

(No Model.)

2 Sheets—Sheet 1.

G. S. BRIGGS.
CHECK ROWER FOR PLANTERS.

No. 288,158.

Patented Nov. 6, 1883.

Fig. 1.

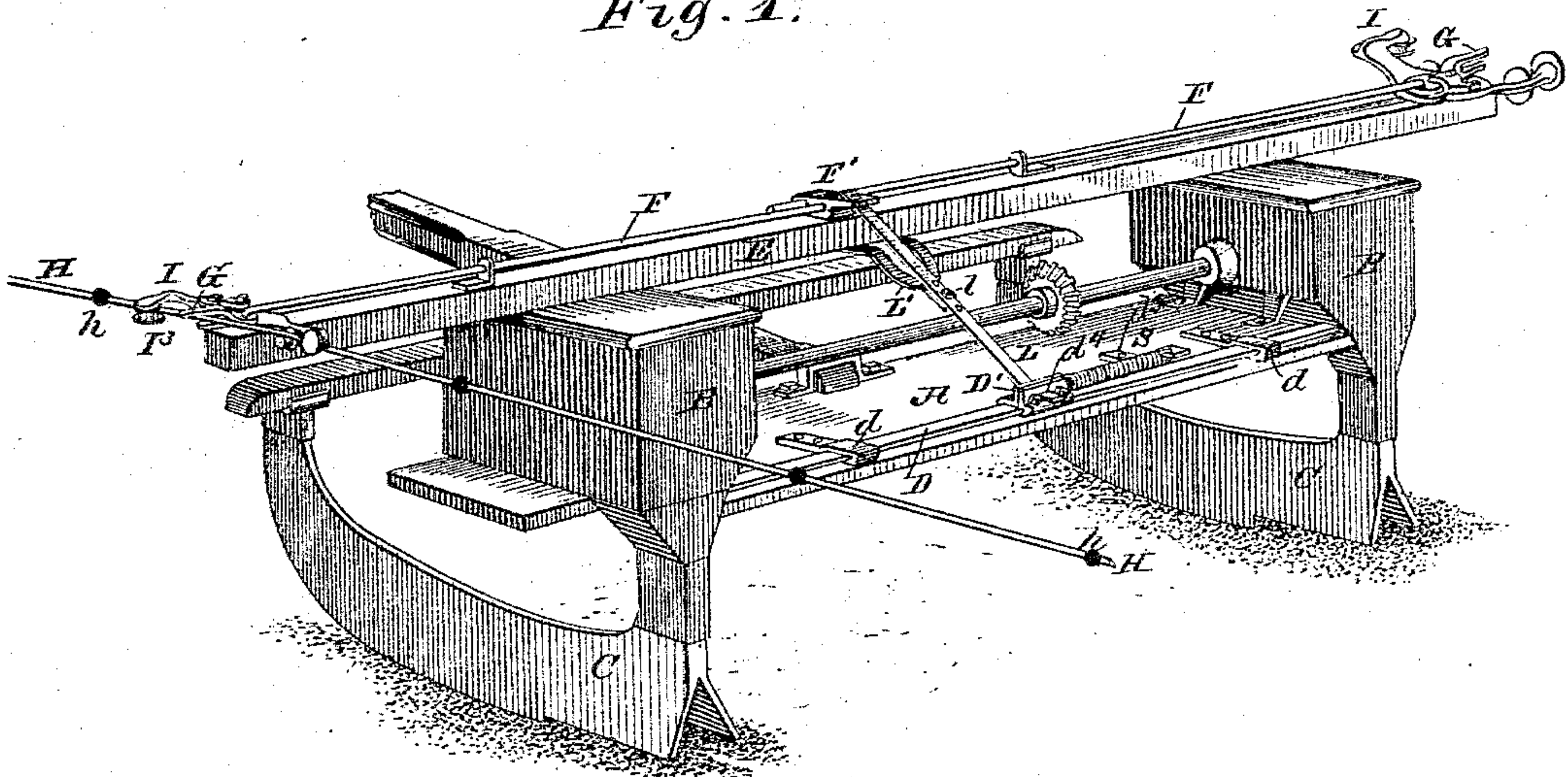


Fig. 2.

