

*Doty & Doty,
Anchor Tripper.*

N^o 103,310.

Patented May 24, 1870.

Fig. 1.

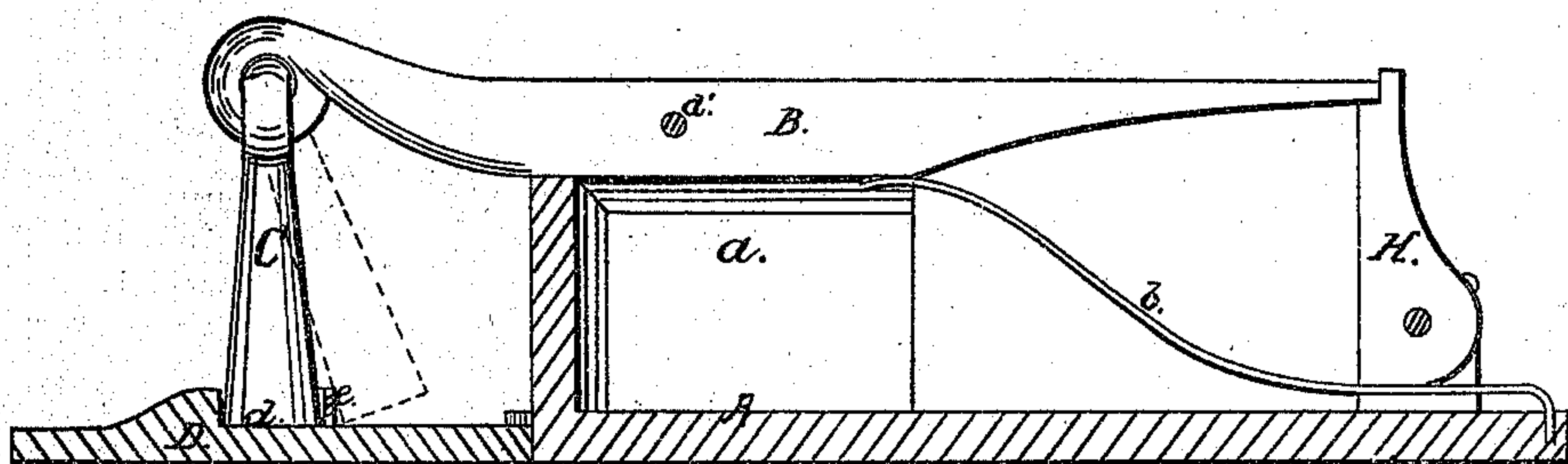
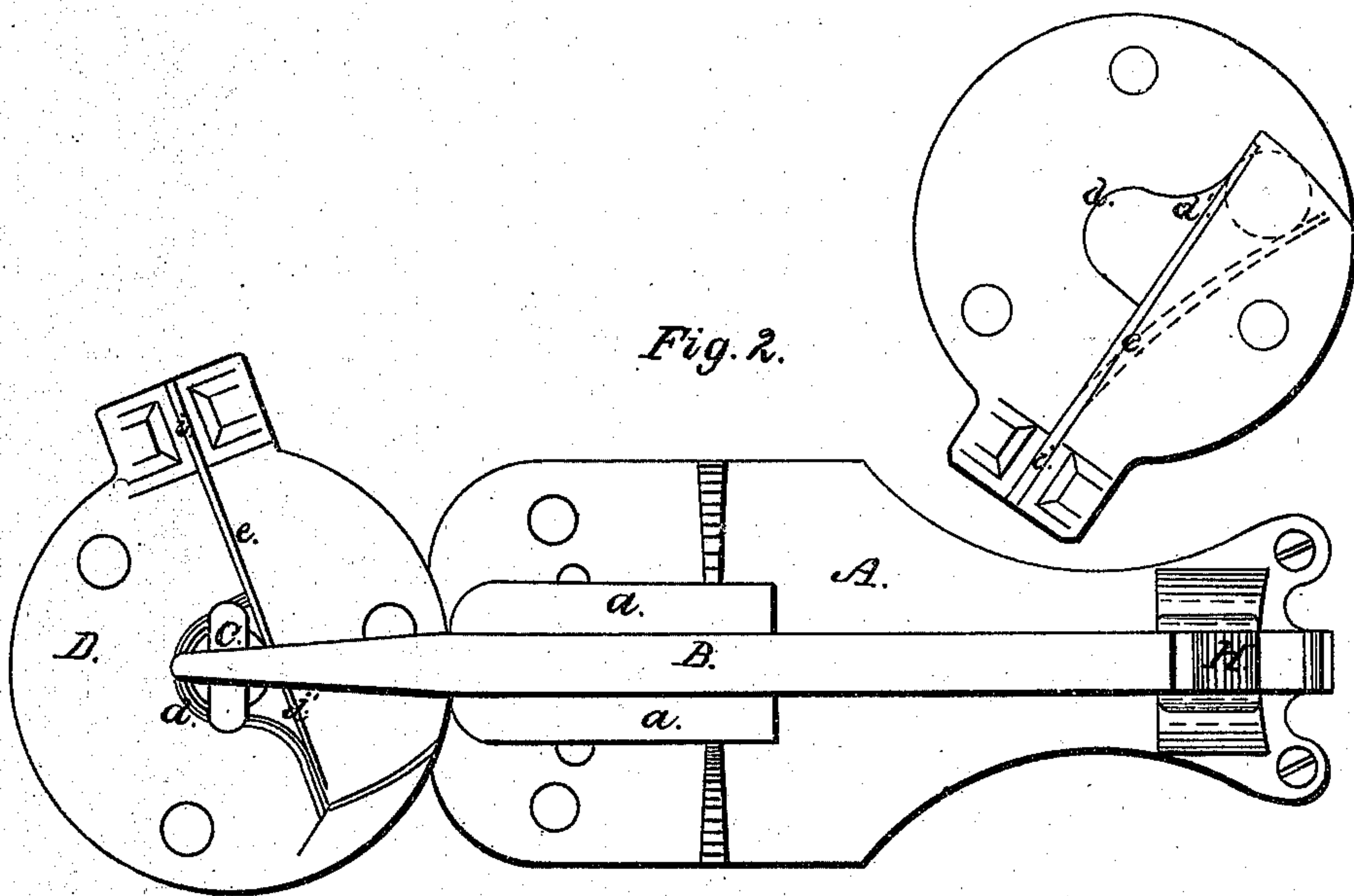


