

M. Wapnick. Steering.

N^o 34,797.

Patented Mar. 25, 1862.

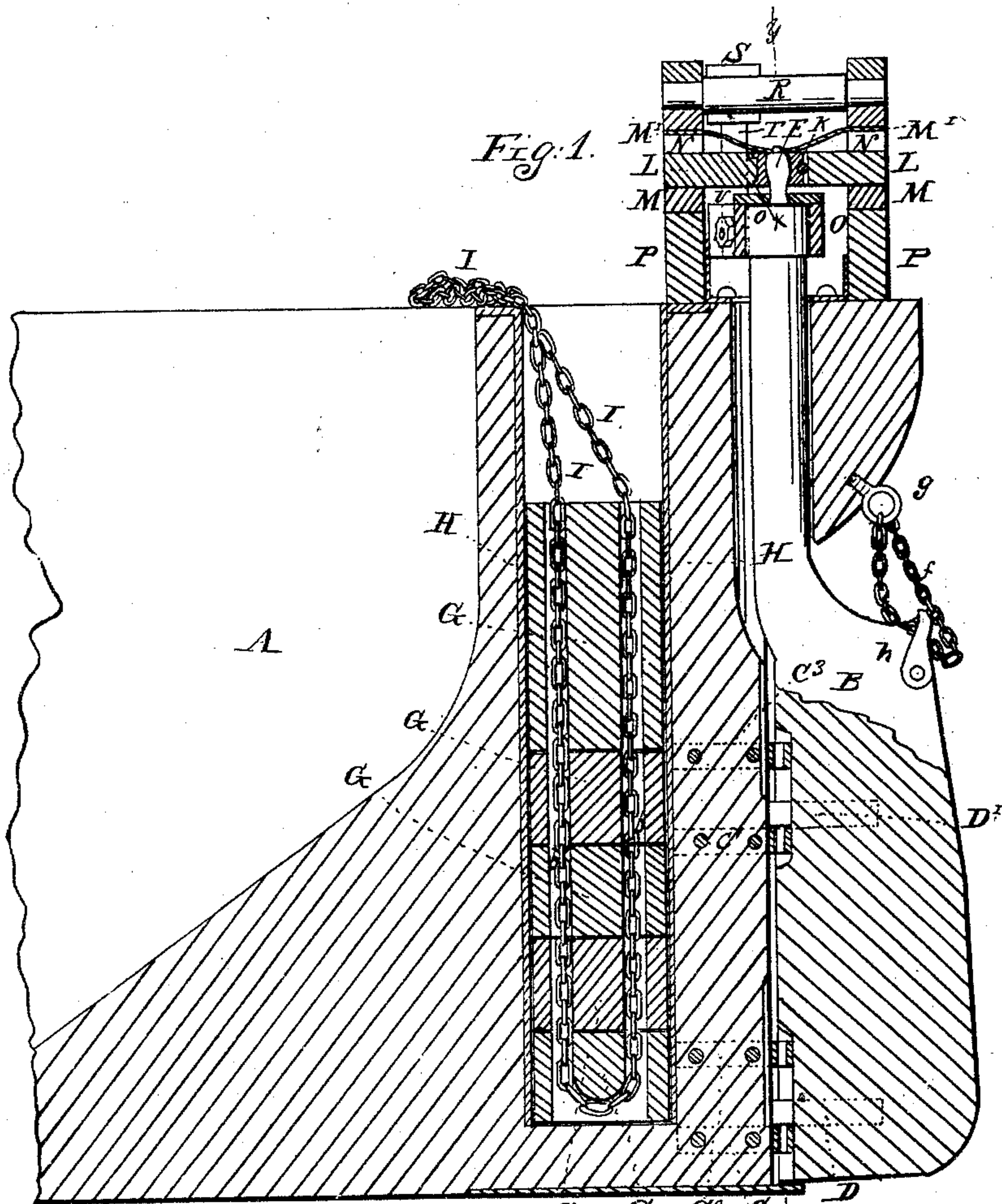
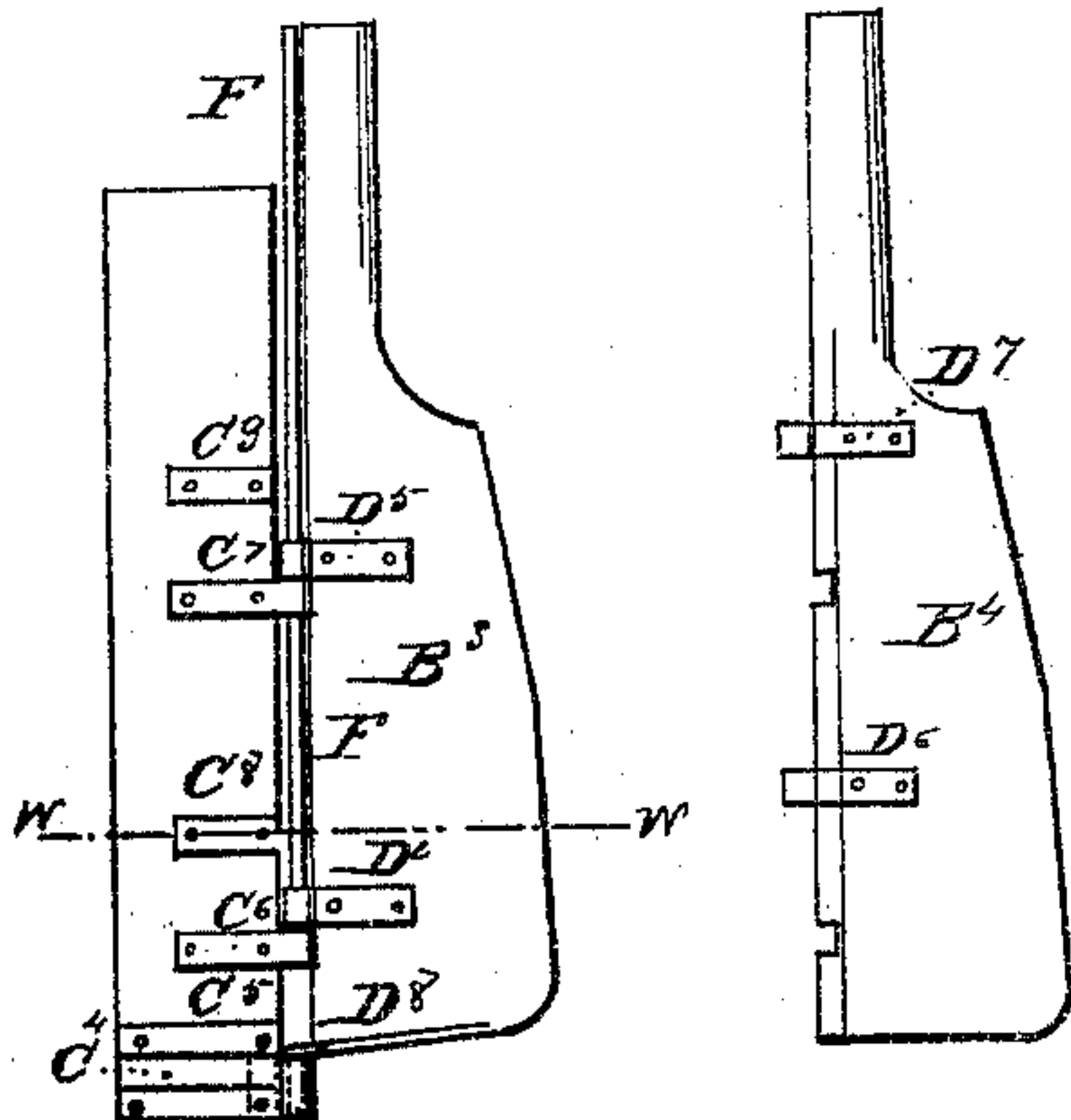