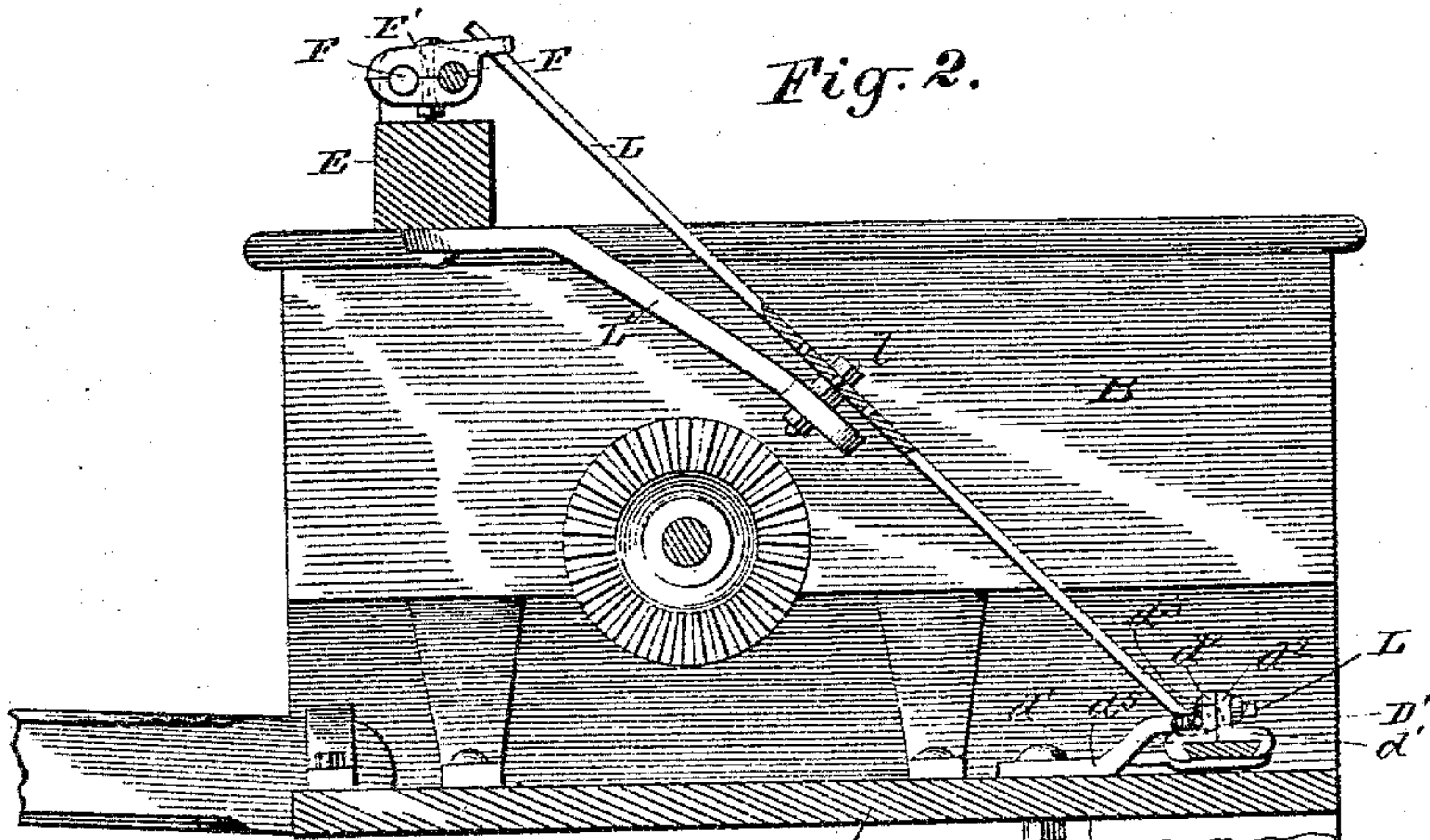
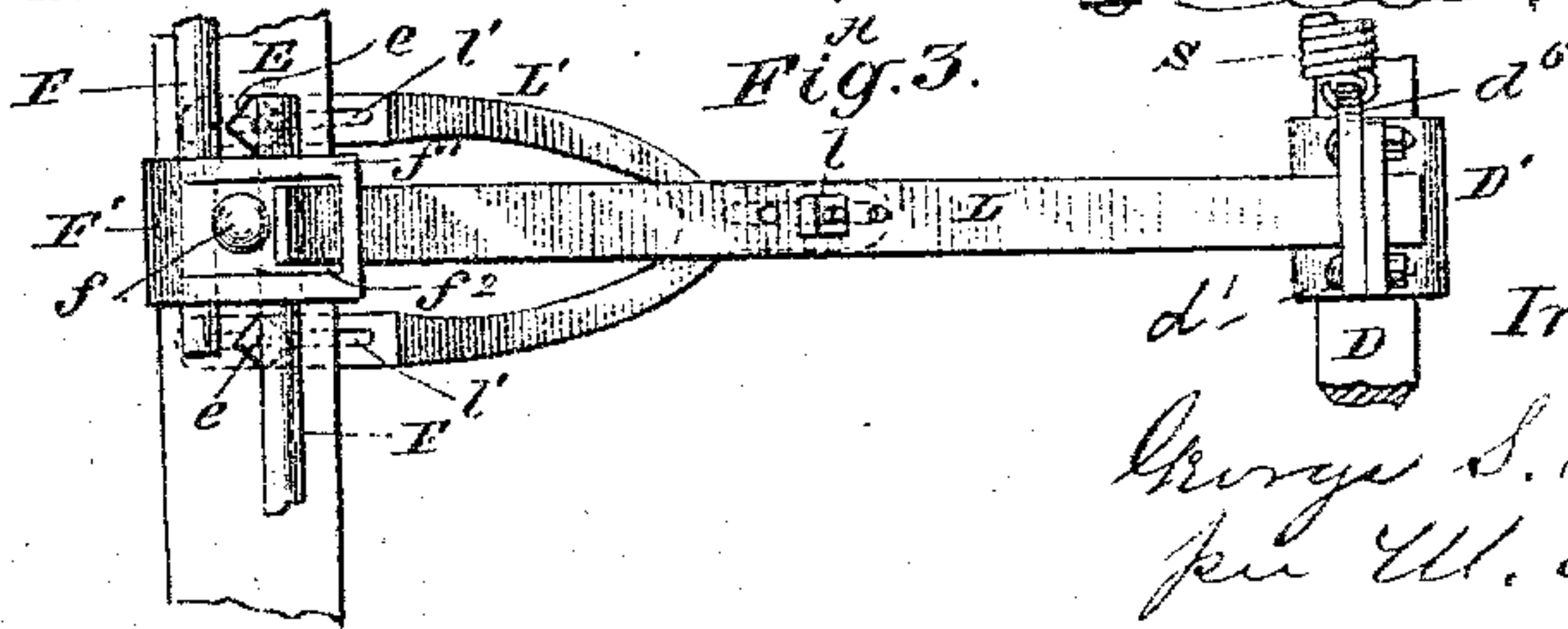


