

No. 612,375.

Patented Oct. 11, 1898.

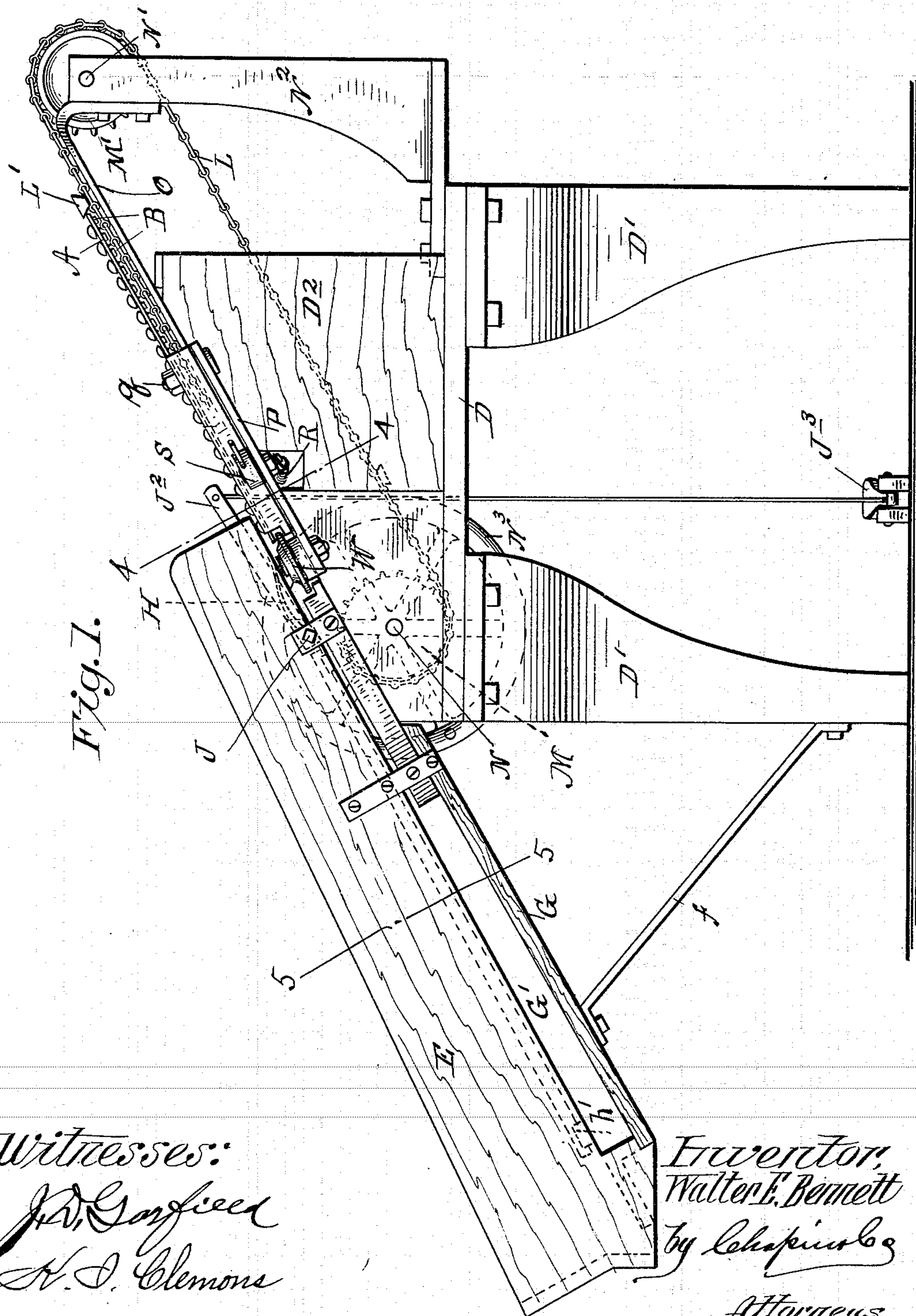
W. E. BENNETT.

MACHINE FOR REMOVING BUTTONS FROM FINISHING TRAYS.

(Application filed Dec. 30, 1897.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