Fig. 5.

Fig. 7.

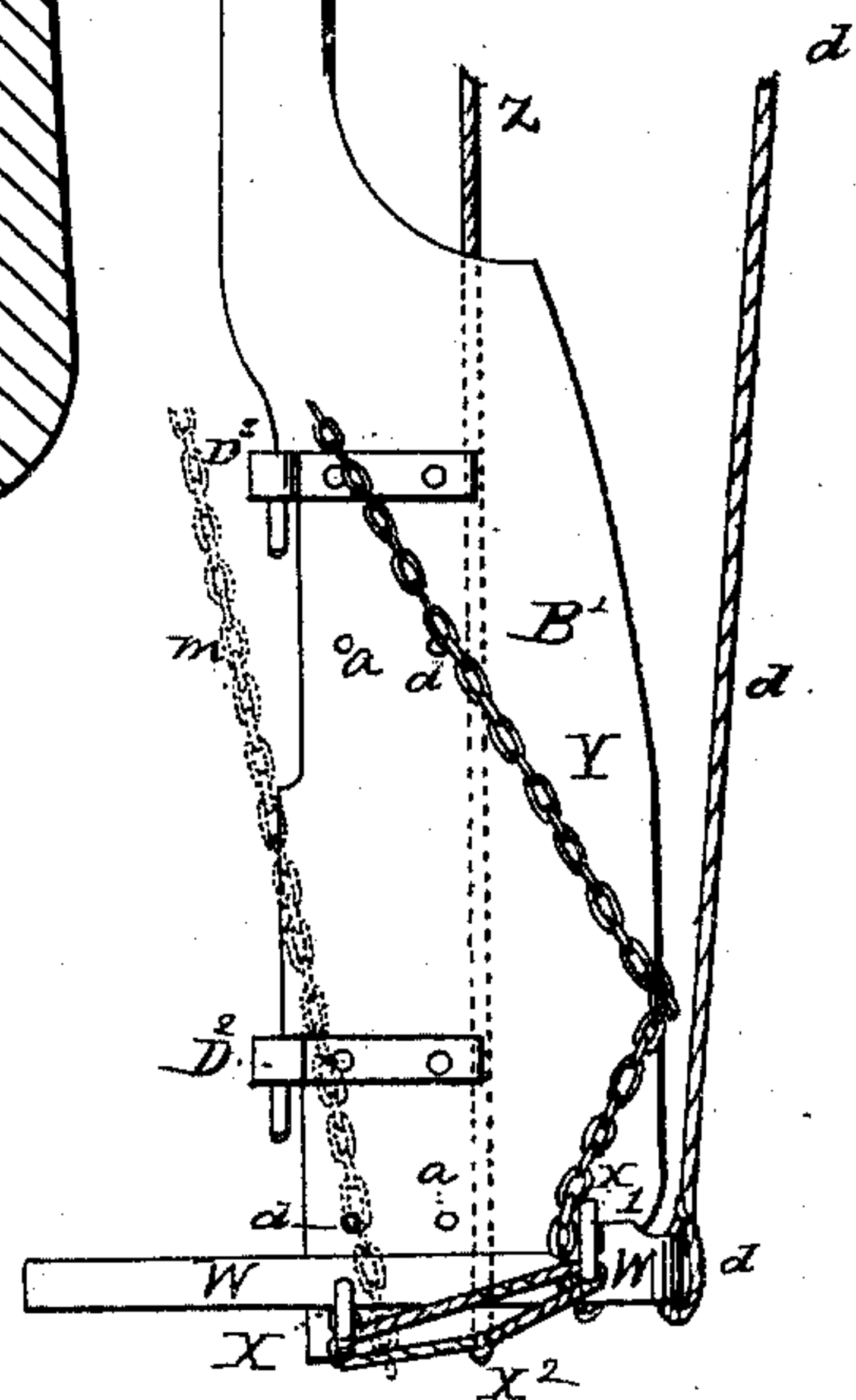
Fig. 6.



Witnesses:

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Fig. 4.



