

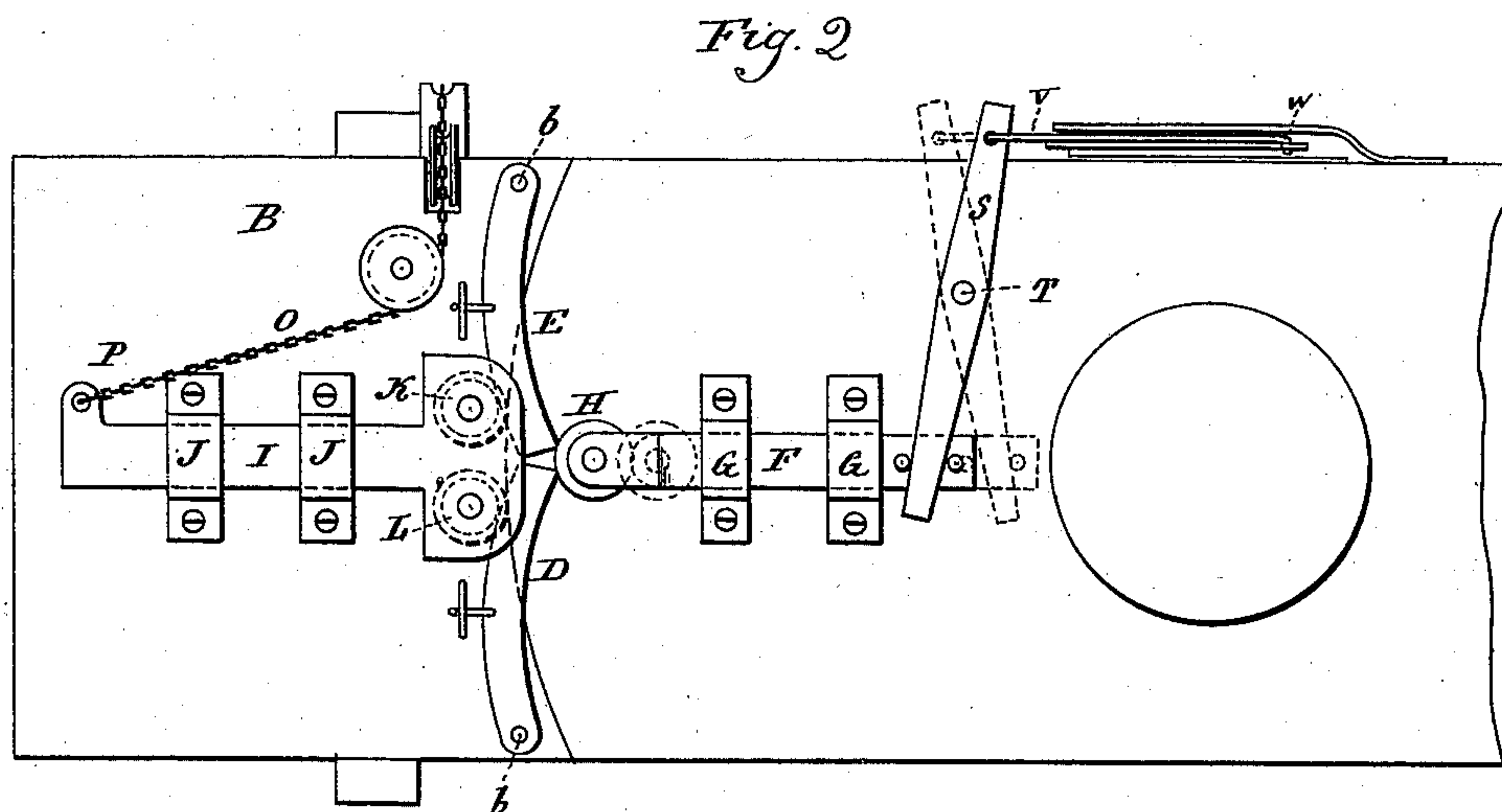
