No. 648,816. Patented May 1, 1900.

W. H. VAN PATTEN.

CARTRIDGE LOADING MACHINE.

Application filed Feb. 1, 1900.

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

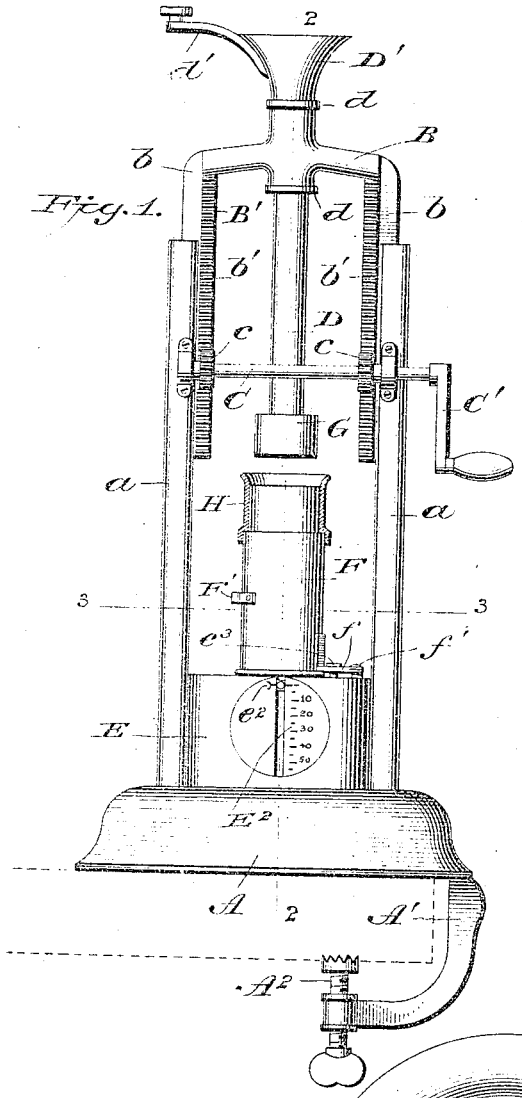

Fig. 2.

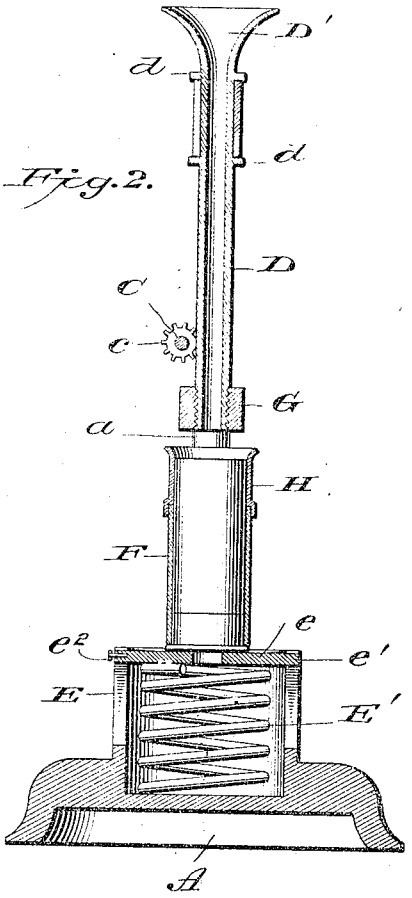

Fig. 3.

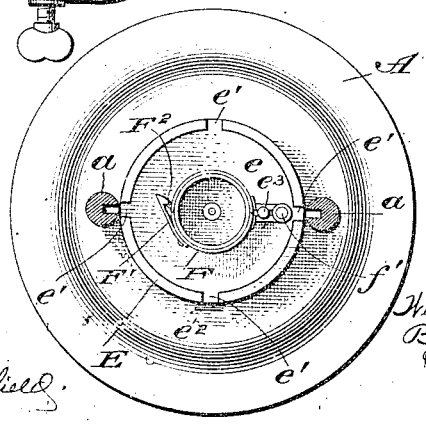

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Fig. 4.