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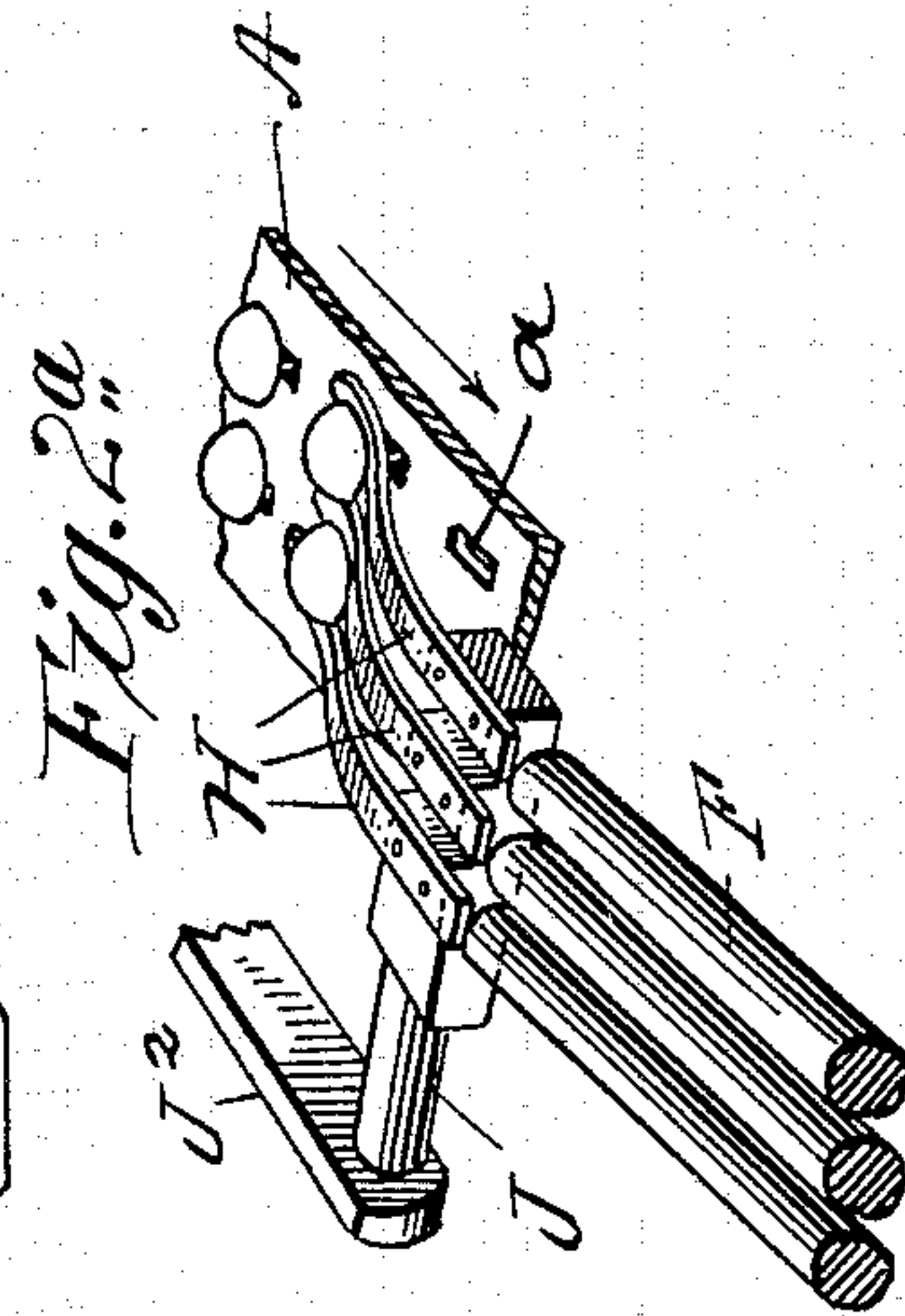
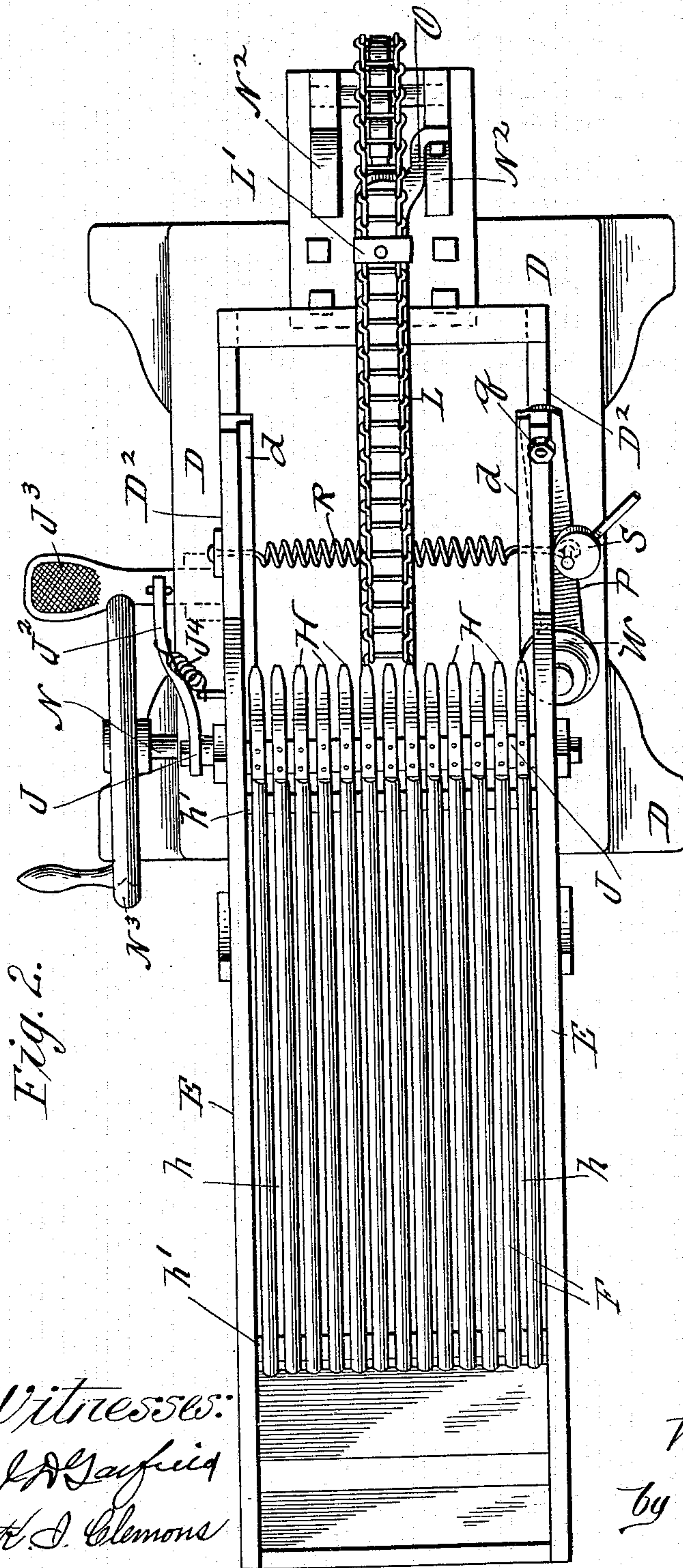
