

No. 752,648.

PATENTED FEB. 23, 1904.

M. L. BRISTOL.
CARTRIDGE FEEDING DEVICE.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. I.

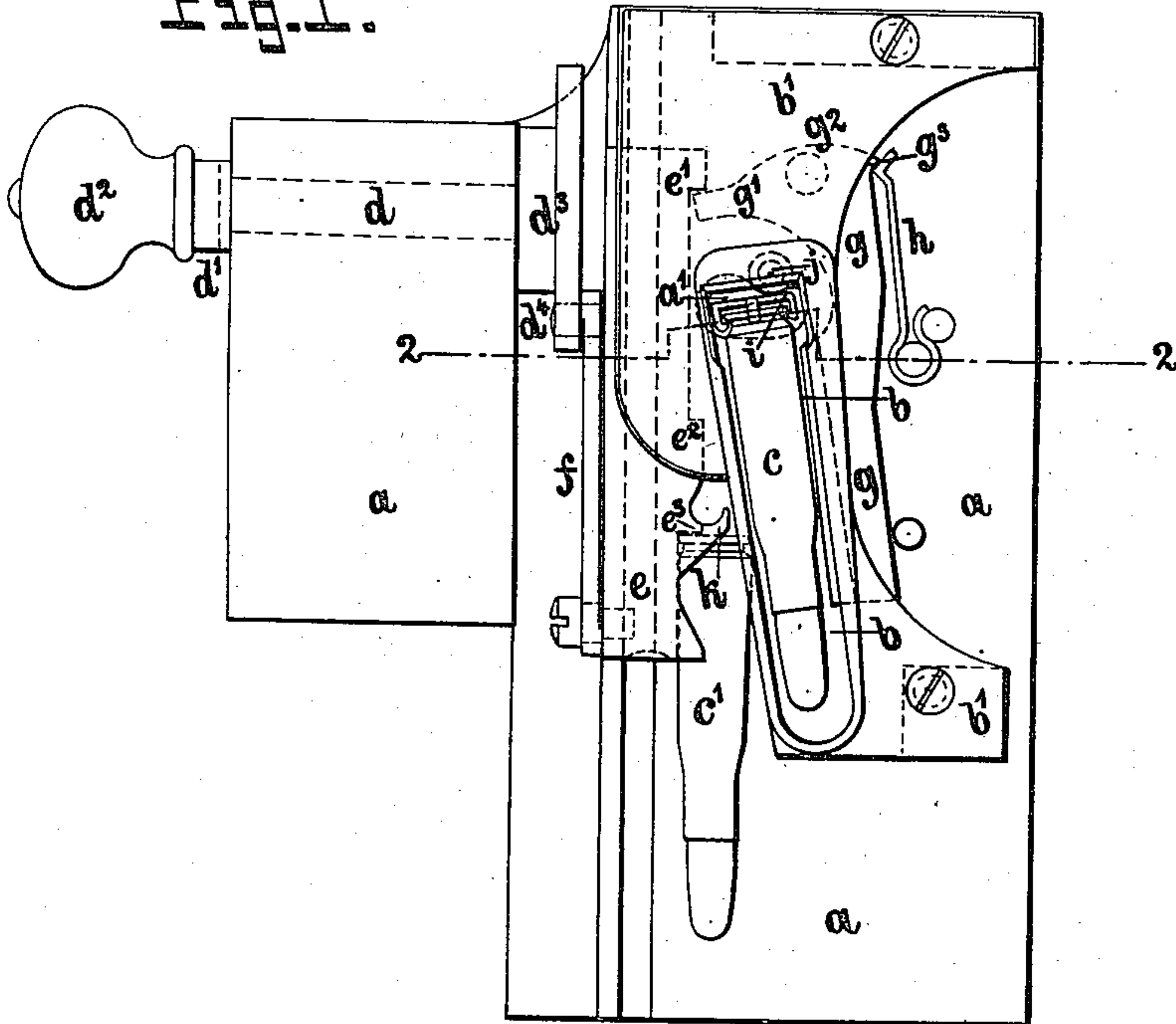


Fig. II.

