(No Model.)

O. F. BELCHER.

WAD FEED ATTACHMENT FOR CARTRIDGE LOADING MACHINES.

No. 337,117. Patented Mar. 2, 1886.

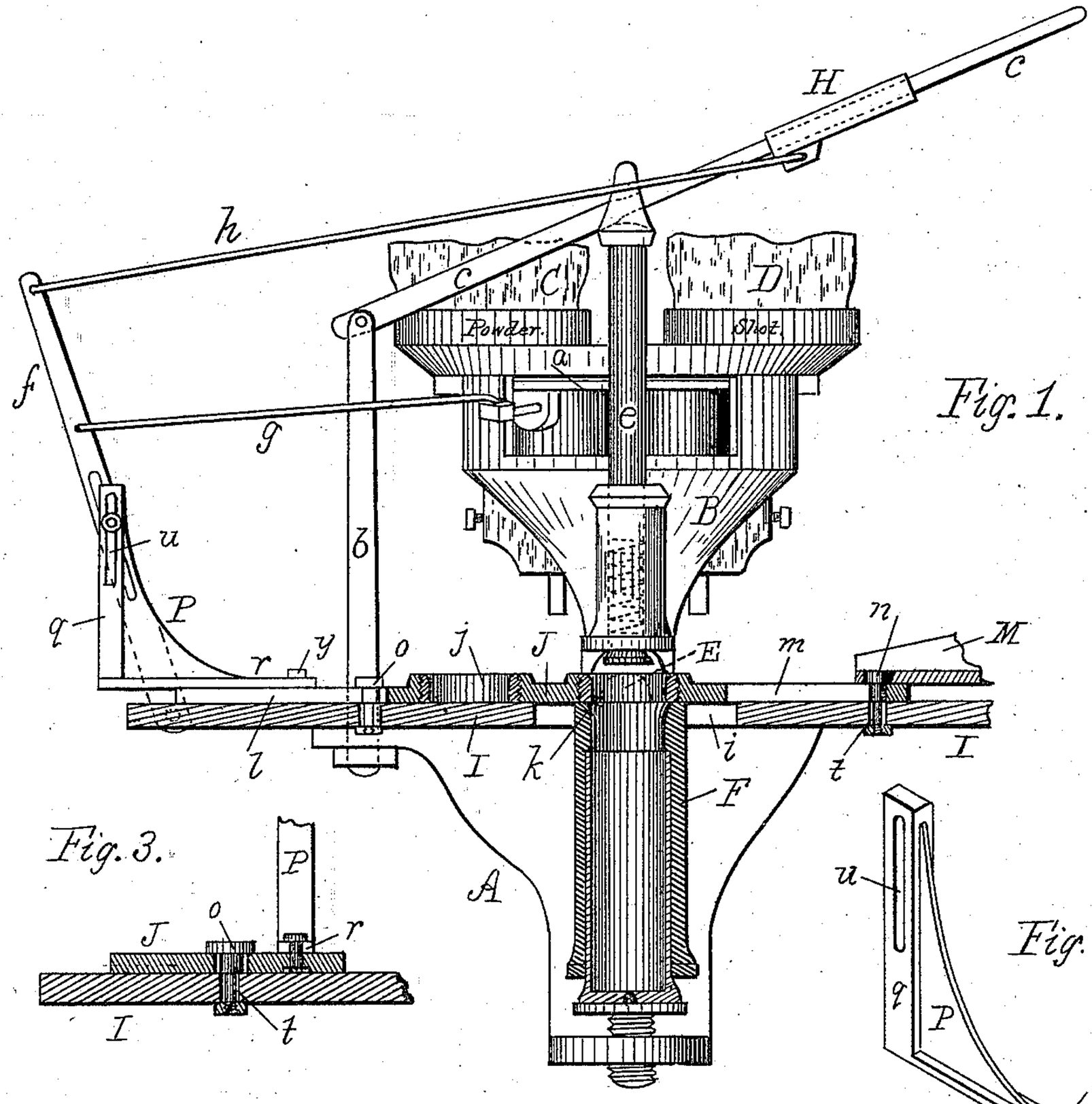

Fig. 1.

Fig. 3.