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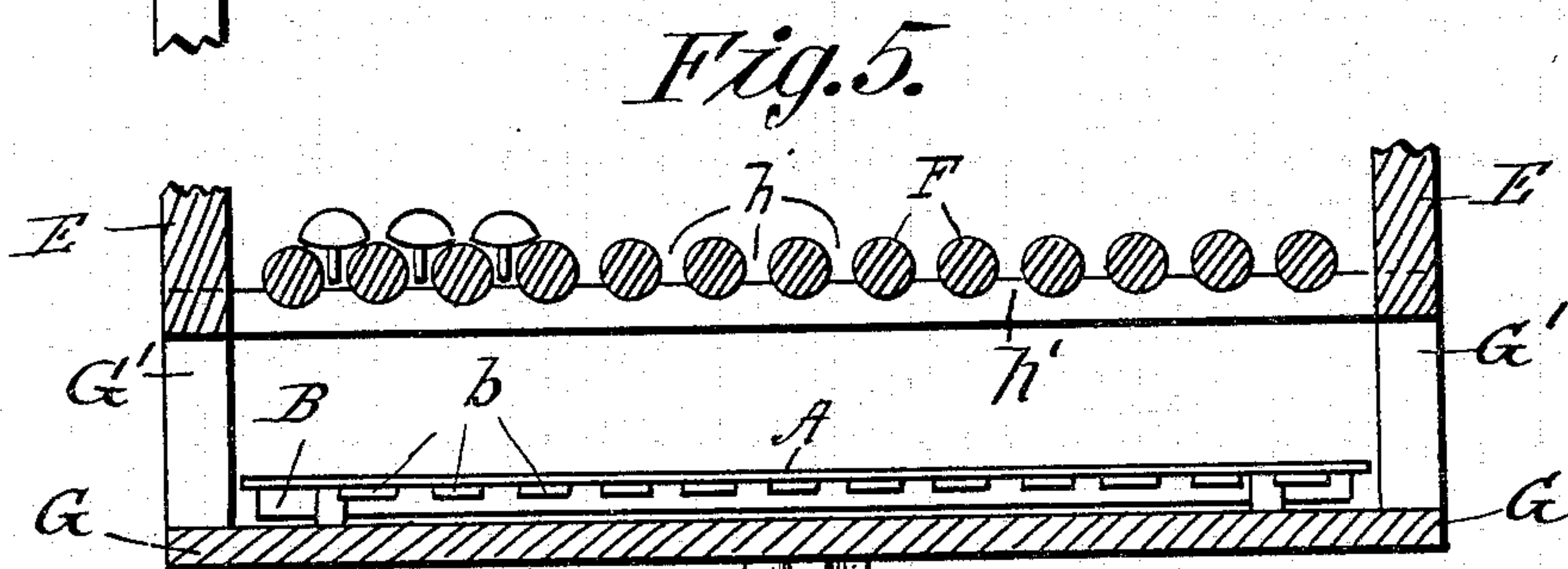
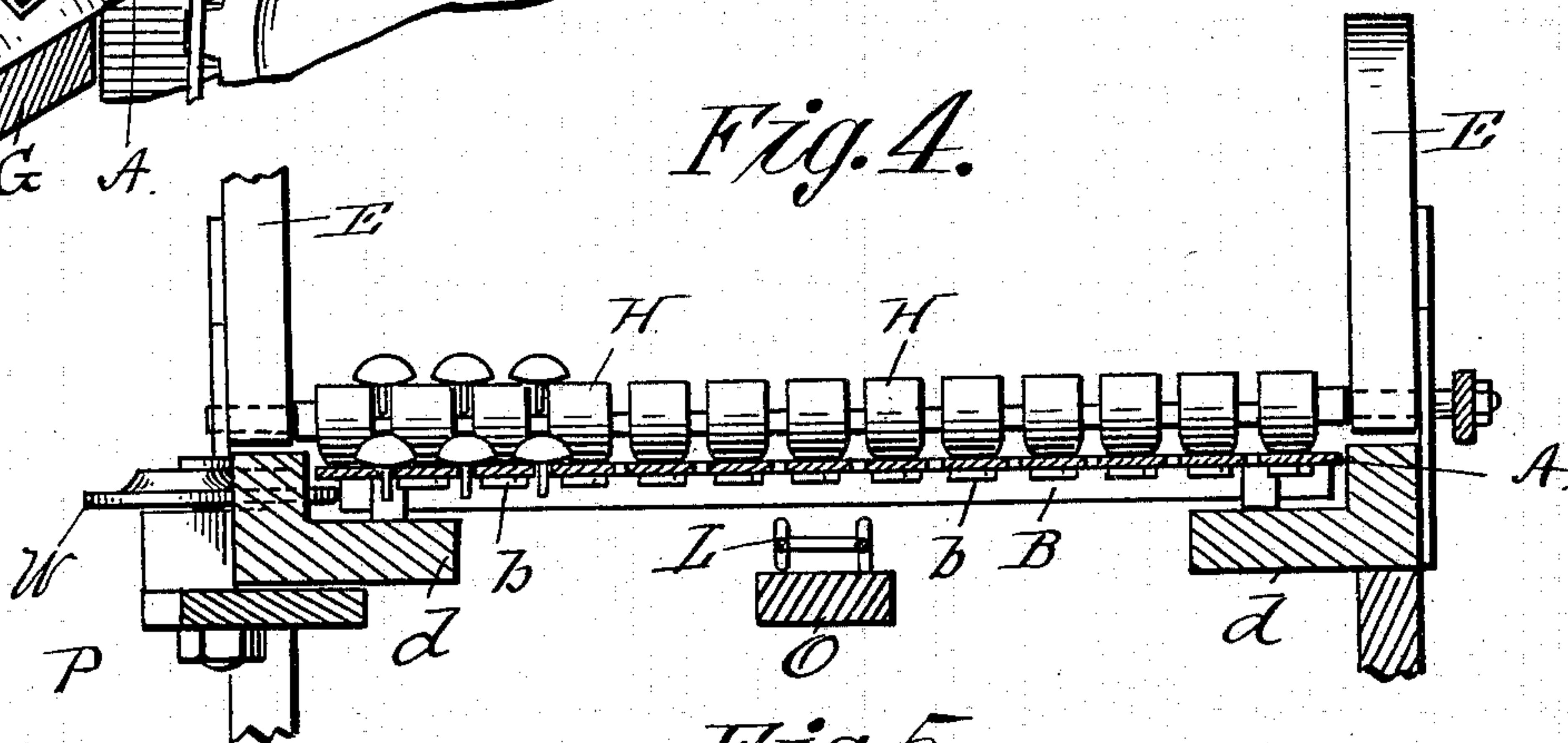