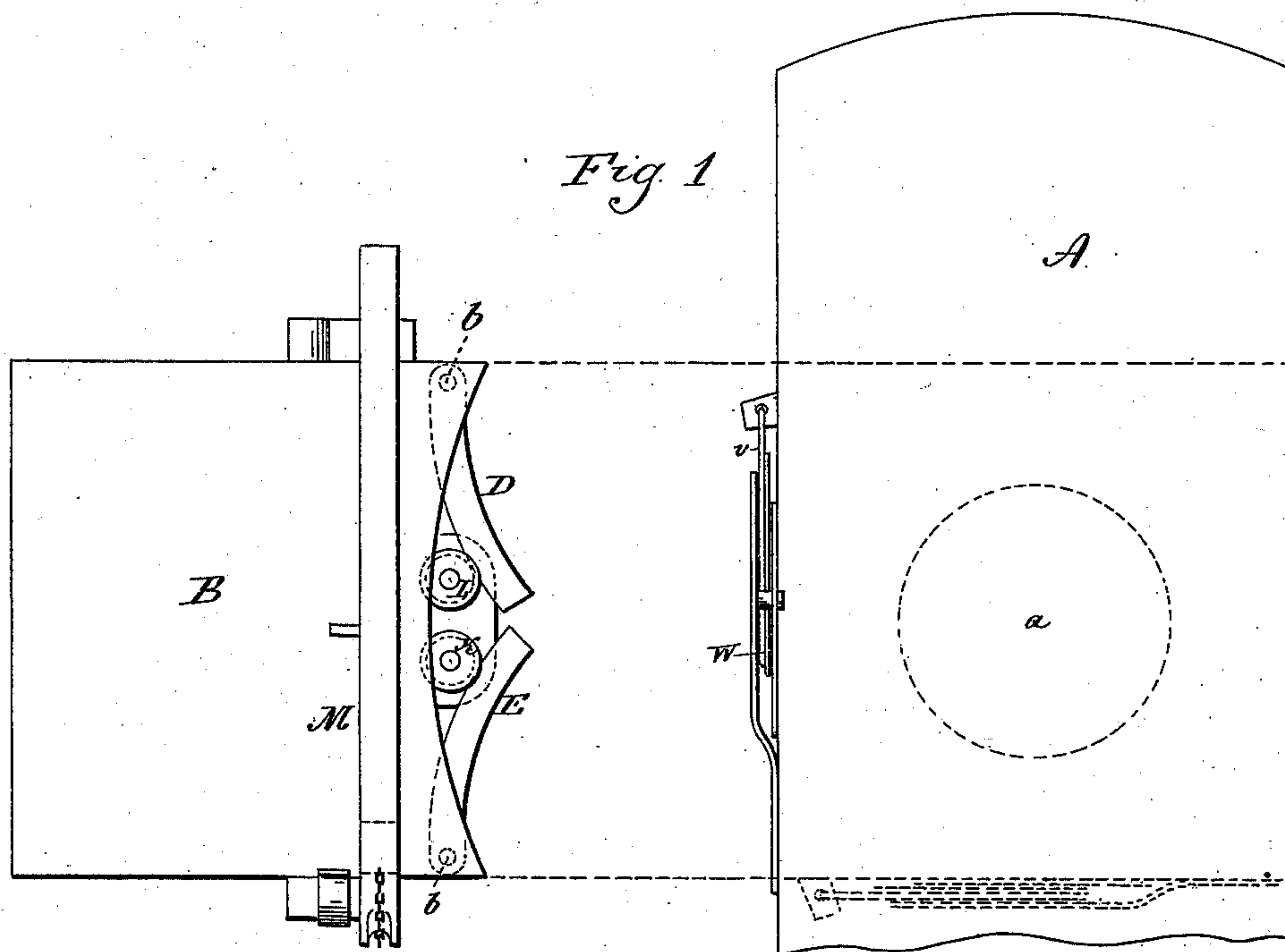
(No Model.)

