

(No Model.)

3 Sheets—Sheet 1.

M. F. B. RICE.

MACHINE FOR LOADING AND RELOADING CARTRIDGES.

No. 331,159.

Patented Nov. 24, 1885.

Fig. 1.

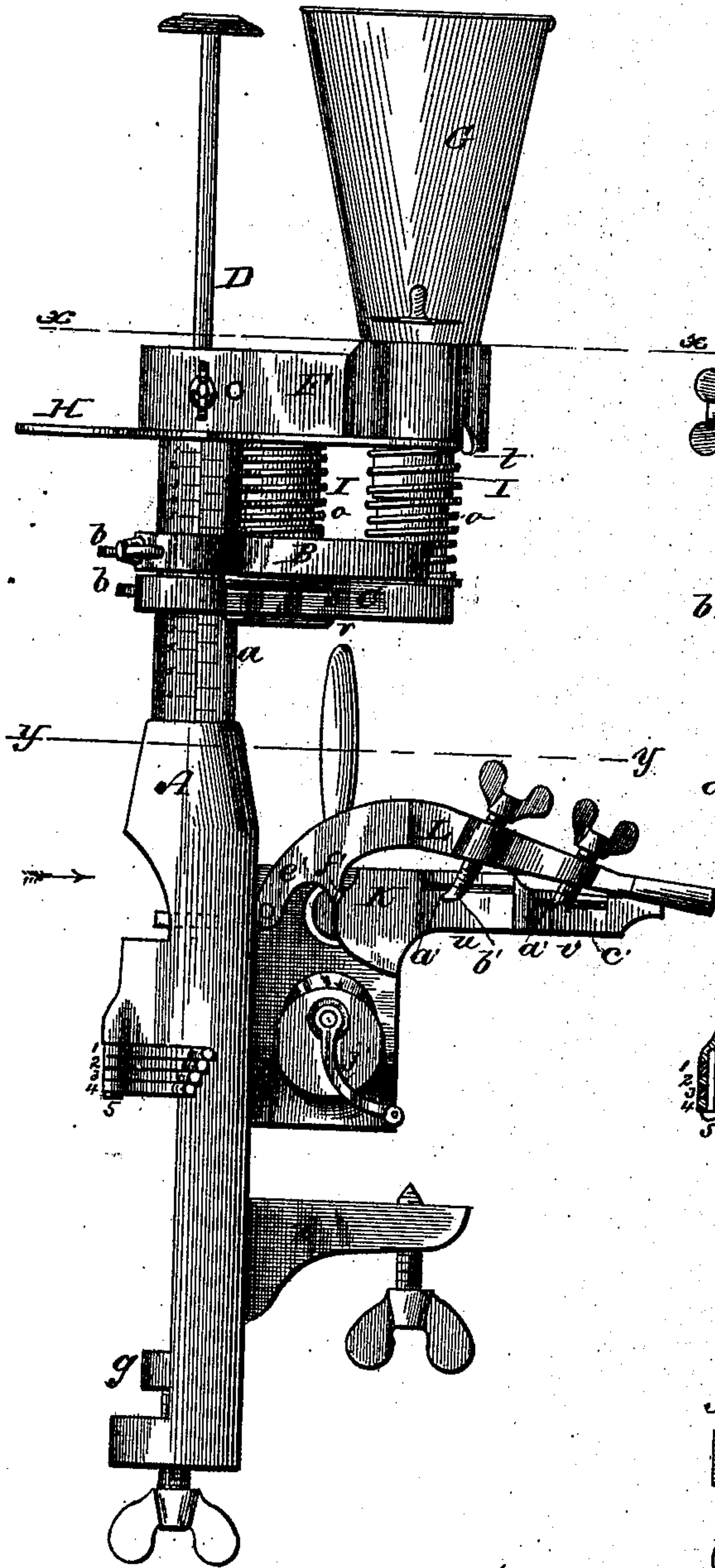
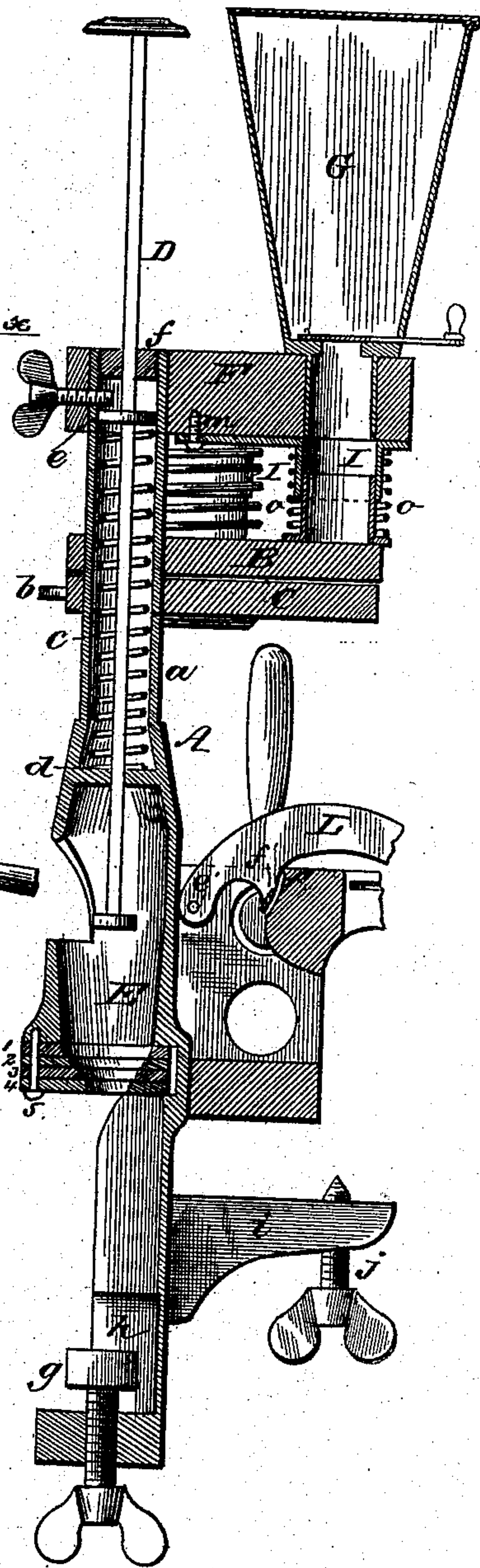