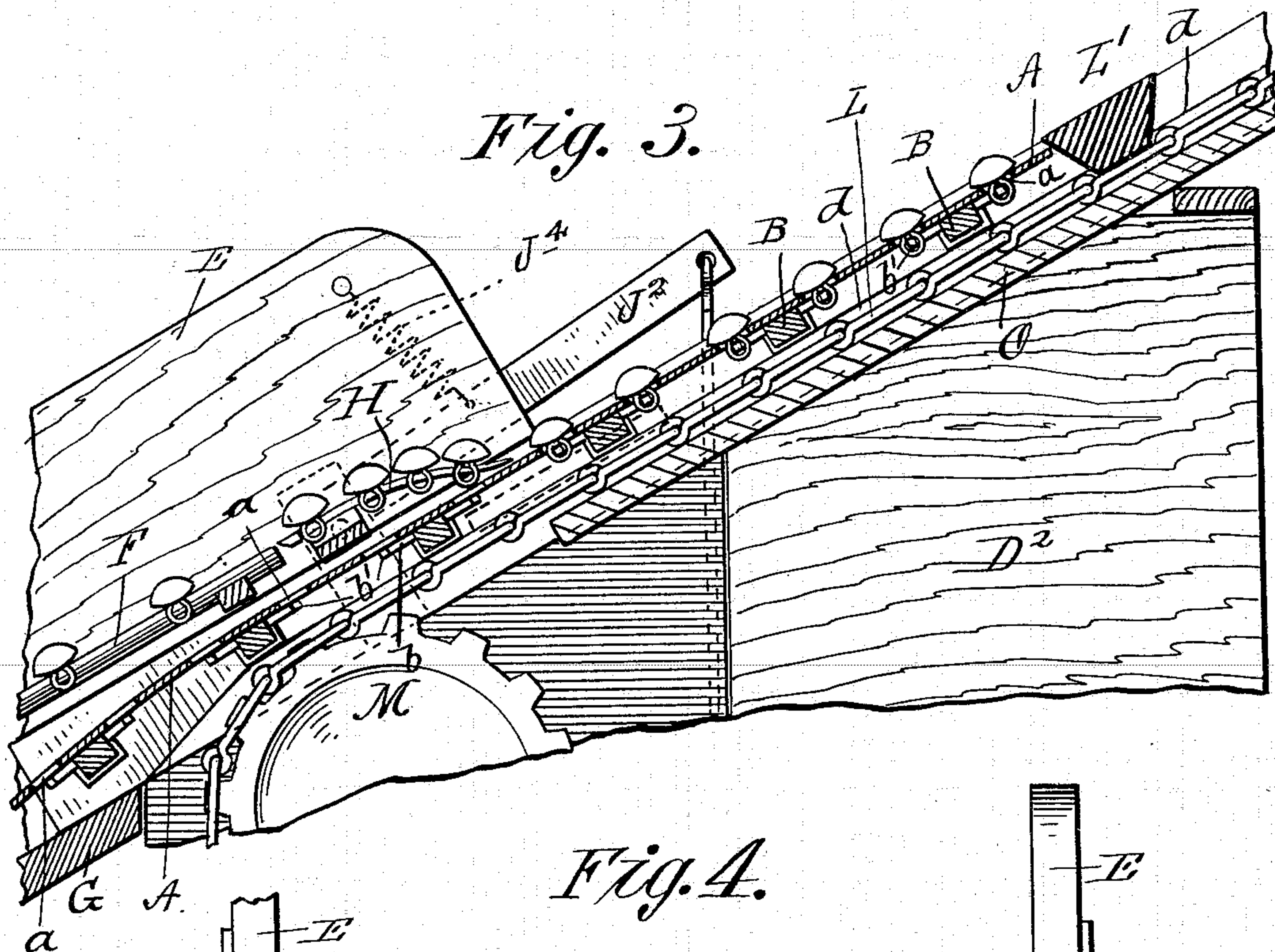
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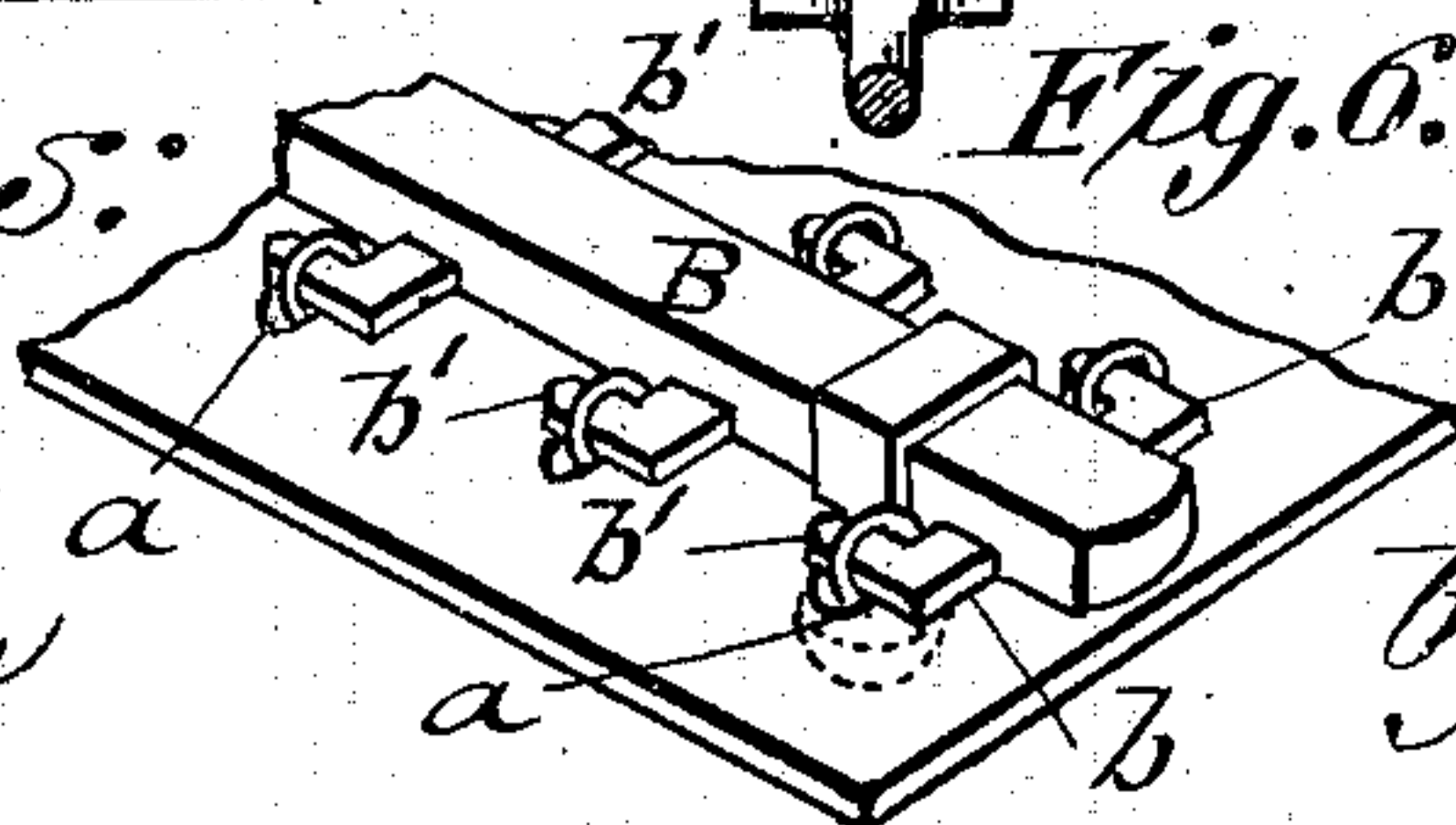
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WALTER E. BENNETT, OF PORTSMOUTH, NEW HAMPSHIRE, ASSIGNOR TO
THE MORLEY BUTTON MANUFACTURING COMPANY, OF SAME PLACE.