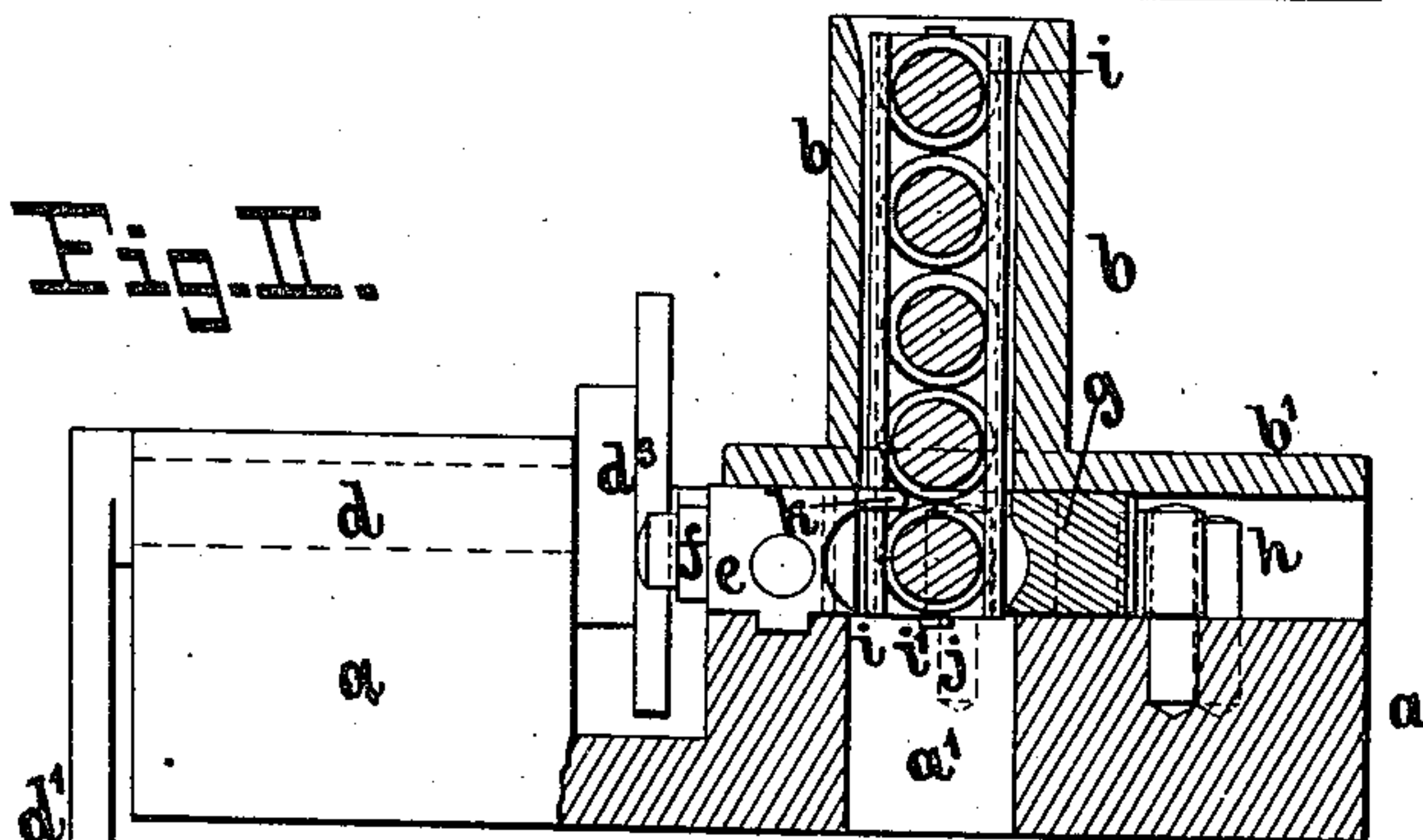
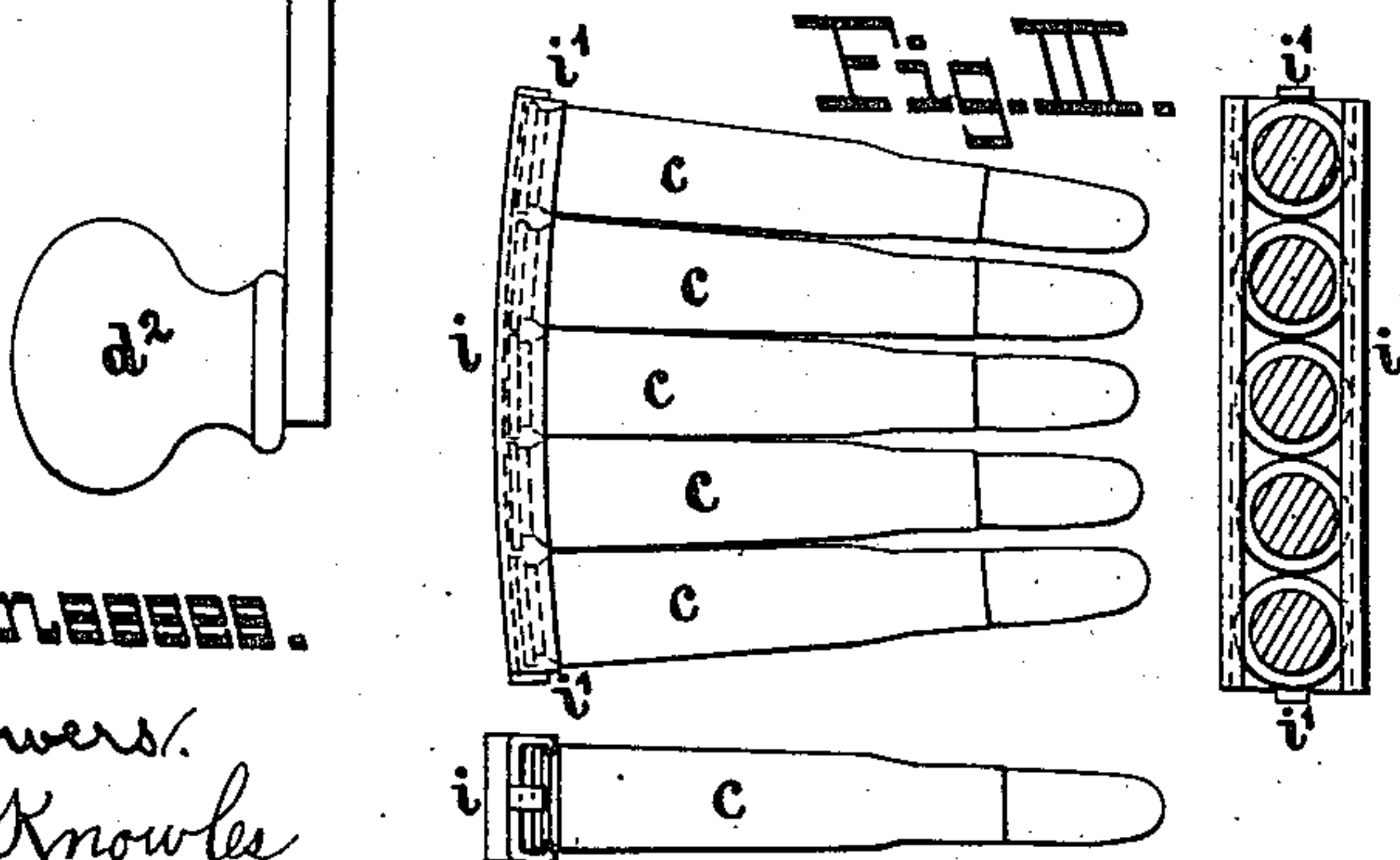