Fig. 2.



WITNESSES:

Med. L. Dietrich,
Wm. W. L. Dyre,

INVENTOR.

M. F. B. Rice
By Johnston, Reinohl & Dyre
ATTORNEYS.

(No Model.)

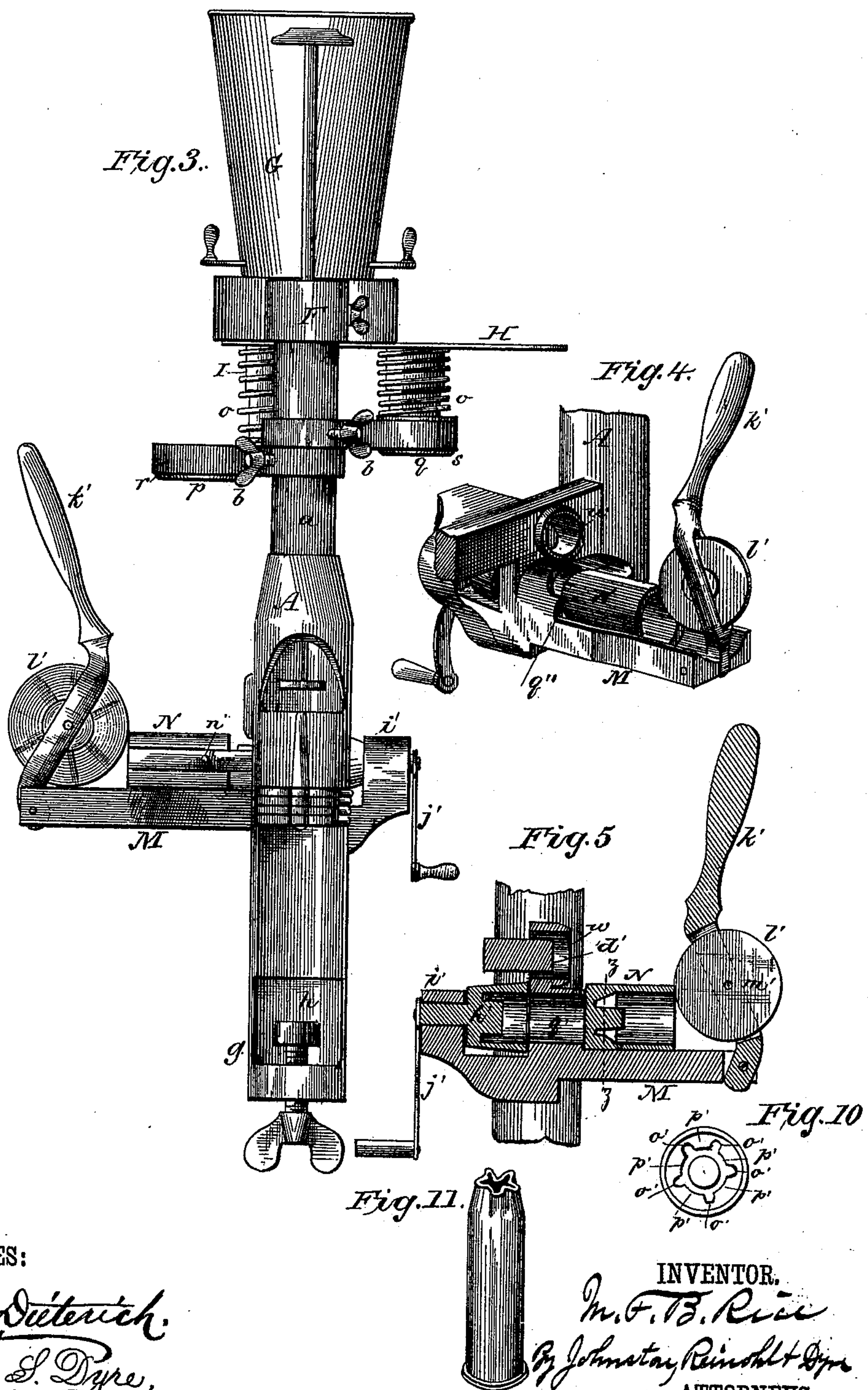
3 Sheets—Sheet 2.

