

form, or superior smoothness, will not make such things new articles of manufacture if they are used in the same way and for the same purpose, and effect a like result in boots and shoes as the older forms.

Bill dismissed.

FOREHAND and others v. PORTER.

(*Circuit Court, D. Connecticut. 1883.*)

1. PATENTS FOR INVENTIONS—CARTRIDGES.

Where the cup anvil cartridge of the defendant has the distinctive grooves or indentations of the patent of the plaintiff's assignor, it is an infringement of the patent.

2. SAME—SUIT AGAINST UNITED STATES OFFICER.

The case of *Campbell v. James*, 104 U. S. 356, does not definitely decide that a bill in equity will not lie against an officer of the United States for his unauthorized use of a patent solely in the service of the government.

Causten Browne, for plaintiffs.

Daniel Chadwick, Dist. Atty., for defendant.

SHIPMAN, J. This is a bill in equity to restrain the defendant from the alleged infringement of letters patent which were granted to John C. Howe, the plaintiffs' assignor, on August 16, 1864, for an improvement in metallic cartridges. The plaintiffs purchased the patent and all claims for past infringements on April 28, 1881. The bill was filed May 26, 1881, before the expiration of the patent. The patentee describes in his specification the two parts of his invention which are in controversy in this case, as follows:

"The first part of my invention consists in combining a perforated diaphragm with the rear end of a cartridge case so as to strengthen the cartridge case at that part.

"The second part of my invention consists in constructing the cartridge case with a groove in its periphery behind the position of the charge.

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"The cartridge cases represented in the annexed drawing embody all parts of my invention. The shell of these cartridge cases is constructed of copper, with a perforated diaphragm, *a*, at the butt. This diaphragm is within the cartridge case; separates the primer (represented in red) from the powder; it strengthens the rear end of the case and forms a species of anvil, on which the primer is sustained when struck by the hammer of the lock, so that any special arrangement of the fire-arm for this last purpose is rendered unnecessary. It also, by filling up a portion of the case, protects that part from the explosive force of the charge, so that a portion of the wall of the chamber of

the fire-arm opposite the diaphragm may be removed for any desirable purpose without incurring the risk of the swelling or bursting of the cartridge case through the opening thus made when the charge is fired. The form of the cartridge case represented at figures 1, 2, and 3 is adapted to fire-arms in which the hammer of the lock strikes downward at an angle upon the corner of the cartridge case. The form represented at figure 6 is adapted to a fire-arm in which the hammer strikes through a hole at the butt of the chamber of smaller diameter than the body of the cartridge.

"In order to embody the second part of my invention, the rear end of the cartridge in these examples is formed with a groove, *c*, in its exterior. The groove in this position is useful for two purposes: it may be made use of to retain the cartridge in its place in the chamber, by engaging with an instrument which is arranged upon the fire-arm for that purpose. Moreover, as the metal of the cartridge case is protruded inward by the formation of the groove, it may be made to constitute the means of securing the perforated diaphragm in its position, either by causing the indented material to enter into a corresponding groove in the periphery of the diaphragm, as at figure 2, or by locating the groove immediately in front of the diaphragm, as at figure 6. In case the instrument for engaging in the groove is located further forward on the fire-arm than the position of the diaphragm, a groove or indentation should be made in the cartridge case opposite that point. There may then be one groove at the rear to hold the diaphragm, and another further forward to engage with the holding instrument. Each groove may be replaced by its equivalent, viz., one or more indentations, but I prefer the grooves."

The first and second claims, which alone relate to the question in dispute, are as follows:

"(1) The combination of a perforated diaphragm with the rear end of the shell of a cartridge case, in such manner that the diaphragm forms a perforated partition between the primer and the powder, is rigidly secured to the cartridge case so as to support the primer against the blow of the hammer, and by its breadth of rim protects the part of the cartridge case surrounding it from the explosive force of the powder, substantially as set forth.