Fig. 3.



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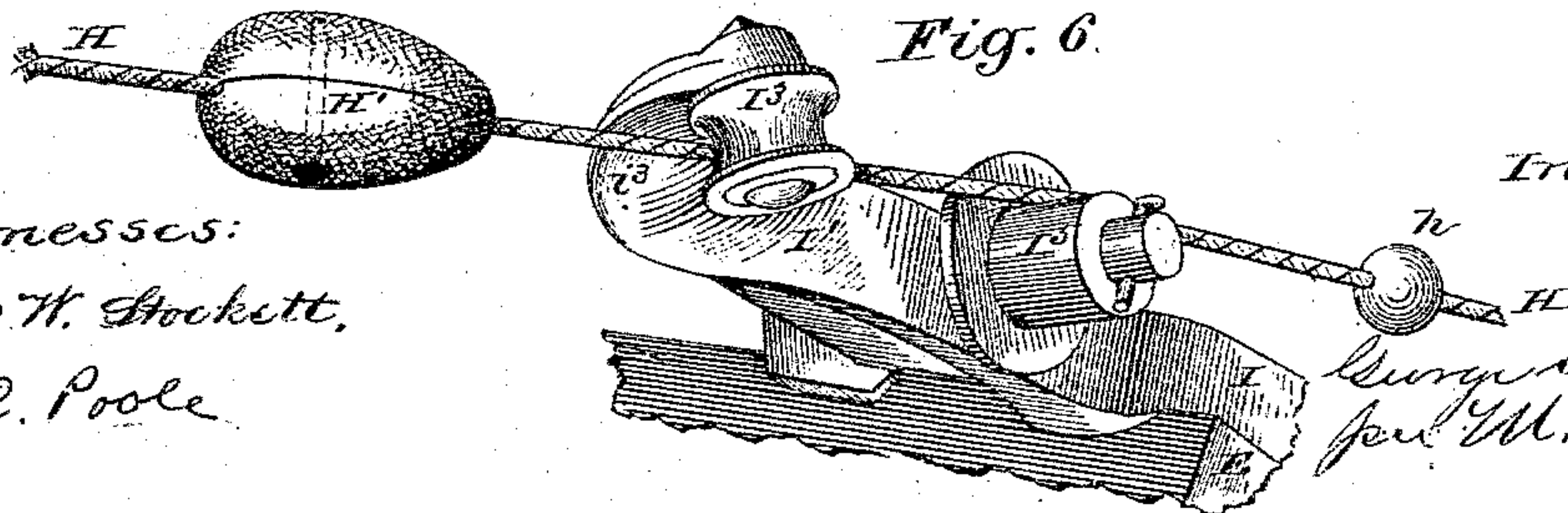