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Med. L. Dietrich.
Wm. W. L. Dyre.

INVENTOR.

INVENTOR.
M. F. B. Rice

By Johnston, Reinhold & Dyer
ATTORNEYS.

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Fig. 6.

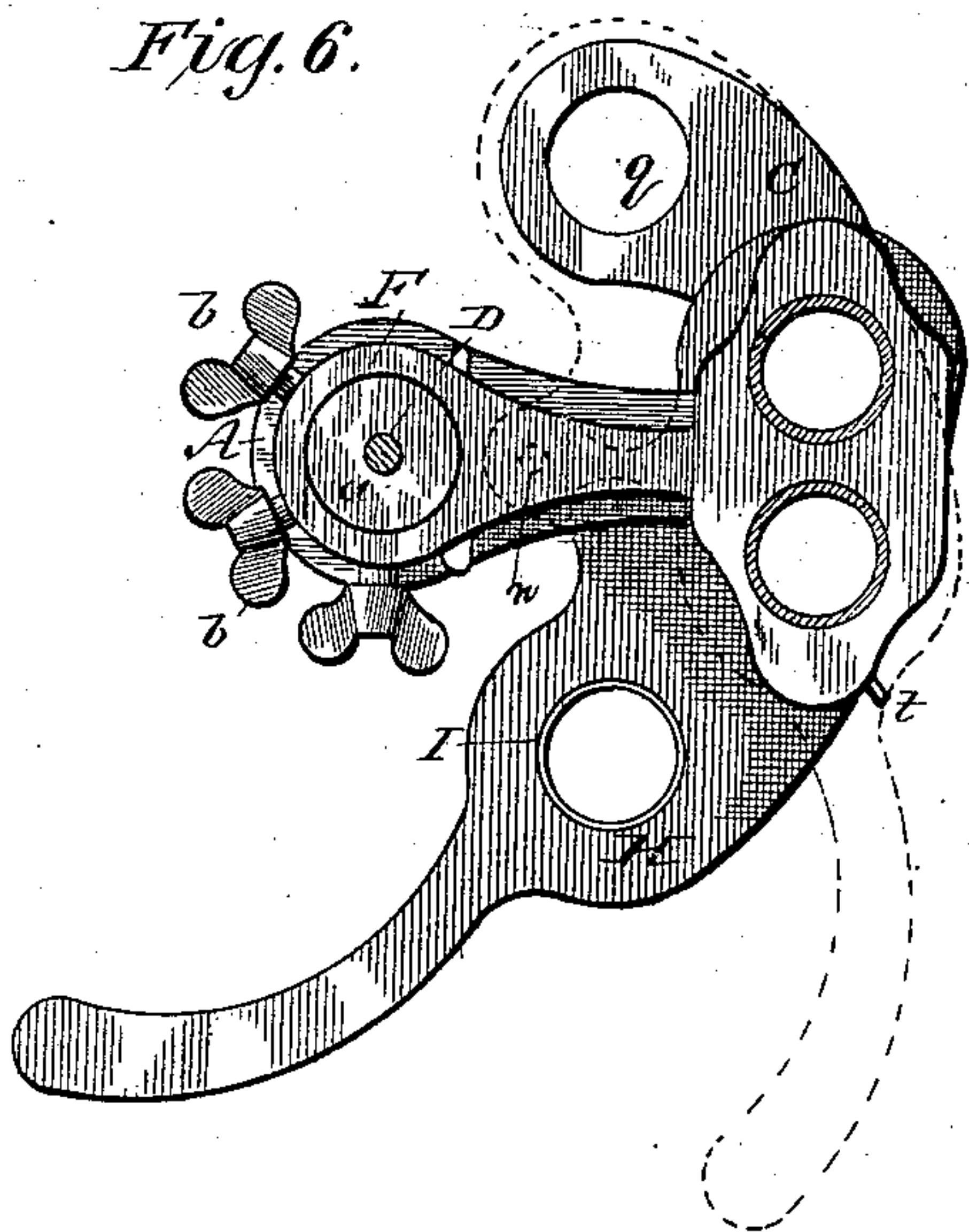


Fig. 7.