Fig. III.



Witnesses.

H. Powers.
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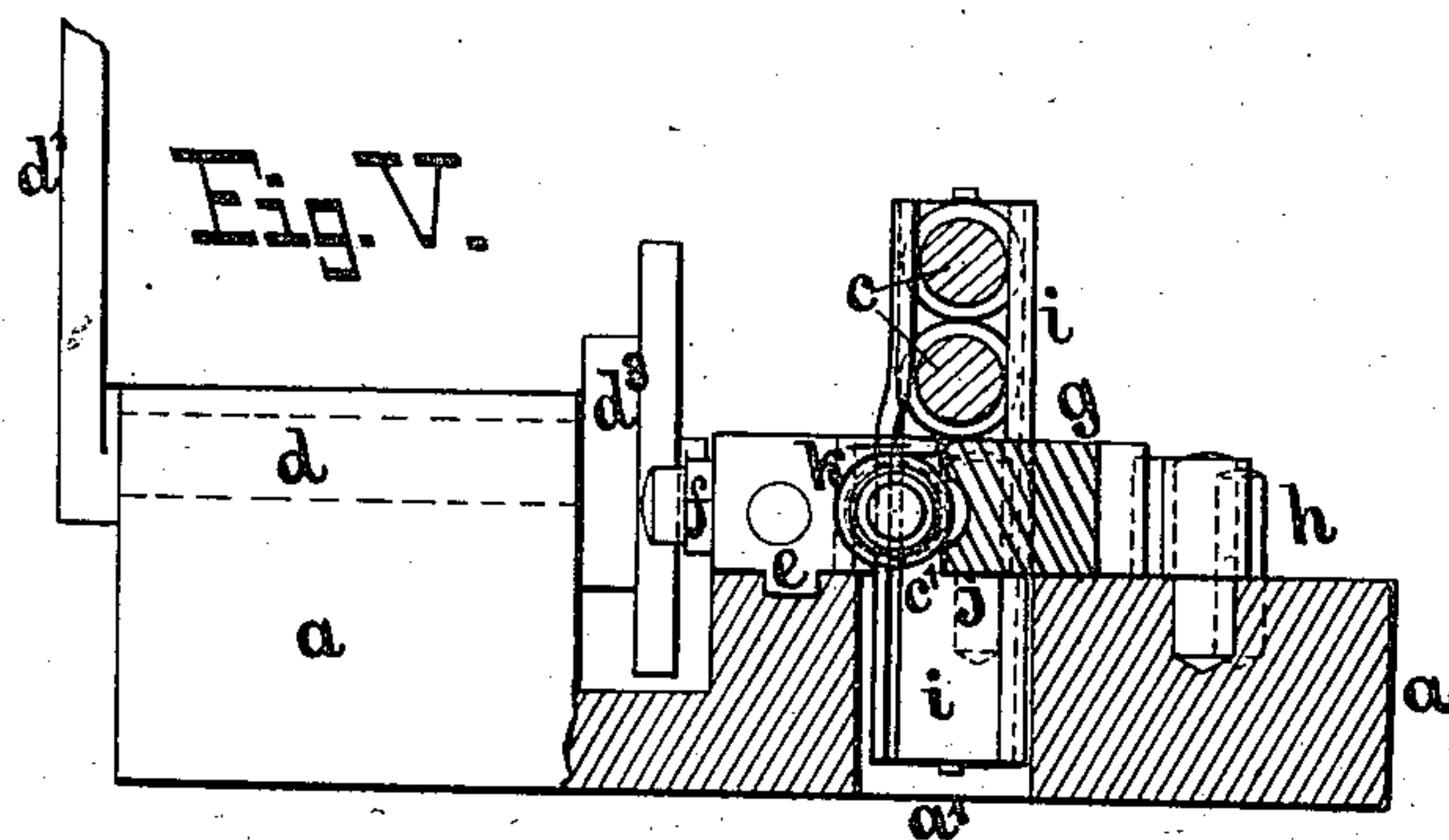
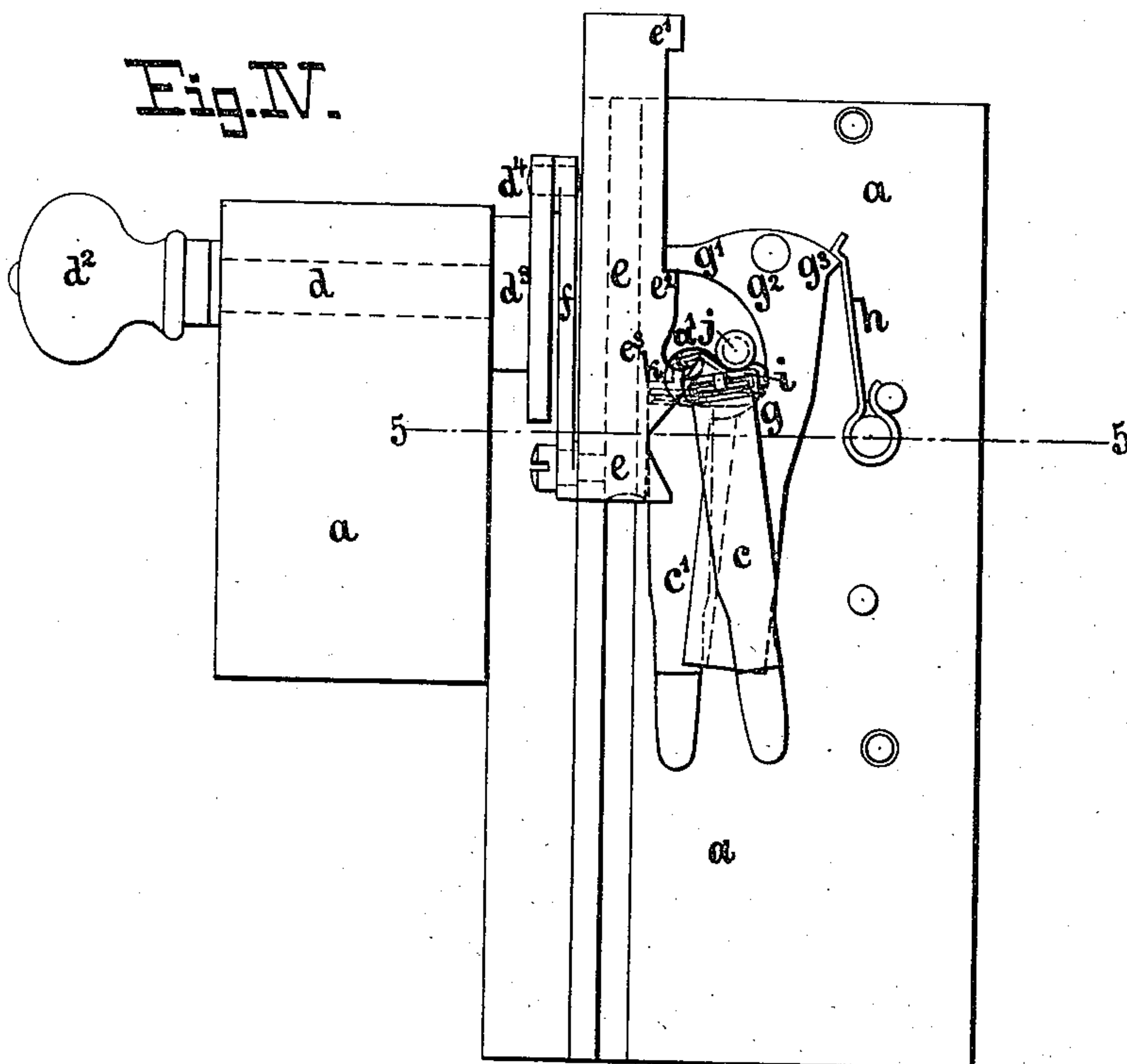
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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FORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CARTRIDGE-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 752,648, dated February 23, 1904.