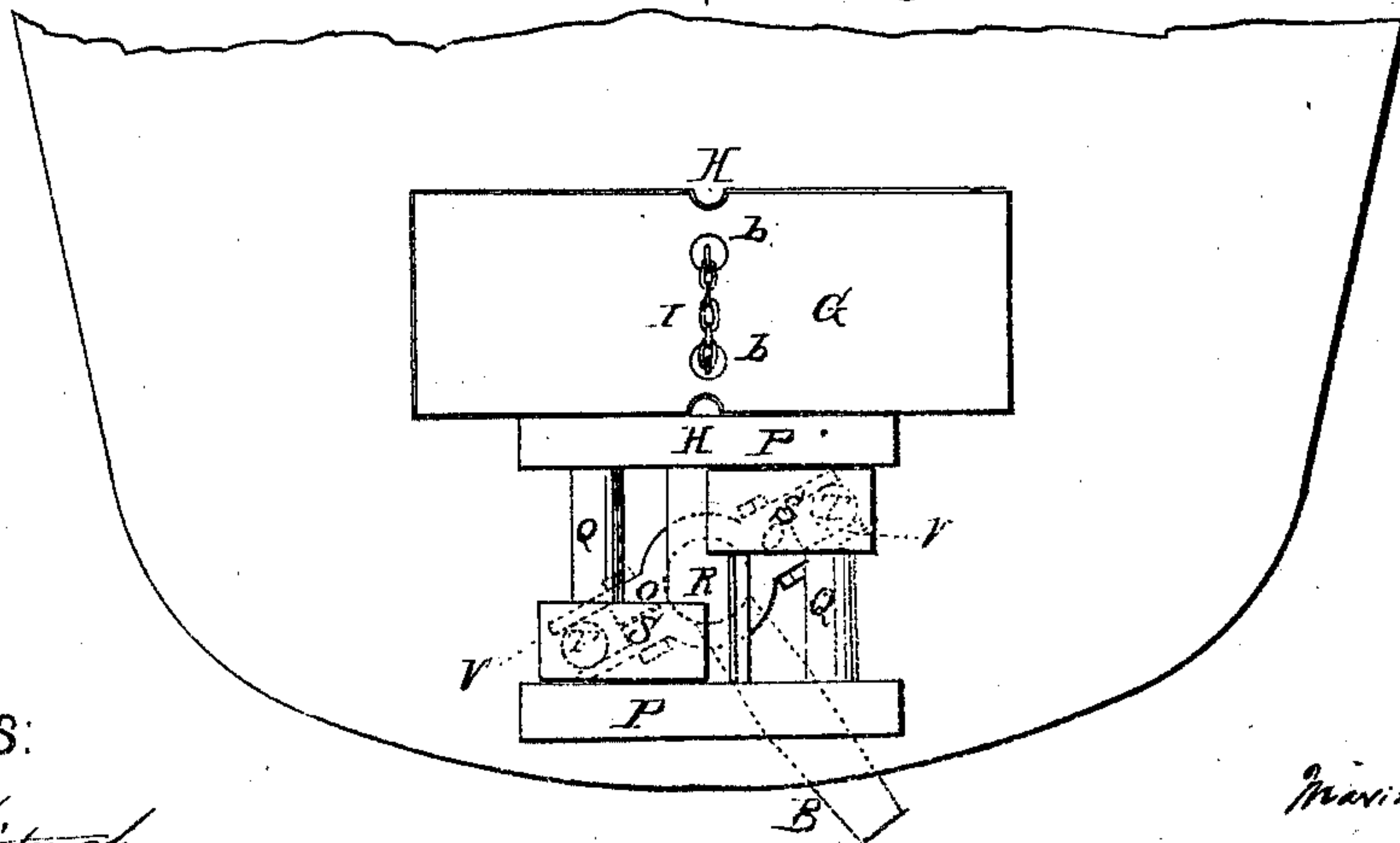
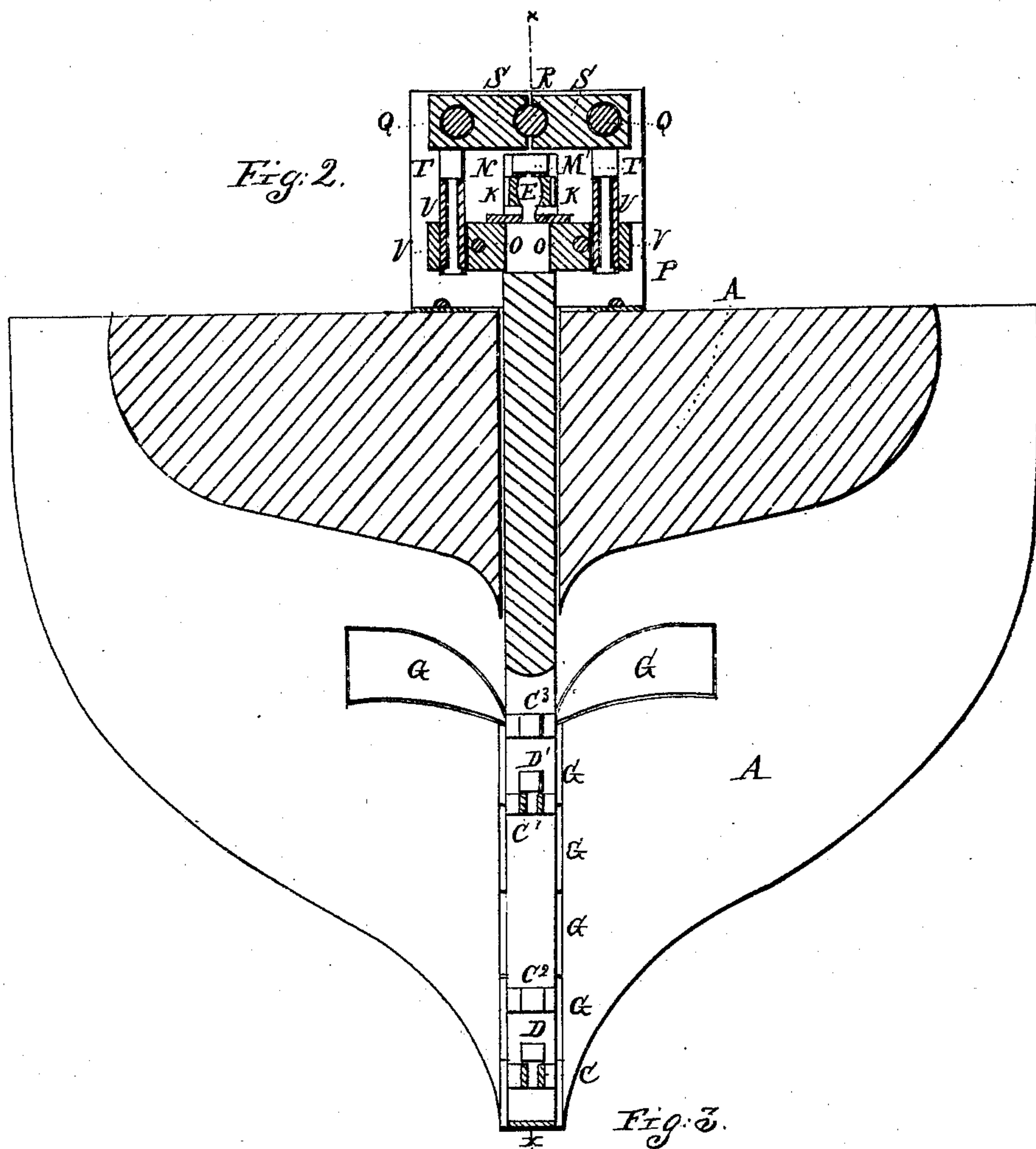
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UNITED STATES PATENT OFFICE.