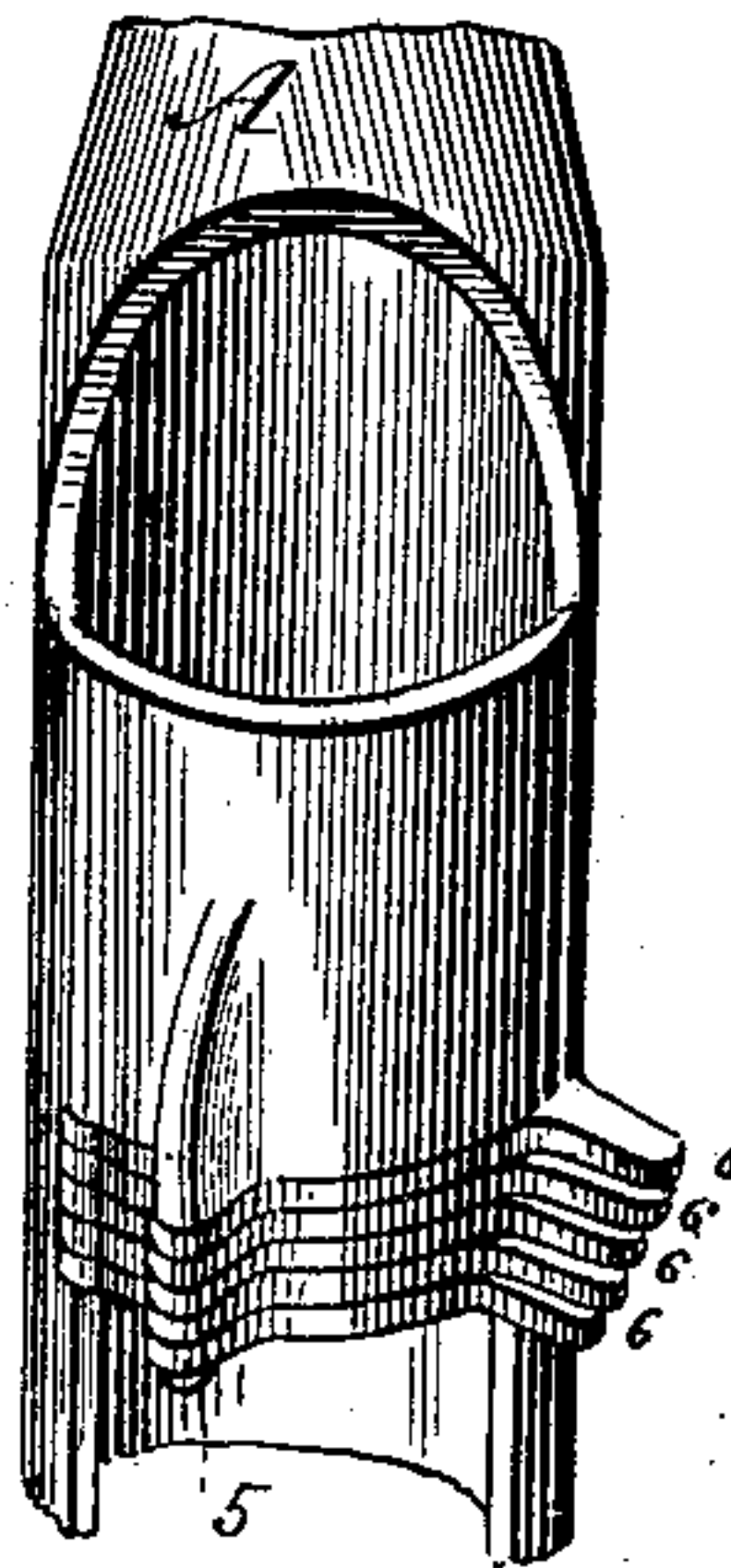


Fig. 8.

