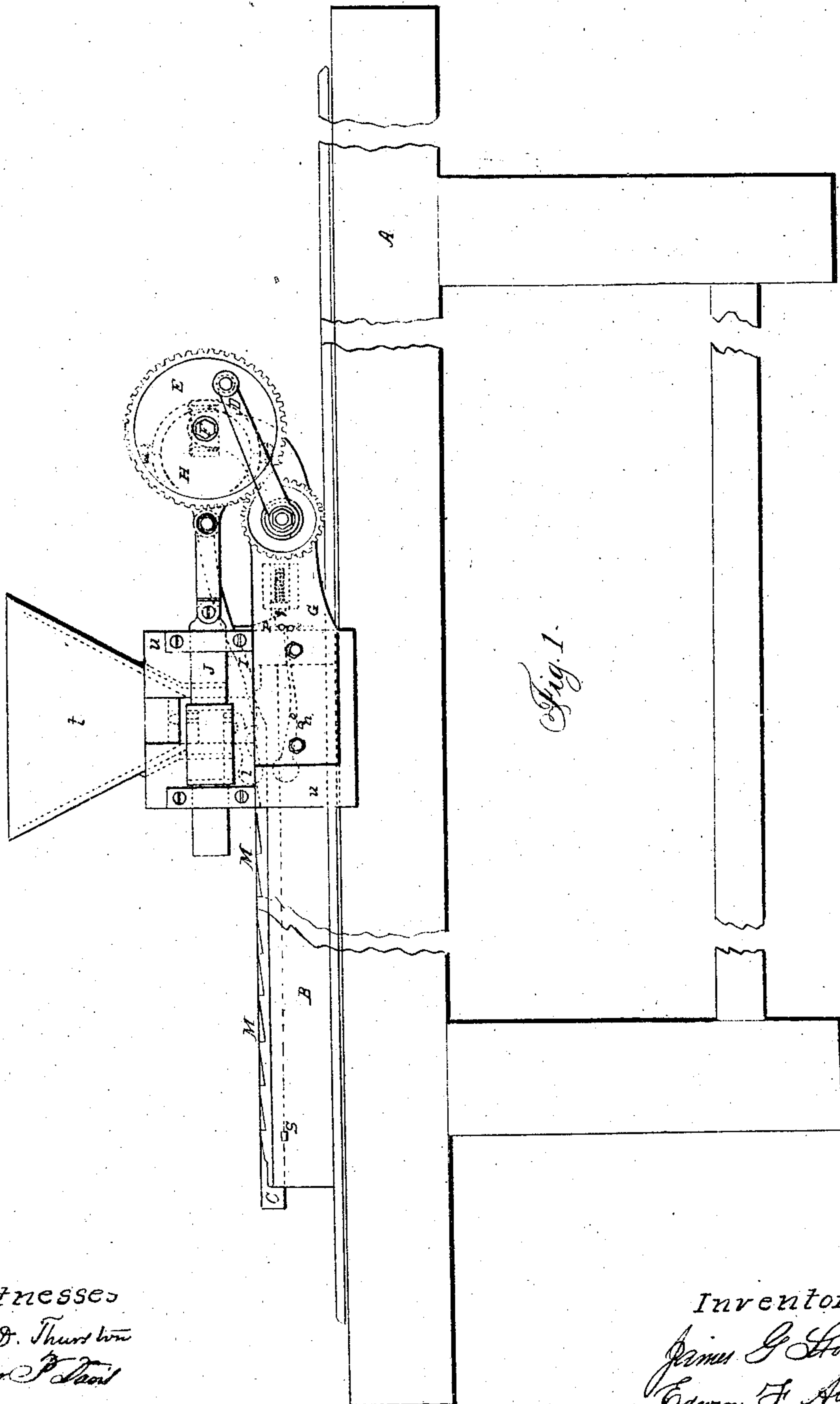


STOWE & ALLEN.

Filling Cartridges.

No. 43,550.

Patented July 12, 1864.



