a vertical axial bolt or pivot hinged to the breech of the gun; a crank arm secured to this bolt and operating the rack; a retractor arm permanently secured to the breech-block and hinged to the breech separate from the carrier, and moved independently of it; a carrier hinged to the breech-block, the carrier and retractor being capable of moving together, while the breech-block is on the carrier; the movement being transmitted from the retractor to the carrier through the breech-block. But whether the Nordenfeldt device be an exact anticipation or not, the Dashiell device differs from the Seabury patent much more than the latter differs from the Nordenfeldt machine, since the retractor of the Dashiell device is not hinged to the breech at all, but is hinged to the carrier; and is not separate from the carrier, but is a part of it, and when the carrier moves, the retractor also moves. In the Seabury device the carrier and retractor move independently of each other; but as the claim says, they are separate from each other, whereas in the Dashiell device they are so intimately connected that when the carrier moves, the retractor moves with it. It is true that the retractor, though hinged to the carrier when turning on its pivot, acts as it would if it were hinged to the breech; yet, Seabury having restricted himself to a retractor hinged to the breech separate from the carrier, in view of the state of the art, which appears to have been much more advanced than the plaintiffs are willing to concede, we think such difference is material. As before observed, in the Dashiell device the retractor is not hinged to

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the breech, but to the carrier, and it is not worked independently of it, but in connection with it.

The truth is that, at the time the Seabury patent was taken out, the scope for invention was much more limited than Seabury apparently supposed. The mutilated form of screw-block, apparently a French device, had been in use for many years. Of course the use of this block implied some method of withdrawing it from the gun, swinging it to one side and returning it to the bore. To accomplish this several devices were invented, most of them employing a swinging lever, a carrier and a retractor. In some cases, as in the Canet patent, a toothed rack was used to rotate the breech-block, and in others a cam, and in two or three of these patents these movements were accomplished by the continued operation of a lever. Nothing, in fact, was left to the ingenuity of the inventor but to devise new variations upon this combination, and, in our opinion, Dashiell's device is as great a departure from Seabury's as the latter is from the devices which preceded it.

We are, therefore, of opinion that, under the construction we are compelled to give the first claim of the Seabury patent, the Dashiell device is not an infringement.

This conclusion also renders it unnecessary for us to consider the questions discussed by the Court of Appeals in its opinion, in respect to one of which see *Belknap v. Schild*, 161 U. S. 10; but for the reasons stated, its decree, dismissing the bill, is

Affirmed