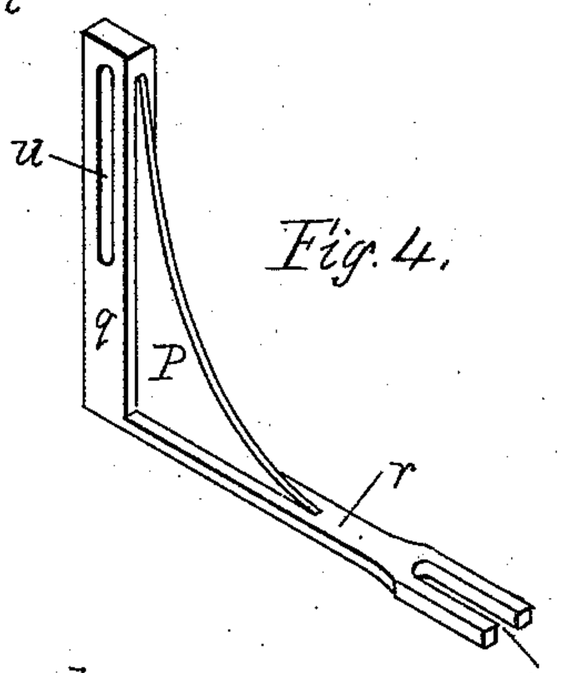

Fig. 4.

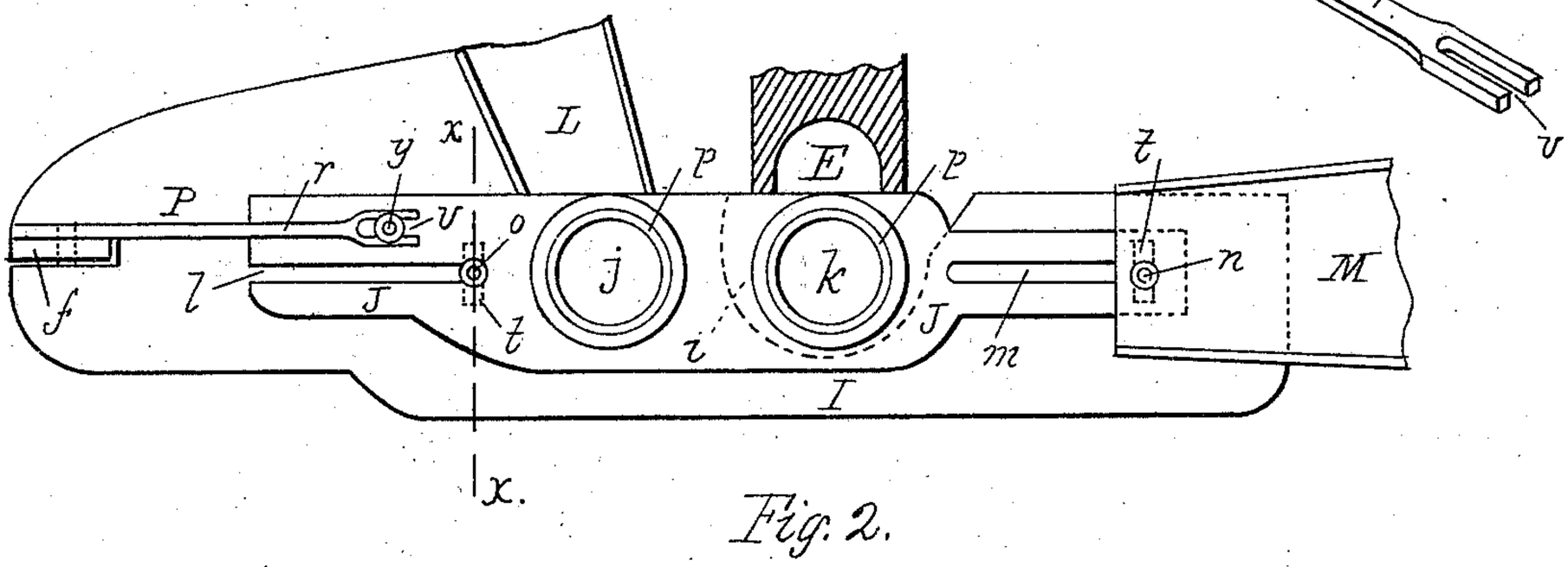

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

ORLANDO FULLER BELCHER, OF WINTHROP, MASSACHUSETTS.

WAD-FEED ATTACHMENT FOR CARTRIDGE-LOADING MACHINES.

SPECIFICATION forming part of Letters Patent No. 337,117, dated March 2, 1886.

Application filed November 30, 1885. Serial No. 184,279. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO FULLER BELCHER, a citizen of the United States, residing at Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Wad-Feed Attachments for Cartridge-Loading Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to cartridge-loading machines; and it consists in the present instance of a reciprocating wad-carriage provided with apertures or receptacles adapted to hold the wads while the latter are conveyed to a position centrally over the cartridge, within which they are forced by means of a reciprocating plunger. This carriage is adapted to move transversely of the path of travel of the rammer and directly beneath it, and is so connected with the mechanism for operating the measuring-gate that both such devices shall move simultaneously at proper intervals of time. Furthermore, these wad-receivers, formed in the reciprocating carriage, correspond, respectively, with the two positions of the gate for powder and shot; hence one receptacle or aperture will always contain and deliver thick spongy or elastic wads suitable for covering the powder instantly upon delivery of the latter in the cartridge, while the other will deliver a different kind for the shot. Moreover, the carriage is arranged to reciprocate beneath the wad-rammer, and thus cause the apertures formed therein, and which contain the wads, to alternately advance until centrally aligned with respect to the vertical longitudinal axis of the cartridge-holder and rammer. Thus it is evident that each wad is carried centrally over the mouth of the shell in process of loading when the rammer is advanced, and in its descent passes downward through the aperture, and thus discharges the wad, which it carries and forces ahead of it down into the cartridge.