2 Sheets—Sheet 1.

W. HANEY.
DRAW BRIDGE GATE.

No. 400,672.

Patented Apr. 2, 1889.



Witnesses,
J. H. Shumway
Fred C. Bane

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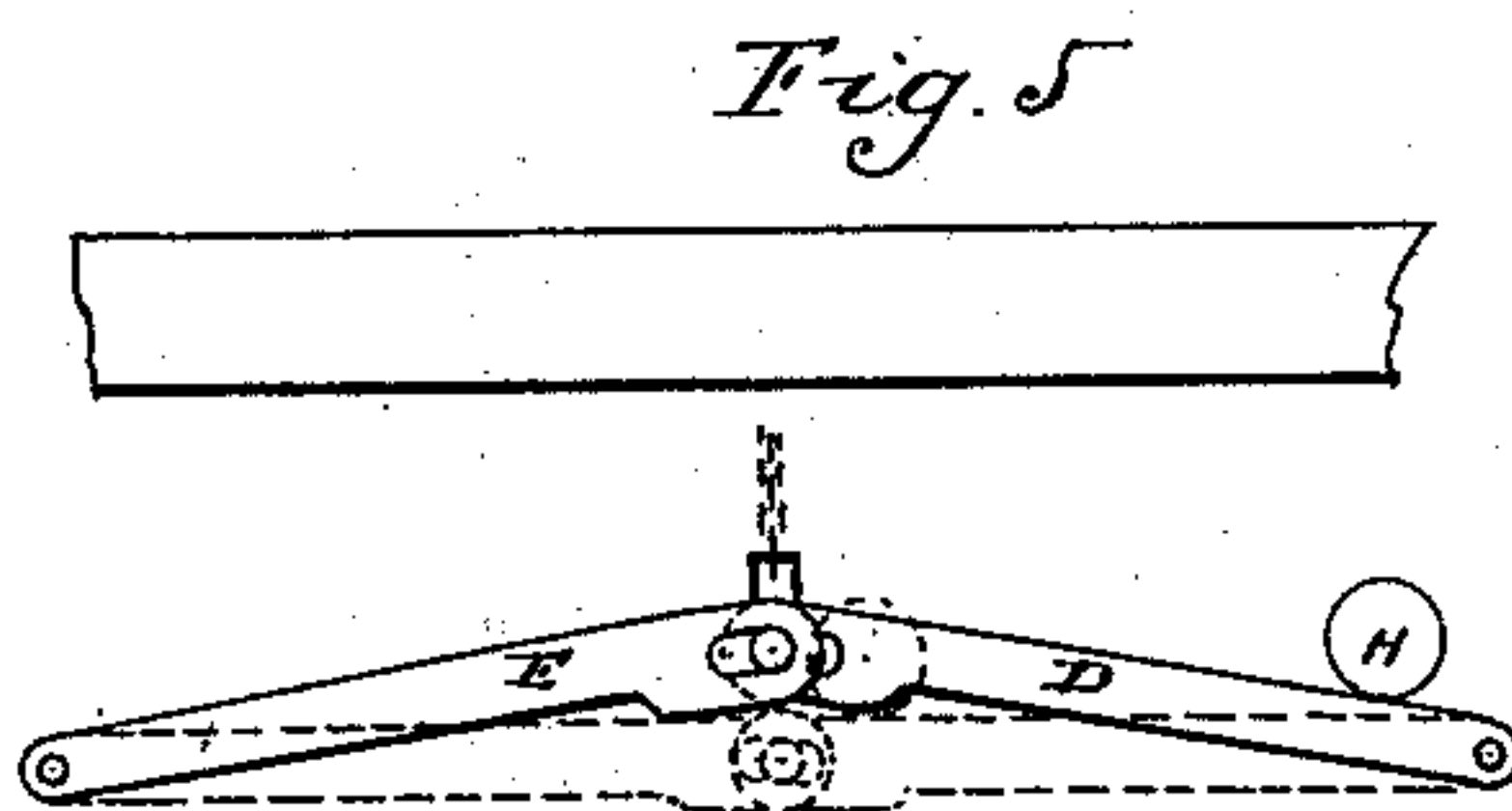
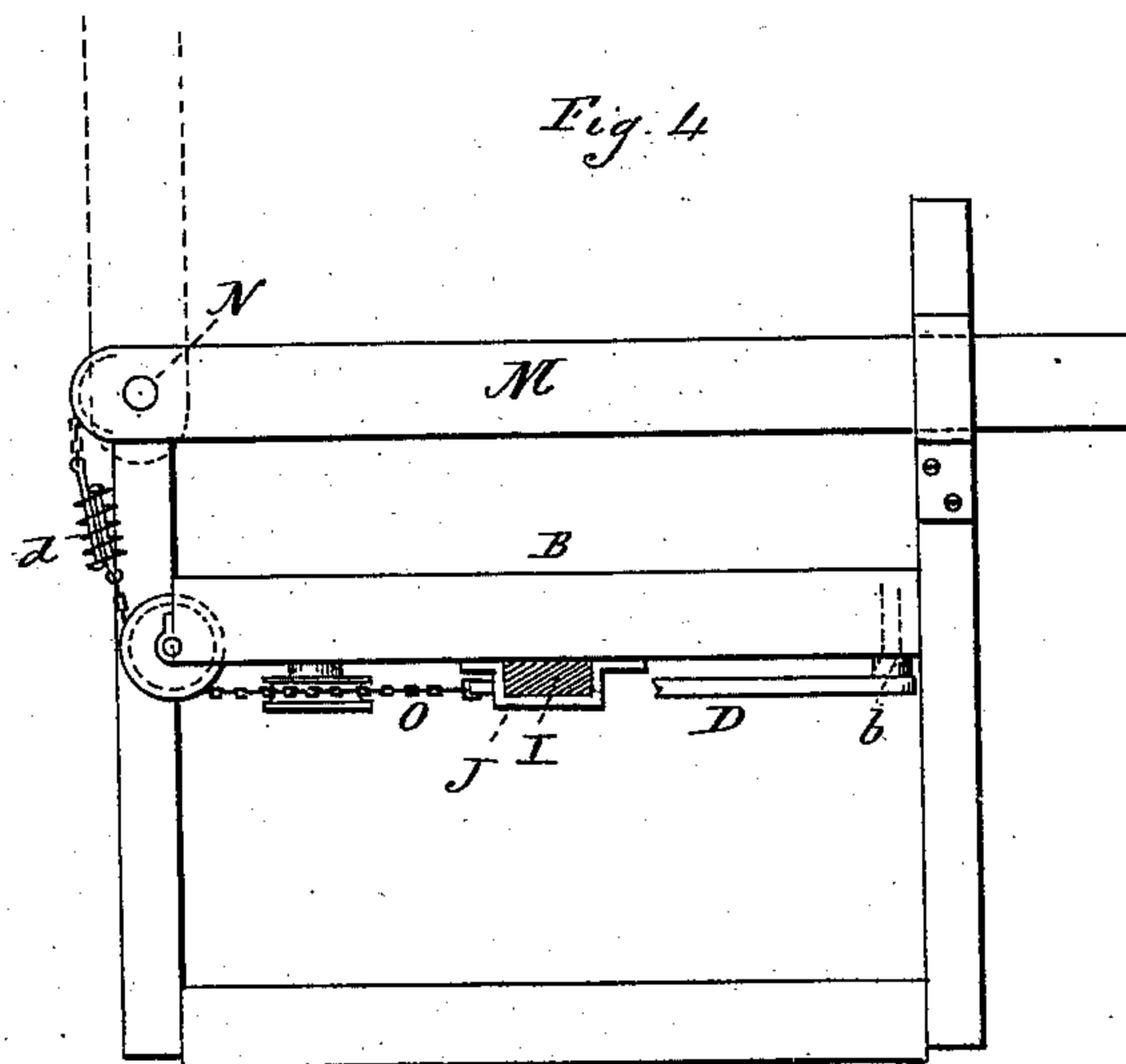