Application filed July 29, 1903. Serial No. 167,459. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER L. BRISTOL, a citizen of the United States, residing at West Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Cartridge-Feeding Devices in Machines for Loading Feed-Belts for Machine-Guns, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

The object of this invention is to provide an improved cartridge-feed for receiving cartridges from the original packages or holders and for guiding and delivering them to the belt-loading machine for insertion in feed-belts, by which the cartridges are subsequently fed to machine-guns.

Cartridges for machine-guns and for military rifles have heretofore been packed for transport and issue to the troops in paper boxes, each holding twenty cartridges. Machines for loading the cartridges in feed-belts for feeding machine-guns were therefore provided with a feed guide or chute adapted to receive the cartridges from such boxes and to deliver them to the belt-loading mechanism of the machine. To facilitate and expedite the charging of the magazine-rifles with cartridges, modern rifles of this class are constructed so that as many cartridges as are required to fill the magazine may be inserted into it together instead of requiring each cartridge to be inserted singly one after another. For this purpose the cartridges are packed and issued in temporary holders or clips, each one of which holds the number of cartridges forming the complement of the magazine of the rifle, and the receiver of the rifle is so constructed that when open the clip may be adjusted to it, and the cartridges may be transferred from the clip to the magazine by a single movement.

As machine-guns and magazine-rifles fire the same kind and size of ammunition, it is desirable that cartridges issued in temporary holders or clips for the magazine-rifles should be in that form suitable for the machine-guns also.