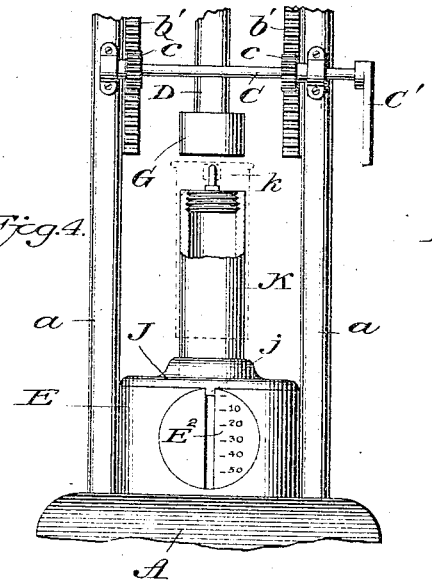


Fig. 6.

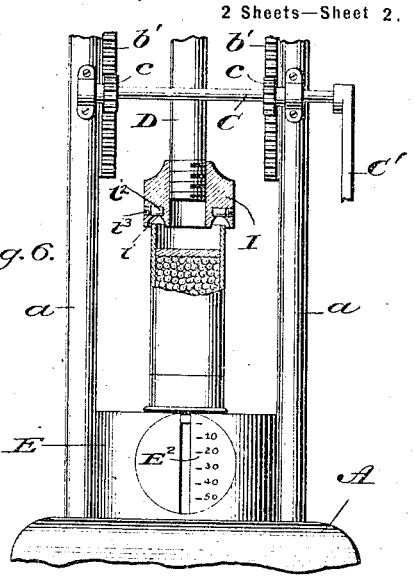


Fig. 5.

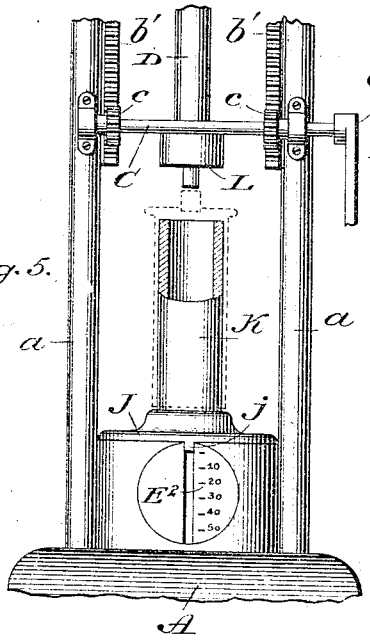


Fig. 7.

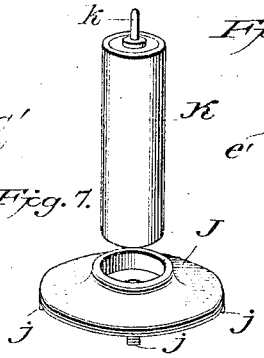


Fig. 8.

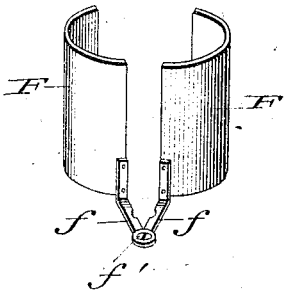


Fig. 9.

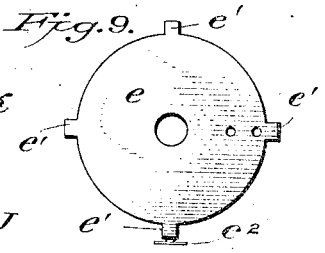


Fig. 10.

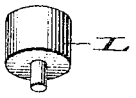
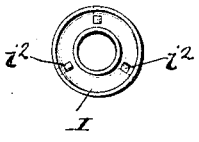


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM H. VAN PATTEN, OF FAIRFIELD, IOWA.

CARTRIDGE-LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,816, dated May 1, 1900.

Application filed February 1, 1900. Serial No. 3,615. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. VAN PATTEN, of Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Cartridge-Loading Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in cartridge-loading machines; and its object is to provide a very simple apparatus by which all the operations of weighing the charges, filling and crimping the cartridges, and capping or decapping the same can be performed quickly and conveniently and wherein the degree of compression upon the charges can be regulated with exactitude to obtain the best results from the powder employed and the explosive force desired.