MACHINE FOR REMOVING BUTTONS FROM FINISHING-TRAYS.

SPECIFICATION forming part of Letters Patent No. 612,375, dated October 11, 1898.

Application filed December 30, 1897. Serial No. 664,619. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. BENNETT, a citizen of the United States of America, residing at Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Machines for Removing Buttons from Finishing-Trays, of which the following is a specification.

10 This invention relates to the manufacture of shank-buttons, and particularly shoe-buttons, the object of the invention being the production of a machine by which said buttons can be rapidly removed from plates or trays on which they are temporarily secured for more rapid and economical handling in the various finishing processes to which they are subjected after their formation by pressing in the usual manner.

20 The invention consists in the construction of the machine, as fully hereinafter described, and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a machine constructed according to my invention. Fig. 2 is a plan view of the same. Fig. 2^a is a perspective view of a part of the machine shown in Fig. 2 and shows a part of the button-carrying tray and the relation of the button-removing fingers thereto. Fig. 3 is an enlarged longitudinal section of a part of the machine in side elevation. Fig. 4 is a cross-section of the machine on line 4 4, Fig. 1. Fig. 5 is a cross-section of the machine on line 5 5, Fig. 1; and Fig. 6 is a perspective view of a portion of the under side of one of the trays on which the buttons are secured and showing the construction of the button-securing devices thereon.

40 Referring to the drawings, the button-holding trays A referred to consist of plates, preferably of metal, containing suitably-spaced apertures *a*, through which are passed the shanks of the buttons which protrude through the tray far enough to be engaged by the locking devices. A portion of the top surface of this tray is shown in Fig. 2^a, and a portion of the under side thereof is shown in Fig. 6, in which are also shown the said locking devices, which comprise a locking-bar B, having a sliding movement across the tray A,

and having button-engaging fingers *b*, arranged transversely to said locking-bar and secured thereto. Said fingers have their button-engaging ends *b'* lying parallel with the locking-bars B, and they are so arranged that they engage the shanks of the buttons which project through the tray when the locking-bar B is moved in one direction and become disengaged from said shanks when said bar is moved in the opposite direction, leaving the buttons free to be removed from the trays. As the buttons while on these trays receive the enamel coating applied thereto and are put into hot ovens for the purpose of having said enamel baked on and form a hard finish thereon, it follows that more or less of the buttons will adhere to the tray and render their removal somewhat slow if performed manually. The trays above referred to form the subject of a separate application for patent, filed December 30, 1897, Serial No. 664,618. The herein-described machine is employed to cheapen this process; and said machine is constructed as follows:

75 A suitable frame D is provided and supported on the legs D' at a convenient height. Said frame has two oppositely-located sides D², whose upper edges are formed at an angle of about forty-five degrees, more or less, as shown, and along said angularly-disposed edge on the inside of each of said side frames D² are the ribs or cleats *d*, extending the full length of said sides. The distance between the sides D² of the frames is sufficient to permit the button-holding trays A to be placed therebetween and be there supported by the ends of the locking-bars B, (which are of the same width as said trays,) resting on said cleats or ribs *d*, the said trays fitting freely enough between said sides to permit them to have a free sliding movement therein on said cleats.