"(2) A cartridge case constructed with a groove in its periphery, behind the position of the charge, substantially as herein set forth."

The French patent of Ganpillat and Illig, which was introduced by the defendant as an anticipating device, describes a perforated disk first made concave and then introduced forcibly into the cartridge by compression, so that its circumference was flattened and it became "perfectly set in the interior of the cartridge," and formed "an anvil fixed at the bottom of the cartridge." The cavity behind the disk is furnished with fulminate, so that when the point of the firing-pin strikes the bottom of the shell explosion takes place. This patent shows that a perforated diaphragm, within and at the rear end of the shell, and forming a partition between primer and powder, and being an anvil to receive the blow of the hammer, and in a certain way

and degree made fast to the shell, was known before the date of the Howe cartridge, but does not show a diaphragm rigidly secured to the cartridge case in the manner and with the efficiency of the Howe device.

The cartridge of the Delaire French patent, which was a loaded ball, headed with a copper priming cap, had a primer head; that is, the head of the cartridge, made of a copper cap, in the bottom of which the inventor says:

"I put a copper washer, of the thickness of one frame-piece, having at the center of its back an indentation recess or pocket, in which I put a grain of fulminating powder, which is held there by the bottom of the cup."

When percussion takes place the flash ignites the powder through two small holes pierced at the side of the pocket. The disk is secured by contracting the periphery of the shell in one of two ways. One is by placing the shell in a lathe and applying a tool to the periphery; "the other is by the use of a contracting die."

It will thus be seen that the Howe invention was a narrow one, and did not consist in making a perforated partition between primer and powder which should support the primer against the blow of the hammer, and which should be secured to and protect the rear end of the cartridge case, but it consisted chiefly in the way in which this chamber within the case was rigidly secured to the case, and secondarily in such a construction of the diaphragm that by the breadth of its rim it protected that part of the cartridge case surrounding it from the explosive force of the powder.

The invention described in the first claim is, therefore, a hollow metallic shell or cylinder, closed at its rear end, having a perforated diaphragm, which separates the black powder from the fulminate, and which is rigidly attached to the shell, inside of it, and close to its rear end, by means of a groove or indentations which protrude inwardly from the outside to the inside of the shell, so that the diaphragm will not move forward when it receives the blow of the hammer. This groove is placed substantially behind the position of the charge. The rim of the diaphragm is sufficiently broad to support and strengthen the surrounding metal of the shell.

The French patent of Vigne showed a cartridge having an internal continuous or partial projection or groove for the purpose of holding the wad of the charge. The invention of the second claim of the Howe patent was the groove, substantially behind the position of the charge, for the purpose of securing and which secured the diaphragm, and the diaphragm is therefore included in the claim. As a mere

cartridge-holding groove, apart from its office of securing the diaphragm in position, I cannot see that its change of location from that in the Vigne patent produced a new result.

The defendant is the master armorer at the United States armory at Springfield, Massachusetts, and as such master armorer has used for armory purposes two kinds of cartridges. One, called the bar anvil cartridge, has no diaphragm, but has a bar diametrically across its rear end, which forms no partition between powder and primer. The bar is fastened in the shell by means of two grooves or indentations in the shell. The black powder is behind the groove, against the closed end of the shell, and the position of the powder has no relation to the location of the anvil. The second kind of cartridge, called the cup anvil cartridge, has a cup-shaped perforated diaphragm within the cartridge shell and close to its rear end, the bottom of the cup being recessed upon its rear side, the primer being separated from the powder, the fire being communicated to the powder through the holes, and the cup being secured within the shell by grooves in the shell which are in front of some portion of the powder, but substantially in rear of the charge.