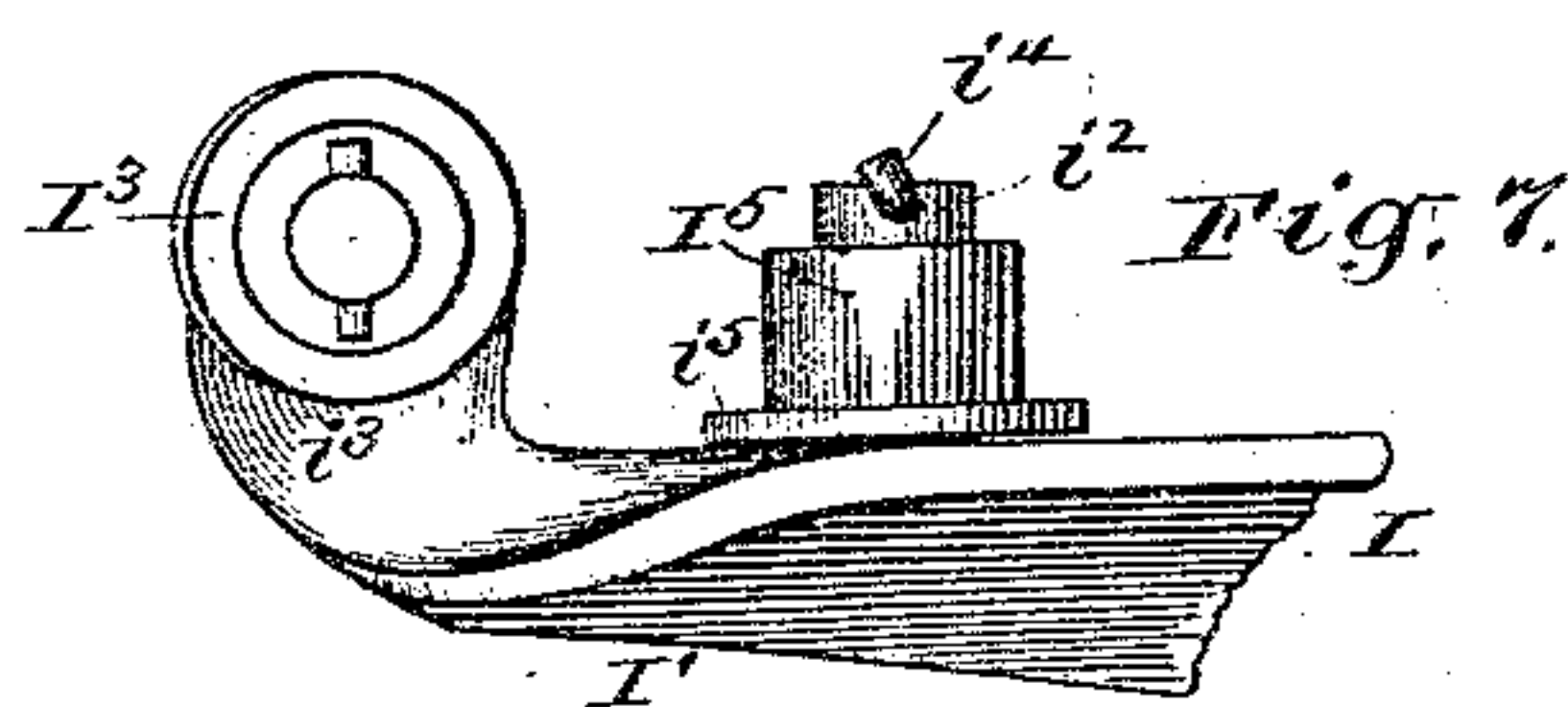
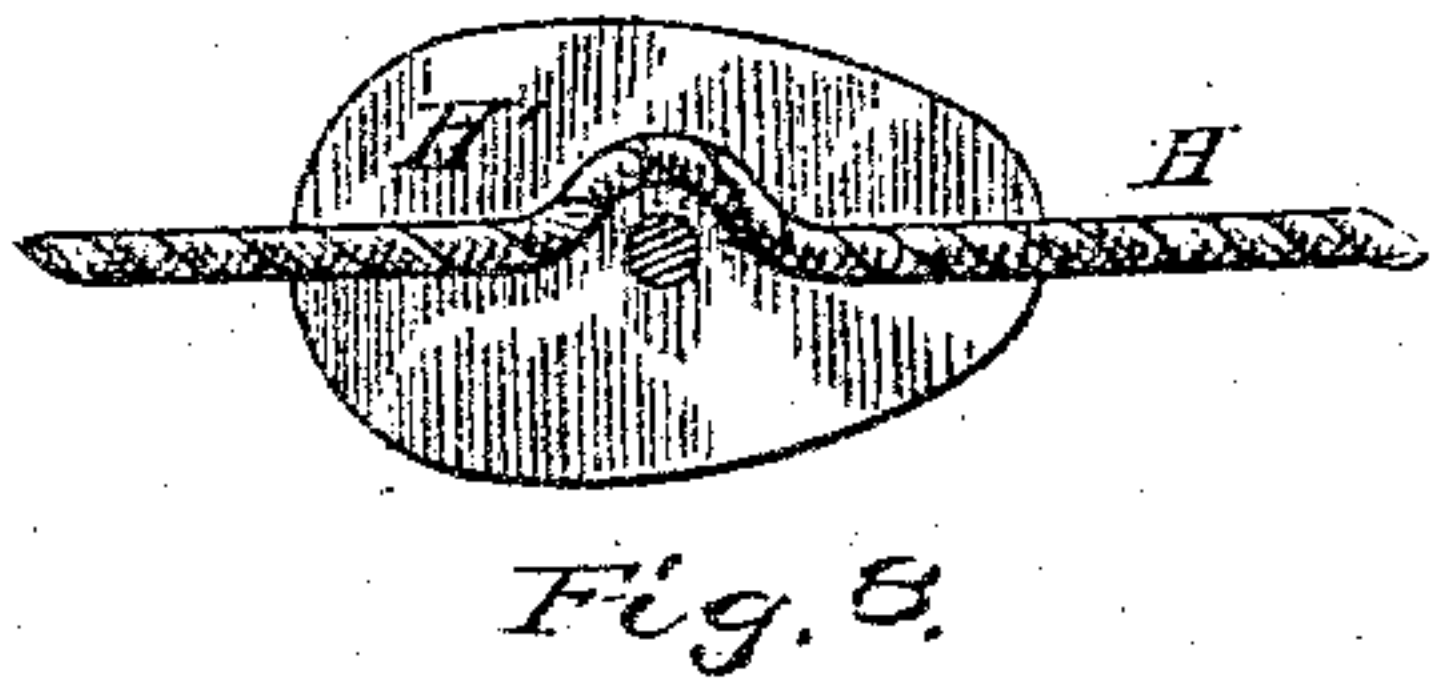