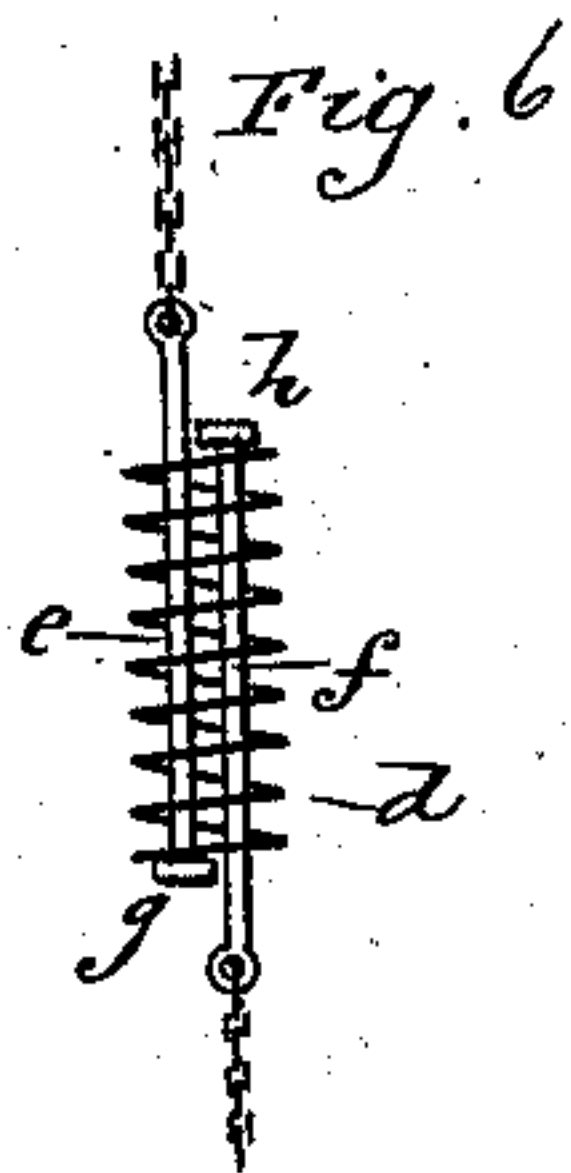
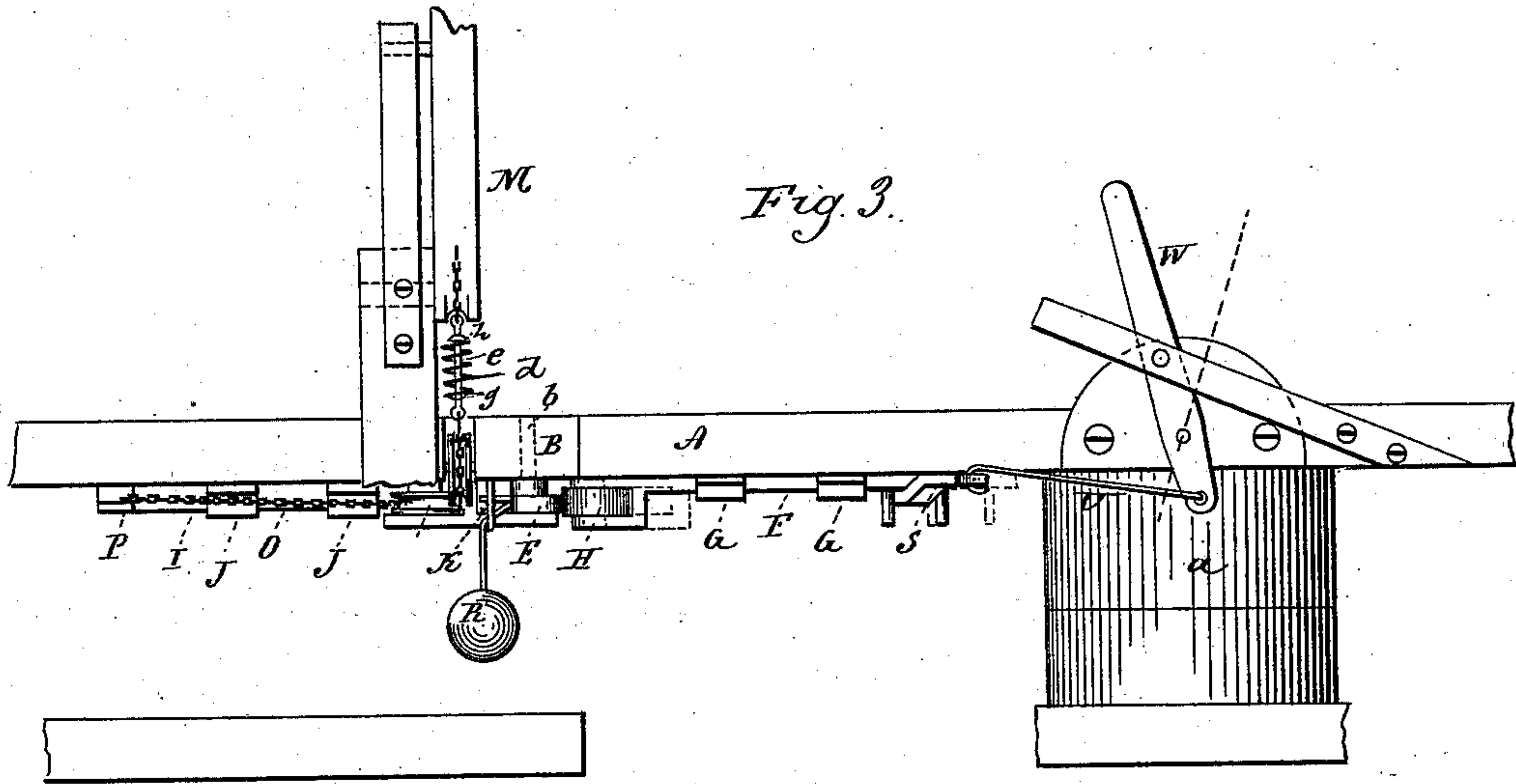
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2 Sheets—Sheet 2.