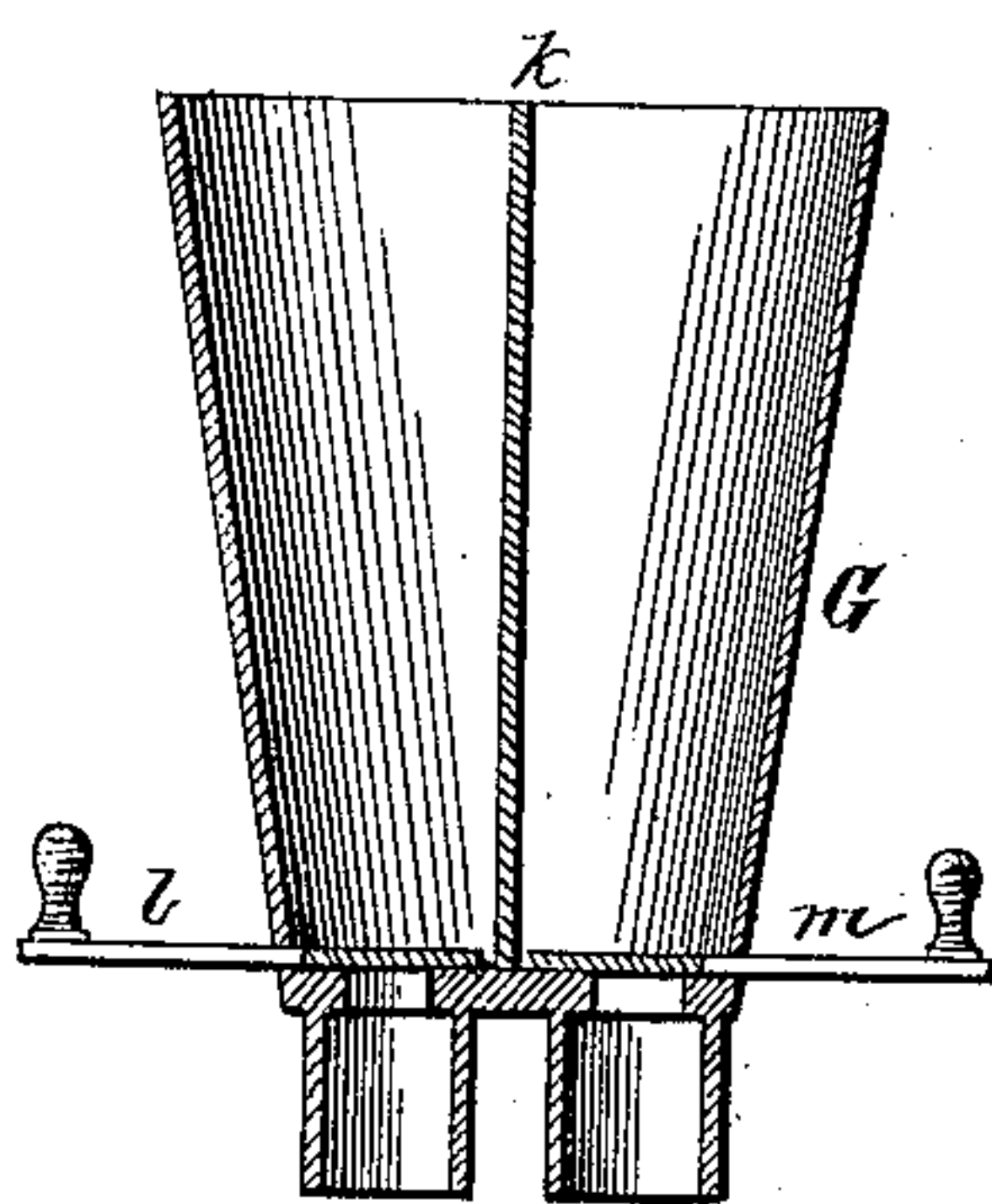
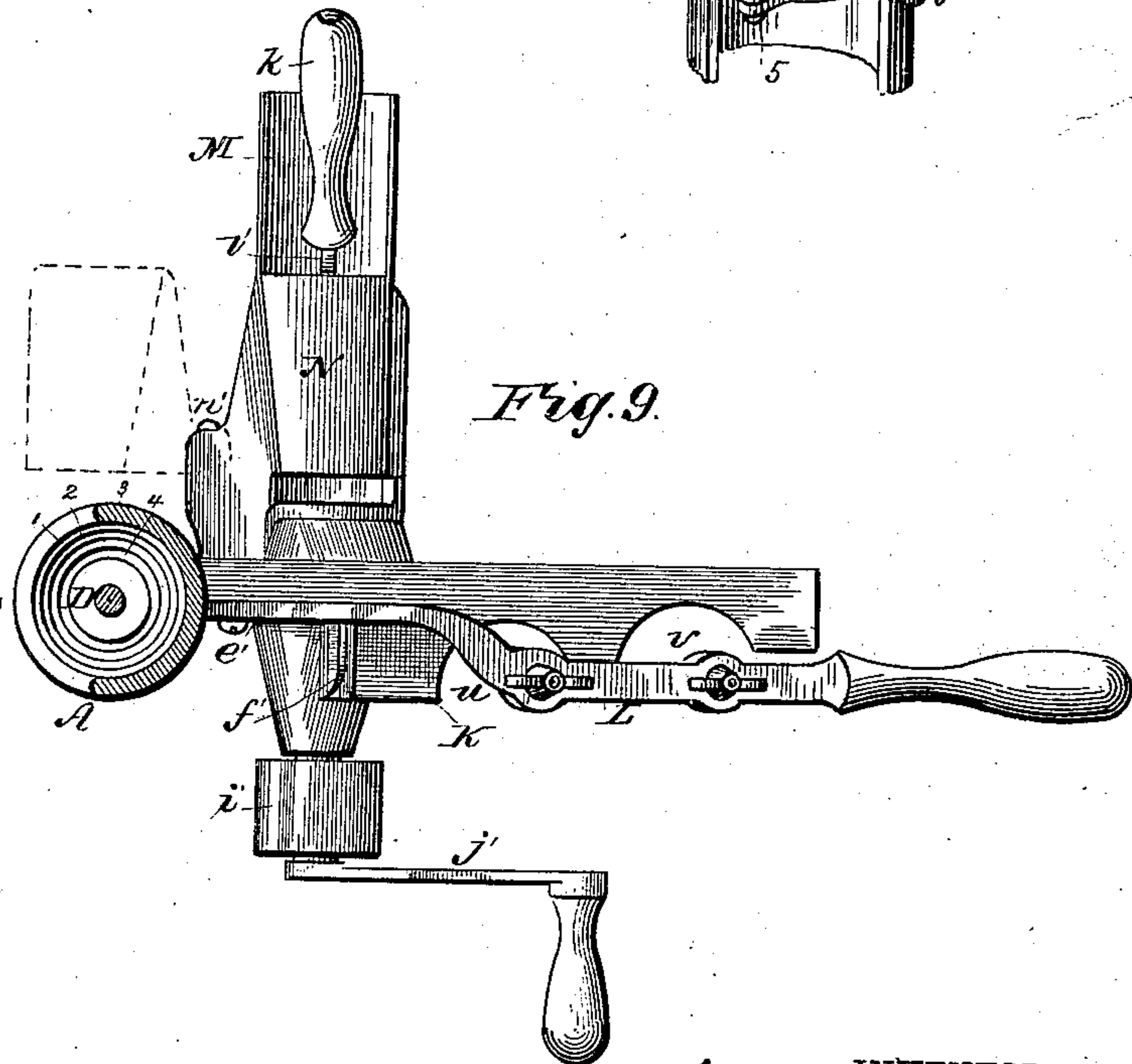