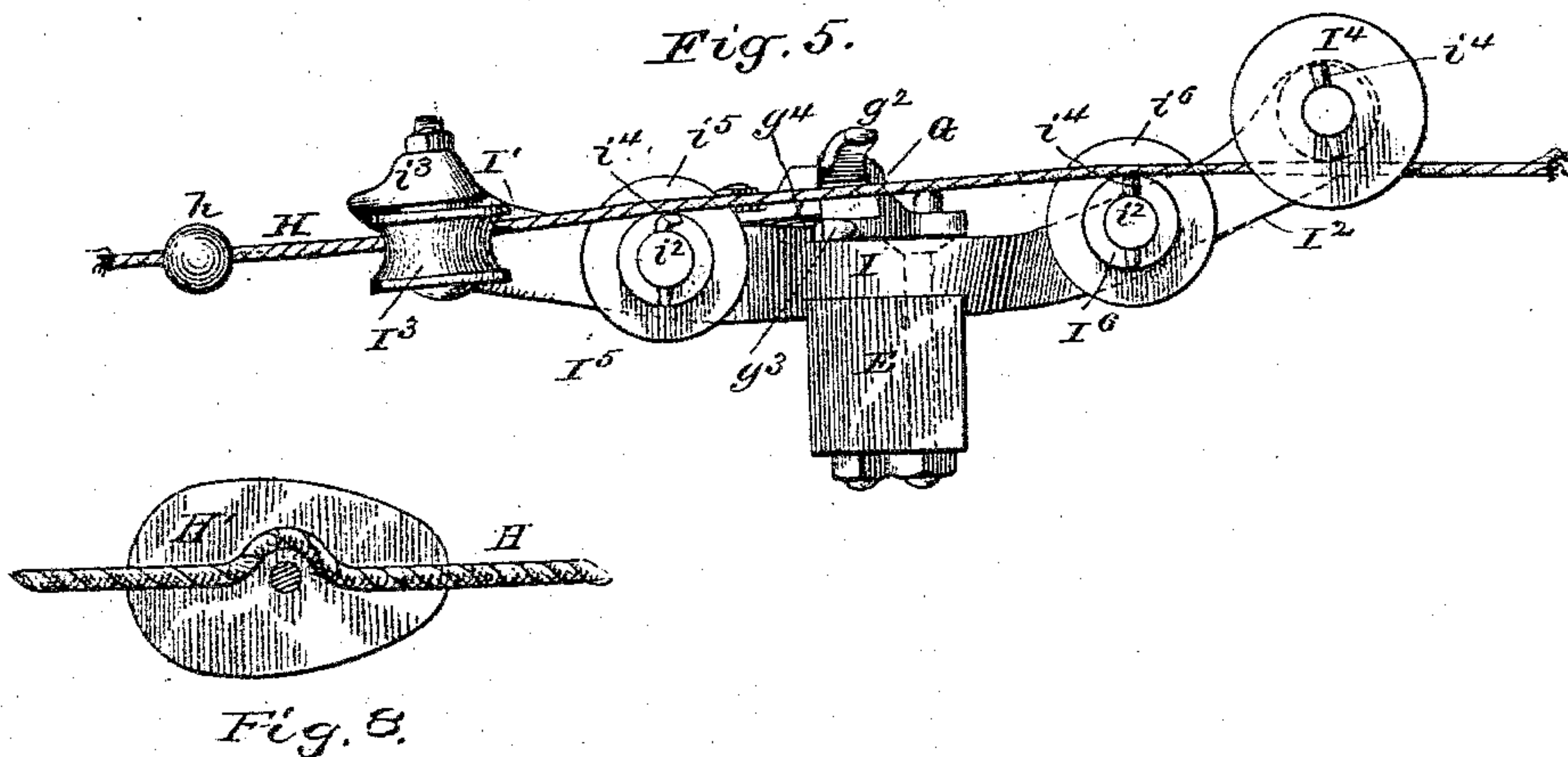
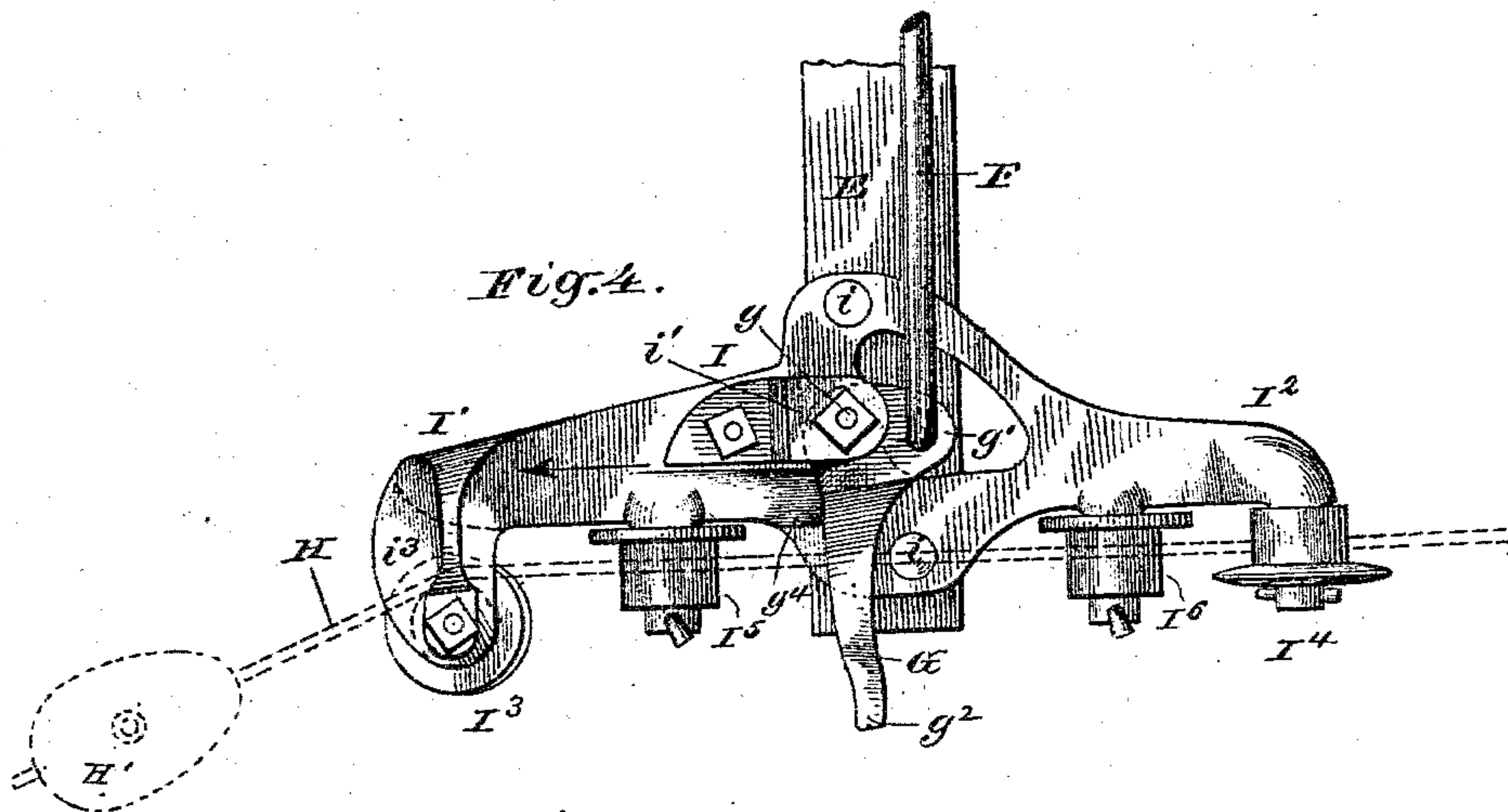
(No Model.)