The object of my invention is to provide the feed-belt-loading machine with a feed-guide adapted to receive and to guide the cartridges when packed, as heretofore, in boxes, but which in addition will be adapted to receive cartridges packed in clips, to automatically release the cartridges from the clip, to eject the clip, and to deliver the cartridges to the belt-loading mechanism of the machine.

In the accompanying drawings the invention is shown as embodied in the cartridge-feed of a well-known feed-belt-loading machine, those parts of the machine only being shown to which the invention relates and which cooperate with it; but it will be understood that the invention is applicable to other feed-belt-loading machines. Therefore it is not intended to restrict the present invention to this particular kind of such machines.

The object of the invention is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure I is a plan view of the cartridge-feeding device of a feed-belt-loading machine. Fig. II is a partial vertical section on the line 2 2 of Fig. I. Fig. III represents in three detail views a filled cartridge-clip, respectively, in a side elevation, a plan, and a vertical section. Fig. IV is a plan view similar to Fig. I, but with the feed guide or chute removed and the parts represented in the positions which they assume when the driving-shaft has been rotated one hundred and eighty degrees from the position indicated in Fig. I. Fig. V is a partial vertical section on the line 5 5 of Fig. IV.

Similar letters refer to similar parts throughout the several views.

Upon the bed-plate *a* is secured the cartridge-feed guide or chute *b*, in which the cartridges are received from the boxes or packages and which holds the cartridges *c c* in a vertical column one above another. The base *b'* of the feed-guide, extending rearward and laterally, rests upon the bed-plate, where it is secured thereto; but the central portion of it leaves a space between the bed-plate and the bottom of the feed-guide, so that the lowest cartridge of the column in the feed-guide rests upon the

bed-plate below the feed guide or chute, and some of the working parts of the feeding device are located between the bed-plate and the feed-guide.

5 In a suitable bearing in the bed-plate a the shaft d is mounted to be operated by any convenient means, the crank d' , with the handle d'' attached to the outer end of the shaft d , being shown for this purpose. Upon the inner
10 end of the shaft d the crank-disk d^3 is fixed, carrying the crank-pin d^4 . The crank-disk d^3 rotates in a longitudinal recess in the bed-plate a , and at the right side of the recess the plunger e is mounted upon the bed-plate and
15 below the base of the feed-guide a longitudinal rib on the under side of the plunger e and a corresponding groove in the bed-plate serving to guide the plunger. The plunger e is connected with the crank-disk d^3 by the pitman f , one end of which is mounted upon the
20 crank-pin d^4 , while the other end is attached to the plunger e near its forward end. Rotation of the shaft d thus causes the plunger e to reciprocate forward and rearward upon the
25 bed-plate. On the right side of the plunger e the carrier g is pivotally mounted upon the bed-plate a below the feed guide or chute b . The finger g' of the carrier g extends into the path of the shoulders e' and e'' of the plun-
30 ger, so that by the alternate engagement of the finger g' by said shoulders the reciprocating movement of the plunger e causes the carrier to vibrate on its pivot g^3 .

With the parts in the positions shown in
35 Fig. I the crank-disk d^3 and the pitman f have carried the plunger e fully forward, and during the last of the forward movement, the shoulder e' engaging the finger g' , the carrier g has been turned to the right, clearing the
40 opening in the feed-guide and allowing the cartridges therein to drop until the lowest one rests upon the bed-plate between the plunger e and the carrier g . By the following half-rotation of the shaft and the crank-disk the
45 plunger e is carried rearward, and during the last of the rearward movement the engagement of the shoulder e'' with the finger g' turns the carrier g to the position shown in Fig. IV. By this movement the carrier engages the car-
50 tridge resting on the bed-plate below the chute b and moves it to the left until it rests against the plunger e , the side of the carrier being grooved longitudinally, and the side of the
55 plunger being correspondingly grooved the cartridge c' is securely held between them. In this position the carrier g stands below and closes the chute b , and the cartridges therein rest upon the carrier until by the succeeding
60 half-rotation of the shaft and the forward motion of the plunger the carrier is returned to the position shown in Fig. I, clearing the chute b and allowing the cartridges therein to drop until the lowest one rests on the bed-plate by the side of the carrier. The spring h , mount-
65 ed upon the bed-plate with its free end rest-

ing against the heel g^3 of the carrier, serves to yieldingly hold the carrier in either of the two positions. The plunger e is provided with the shoulder e'' , which during the forward movement of the plunger engages the
70 cartridge c' , held between the carrier and the plunger, and carries it forward from the position shown in Fig. IV to that shown in Fig. I. This movement delivers the cartridge to the mechanism of the machine by which the
75 cartridge is entered and partly inserted into a pocket of the feed-belt, in which condition the said mechanism will move and hold the feed-belt, with the cartridge, so that the next
80 forward movement of the plunger will complete its insertion into the feed-belt.