MAXIMILIAN WAPPICH, OF SACRAMENTO, CALIFORNIA.

IMPROVED APPARATUS FOR SHIPPING SPARE RUDDERS.

Specification forming part of Letters Patent No. 34,797, dated March 25, 1862.

To all whom it may concern:

Be it known that I, MAXIMILIAN WAPPICH, of Sacramento city, in the county of Sacramento and State of California, have invented certain new and useful improvements in attaching, securing, and hanging rudders for insuring greater steering efficiency in ships and other vessels; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which like letters indicate the same parts, and in which drawings—

Figure 1 is a longitudinal vertical central section of the rudder and a keel of a vessel and shows certain reserve braces attached to the keel. Fig. 2 is a section of the stern, taken through the center of the braces and pintles and center of the rudder-stem and stem-bearing. Fig. 3 is a plan view of Figs. 1 and 2. Fig. 4 represents a reserve rudder for Fig. 1, with pintles attached to fit in the reserve set of braces shown in Figs. 1 and 2, and also indicates my mode of shipping rudders. Fig. 5 is a side view of a modification of the reserve fastenings for rudders, as shown in Fig. 1. Fig. 6 is a horizontal section taken through line *ww* of Fig. 5. Fig. 7 represents a reserve rudder with eyes and straps attached to act in conjunction with the reserve braces of Fig. 5.

My invention relates to the attachment and securing of rudders to ships and other vessels; and it consists in providing the stern part of vessels with certain braces, hinge-sockets, and steps or their equivalents in addition to the braces, hinge-sockets, steps, or their equivalents as ordinarily used, and which reserve braces and pintles will be used should the first-used set become worn out or otherwise rendered inoperative.

It also consists in hanging, steadying, and guiding the stem of the rudder in one central bearing in order to do away with the bending and twisting of the rudder-neck, and to confine its abrading surface to the smallest possible limit, and so reduce the effort required to turn the rudder to its minimum.