The drawings accompanying this specification represent, in Figure 1, a sectional elevation of a cartridge-loading machine embodying my improvements, while Fig. 2 is a plan of the wad-carriage, and Fig. 3 is a transverse vertical section on line *x x*, somewhat enlarged. Fig. 4 is a perspective view of the adjustable plate which actuates the wad-carriage.

In these drawings I have shown a cartridge-loading machine embodying, essentially, all the prominent features contained in an invention described in an application filed by me in the United States Patent Office on October 23, 1885. Consequently I shall only allude to and describe said machine sufficiently to enable a general idea to be obtained of the operating parts in connection with the wad-carriage or reciprocating feed device which embodies and is the subject of my present invention.

At A is shown the frame or body of the machine proper, to which are secured the various co-operating parts.

B is a hollow chamber, in which is disposed the measuring-gate *a* for both powder and shot. This gate is operated by means of a movable sleeve, H, which is supported by and moves upon the lever *c*, the connecting instrumentalities between such gate and the sleeve H being the two rods *g h* and rock-lever *f*, pivoted to the body A of the structure.

The wad-plunger or rammer *e* is operated by the lever *c*, pivotally secured to an upright post, *b*, while receptacles for powder and shot are represented, respectively, at C and D.

At E is shown the discharge-duct to receive and convey the contents of the hoppers C D into the shell, which is supported in the cylindrical holder F. It will thus be readily understood that the measuring-gate is operated independently of and without regard or reference to the position or movement of the rammer-lever *c*.

Oscillations or vibrations of the gate are effected by a sliding movement of the sleeve H upon the lever-handle *c*.

Active movement of the rammer *e* is effected by motion of the lever *c*, but the gate continues stationary, since the rod *h* operating it pivots upon the rock-lever *f*, which also remains inactive.

I have thus fully explained the movement and operation of the rammer *e*, its actuating-lever *c*, and the measuring-gate *a*, more particularly the latter, since the wad-carriage or

feed-operating device, to be hereinafter described, is operated in the same way and simultaneously with said measuring-gate.

In the drawings (see Fig. 1) I have shown the wad-feeding device as composed of a plate or casting, I, horizontally secured to the frame A, and with a portion cut away at *i*, to permit the introduction of the mouth of the pivoted cartridge-holder F to a position almost flush with the top of said plate. Upon the latter is disposed the wad-carriage proper, J, which consists of a thin sliding metallic frame suitably bored at *j k*. Thus two apertures or receivers are formed adapted to retain the wads thrust therein and convey them to a position centrally and vertically over the mouth of the shell, or the cartridge-holder which contains it.

To retain and guide this wad-carriage in proper position, and thus secure reciprocating right-line movement, I have formed two slots, *l m*, which co-operate with corresponding pins or studs, *o n*, both of these being adjustably disposed, thereby to limit and alter laterally the position of the wad-carriage J, and thus obtain proper alignment of the apertures centrally with respect to the bore of the cartridge.

Inasmuch as these receivers *j k*, formed in the substance of the wad-carriage, are to be adapted to hold and retain wads of varying size, I have provided them with removable bushings *p p*, and thus the sizes of the apertures are readily altered to suit circumstances.

The mechanism by which this wad-carriage is reciprocated at proper intervals of time simultaneously with the measuring-gate consists of a plate, P, composed of two arms, *q r*, preferably at right angles to each other, and adjustably connected to the rock-lever *f* and the wad-carriage J, respectively; hence it will be understood that reciprocating movement of such wad-carriage is dependent on the will of the operator by means of the sleeve H sliding upon the rammer-lever *c;* and, furthermore, movement of the gate by aid of the rods *g h* and rock-lever *f* will similarly and simultaneously actuate the carriage J to advance and deliver a wad, the quality of which may depend upon whether powder or shot was at such movement then delivered to the shell in process of loading.

At L M are shown two converging conductors for directing the wads to each aperture when in an inactive position. Thus, by the method which I have herein adopted, a wad can be introduced with much more facility within the receivers *j k*, since they are not in close proximity to the rammer.