Fig. 3.



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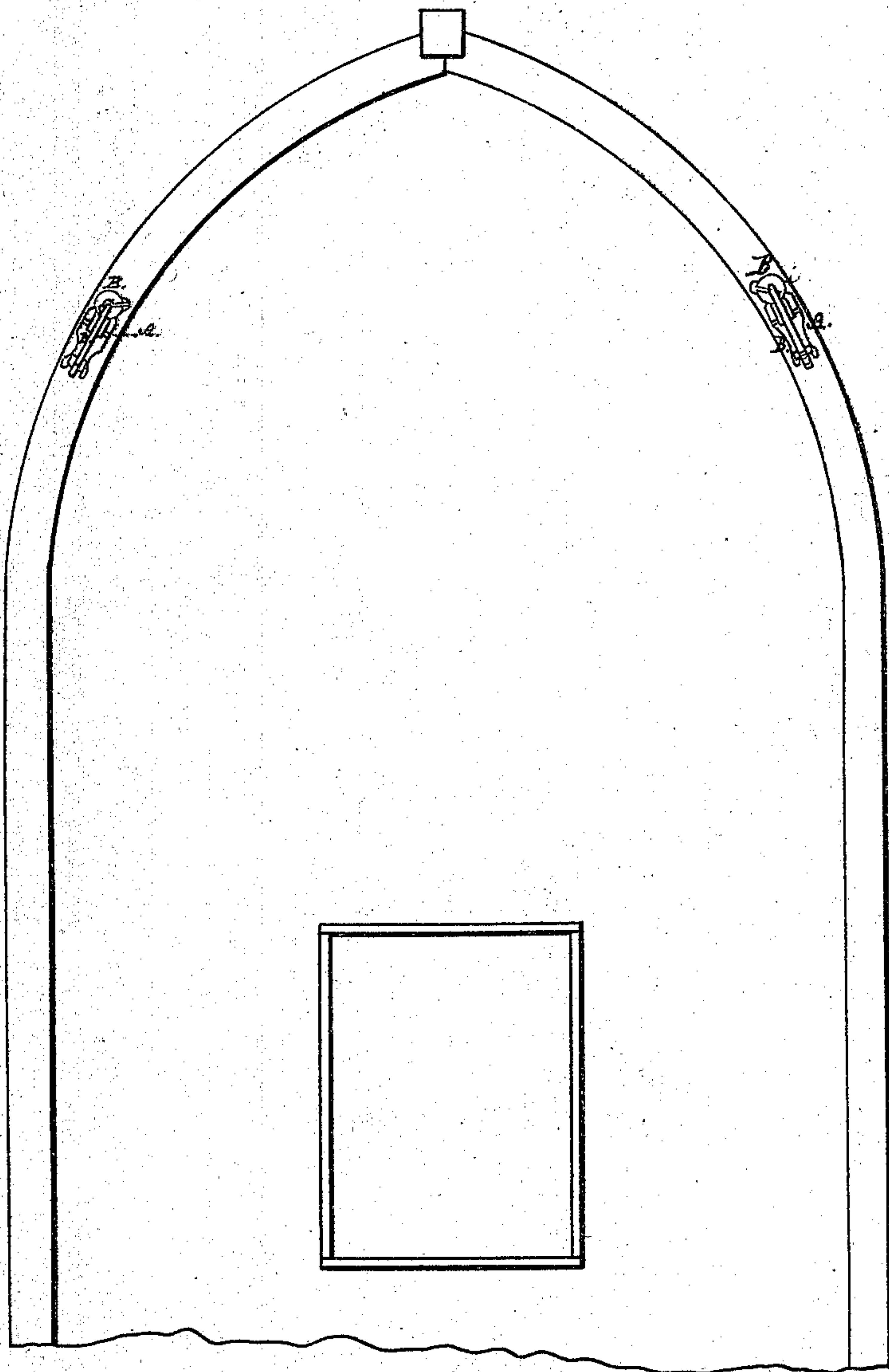
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Fig. 4.



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JAMES DOTY AND ASA H. DOTY, OF WEST FALLS, NEW YORK.

Letters Patent No. 103,310, dated May 24, 1870.

IMPROVEMENT IN TOWING-HOOKS FOR CANAL-BOATS.

The Schedule referred to in these Letters Patent and making part of the same

We, ASA H. DOTY and JAMES DOTY, of West Falls, in the county of Erie and State of New York, have invented certain new and useful Improvements in Dead-Eyes for Canal-Boats, of which the following is a specification.

In the towing of canal-boats it frequently happens that the tow-lines are caught in passing boats, or in locks, or against snubbing-posts or other obstructions, and the horses drawn into the canal and drowned if the line is not quickly cut or detached in some other manner.

To prevent such accidents, and to obviate the cutting of the line, various self-detaching devices have been invented. Among such devices is one in which a draw-pin attached to a spring lever is employed, which is so constructed that a back pull on the line from any cause will instantly disengage the draw-pin from its seat, and thus detach the line.

Our invention makes use of such a draw-pin and spring lever, and it consists

First, in the special arrangement of a spring to retain the draw-pin in place except when subjected to a back pull of sufficient force to endanger the horses, when the spring is overcome and the draw-pin and tow-line released.

Second, in constructing that part of the base-plate in which the recess for the draw-pin is formed separate from the main base-plate, so as to be capable of adjustment relatively therewith, for a purpose hereafter to be explained.

Third, in the arrangement of a prop or standard with the rear end of the lever, to keep it in a horizontal position and prevent the disengagement of the draw-pin when the draft is upward, as in passing bridges and along elevated portions of the tow-path.

Fourth, in the arrangement, with the lever and hinged standard, of a spring, which co-operates with both to retain them in place.

In the accompanying drawings, which consist of two sheets—

Figure I is a longitudinal section.

Figure II is a plan.

Figure III a plan of the draw-pin bearing or base-plate for the right side of a boat.