95 A box-like structure is formed by the two side pieces E, whose lower edges are secured by suitable means to the upper edge of the two side frames D², near the lower extremities of the latter, and the end of said structure lying beyond the end of the machine is supported by a suitable brace *f*, running from the under side thereof to the frame of the machine. Between the two sides E is sup-

ported a grating consisting of a series of parallel rods F, of metal preferably. These are arranged, as shown in plan in Fig. 2 and in section in Fig. 5, in such order that the spaces h between them will be wide enough to receive the shanks of the buttons, and said rods are so disposed that said spaces h will lie in line with each of the longitudinal rows of buttons on said button-holding trays A, to the end that when said buttons are removed from said trays, by means to be described, they will be received on said grating with their shanks lying in the said spaces h . The rods F are rigidly supported near their ends by two cross-bars h' , extending transversely between said side pieces E, to which they may be attached in any convenient manner. The said grating is supported, as described, in a position parallel with but somewhat above the trays A when they are resting on the ribs d of the side frames D^2 , to the end that as the buttons are removed from said trays and are forced up onto the rods F the trays will pass on underneath said grating (see Fig. 5) and be delivered on the inclined table G, forming practically the bottom of the box-like structure in which the grating is supported, the sides E being cut away at G' , as shown in Fig. 1, to permit the removal of the said trays. The devices for removing buttons from said tray consist of the button-removing fingers H. (Shown in plan in Fig. 2, side elevation in Fig. 3, and in end view in Fig. 4, and several of them are shown in perspective in Fig. 2^a.) These fingers are of spring-steel or other suitable metal and are attached by one end to a rock-shaft J, supported transversely between the side frames D^2 in such position that the rear ends of the fingers H, attached to the rock-shaft J, will be level with the tops of the rods F. The forward ends of the fingers, as shown in Figs. 2^a and 3, are bent downward on an easy curve to the plane of the tops of the tray A, with which they lie in light contact between the rows of buttons thereon, the points of said fingers being bent to lie flat on said tray. One end of said rock-shaft J projects through the side D^2 of the frame D and has a crank-arm J^2 fixed thereon, which is connected by suitable rod to a treadle J^3 on the floor. A spring J^4 , secured by one end to the said side frame D^2 of the machine and by its opposite end to said crank-arm J^2 , serves to normally hold the operative ends of said fingers H up and away from the plane of movement of the tray A. Each of said button-removing fingers constitutes practically a movable extension of the rod F, opposite which it is located, and the end of said finger on the tray thus lies between two rows of buttons. Said fingers H are made of such width that as the tray A is moved down the inclined ways formed by the ribs d (by means to be described) each side of said fingers will slide under the edge of the buttons lying in adjoining longitudinal rows, and by reason of the inclined posi-

tion of the fingers H will, as the tray continues its movement under said fingers, cause the latter to lift them free from said tray and, one button pushing another, force them onward till they reach the ends of the rods F, from which point they may slide between said rods into the end of the box-like structure which is adapted to receive them and from which they may be drawn off by a suitable gate, (not shown,) or the end of said structure may be left open and a suitable receptacle placed thereunder to receive the buttons as they fall therefrom. It will be seen (see Fig. 3) that because of the inclined position of the said grating and the trays A in the machine the bend of the fingers H form a nearly horizontal path for said buttons to follow from the trays to the ends of the rods F, and the buttons will thus readily move from the plane of the trays to the plane of the rods without jamming. The means for moving said trays consist of a moving link belt or chain L, which constitutes a carrier for the trays A, said chain being provided with blocks L' , secured thereon at proper intervals for engaging the rear end of a tray and forcing it under the button-removing fingers H to effect the removal of the buttons therefrom, as described. Said carrier-chain L is supported on two sprocket-wheels M M', midway between the sides D^2 of the machine. The sprocket M is supported on the shaft N, located transversely of the machine in bearings in the side frames D^2 , and the sprocket M' is supported on a shaft N', running in suitable bearings in the upper ends of two uprights N^2 , bolted to the frame of the machine at the end thereof opposite the box-like structure containing the grating, and said shafts N N' are so located that the line of movement of the operative side of said chain L will be parallel with the said tray-supporting ribs d and in close proximity to the under side of said tray. A support for the operative part of the carrier-chain is provided in the metal rod O, bolted to one of the uprights N^2 and extending in a plane with the line of movement of the tray A. The said carrier-chain L is supported on said rod and prevented from sagging, and thus obviates all danger of the disengagement of the blocks L' on said chain and the ends of the trays, which might take place if the chain were a little slack and a tray should offer more than ordinary resistance in passing through the machine.

On one end of the shaft N a balance-wheel N^3 is secured, having a suitable handle by which said shaft can be rotated to move the carrier-chain for the purpose of operating the machine.