2 Sheets—Sheet 2.

G. S. BRIGGS.
CHECK ROWER FOR PLANTERS.

No. 288,158.

Patented Nov. 6, 1883.



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UNITED STATES PATENT OFFICE.

GEORGE S. BRIGGS, OF ROCKFORD, ILLINOIS, ASSIGNOR OF ONE-THIRD TO
CHESTER C. BRIGGS, OF SAME PLACE.

CHECK-ROWER FOR PLANTERS.

SPECIFICATION forming part of Letters Patent No. 288,158, dated November 6, 1883.

Application filed May 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BRIGGS, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Check-Rowers for Planters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates, first, to devices in check-rowers through the agency of which the button-wire actuates reciprocating valves in the planter; and, second, to automatic means for throwing the button-wire out of engagement with the guide-pulleys and trip-lever when the machine has reached the end of its course.

The object of the first feature of the invention is to provide for an immediate return of the valves, after being opened, by means independent of the button-wire; and to this end the invention consists in the combination, with the valve slide-bar, of a spring arranged and connected therewith in such manner as to oppose the force of the button-wire by which the valves are opened, and to instantly close the valves when released by said wire. This part of the invention is applicable to any machine permitting or requiring such immediate return of the valves.

The object of the second feature of my invention is to provide for the automatic detachment of the button-wire or check-line from the machine when the latter has reached the end of its course; and it consists in the combination, with the pulley-head constructed of particular form, and with the guide-pulleys thereon, of a ball or bulb on the wire, larger than the buttons, which operates to throw the wire off the pulleys. This feature of the invention also embraces a bell-crank or trip lever for engagement with the buttons, said trip lever being pivoted to swing horizontally, and being provided with outwardly-directed fingers, from which the wire may free itself (as well as from the guide-pulleys) when the throw-off ball comes into operation. The second feature of the invention is applicable to any planter in

which the button-wire does not cross the machine.

The invention also embraces certain features of construction, the objects and nature of which will more fully appear from the following description.

In the accompanying drawings, Figure 1 is a perspective rear view of those parts of a planter concerned in the first division of my invention. Fig. 2 is a vertical section of the beam and valve slide-bar and other transverse parts of the machine, more clearly showing the pivoted lever which connects the trip-rod and slide-bar. Fig. 3 is a top view of the connecting-lever of Fig. 2 and its attachments. Fig. 4 is a plan view of one of the guide-pulley heads and the trip-lever thereto attached. Fig. 5 is an elevation of the same, looking toward the end of the beam. Fig. 6 is a perspective view of a portion of a guide-pulley head from below, intended to show the peculiar form of the anterior arm of said head, whereby the ball on the check-wire (also seen in said figure) may throw said wire off the pulleys. Fig. 7 is a view from beneath of the anterior arm of the pulley-head and pulleys thereon. Fig. 8 is a view of the plane face of one-half of the throw-off ball, showing the check-wire lying in an indirect groove therein.