In the practical operation of this wad-carriage it is very necessary to provide means by which said carriage or conveyer may be laterally adjusted, and this is obtained by means of slots *t t* cut transversely in the plate I, as shown in section, (see Fig. 3;) but to a successful working of the carriage or wad-conveyer the end thrusts or travel thereof must be likewise capable of adjustment in order to bring each aperture in the act of delivering a wad centrally of the bore of the shell prior to the descent of the rammer. To attain this result I have slotted at *u* the vertical end *q* of the plate P, which is thus adjustably connected to the rock-lever *f*, likewise slotted; furthermore, the extremity of the arm *r* is slotted or forked at *v* and secured to the wad-carriage by the bolt *y*.

Adjustment is secured as follows: The above-described parts being first secured approximately in the right positions, the gate is now thrown to the right hand or beneath the hopper D, in which event, from the construction of the various operating parts, the aperture *j* is or should be central over the bore of the shell. If not, the bolt *y* securing the arm *r* is loosened and the carriage J pushed toward the right until said aperture is centered, when the arm *r* and carriage J are again united by the bolt *y*. These parts, the gate and wad-carriage, are now reversed to their opposite extremes of movement, which should bring the aperture *k* central of the bore of the shell. Should it fail in so doing, the bolt uniting the arm *q* to the rock-lever *f* is loosened and the wad-carriage advanced slightly in the same direction, while the bolt must be shifted upward upon the lever, in order to increase the throw or travel of said carriage. When the aperture *k* becomes centered, the bolt is again tightened and the adjustment of the wad-carriage is completed.

In Fig. 2 of the drawings the hopper C is to contain powder, and the gate *a* is now in such position that the next movement of the sleeve H, by the operator, upon the lever *c* will deliver a charge of powder within an empty shell, presumably disposed in the cartridge-holder. Since the receiver *j* is now inactive, a wad is introduced, and thus, upon movement of the sleeve H and oscillation of the measuring-gate, active motion of the wad-carriage is likewise effected, which produces not only advance of said aperture containing a wad centrally of the bore of the shell, but removal of the empty receiver *k* to an inactive position to be refilled. The rammer-lever *c* then actuates the rammer *e* to drive the wad, now held in the aperture *j*, into its proper position within the shell. This is effected by the rammer passing directly into and through the aperture in the carriage, dislodging the wad, and forces the latter in advance of it until the powder or shot is reached. The rammer is now returned to a raised or inactive position, and the sleeve H, which was pushed out toward the end of the rammer-lever *c* in order to actuate the measuring-gate and deliver the powder, is now thrust in the opposite direction upon said lever. This movement delivers a charge of shot, and at the same time the wad-carriage now presents a wad, contained within the now-filled receptacle *k*. The rammer is again moved and this wad driven home, when the cartridge is loaded. By this automatic ar-

rangement and operation of the measuring-gate and wad-carriage each charge of powder or shot is delivered with perfect accuracy and only at times desired by the operator, while there is no trouble and delay occasioned by the intermingling of wads, and each one is presented in a proper position—centrally of and at right angles to the axis of the shell within which it is to be placed.

It will be seen that the apertures or wad-receptacles are slightly smaller than the wads then being used. In this way the wad is securely grasped and held over the mouth of the shell until the movement of the rammer through said aperture dislodges and carries it down in advance until the proper position is reached within the shell.

The mechanism whereby the ammunition-gates are operated by the main lever through the intervention of a sliding sleeve on such lever, and connections between same and gate, shown and described herein, but not claimed, is shown, described, and claimed in my application No. 180,731, filed October 23, 1885.

I claim—

1. In combination with the measuring-gate for powder and shot, and the lever which actuates the same, a slide, also attached to and operated by said lever and provided with wad-retaining apertures, a single movement of said lever serving to actuate both said gate and said slide, substantially as set forth.

2. The combination, with the cartridge-holder F, rammer *e*, and actuating-lever *c*, of the vibrating measuring-gate *a* and the reciprocating apertured wad-carriage J, both united to the rock-lever *f* and actuated by the sleeve H, all co-operating together, as and for the purpose herein set forth.

3. In combination with a cartridge-holder and its co-operating rammer and rammer-lever, the apertured wad-carriage J, adjustable connection P, its rock-lever *f*, and the rod *h*, uniting the latter with the sleeve H, all substantially as herein described.

4. In a cartridge-filling machine, the bushed apertured wad-carriage adapted to reciprocate transversely across the mouth of a cartridge-holder and co-operate with a rammer entering the latter, in combination with lever *f* and plate P, the latter being vertically slotted at *u*, horizontally slotted at *v*, and connected by bolts through said slots to said slide and lever, respectively, substantially as set forth, the travel of said carriage being adjustably limited by the plate P, substantially as stated.

In testimony whereof I affix my signature in presence of two witnesses.

ORLANDO FULLER BELCHER.

Witnesses:
H. E. LODGE,
F. CURTIS.