It further consists in making provision for the rise of the rudder when it strikes a bar, or when the vessel should ground or otherwise become subject to too great strain, such

provision consisting in the proper application of elastic pressure to govern both the rise and fall of the rudder.

It also consists in obviating the enormous rubbing of the bars which turn the rudder by the proper application of rolling-pins, as hereinafter described; and, lastly, it consists in what may be termed a "shipping-tong," to effect the shipping and unshipping of the rudder under all circumstances with rapidity and certainty even during the most violent action of the sea and in the most simple manner.

In the drawings, A indicates the stern of a vessel; B, the rudder; C C', the rudder-braces; D D', the pintles; C² C³, the reserve braces. As shown in Fig. 1, the rudder turns in braces C C' and pintles D D'; but in case the rudder should become disabled or lost and the braces C C' be rendered useless, the reserve rudder B', Fig. 4, with pintles D² D³ turning in the reserve braces C² C³, Fig. 1, will be shipped and the steering will go on as before.

In case the rudder should not be lost and the pintles and braces become disabled pintles may be fastened on the same rudder to turn in the reserve braces. To do this in the shortest time, reserve holes, as at *aa*, Fig. 4, to receive the pintles, may be provided. Should the braces C', Fig. 1, get disabled, C³ may be used in its stead—that is to say, if any one of the regular braces and pintles becomes disabled, then its loss may be supplied by the use of some one of the reserve braces. It is evident that any number of reserve braces and other fastenings named may be attached. To provide for all emergencies, steps or braces, with eye-sockets C⁴ C⁵, as shown in Fig. 5, may be attached at any proper point on the lower part of the stern-post, and in case all the braces should become disabled the rudder can be securely attached and turned by the step C⁴ or C⁵ and the stem-bearing E.

Figs. 5, 6, and 7 show a reserve fastening-bar F passing through the braces C⁶ C⁷ and eyes and straps D⁴ D⁵, on which the rudder B³ turns.

C⁸ C⁹ are reserve braces, and set farther back on the stern-post, so that if the bar F is put through them it will clear the braces C⁶ C⁷, as indicated in Fig. 6.

D⁶ D⁷, Fig. 7, are eyes and straps on an extra rudder B⁴, which is intended to turn on reserve

braces $C^8 C^9$, Fig. 5, and it is clear that the eyes and straps on a rudder can be attached and shifted, so as to turn in any reserved braces desired.

Parts of lines or ranges of the different set braces and straps and eyes can, if need be, be worked together. For example, C^6 and D^4 , Fig. 5, with C^9 of the same figure and D^7 of Fig. 7, may be used together, in which case a divided rod may be used, instead of F , to secure the connection.

As before stated, if thought expedient, reserve steps, as $C^4 C^5$, Fig. 5, may be attached, to be used in case all the other braces and eyes and straps get disabled, in which case a strap with pin at D^8 will work well in the straps and eye-sockets $C^4 C^5$, the stem-bearing E , Fig. 2, in such case being in line with D^8 , Fig. 5.

$G G G G$, Fig. 1, are metallic or wooden blocks filling up the well of the propeller when it is hoisted. These blocks slide down on the guides $H H$, which serve to guide the propeller when being taken out or put in place. The blocks are notched to correspond with the guides H , and thus are held in position between the stern-post and the "after" or false stern-post. Holes, as at $b b$, are bored through the blocks, through which a chain or rope I passes to facilitate the manipulation of the blocks.

E is a metal gudgeon forming a bearing for the rudder-stem; $k k$, brass boxes inclosing the bearing E of the rudder-stem; L , a cross-piece supporting the boxes k .

$M M$ and $M' M'$ are springs, the former of rubber and the latter metallic, applied, as shown in Figs. 1 and 2, to relieve the torsion and strain upon the rudder, to which for any cause it may be subjected.

N are oblong slots or openings in the frame P for guiding and retaining in proper position the cross-bar L .

O indicates the rudder-yoke, constructed and applied as represented in the figures, and works within the frame-work P , as shown in Figs. 1, 2, and 3.

$Q Q$ are intended to indicate the screws used on an ordinary steering apparatus, and R the shaft to impart motion to the screws.