Fig. 9.



WITNESSES:

Ad. S. Dieterich.
Wm. W. L. Dyer.

INVENTOR.

M. F. B. Rice
By *Johnston, Reinhold & Dyer*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

MARTIN F. B. RICE, OF WASHINGTON, DISTRICT OF COLUMBIA.

MACHINE FOR LOADING AND RELOADING CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 331,159, dated November 24, 1885.

Application filed September 25, 1885. Serial No. 178,171. (No model.)

To all whom it may concern:

Be it known that I, M. F. B. RICE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Loading and Reloading Cartridges; 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.

My invention relates to a machine which embodies in compact form and as an entirety all the devices necessary to load and reload cartridges. It has been customary to provide a number of separate implements for effecting the work which is accomplished in my single machine, which subjected the user to a great deal of inconvenience in handling, and danger of losing them. Especially was the latter the case when the several separate implements were carried away from home on gunning expeditions.

The invention has for its object the construction of a compact machine which shall embody all the devices required to load new cartridges or to reload cartridges which have been used, and also to provide a machine by which metallic or paper cartridges may be loaded with facility and dispatch.

The invention consists in the constructions hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a front view or elevation of the machine; Fig. 2, a vertical section thereof; Fig. 3, a side view, in elevation, looking in the direction of the arm in Fig. 1; Fig. 4, a perspective view of the cradle and crimpers; Fig. 5, a longitudinal section of the crimpers; Fig. 6, a plan on line *xx*, Fig. 1; Fig. 7, an enlarged side view of a portion of the cylinder constituting the wad-starter and its graduated gages; Fig. 8, a vertical section of the canister; Fig. 9, a plan on the line *yy* in Fig. 1; Fig. 10, a cross-section of one of the crimpers on line *zz*, Fig. 5; and Fig. 11 represents a paper cartridge after having been crimped.

Reference being had to the drawings and the letters marked thereon, A represents a tube or column, the upper part of which is cylindrical at *a* and forms a support for the adjustable tables B C, which slide thereon and

are secured by any suitable means. As an example, I have shown thumb-screws *b b*. The part *a* is provided with a graduated scale, as shown in Fig. 1, the purpose of which will hereinafter appear. Within said part *a* is formed a chamber, through which a ramrod, D, passes, and is encircled by a coiled spring, *c*, resting upon the bottom *d* of the chamber and bearing upon a collar, *e*, formed upon the rod D, the upper end of the chamber being closed by a screw-plug, *f*. The central portion of the column forms a wad-starting chamber, E, provided with conical walls, as shown in Fig. 2, and a series of graduated wad gages or gates, 1 2 3 4, a smaller or greater number of which may be applied, as circumstances require. The gages are secured upon a pin or stud, 5, and are adapted to be swung into or out of position, as they are desired to be used in supplying wads of different diameters for either metallic or paper cartridges. Each gage or gate is provided with a projection, 6, which forms a convenient handle for moving it from one position to another, and rests upon a step or seat formed in the column A for supporting the gage while a wad is being passed through it. The lower part of the column is cut away on one side, and forms a chamber to hold the cartridges while they are being provided with wads, and to accommodate cartridges of different lengths a safety-block, *g*, is supported in the bottom of the chamber, and is adjustable therein, as shown. The cartridge-chamber is provided with a rabbet at *h* to receive the flange of the cartridge. From the column projects a bracket, *i*, which is provided with a thumb-screw, *j*, for securing the machine to a suitable table. At the upper end of the column is secured a horizontal bracket or arm, F, which supports the covered charging-canister G, formed in two parts or chambers separated by a partition, *k*, and each provided with a suitable cut-off, *l m*, the handles of which project through the walls of the canister, and separate discharging-tubes, as shown in Fig. 8. To the under side of the arm F is secured a swinging cut-off plate, H, pivoted at *n*, and to which is attached the upper section of two telescopic chargers, I. The lower section of each rests upon the tables B C, respectively, the sections being held apart by spiral springs *o o*, which bear upon flanges formed on each of the sections.