Figure IV is a diagram showing the manner of applying our improved dead-eyes to a boat.

Like letters of reference designate like parts in each of the figures.

A represents a cast-iron bed-plate bolted to the boat, and provided with standards, *a a*, which form the fulcrum of the lever B, pivoted by means of a pin, *a'*, between them.

H is the prop or arm, hinged to the base-plate so as to engage under the rear end of the lever, and prevent it being depressed.

b is a curved spring secured to the rear end of the base-plate, so as to pass under the end of the prop H, and pass upward against the under side of the lever, as clearly shown in fig. I.

C is the draw-pin, loosely hinged or linked to the front end of the lever, and

D a lesser base-plate screwed to the rail of the boat, and forming the bearing for the lower end of the draw-pin. This bearing-plate is made of circular form, and is joined to the end of the base-plate, which is formed with a curved recess to correspond therewith, as shown in fig. II.

It is also formed with a recess, *d*, having a shoulder in front, which serves as a bearing for the lower end of the draw-pin which rests therein.

Extending obliquely backward to the right or left from this recess bearing, according to the side of the boat for which the device is designed, is a way, *d'*, for the passage and release of the lower end of the draw-pin as it is drawn backward by the tow-line, as before described.

e is a flat spring arranged at the rear of the recess *d'*, as shown, so as to retain the draw-pin in place except when forced back by the draw-pin in its passage along the way *d'*, in releasing the tow-line.

This pin is readily secured to the bearing D by wedging it in a slot cast in the latter, as shown at *i*, figs. II and III.

To make fast the tow-line, the draw-pin is lifted out of its seat *d* by pressing down on the rear end of the lever, which is released by turning down the prop H, and is slipped into the loop at the end of the line, and then replaced in its seat and the prop again inserted under the end of the lever.

The seat *d* forms a strong, substantial, and reliable bearing for the pin for a forward pull on the line, while the yielding of the spring *e* permits the ready release of the pin and line, when the latter is pulled back by any accidental catching, as before explained.

In passing bridges, and along those portions of the canal where the tow-path is of an unusual height above the surface of the water, the draft or strain on the draw-bolt is in an inclined direction upward, which, with the vertical swaying of the line resulting from the starting up of the horses, or unequal draft, is sufficient to raise the foot of the draw-pin out of its seat, and thereby detach the tow-line, as experience has shown.

The employment of the hinged prop H fully obviates this difficulty, by preventing the rear end of the lever being depressed, and consequently the forward end from being elevated by the upward action of the draft, as above stated.

The spring *b* operates not only to keep the lever horizontal, but, by pressing against the flat end of the

prop, to keep it in its proper vertical position, except when turned down by hand for engaging the tow-line with the fastening.

Constructing the bearing-plate D separate from the main base-plate, enables the device to be adapted for the right or left side of the boat by simply substituting a right or left bearing plate, as required, that shown in fig. II being a left, and that in fig. III a right.

The device is sometimes required to be attached to the curved portion of the rail at the bow, in which case the relative position of the bearing D and base-plate require to be changed, as the latter, owing to its length, has to be attached lengthwise of the rail or curve, or out of a line parallel with the direction of the draft, as shown in fig. IV, while the bearing plate D should maintain the same position as when the device is attached parallel with the line of draft.

By our improved construction this relative adjustment can be readily effected, the circular form of the bearing enabling it to fit equally well in the curved recess of the base-plate in this changed position as in the original one.

The arrangement of the spring *e* and the construc-

tion of the bearing D enables the device to be manufactured at a greatly reduced cost, while it is more perfect and convenient in operation than it otherwise would be with the bearing D cast with the main base-plate.

What we claim as our invention, is—

1. The arrangement of the spring *e* with the bearing D and draw-bolt C, as and for the purpose hereinbefore set forth.

2. The circular bearing plate D, made separate from and arranged with the base-plate A, draw-pin C, and spring-lever B, so as to be capable of adjustment, as herein set forth.

3. The combination and arrangement of the hinged prop H with the lever B and draw-pin C, substantially as and for the purpose hereinbefore set forth.

4. The arrangement of the spring *b* with the prop H and lever B, substantially as and for the purpose hereinbefore set forth.

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