W. HANEY.
DRAW BRIDGE GATE.

No. 400,672.

Patented Apr. 2, 1889.



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By Atty.
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UNITED STATES PATENT OFFICE.

WILLIAM HANEY, OF NEW HAVEN, CONNECTICUT.

DRAW-BRIDGE GATE.

SPECIFICATION forming part of Letters Patent No. 400,672, dated April 2, 1889.

Application filed May 21, 1888. Serial No. 274,470. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HANEY, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Draw-Bridge Gates; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top or plan view of the bridge, showing the draw in the open position; Fig. 2, an under side view of the same, looking up, showing the draw closed; Fig. 3, a side view, the draw in the closed position; Fig. 4, an end view of the approach, looking from the draw side, the lever E removed to show the connection between the levers and the gate; Fig. 5, a modification in the arrangement of the levers D and E; Fig. 6, the yielding device in the gate-connection enlarged.

This invention relates to mechanism combined with a swinging draw-bridge, having for its object to automatically open and close the gate at the entrance onto the bridge as the bridge is closed or opened, and to do this whether the bridge be swung in one direction or the other; and the invention consists in the combination of devices, as hereinafter described, and particularly recited in the claims.

A represents the bridge, which is hung so as to swing in a horizontal plane upon a center, *a*.

B represents that portion of the bridge or abutment which forms the approach to the draw, the bridge being represented as open to navigation in Fig. 1 and as closed to same in Fig. 2.

D and E represent two levers hung upon pivots *b* at their outer ends beneath the part B, and preferably so as to swing in a horizontal plane, the levers extending toward each other and meeting midway of the width of the bridge and so that they normally stand in an oblique position, their inner or free ends inclining toward the draw.

On the draw or turning portion of the bridge a projection of some character is made, which moves in a path corresponding to the plane of the levers D E. As here represented, this

projection is in the form of a longitudinally-sliding bar, F, supported in suitable guides, G, upon the under side of the draw and carrying at its outer end a roller, H, which as the bridge swings to the right or left is adapted to work against the corresponding edges of the levers D E.

In rear of the levers D E a slide, I, is arranged in guides J J in a central position, and so as to slide longitudinally toward and from the said levers D E. The said slide carries two rollers, K L, which work, respectively, against the rear side of the said levers D E, and so that a forced swinging movement imparted to said levers D E, as from the position in Fig. 1 to that in Fig. 2, will impart a corresponding rear movement to the slide I, or the levers moved in the opposite direction, as from the position in Fig. 2 to that in Fig. 1, the slide will follow the said levers.

M represents the gate, which is preferably in the form of a bar, hung upon a pivot, N, so as to swing in a vertical plane, as from the closed position in Fig. 4 to the open position in broken lines, same figure, the closed position being across the bridge in the usual manner for swinging bar-gates. From the gate a chain or cord, O, runs around suitable guides and is connected to the slide I, as at P, and so that the weight of the gate tends to impart a movement of the slide I toward the said levers D E, and as the gate closes, the levers D E being free, the slide will force the said levers forward toward the draw, as represented in Fig. 1. Consequently as the levers D E are forced in the opposite direction as to the position seen in Fig. 2 they will impart a corresponding retreat to the slide I, which will operate upon the gate to raise it to the open position.

As the bridge is closed to navigation and normally, the operative end of the bar F bears against the two levers D E, as seen in Fig. 2, which causes the slide I to stand in its retreating position and hold the gate suspended in the open position; but as the bridge is turned to the right or left the working end of the bar F passes from the levers D E, leaving them free, whereupon the weight of the gate is permitted to act, and the gate, dropping, will force the slide I forward and force the levers D E

toward the draw, as represented in Fig. 1. Then as the draw is returned the working end of the bar F will strike the lever D or E, according to the direction in which the bridge is closed, and, riding upon its oblique surface, will force that lever inward, and the said lever, operating upon the slide I, as before described, will raise the gate.

The two levers D E are each provided with a counterbalancing-weight, R, the tendency of which is to draw them backward when the slide I permits such movement. This counterbalancing is desirable, because as the bridge closes it operates upon one of the levers only. The counter-balance, therefore, will force the other lever to follow the slide I as it retreats, the counter-balance of the two levers being very much less in weight than that of the gate, so that they form very little resistance to the descent of the gate when the slide I is free to move.