The capacity of the chargers I I is varied

to suit different-sized cartridges or different loads of the same-sized cartridges by adjusting the tables B C in accordance with the graduated scale indicated on the part *a* of the column A, the sections of the charger being separated by the springs *o o*. The tables are provided with apertures *p q*, and upon the under side of the tables, around the apertures, are formed projections *r s*, over which the open end of the cartridge is passed preparatory to charging it with powder or shot. The degree of movement of the swinging plate H is limited by a stop, *t*, fixed upon the arm F, and prevents it being moved in either direction to such an extent as to cause the chargers to leave their respective tables and lose their contents.

To decap and recap the cartridges, I attach to one side of the column an arm, K, having two recesses, *u v*, formed in it. The recesses *u v* are shown provided with grooves *a' a'* to receive the flange of the cartridge and hold it in position while the old or exploded cap is being removed and a new one put in its place. The groove in the recess *v* may, however, be omitted, as the flange of the cartridge may rest upon the upper surface of the arm K around the recess, and thus form an effective bearing for it while a new cap is being placed in the cartridge. An arm or lever, L, is pivotally secured at *b'* to the arm K, and is provided with adjustable points or projections *c' d'*, the former for penetrating the old cap and removing it from the cartridge while said cartridge is held in the recess *v* by the left hand of the operator and wrenched to the right at its open end, while the lever L is held firmly by the right hand, thus effectually displacing the exploded cap. The latter projection, *c'*, is used for embedding a new cap in the cavity formed in the cartridge for its reception.

To provide for cutting off paper cartridges to reduce them to any desired length, there is formed in the arm K a cylindrical chamber, *w*, into which projects a plug, *d'*, thus forming an annulus the outer diameter of which is about equal to the diameter of the cartridge to be cut. Upon the arm L is formed a curved knife-blade, *e'*, for making an incision around the cartridge, and a blade, *f'*, projects forward at right angles to the first-named blade for making a longitudinal incision in the end of the cartridge. After both incisions have been made the cartridge is turned on its axis by the right hand of the operator until it has made a complete revolution, when the severed end is removed.

A crimper for cartridges is made by a cradle or trough, M, projecting rearward and at right angles to the arm K, and which is provided with a cylinder, *g'*, through which the cartridge passes and a revolving head or crimper, *h'*, supported in a bracket, *i'*, and rotated by means of a crank, *j'*, for turning under the end of the cartridge. The cartridge is held against rotation and up to the revolving crimping block or head by a lever, *k'*, which

is provided with a wheel, *l'*, which bears against the flanged end of the cartridge and revolves on its shaft *m'* as the cartridge is moved forward toward the crimper. This crimper will not serve for all classes of loads of cartridges, as it is intended only to crimp paper cartridges which have been loaded up to their maximum capacity, allowing only room enough to turn or crimp the extreme end of the cartridge. It is, however, often desirable to put a small charge in the cartridge, and to avoid the destruction of the same by cutting it down, and the objection to using a cartridge of less length than the chamber formed in the breech of the gun, I provide a crimper, N, which is pivotally secured to the cradle at *n'*, and adapted to be swung out of the cradle when the circular crimper is to be used, as shown in dotted lines in Fig. 9, and into the cradle, as shown in full lines, when using cartridges of the usual length which have been provided with small charges.

The crimper consists of a block having a cylindrical chamber formed therein, the inner end of which is provided with a series of tapering longitudinal grooves, *o'*, and corresponding projections, *p'*, and a central cylindrical projection, *q'*. The cartridge, upon being forced into the crimper N, fills the grooves *o'*, and is formed into a series of longitudinal ribs or projections corresponding with the number of grooves *o'*, and thus crimps the end and securely holds the load without destroying the end of the cartridge or reducing its length, as the force of the charge in passing out of the cartridge restores the crimped end to its normal condition, when it may be used again for any sized load desirable. The closed end of the crimper rests against a shoulder, *q''*, formed in the cradle M, which supports it when the cartridge is being forced into the chamber.

The several parts of the machine being constructed substantially as described, the operation is as follows: The separate compartments of the canister G are filled with powder and shot, respectively, the charges I graduated to receive the sized load that is desired to be used by adjusting the tables B C, which are arranged in different planes, one of the chargers is put in communication with the compartment of the canister containing the powder, the cut-offs *l m* are then opened, and the powder flows into the charger designed to receive it, while the swinging plate H cuts off the passage communicating with the shot. The plate H, carrying the chargers I, is then swung into position to put the charger containing the powder into communication with the aperture in its table, and the powder discharged into a cartridge held in the left hand of the operator against the lower side of the table. While the powder is being charged into the cartridge from one of the chargers I, the other one is being filled with shot from the canister, the powder being cut off by the plate H. The cartridge is then re-

moved to the chamber formed in the lower
 part of the column A, and supplied with a
 wad, which is selected to suit the necessities
 arising from the use of metallic or paper car-
 5 tridges, the former requiring wads of greater
 diameter than the latter. The size of the wad
 having been determined upon, one of the gages
 or gates, 1, 2, 3, or 4, corresponding with
 10 the size of the wad, is put into position and
 the smaller ones swung out of line with the
 wad, when the wad is driven down into the
 cartridge by the rammer. The cartridge is
 then removed and placed under the aperture
 15 in the other table, when the cut-off plate is
 moved to put the charger containing shot in
 communication with the cartridge while the
 empty powder-charger is being refilled from
 the canister. The shot having been discharged
 20 into the cartridge, it is again removed to the
 wad-chamber and provided with another wad.
 It is then removed to the cutter, (if it is de-
 sired or necessary to reduce the length of the
 cartridge,) when the end is removed. The
 cartridge is then put in the circular crimper
 25 and its end turned under or in the crimper,
 which compresses the end of the cartridge
 without reducing its length, as may be de-
 sired.