A is a transverse bed-piece connecting the feed-boxes B B of a planter.

D is a reciprocating bar connecting the sliding valves within the boxes B B, for the discharge of the corn or grain to the drills C C.

E is the transverse beam resting on the boxes B, and carrying the guide-pulley heads I and trip-levers G at its opposite extremities, and F is the rod connecting said opposite trip-levers G.

H is the check-line or button-wire by which the delivery-valves of the rod D are actuated.

L is a lever centrally pivoted at l, and having its opposite ends connected with the rod F and the slide-bar D; and S is a spring connected with the foot of said lever for the return of the valves and slide-bar D after the latter have been thrown by engagement of the buttons h with the trip-levers G.

In the machine here shown the beam E for the support of the trip-rod F and pulley-heads is located above and in front of the valve slide-bar D, and as a consequence the lever L, by which the latter is actuated from the former, is arranged in a rearwardly and downwardly inclined position. The slide-bar D is guided by any suitable means, such means being here shown in the metal loops d , fastened to the bed-plank A, as clearly shown in Fig. 1.

The device D', by which the lever L is adjustably attached to the slide-bar D, consists, as here shown, of two oppositely-arranged plates, d' , constructed to embrace the slide-bar somewhat, as indicated in Fig. 3, and provided with the upwardly-directed flanges d^2 , through which pass the clamping-bolts d^3 , which confine the plates to the slide-bar at a desired point thereon. Through the flanges d^2 an aperture is provided at d^4 , Fig. 1, adapted to freely admit the lower end of the lever L, said lever being preferably bent in a horizontal direction to enter the aperture, as indicated in Figs. 1 and 2. The necessary connection of the lever L with the trip-rod F is also made by a two-part clamp-plate, F', made to bind upon said rod by a clamping-bolt, f , as plainly shown in Figs. 2 and 3. The upper part of the clamp F' is provided with a rearwardly-projecting flange, f' , having a slot, f^2 , adapted to freely receive the lever. As here shown, the rod F is made in two parts, and the clamp-plate F' serves to rigidly and adjustably connect the several parts by embracing both, as indicated in said figures of the drawings. The lever L is centrally fulcrumed on the lower end of the bracket L', cast in the form shown in Fig. 2, whereby it is adapted to be secured to the under face of the beam E. Said bracket is preferably branched, and held to the beam by two bolts, e , as shown, to give proper firmness thereto, and has slots l' for the reception of the bolts, in order to permit ready and perfect adjustment in setting up the machine.

For the purpose of finally and accurately adjusting the throw of the slide-bar, the bracket L' is slotted to receive the fulcrum-pin l , as indicated by dotted lines in Fig. 3. To accommodate the changed location of the fulcrum-pin, a series of holes are desirably provided in the lever L, as shown in the section of said lever in Fig. 3. The lever L is preferably in the form of a flat metal bar, and the slots or openings in the clamp-plates F' and D' are of such size as to allow the desired freedom of movement of the ends of the lever therein with as little lost motion as possible. The inner one of the clamp-plates d' is cast with an eye, d^6 , Fig. 3, for the attachment of the coiled spring S, the other end of said spring being connected with a bracket, d^5 , bolted to the bed-piece A. This spring is under tension and operates to throw the slide-bar D in one direction in opposition to the action of the trip-rod, which throws said bar in the other direction. Any suitable stop may be provided to limit the movement of the

slide-bar against the action of the spring, such a stop being here shown in proximity to the trip-levers, as will be hereinafter pointed out. 70

The pulley-heads I consist each of a casting having arms I' and I'', arranged transversely to the beam E, to which the heads are secured by bolts i . Said heads are provided with suitable guide pulleys or rollers for the button-wire, as will be hereinafter further and more fully explained. At the middle of each head is located the bell-crank trip-lever G, pivoted on a vertical axis to the head I, beneath the bracket i' , at g . Said lever has the rearwardly-directed arm g' , (reference being had to the direction of movement of the machine,) to which arm the adjacent end of the rod F is pivotally connected. At right angles with the arm g' project two outwardly-directed fingers, g^2 and g^3 , one above the other, with a sufficient space between them for the free passage of the button-wire, but near enough to each other to engage the buttons on said wire. In the movement of the machine, therefore, relative to the stationary button-wire, said wire, when guided between the fingers g^2 and g^3 , operates to throw them backward until their ends escape the button, whereupon they are returned to their original position, as shown in Figs. 4 and 5, by the action of the spring S. A stop, g^4 , cast on the head I, serves to arrest the return movement of the trip-lever. 85 90 95

The construction of the bifurcated horizontally-swinging trip-lever, as just explained, and the form and arrangement of the pulley-head and the guide-pulleys or rollers thereon, by which the button-wire is directed into engagement with said trip-lever, have especial reference to the automatic disengagement of the button-wire when the machine has reached the end of its course, as will be next explained. 100 105