The invention consists in the novel construction of the several portions of the apparatus and the combinations thereof summarized in the appended claims and hereinafter described in detail with reference to the accompanying drawings, which illustrate what I consider the best form of the complete apparatus now known to me embodying the invention.

In said drawings, Figure 1 is a front elevation of the apparatus, showing the parts adjusted for packing or filling the cartridge. Fig. 2 is a section therethrough on line 2 2, Fig. 1. Fig. 3 is a section on line 3 3, Fig. 1, looking downward. Fig. 4 is a detail view showing the parts arranged for decapping cartridges. Fig. 5 is a detail sectional view showing the parts arranged for recapping. Fig. 6 is a detail view showing the parts arranged for crimping. Figs. 7, 8, 9, 10, and 11 are detail views of the detached parts.

A designates the base of the instrument, which is provided with a clamp-arm A′ and screw A^2, by which it can be conveniently fastened on the top of the table or other suitable support. From the base A rise two parallel uprights *a a*, which are vertically grooved on their opposing faces to form guides for a vertically-movable sliding frame B of inverted-U shape, whose legs B′ are provided with ribs *b*, which enter the grooves in the uprights *a*. Said legs are also provided with racks *b*′ on one side, adapted to be engaged by pinions *c* on a transverse shaft C, journaled in suitable bearings on the uprights *a* and which can be operated by means of a crank-arm C′, as shown, to raise and lower frame B. Through a central head on the frame B passes a vertical filling-tube D, which is prevented from longitudinal movement in the frame by collars *d*, but is capable of rotary movement therein, and has a funnel D′ on its upper end provided with a handle *d*′, by which the tube can be rotated.

Upon the base A between the uprights *a* is a weighing and pressure-indicating scale, which consists of a cylinder E, within which is a coiled spring E′, supporting a vertically-movable plate *e*, provided with lugs *e*′, which engage suitable guide-slots in the periphery of the cylinder and prevent the plate rotating therein. One of these lugs *e*′ is provided with an indicator e^2, which moves past a graduated scale E^2 on the exterior of the cylinder, by which the pressure upon the plate *e* as the latter is lowered is readily indicated in ounces or pounds, either or both.

F F designate opposite cartridge-clamping plates substantially semicircular in cross-section and adapted to hold a cartridge in central upright position upon plate *e*. The plates F are provided with arms *f* at their lower ends, which are pivoted to the plate *e* at the point *f*′ and while supporting the clamp-plates in upright position allow them to be swung open or closed. The arms *f* may be recessed intermediate pivot *f*′ and the plates to fit under a headed lug e^3 on the plate *e* when the clamp-plates are closed to assist in holding the latter closed and to prevent vertical lifting thereof, and one clamp-plate may be provided with a spring-catch F′, adapted to engage a pin F^2 on the opposite plate and lock the clamp-plates together when the cartridge is placed therein. The clamp-plates F F hold the cartridge in vertical position directly under and in line with the tube D, so that the charges of powder and shot can be poured directly into the cartridge when so held by emptying them into funnel D′.

A rammer G can be screwed onto the lower end of the tube D, so as to pack the wadding

and charges in place, the rammer being lowered by turning handle C', thereby lowering the frame B and forcing the rammer into the cartridge with a degree of pressure which can be readily determined by the indicator e^2 and scale E^3.

For convenience during the filling of the cartridges and in order to prevent spreading of the upper ends thereof a collar H may be slipped on the upper ends of the cartridges and rest upon the clamp-plates F, as shown. After the cartridge has been properly charged and packed the collar H can be removed therefrom and the packer G can be unscrewed from the tube D and the crimper I screwed thereon and lowered onto the cartridge by turning handle C', and the crimping is then effected by rotating tube D by handle d'. These operations of filling and crimping the cartridges are sufficiently clear from the foregoing description and the drawings. After being filled the cartridges may be removed by opening the clamps F, as is obvious. It is also apparent that the weight of the charges, both powder and shot, put into the cartridge can be determined by the scale as well as the amount of pressure employed in packing charges in the cartridge. This is a very important practical feature of the device, as different grades of powder require different degrees of compression, and the uniformity of the explosions and propulsive force of the charges are largely dependent upon the uniformity of the compression of the charges in the cartridge. This is especially true where high-power and smokeless powders are used.