As far as described the parts of the machine and their operations do not vary from those of well-known feed-belt-loading machines, and as the present invention relates
85 exclusively to improvements of the cartridge-feeding device the devices for holding, opening, and moving the feed-belt and for inserting the cartridges into it need not to be described or illustrated, because any suitable de-
90 vices may be used for these purposes.

The feed guide or chute b , as shown in the drawings, is adapted to receive the cartridges c , as heretofore, on their removal from the
95 packing-boxes, the opening or mouth of the chute being of the usual shape, except that the rearmost portion of said opening has been enlarged laterally. This enlargement permits a temporary holder or clip filled with car-
100 tridges to be inserted into the chute b . Such a clip i , holding five cartridges, is represented in Fig. III. It consists of a strip of thin sheet metal, the two opposite sides of which have
105 been bent forward and turned inward, so that it forms a shallow T-shaped trough in which the heads or bases of the cartridges can freely slide, the inward-turned edges of the clip entering the groove in the cartridges which sepa-
110 rates the head from the body of the cartridge-case. At each end the clip has a projecting narrow tongue i' , which is bent forward over the cartridges in the clip and, preventing the escape of the cartridges from the clip, binds clip and cartridges together.

Figs. I and III of the drawings show a filled
115 clip i after its insertion into the chute b . The lowest one of the cartridges c in the clip rests upon the bed-plate a , the clip keeping the heads and the walls of the chute keeping the bodies of the cartridges in their alignment
120 one upon the other. The plunger e stands in the forward position, and in Fig. I a cartridge c' is represented in front of the shoulder e' on the plunger. In Fig. II the cartridge in front of the shoulder e' is left away in order to show
125 more clearly the parts which it would cover if in position.

Vertically below the clip i a hole a' has been cut through the bed-plate a , through which the clip would freely fall were it not supported
130

by the cartridges resting upon the bed-plate and by the tongue i' of the clip bent over the topmost cartridge. At the rear edge of the hole a' a vertical pin j is fixed in the bed-plate in such a position that it stands in rear of the clip i below the chute b , supports the right side of the clip against rearward movement, and guides the clip into the hole. A recess in the side of the carrier g forward of the finger g' enables the carrier to vibrate on its pivot without coming in contact with the clip in the chute. (See Fig. IV.)

From the side of the plunger e slightly in rear of the shoulder e^3 a hook-shaped projection k extends toward the chute b , the top of the hook corresponding with the upper surface of the plunger and the under side of the feed-guide. (See Figs. I and II.) The hook k stands in the horizontal plane between the cartridge lying under the chute b on the bed-plate and the cartridge in the chute above the lowest one. By reason of this location the hook is carried rearward and forward by the plunger without interfering with the cartridges below and in the feed-guide. Whether these cartridges are held in a clip or are held by the chute alone the hook passes between the two lower ones without touching either. Though passing clear of the cartridges, the hook k is brought by the rearward movement of the plunger in contact with the clip in the chute b , and grasping the inward-turned edge on the left side of the clip between the bases of the two lower cartridges it forces this part of the clip some distance to the rear. As the right side of the clip, as well as the lowest cartridge therein, is supported by the pin j and cannot yield rearward and as the cartridges above the lowest one are kept in their position by the chute b and support the part of the clip in the chute, the rearward pull of the hook k on the left side of the clip results in twisting this lower unsupported side of the clip rearward and in bending the inward-turned edge of the clip outward out of the groove in the cartridge, thereby freeing the lowest cartridge from the grasp of the clip. Simultaneously the last of the rearward movement of the plunger e turns the carrier g to the left under the chute b and the carrier moves the cartridge just released from the clip to the side of the plunger in front of the shoulder e^3 to be carried away by the next forward movement of the plunger. The last of the forward movement of the plunger again returns the carrier to the right, thereby clearing the bottom of the chute b , and the clip in the chute drops with the cartridges remaining therein until the lowest one rests upon the bed-plate. The action of the hook k on the clip is repeated at each stroke of the plunger until it has freed the last cartridge from the grasp of the clip, when the unsupported empty clip will fall through the hole in the bed-plate,

and another clip, previously inserted in the chute, takes its place.