By reference to Figs. 4, 5, 6, and 7 it will be seen that the anterior arm I' of the head I is provided with a laterally outwardly directed projection, i^3 , to and beneath which is pivoted the grooved pulley I³, having its axis preferably inclined, as shown, to conform to the usual direction of the wire as delivered to the pulley from the anchor. The supporting-pulleys I⁵ and I⁶, mounted on horizontal axes, have each a flange at its inner end, but are without flanges at their outer ends, so that when the wire is disengaged from the pulley I³ said wire will be free to draw off said pulleys I⁵ and I⁶ under the side draft on the wire. The rear-most upper pulley, I⁴, also mounted on a horizontal axis, has an outer flange; but when the wire is laterally drawn off the preceding pulleys said wire will readily drop, and thus free itself from said pulley I⁴. The open bifurcation of the trip-lever is also suited to disengagement of the wire by a lateral movement of the said wire, such as will be produced by the side draft on the wire when once freed from the grooved pulley I³. For the purpose of throwing the wire off said pulley I³, a ball, H', preferably of oval or egg shape, and with its smaller end toward the machine, is secured 110 115 120 125 130

to the wire H at a point near its end where it is desired to throw the said wire off the pulleys. Said ball is intended to strike the overhanging arm or projection i^3 of the head, so as to be thereby forced downward far enough to carry the wire out of and below the pulley-groove, whereby the wire, under tension, will swing outward below said pulley. To this end the ball H' is obviously materially larger than the buttons h , and will generally be, in its short diameter, twice or more than twice the depth of the pulley I^3 . To aid in producing the effect described without sudden shock on the wire or machine, the under surface of the short arm i^3 and the wall of the casting opposite the pulley are preferably rounded out somewhat, as shown in Figs. 4, 6, and 7, to partially admit the ball, and to force the same downward by a gradual and easy movement. As soon as disengaged from the pulley I^3 , the wire H is drawn outwardly off the pulleys I^3 and I^6 and from between the fingers g^2 and g^3 of the trip-lever, and falls from beneath the pulley I^4 , as already explained.

The ball H' is preferably made in halves joined by a screw flush with its surface, as indicated in Fig. 6. In the plane faces of the halves axial grooves are formed, together adapted to admit the wire closely; but for the purpose of giving room for a central screw, and of more securely holding the ball in place on the wire, said grooves are centrally deflected, so as to give a bend in the wire, as indicated in Fig. 8.

By means of the devices described for automatically throwing off the wire when the machine is at the end of its course, it becomes unnecessary for the driver to dismount for this purpose, as is now the practice. It will of course be understood that similar balls H' will be located near both ends of the wire.

In connecting the spring S directly to the slide-bar D, instead of to the trip-rod F, reference is had to the avoidance of any effects from lost motion at the ends of the lever L that would be calculated to interfere with the prompt return of the valves if the spring were connected with the trip-rod.

The horizontally-swinging trip-lever having its separated fingers outwardly directed has obvious advantages independent of the discharge of the throw-off mechanism.

I claim as my invention—

1. The combination, with a cross-beam, E, suitable guides for the button-wire, and slide-bar D for the valves, of two bell-crank trip-levers, G, pivoted at opposite ends of the beam, a reciprocating trip-rod pivoted at its ends to arms of the bell-crank levers, a lever, L, fulcrumed at a point between the trip-rod and slide-bar, and connecting said bar and rod,

and a spring arranged to throw the movable parts in opposition to the action of the button-wire, substantially as described.

2. The combination, with the pulley-head, guide-pulleys thereon, and trip-lever, together constructed to allow disengagement of the button-wire, as set forth, of a ball, H', affixed to the button-wire, and larger than the buttons thereon, for throwing said wire off the pulleys, substantially as described.

3. The combination, with the head I, provided with the horizontal and laterally projecting arm i^3 , with the trip-lever G, and a ball larger than the buttons on the wire H, of the depending pulley I^3 , and additional retaining devices for the wire, adapted to release the wire by a lateral movement thereof, substantially as described.

4. In combination with the head I, depending pulley I^3 , and the button-wire provided with a ball larger than the buttons, the arm i^3 , which supports said pulley I^3 , having a curved and rounded surface adjacent to the pulley, substantially as described, and for the purposes set forth.

5. In combination with the head I and trip-lever G, the laterally-supported depending pulley I^3 , rear overriding-pulley, I^4 , and intermediate pulleys, I^5 I^6 , all constructed and arranged substantially as shown, and the wire H, provided with buttons h , and ball H', larger than the buttons, substantially as and for the purposes specified.

6. The combination, with the beam E, reciprocating two-part adjustable trip-rod F, and slide-bar D, of the bracket L', lever L, and clamps D' F', apertured to admit the ends of the lever in the direction of its length, substantially as described.

7. In combination with the lever L, trip-rod F, bar D, and bracket L', constructed to support the lever by an adjustable fulcrum, the clamps F' and D', provided each with an aperture for the admission of the lever in the direction of its length, substantially as described.

8. The combination of the beam E, button-wire guides thereon, trip-levers G, trip-rod F, slide-bar D, inclined lever L, adjustable bracket L', adjustable clamps D' F', apertured to admit the lever L in the direction of its length, and spring S, connecting the clamp D' and a stationary part of the machine, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

GEORGE S. BRIGGS.

Witnesses:

M. T. BRIGGS,

J. C. LATHROP.