The device is also provided with decapping and recapping attachments, as shown, comprising a plate J, which is adapted to fit over the cylinder E (when the clamp-plates F F are removed) and is provided with lugs j to hold it centrally in position thereover and with a collared central aperture adapted to receive either end of a tube K, one end of which is provided with a pin k and the other end of which is open. When the device is used to decap cartridges, the plate J is placed over the cylinder E and the tube K fitted thereon with pin k uppermost. The cartridges may then be slipped over the tube K, and pin k will force the caps out of the same. The packer G or the crimper may be employed to force the cartridges down onto the tube in the decapping operation. To recap the cartridges, the tube K is inverted, its open end being uppermost. The cartridges may then be slipped thereon and the recapper-head L screwed onto the lower end of tube D, whereby the caps can be readily placed in position on the cartridges.

As shown in Figs. 3 and 11, the crimping-cup I is provided near the lower edge thereof with three equidistant openings i, in which are inserted from the outside of the crimper small steel rollers i^2, which are held in place by screws or plugs i^3, as shown. These rollers i^2 freely revolve within said openings i instead of being made stationary, as I believe prior constructions show. Furthermore, these rolls may be so constructed as to make both a square and round crimp, if desired.

The manner of using the device and the simplicity of its construction will be sufficiently understood from the foregoing description and drawings, and further detailed explanation thereof is unnecessary.

Having thus described my invention, what I therefore claim as new is—

1. The combination of the cartridge-support, the vertically-movable frame above the same, and the rotatable filling-tube connected to said frame adapted to carry a crimper-head on its lower end, substantially as described.

2. The combination of the cartridge-support, the vertically-movable frame above the same, and the rotatable filling-tube connected to said frame; having its lower end adapted to receive and support an interchangeable packer-head or crimper-head, substantially as described.

3. The combination of the cartridge-support, and a vertically-movable frame thereover; with a rotatable filling-tube carried by said frame, having its lower end adapted to receive and support an interchangeable packer-head, crimper-head or decapper-head, substantially as described.

4. The combination of the cartridge-support, the vertically-movable frame and a rotatable filling-tube carried by said frame, having its lower end adapted to receive and support an interchangeable packer-head, crimper-head or decapper-head; with the removable decapping-tube adapted to be secured below the filling-tube, for the purpose and substantially as described.

5. The combination of the base, the opposite cartridge-clamping plates attached thereto adapted to receive and hold a cartridge, the vertically-movable frame above the same, and the rotatable filling-tube connected to said frame; having its lower end adapted to receive and support an interchangeable packer-head or crimper-head.

6. The combination of the base provided with uprights, the opposite cartridge-holding clamping-plates pivotally mounted on said base, adapted to hold the cartridge in upright position thereon, the sliding frame guided by said uprights, and the filling-tube attached thereto; with the racks and pinions for operating said frame, substantially as described.

7. The combination of the base provided with uprights, the opposite cartridge-holding clamping-plates pivotally mounted on said base, adapted to hold the cartridge in upright position thereon, and the sliding frame guided by said uprights; with the racks and pinions for operating said frame, the rotatable filling-tube attached to said frame having its lower end adapted to receive and support an interchangeable packer-head or crimper-head, substantially as described.

8. The combination of the base, the weighing or pressure scale thereon adapted to support a cartridge, the vertically-movable frame above said scale and means for raising and lowering said frame; with a rotatable filling-tube attached to said frame having its lower end adapted to receive and support an interchangeable packer-head or crimper-head, substantially as described.

9. The combination of the base, the vertical uprights attached thereto and the vertically-movable frame between the upper end of said uprights, a rotatable filling-tube attached to said frame and adapted to support interchangeable packing or crimping heads on its lower end, and a scale for supporting the cartridge, substantially as described.

10. The combination of the base, the vertical uprights attached thereto and the vertically-movable frame guided between said uprights, and a rotatable filling-tube attached to said frame and adapted to support interchangeable packing, crimping or decapping heads on its lower end; with a reversible tube adapted to be placed below said tube and provided with a decapping-pin on one end, for the purpose and substantially as described.