It is admitted that the bar anvil cartridge does not infringe the first claim of the Howe patent. It has no diaphragm and no partition between the powder and the primer. Neither is the second claim infringed. The groove of this cartridge does not secure a diaphragm, and does not have the location with respect to the powder which is required by the second claim. It keeps a bar in place, but the patented groove is to secure a diaphragm which separates the powder from the primer, and therefore was to be in a specified location with respect to the powder. It was to be substantially behind the charge. In this cartridge the powder is against the closed end of the shell. The cup anvil cartridge has the distinctive grooves or indentations of the patent, and infringes the first and second claims.

I do not definitely understand that *Campbell v. James*, 104 U. S. 356, definitely decided that a bill in equity will not lie against an officer of the United States for his unauthorized use of a patent solely in the service of the government.

Let there be a decree for an accounting in conformity with this opinion.

JOYCE v. CHILlicothe Foundry & Machine Works and others.*

(Circuit Court S. D. Ohio, E. D. February, 1883.)

1. LETTERS PATENT Nos. 154,989, 168,663, AND 172,471—LIFTING-JACKS.

Letters patent No. 154,989, issued to Jacob O. Joyce, September 15, 1874, for improvement in lifting-jacks, construed, and limited, in view of the state of the art, to the particular combination of parts described, when constructed, arranged, and operating as shown; and *held* not to cover the devices described in letters patent No. 168,663, issued October 11, 1875, and No. 172,471, issued January 18, 1876, to S. E. Mosher for improvements in lifting-jacks.

2. SAME—WHEN SPECIAL FUNCTION WILL SUSTAIN BROAD CONSTRUCTION OF CLAIM TO KNOWN MECHANICAL DEVICES IN COMBINATION.

Where a special function is relied upon to sustain a broad construction of a claim to known mechanical devices in combination, it must clearly appear that the function in question is one newly called into existence by the use of the devices in the new relation and for the new purpose, and due solely to such use. Such broad construction cannot be predicated upon a function inherent in the construction and operation of the devices themselves, when used in analogous relations or for analogous purposes.

In Equity.

Suit is upon letters patent for an improvement in lifting-jacks, issued September 15, 1874, No. 154,989, to Jacob O. Joyce, complainant, and alleges infringement on the part of defendants, who manufacture lifting-jacks under letters patent issued to S. E. Mosher, October 11, 1875, No. 168,663, and January 18, 1876, No. 172,471; and asks an injunction, and an accounting for profits and damages.

Defendants admit the manufacture of jacks under the Mosher patents, and rely upon the state of the art as necessitating a limited construction of the Joyce patent, under which construction they do not infringe. Defendants cited a number of prior patents, of which the following were introduced at the hearing, and relied upon by counsel for defense:

1	Smith, L.,	Lifting-jack.	No. 56,111.	July 3, 1866.
2	Smith, W. N.,	Cotton-press.	No. 106,417.	Aug. 16, 1870.
3	Smith, W. N.,	Cotton-press.	No. 115,126.	May 23, 1871.
4	Smith, F. B.,	Lifting-jack.	No. 11,303.	July 11, 1854.
5	Masser, J. B.,	Sash-holder.	No. 51,469.	Dec. 12, 1866.
6	Williamson, W. P.,	Elevator safety-pawl.	No. 116,656.	July 4, 1871.
7	Hutton, Robert,	Sash-holder.	No. 60,735.	Jan. 1, 1867.
8	Fasig, D.,	Lifting-jack.	No. 36,144.	Aug. 12, 1862.
9	Rodgers, A. C.,	Sash-holder.	No. 87,708.	Mar. 9, 1863.
10	Sawtell, J. N.,	Sash-holder.	No. 65,015.	May 21, 1867.
11	Genung, R. W.,	Lifting-jack.	No. 11,298.	July 11, 1854.
12	Connelly, E. G.,	Sash-fastener.	No. 10,541.	Feb. 21, 1854.
13	Shepherd, Chas. C.,	Sash-holder.	No. 122,496.	Jan. 2, 1872.

*Reported by J. C. Harper, Esq., of the Cincinnati bar.