In Fig. IV the action of the hook k on the clip is shown, the cartridge c' having been freed from the clip and moved by the carrier to the side of the plunger. The cartridge c indicates the position of the cartridges supported by the chute b , though the chute is not shown in this figure.

In Fig. V the position of the clip under the action of the hook k is shown after the third cartridge has been freed from the clip and moved by the carrier to the side of the plunger, the clip, as far as emptied, having descended into the hole in the bed-plate.

While in the foregoing the invention has been described and shown as embodied in the cartridge-feed of a belt-loading machine, it will be understood that the invention is not restricted to the use in such machines, but that it is applicable also to the cartridge-feed of machine-guns and of other firearms.

Various cartridge-feeds have heretofore been devised for firearms in which a temporary holder or clip filled with cartridges may be inserted into the magazine of the arm; but in such prior devices the cartridges are taken from the clip by being moved through it lengthwise to the clip, so as to pass from one of the ends of the clip either all the cartridges passing in a body from the clip in one movement or the cartridges being moved through the clip at intervals, passing one at a time from the clip by separate consecutive movements. The present invention differs from such prior devices in its construction and operation. The cartridges are freed from the clip without either moving through it or passing from one of its ends. Cartridges and clip move together stepwise through the feed-guide; but the cartridges are released at intervals, one at a time, by consecutive movements of parts of the device which strip the clip from the cartridge, while the cartridge does not move until after its release from the clip. This difference is important on account of the simple construction and efficient operation of the device. The release of the cartridges from the clip is performed without requiring any special mechanism by the movement of the plunger parallel to the axis of the cartridges, said plunger performing in addition the function of feeding the cartridges after their release from the clip forward on their passage through the machine.

I claim as my invention—

1. A cartridge-feed comprising a chute to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a projecting hook to strip the clip from the lowest cartridge in said clip, a pivoted carrier mounted to move across the mouth of said chute, and means to operate said carrier to transfer the cartridge from the chute to the path of the plunger.

2. In a cartridge-feed the combination of a longitudinally-reciprocating plunger, a cartridge-magazine located alongside of said plunger and fitted to receive and to support a clip holding the cartridges one upon another, a lateral projection carried by said plunger constructed to clear the cartridges in the magazine and to strip the clip from the lowest cartridge held in said magazine, and a lever pivoted to swing across the magazine and connected with the plunger, whereby the movement of said plunger causes the lever to transfer the cartridge from the magazine to the path of said plunger.

3. In a cartridge-feeding device the combination of a chute to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a lateral projection constructed to engage said clip and to strip it from the lowest cartridge in said clip, a pivoted carrier mounted to move across the mouth of said chute, operative connections between said plunger and said carrier to cause the carrier to transfer the cartridge from the chute to the path of the plunger, and means for yieldingly holding said carrier in position.

4. In a machine for loading feed-belts with cartridges, the combination of a bed-plate, a cartridge-chute mounted above the bed-plate to receive a clip holding the cartridges one upon another, a reciprocating plunger carry-

ing a hook to engage the clip in said chute and to strip said clip from the lowest cartridge held by said clip, a carrier pivoted upon the bed-plate to vibrate between said bed-plate and the chute across the mouth of said chute, and operative connections between said plunger and said carrier to cause the latter to transfer the cartridge from the chute to the path of said plunger.

5. In a machine of the character described, the combination of a bed-plate, a cartridge-chute mounted above the bed-plate and fitted to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a hook to engage the clip in said chute and to strip said clip from the lowest cartridge held by said clip, a carrier pivoted upon the bed-plate to vibrate between said bed-plate and the chute across the mouth of said chute, operative connections between the plunger and the carrier to cause said carrier to transfer the cartridge from the chute to the path of the plunger, and an opening through said bed-plate for the ejection of the clip.

This specification signed and witnessed this 25th day of July, A. D. 1903.

MORTIMER L. BRISTOL.

In presence of—

C. J. EHBETS,

R. L. PEARD.