$S S$ are screw-blocks carrying pins T , around which are secured friction-cylinders U , and which pins, in conjunction with their inclosing-cylinders, impart movement to the rudder-yoke, the cylinders U during any movement of the yoke traveling over the inner faces of the lips V of said yoke.

By reference to Fig. 4 my devices for shipping the rudder are illustrated, consisting, in the main, of a metal shipping-tong W , made to clasp the bottom or lower end of the rudder, as seen in the figure.

$x x'$ are pins provided with ordinary eyes, and the pin x passes through a hole in the rudder near its bottom and front edge, as shown, the pin x' being passed in like manner through the rear bottom portion of the

rudder, and also through the tong itself near its bowing portion, so that when the tong and pins are in the position indicated in the figure the tong will be held upon the rudder by the pin x' , while the forks of the tong, resting upon the pin x , will act to hold the tong in position when power is applied to the rope d to raise or lower the rudder. It should be noted that the prongs of the tong must be of such length as to extend a considerable distance each side of the stern-post and so sufficiently clasp the sides of the stern-post as to properly guide the pintles of the rudder into the braces when in the act of shipping, and to insure the ready application of the tong to the stern-post the ends of its prongs should be made to slightly bow outward.

The pins x and x' are secured together by a rope x^2 , as shown, to which a lift-rope z is attached, as indicated in the figure. An additional rope or chain m may also be passed beneath the rudder, as indicated in red, which rope will act as a reserve. The rope d , aside from its use in assisting to ship the rudder, serves the purpose of providing against the loss of the rudder-tong and for hauling it on deck. The chain y , which is made to perform the main work of shipping the rudder, is first passed beneath it and is then crossed, as indicated, so as to pass on each side of the rudder, and thence to the deck of the vessel. After the rudder is shipped the rope z is thrown around back of the rudder, so as to bring it in a position opposite to that represented in the figure, whereupon by proper manipulation it may be used to withdraw the pins x and x' , thus disconnecting the tong from the rudder, after which said rope may be used to draw the tong upon deck.

The advantages of my improvements are to secure the ship and all kinds of crafts against shipwreck, foundering, and other disasters arising from having their rudders carried away or their braces and pintles torn off, or beaten away by the action of the waves; or, should a man-of-war in close action with the enemy get her rudder with pintles and braces shot off she can at once have a rudder shipped in the reserved braces and act with uninterrupted efficacy, and even if hard wear and time have done their worst and worn out all the fastenings on the stern and rudder there is still no necessity to dock the vessel on that account, since by unshipping the rudder and attaching new pintles, and then shipping the rudder in the unworn reserve braces, the rudder will be as secure and effective as when the ship first left the yard. The second feature gives decided advantages in steering a vessel, since the water cannot rush off on both sides of the rudder without taking an effective hold upon it, and thus I am enabled to make a screw-propeller when only under sail as effective as the best steering-vessel. By hanging, guiding, and turning the rudder-head in as small a metal bearing as is practicable the usual enormous amount of bind-

ing, twisting, and friction is entirely obviated and the effort required to turn the rudder reduced to its minimum, as well as greater security afforded to the rudder when striking on bars or grounding.

By the application of the springs as described the rudder is protected against having its fastenings broken off by sudden wrenches and concussions, and to avoid the obnoxious binding of the rudder in the rudder-yoke, due to the use of the ordinary rubbing-bars, I use in lieu thereof vertical pins protected by friction-cylinders, the working faces or surfaces of which have an equal bearing on the inner surfaces of the lips of the yoke, thus affording a steady action and but trifling friction.

For greater security to the rudder a chain may be fastened to the upper end of the rudder, and also to the stern of the vessel, as indicated at *g f h* in Fig. 1, so that in case the rudder should be broken in the neck it will not be entirely lost.

Having thus described my said invention,

what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. Providing the sterns of vessels and their rudders with reserve braces, pintles, and steps, substantially in the manner and for the purpose set forth.

2. A rudder having a metal bearing E, in combination with a cross-bar L, springs M and M', and inclosing-boxes K, substantially in the manner and for the purpose specified.

3. The rudder-yoke O, having lips V, in combination with the vertical pins T and cylinders U, the whole arranged and operating substantially in the manner and for the purpose set forth.

4. For shipping and unshipping vessel-rudders, the application of a shipping-tong W, substantially in the manner and for the purpose described.

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Witnesses:

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