When old cartridges are to be reloaded, the
 30 operator takes a cartridge in his left hand and
 inserts the flange in the groove a' of the re-
 cess u in the arm K, and with his right hand
 forces the point b' into the exploded cap, when
 the cap is wrenched to the right and the cap
 35 extracted. The cartridge is then provided
 with a new cap and placed in the recess v ,
 where the cap is seated by the lever L and the
 point c' , the bearing-surface of which is con-
 cave, to prevent exploding the cap while forc-
 40 ing it home. The cartridge having been re-
 capped, the operation of reloading is the same
 as hereinbefore described for loading.

It will be observed from the foregoing de-
 scription that the cartridge never leaves the
 45 left hand of the operator from the time it is
 placed under the powder-charger in new car-
 tridges, or under the decaper in old ones, un-
 til the work of loading or reloading is com-
 pleted, and that the several steps of the oper-
 50 ation are performed consecutively and con-
 tinuously. It will also be observed that a
 single motion of the cut-off plate H provides
 for filling one of the chargers I while the
 other is being discharged, thus expediting
 55 the work, as there is no time lost in waiting
 for either charger to be filled.

Having thus fully described my invention,
 what I claim is—

1. In a cartridge-loading machine, the com-
 60 bination of a canister having separate com-
 partments and discharge-passages, a swinging
 cut-off plate adapted to control both of said
 passages alternately and carrying two variable
 chargers, and the tables upon which the
 65 chargers rest arranged on different horizontal
 planes, substantially as described.

2. In a cartridge-loading machine, the com-

bination of a canister having separate com-
 partments, and discharge-pipes supported on
 a bracket, a swinging cut-off plate arranged 70
 below the canister and secured to the bracket
 by a pivot, two chargers having their upper
 portions attached to the swinging plate, and
 tables to support the chargers, said chargers
 being arranged upon the swinging plate, and 75
 apertures arranged in the tables in such rela-
 tion to each other that one charger is filling
 while the other is discharging, substantially
 as described.

3. In a cartridge-loading machine, a wad- 80
 chamber formed in the column of the struct-
 ure and provided with a swinging tapering
 gage at its bottom, substantially as described.

4. In a cartridge-loading machine, a wad- 85
 chamber provided with a series of tapering
 graduated gages arranged horizontally one
 above the other and removably secured to the
 discharge end thereof, substantially as de-
 scribed.

5. In a cartridge-loading machine, a wad- 90
 chamber formed in the column thereof and
 provided with two or more tapering gages re-
 movably attached thereto, in combination
 with seats or supports for said gages formed in
 the wall of the column, substantially as de- 95
 scribed.

6. In a cartridge-reloading machine, an arm
 projecting from the supporting column and
 having a horizontal annular chamber formed
 therein to receive the open end of the car- 100
 tridge, and vertical recesses to receive and
 support the closed or flanged end, in combi-
 nation with a lever having a blade formed
 thereon in the plane of the lever and a blade
 projecting laterally therefrom and carrying 105
 points for decapping and recapping a cartridge,
 substantially as described.

7. In a cartridge-loading machine, a cradle
 provided with a revolving crimper at one end
 and a crimper for contracting a cartridge, 110
 hinged to one side of the cradle and adapted
 to be thrown into or out of the cradle, sub-
 stantially as described.

8. In a cartridge loading machine, a crimper
 consisting of a chamber having a series of ta- 115
 pering longitudinal grooves, and projections
 formed in one end thereof, and a central pro-
 jecting core or stud integral therewith, sub-
 stantially as described.

9. In a cartridge-loading machine, a cradle 120
 having a crimper hinged thereto and pro-
 vided with a chamber containing a series of
 tapering longitudinal grooves and projections,
 and a central core in one end, formed integral
 therewith, in combination with a lever carry- 125
 ing a revolving wheel for forcing a cartridge
 into the crimper, substantially as described.

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

MARTIN F. B. RICE.

Witnesses:

H. A. HALL,

J. A. PRICE.

It is hereby certified that in Letters Patent No. 331,159, granted November 24, 1885, upon the application of Martin F. B. Rice, of Washington, District of Columbia, for an improvement in "Machines for Loading and Re-Loading Cartridges," an error appears in the printed specification requiring correction as follows: In line 34, page 3, the word "cap" should be stricken out and the word *cartridge* inserted instead; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 8th day of December, A. D. 1885.

[SEAL.]

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.

H. L. MULDROW,
Acting Secretary of the Interior.