11. The combination of the base, the scale thereon, the vertically-movable frame above the scale, and a rotatable filling-tube attached to said frame and adapted to support interchangeable packing, crimping or decapping heads on its lower end; with a plate adapted to fit over the scale and the reversible tube adapted to be placed on said plate and provided with a decapping-pin on one end, for the purpose and substantially as described.

12. The combination of the cartridge-support, the vertically-grooved uprights at each side thereof, a frame guided in said uprights and the rack and pinion for raising and lowering said frame; with a rotatable filling-tube carried by said frame, said tube having a funnel on its upper end and its lower end adapted to receive and support an interchangeable packer-head, crimper-head or decapper-head, substantially as described.

13. The combination of the cartridge-support, the vertically-grooved uprights at each side thereof, a frame guided in said uprights, a rack and pinion for raising and lowering said frame, and a rotatable filling-tube carried by said frame, said tube having a funnel on its upper end and its lower end adapted to receive and support an interchangeable packer-head, crimper-head or decapper-head, substantially as described; with the removable decapping device adapted to be secured between the uprights and below the filling-tube, for the purpose and substantially as described.

14. The combination of the base, the uprights attached thereto, and the vertically-movable frame between the upper ends of said uprights; with a scale below said frame adapted to support the cartridge, the cartridge-clamping plates attached to said scale and movable therewith, and a rotatable filling-tube attached to said frame adapted to support interchangeable packing or crimping heads on its lower end.

15. The combination of the base, the uprights attached thereto, and the vertically-movable frame guided by said uprights adapted to carry the packing or crimping or recapping head; with a scale below said frame adapted to support the cartridge, the clamping-plates attached to said scale, a plate adapted to fit over the scale when the clamping-plates are removed and the reversible tube adapted to be placed on said plate and provided with a decapping-pin on one end, for the purpose and substantially as described.

16. The combination of the base, the uprights attached thereto, and the vertically-movable frame guided by said uprights, a scale below said frame adapted to support the cartridge, the pivoted clamping-plates attached to said scale and movable therewith, a rotatable filling-tube attached to said frame and adapted to support interchangeable packing, crimping or recapping heads on its lower end; with a plate adapted to fit over the scale when the clamping-plates are removed and the reversible tube adapted to be placed on said plate and provided with a decapping-pin on one end, for the purpose and substantially as described.

17. The combination of the cartridge-support, the vertically-movable frame above the same; with a rotatable filling-tube carried by said frame, having its lower end adapted to receive and support an interchangeable packer-head, crimper-head or decapper-head, the crimper-head provided with rollers in its lower end equidistantly arranged whereby the cartridge may be recapped, substantially as and for the purpose described.

18. The combination of the base, a weighing or pressure scale therein, the opposite cartridge-clamping plates attached to said scale adapted to receive and hold a cartridge, and the vertically-movable frame above the same, a rotatable tube attached to said frame having its lower end adapted to receive and support a packer-head or crimper-head, substantially as described.

19. The combination of the base provided with uprights, the opposite cartridge-holding clamping-plates pivotally mounted on said base, adapted to hold the cartridge in upright position thereon, the sliding frame guided by said uprights, and a rotatable tube on said frame having its lower end adapted to support an interchangeable packer-head or crimper-head, and means for operating said frame, substantially as described.

20. The combination of a weighing or pressure scale adapted to support a cartridge, a vertically-movable frame above said scale, and a rotatable tube on said frame adapted to carry an interchangeable packer-head or crimper-head, and means for raising and lowering said frame, substantially as described.

21. The combination of the base, the vertical uprights attached thereto and the vertically-movable frame between the upper end of said uprights, a rotatable tube on said frame having its lower end adapted to support an interchangeable packing-head or crimper-head or decapping device; with a scale below said frame adapted to support the cartridges, substantially as described.

22. The combination of the base, the vertical uprights attached thereto and the vertically-movable frame between the upper ends of said uprights, a rotatable tube on said frame having its lower end adapted to support an interchangeable packing-head or crimping-head or decapping device; with a scale below said frame adapted to support the cartridge, and the cartridge-clamping plates attached to said scale and movable therewith, substantially as described.

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

WILLIAM H. VAN PATTEN.

In presence of—
CLARENCE L. LEEDS,
MABEL C. CLAPPER.