It has been stated that the buttons are locked to the trays by the bars B, carrying shank-engaging fingers. As these trays are placed in this machine with the buttons secured thereon means for moving said locking-bars B for feeding the buttons before

they come in contact with the fingers H are provided and consist of a wheel W, pivotally supported on the end of a bar P, which is pivoted by the opposite end at *q* to one of the side frames D² of the machine, in which an opening is made to admit said bar P. The said bar swings and the wheel W rotates in a plane coinciding with the plane of movement of the button-holding tray A, the periphery of the said wheel projecting across the line of movement of the ends of the locking-bars B, as shown in Figs. 2 and 4. The said wheel W is normally held in position to operatively engage with the ends of said locking-bars B by a spring R, extending across the machine, as shown, one end secured thereto and the other secured to said bar P. The function of the wheel W being to prevent a rolling abutment against which the ends of the locking-bars B may impinge to be moved transversely to the direction of movement of the button-holding tray A, means for adjusting said wheel toward and from the edge of the tray are desirable in order that the degree of endwise movement to be imparted to said bars may be regulated, and said adjusting means consist of an eccentric S, having a suitable handle for operating it supported for rotation on said bar P, the periphery of said eccentric bearing on the side D² of the machine and is held in contact therewith by the action of the spring R. This eccentric acts as a stop to said bar P and by reason of its form may be manipulated to permit the periphery of the wheel W to overlie, more or less, the line of movement of the ends of the locking-bars B to positively move them endwise to free the buttons on the trays in advance of the engagement therewith of the button-removing fingers H.

In operating this invention the workman places a tray having buttons secured thereon, as stated, in the machine, the ends of the bars B resting on the ribs *d*, which bars just clear the chain L, care being taken that said tray is located between two of the blocks L' on said chain. The foot is then pressed on the treadle, which is operated to rock the shaft J, whereby the fingers H are depressed until their points are in position to operate on the buttons, as described, to remove them from said tray when the latter is moved under them. The operator now rotates the shaft N by the handle on the balance-wheel N³, and thereby movement is imparted to the chain L, and upon the engagement of one of the blocks L' thereon with the rear end of the tray A the latter is forced under said spring-fingers H, which strip the buttons therefrom, the tray passing on under the rods F to the inclined table G, while the buttons are forced up over the fingers to a position on said rods F, between which the shanks of the buttons hang. From said rods they fall into a suitable receptacle arranged to receive them. As soon as the tray begins to move toward the button-removing fingers H the wheel W operates to

move in succession each of the bars B to release all of the buttons secured to the tray, to the end that when the buttons are operated upon by the said fingers H nothing may impede their easy removal. It sometimes happens that some of the buttons are found attached to the trays by the enamel; but this does not offer sufficient resistance to the action of the said fingers to impede the action of the machine. As the last of the buttons pass under the button-removing fingers H the foot is removed from the treadle J³ and the spring J⁴ causes the rock-shaft J to partially rotate in its bearings, lifting the said fingers clear of the tray, which is then free to slide down the inclined table G.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, a suitable frame, a slideway thereon for receiving a button-carrying tray, a series of button-engaging fingers, a support for said fingers, and means for moving said tray under said fingers, substantially as described.

2. In a machine of the class described, a frame, an inclined slideway for receiving a button-carrying tray, a series of separated button-engaging fingers, a rocking support therefor above said tray whereby the free ends of said fingers may be moved toward and from said tray, a grating supported adjacent to said fingers and receiving buttons therefrom, means for rocking said button-finger support, and for moving said tray in its slideway under said fingers, substantially as described.

3. In a machine of the class described, a suitable frame, a slideway for receiving a button-holding tray provided with button-securing devices, a series of separated button-engaging fingers, a rocking support for said fingers, whereby their free ends are moved toward and from said tray, means for operating said button-securing devices whereby the buttons thereon are released, and means for moving said tray in its slideway under said fingers, substantially as described.

4. In a machine of the class described, a suitable frame, a slideway for receiving a button-holding tray provided with button-securing devices, a series of separated button-engaging fingers, a rocking support for said fingers whereby their free ends are moved toward and from said tray, means for operating said button-securing devices whereby the buttons thereon are released, a chain having a line of movement beneath said tray and engaging the same whereby it is moved toward said button-engaging fingers, and a crank-arm and treadle connection on said finger-support for imparting a rocking movement thereto, and means for moving said chain, substantially as described.

5. In a machine of the class described, a suitable frame, a slideway for receiving a button-holding tray provided with button-securing devices, a series of separated button-

engaging fingers, a rocking support for said
fingers whereby their free ends are moved to-
ward and from said tray, a wheel adjustable
toward and from the edge of said tray, whose
5 periphery lies in the path of movement of said
button-securing devices, whereby they are
moved to release said buttons; a chain hav-
ing a line of movement parallel with said tray
and engaging the same, whereby it is moved

toward said button-engaging fingers; means 10
for imparting to said button-finger support a
rocking movement; suitable shafts for sup-
porting said chain, and means for rotating
said shafts, substantially as described.

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Witnesses:

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