It will be seen that under the arrangement of the two levers D E the bridge may be opened or closed in either direction, to the right or left. Closing in one direction, it will operate upon one lever, D, and closing from the other direction will operate upon the other lever, E, and the draw being provided at both ends with a like projection to operate against the levers, the bridge may be rotated entirely around, so as to change ends, and yet the result be the same.

I prefer to make the projection from the draw which operates upon the lever D E in the form of a slide, so that the gate may be mechanically opened or closed, whether the draw itself be rotated or not. To this end a horizontal lever, S, is arranged beneath the draw so as to swing in a horizontal plane upon a pivot, T. One arm of the lever is in connection with the bar F, and from the other arm a rod or other suitable connection, U, extends to one arm of a hand-lever, W, hung at a convenient point in the bridge—say, at the center, at one side, as represented in Fig. 3—and so that the lever may be turned upon its pivot, as indicated in broken lines, Fig. 3, and impart a sliding movement of the bar F toward the levers D E, which will force those levers and the slide I to retreat, as represented in Fig. 2, and the bar F may be withdrawn, as indicated in broken lines, Fig. 2, which will permit the levers D E to swing toward the center and permit the gate to drop, so that if occasion requires the gate may be closed when the bridge is closed, or, the bar F being withdrawn, as indicated in broken lines, Fig. 2, the opening or closing of the bridge will not operate to open the gate.

I have thus far described the levers as arranged to swing in a horizontal plane, and so that a longitudinal projection on the draw will operate upon them, but the levers may be arranged so as to swing in a vertical plane, as seen in Fig. 5. In this case the inclination of the levers is upward toward the center,

and the projection upon the draw will operate in a vertical plane riding upon the upper inclined surface of the levers in opening and closing, II representing the same roller on the draw as it comes into engagement with or leaves the levers, as the case may be, the movement of the levers being indicated in broken lines. In this case, as in the first illustration, it is desirable that the connection between the gate and the slide shall be of a yielding character. To this end I introduce a spring in the chain or cord which connects the gate with the slide or levers, as the case may be. This spring is best made in the form of a helical spring, as seen at *d*, Fig. 4, and shown enlarged in Fig. 6.

Through the spring two spindles, *e f*, extend, the one *e* provided with a cross-head, *g*, at one end to rest against that end of the spring, and the other provided with a like cross-head, *h*, to rest against the other end of the spring, and to the other ends of the said spindles, respectively, the cords or chains are connected, so that the strain between the gate and its operative mechanism is made through the spring, the normal condition of the spring being sufficient to support the gate; but should the strain become greater then the spring will be contracted under the influence of the two spindles thereon in opposite directions, and when this extraordinary force is removed the spindle will resume its normal position. Thus the connection will be of a yielding character, yet always sufficiently taut to operate the gate.

I claim—

1. In a draw-bridge in which the draw is arranged to swing in a horizontal plane, the combination of the levers D E, hung upon pivots beneath the approach to the draw, so as to swing in a horizontal plane, but inclined toward the draw, a longitudinal slide, I, arranged in rear of said levers, and upon which both the said levers are adapted to bear, a gate over the approach with a connection therefrom to said slide I, a longitudinal central slide, F, beneath the draw, so as to form a projection in the plane of the said levers D E, and so as to work upon the inclined surface of one of said levers as the draw opens or closes, a hand-lever hung at a stationary point on the draw, and a connection therefrom to said slide F, substantially as described, and whereby the projection of the said slide F may be forced into or taken from engagement with said levers.

2. In a draw-bridge in which the draw is arranged to rotate in a horizontal plane, the combination therewith of the two levers D E, arranged upon the approach to the draw, hung upon pivots at their outer end and inclined toward the center of the bridge, where the free ends of the lever substantially meet, a projection on the draw arranged to work in a path in the plane of said levers D E as the draw opens or closes, a vertically-moving gate

located on the approach to the draw, and a
connection from said gate to said levers, sub-
stantially as described, and whereby as the
bridge swings in either direction it will oper-
5 ate upon one of said levers, according to the
direction in which the said bridge swings,
and impart a corresponding opening or clos-

ing movement to said gate, with a yielding
spring in the connection between the gate
and said levers, substantially as described.
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Witnesses:

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