Witnesses
John D. Thurston
Oliver P. Smith

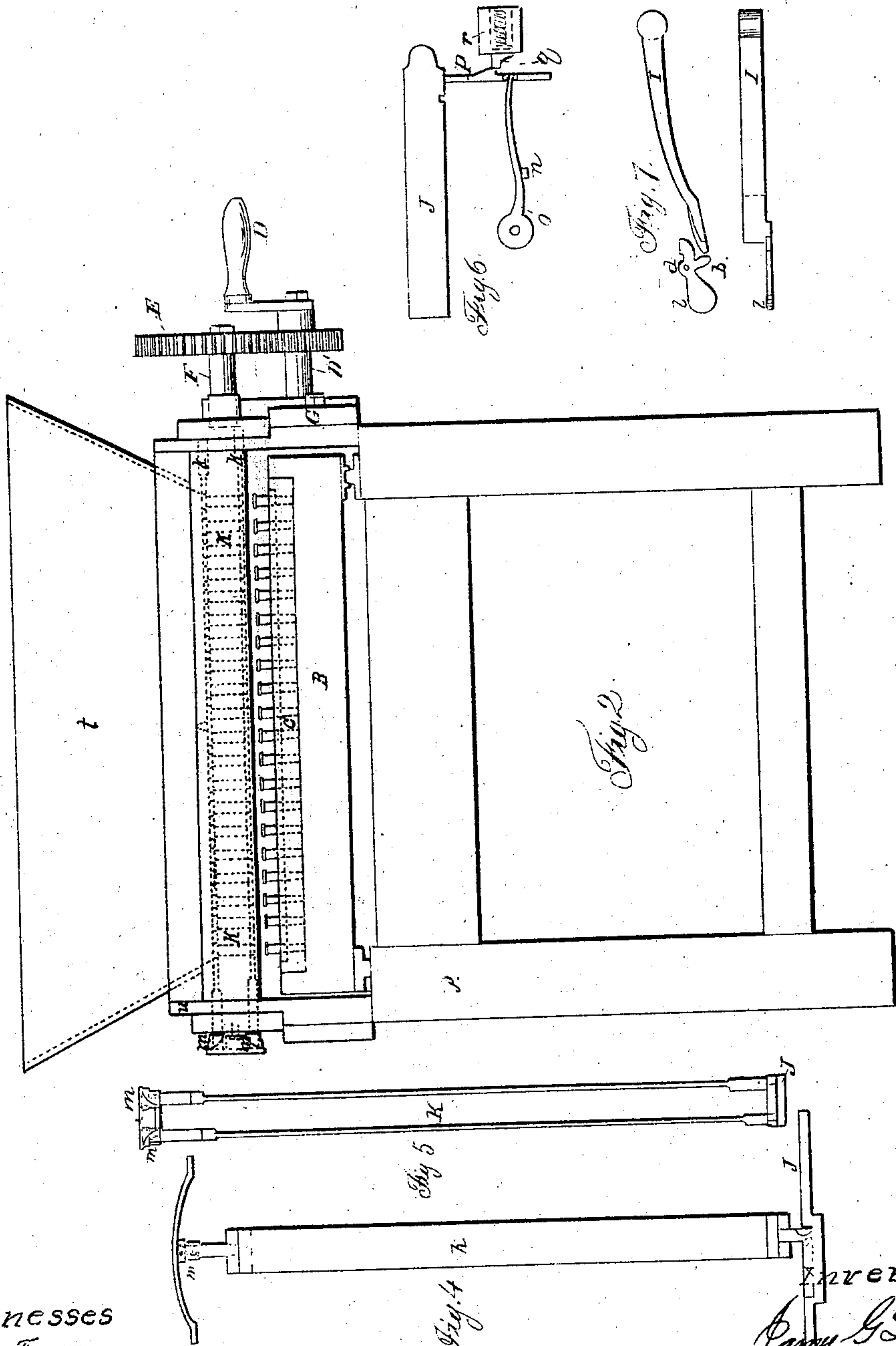
Inventors
James G. Stowe
Edwin F. Allen

STOWE & ALLEN.

Filling Cartridges.

No. 43,550.

Patented July 12, 1864.



Witnesses

John S. Thurston

Chas. P. Lane

Inventors

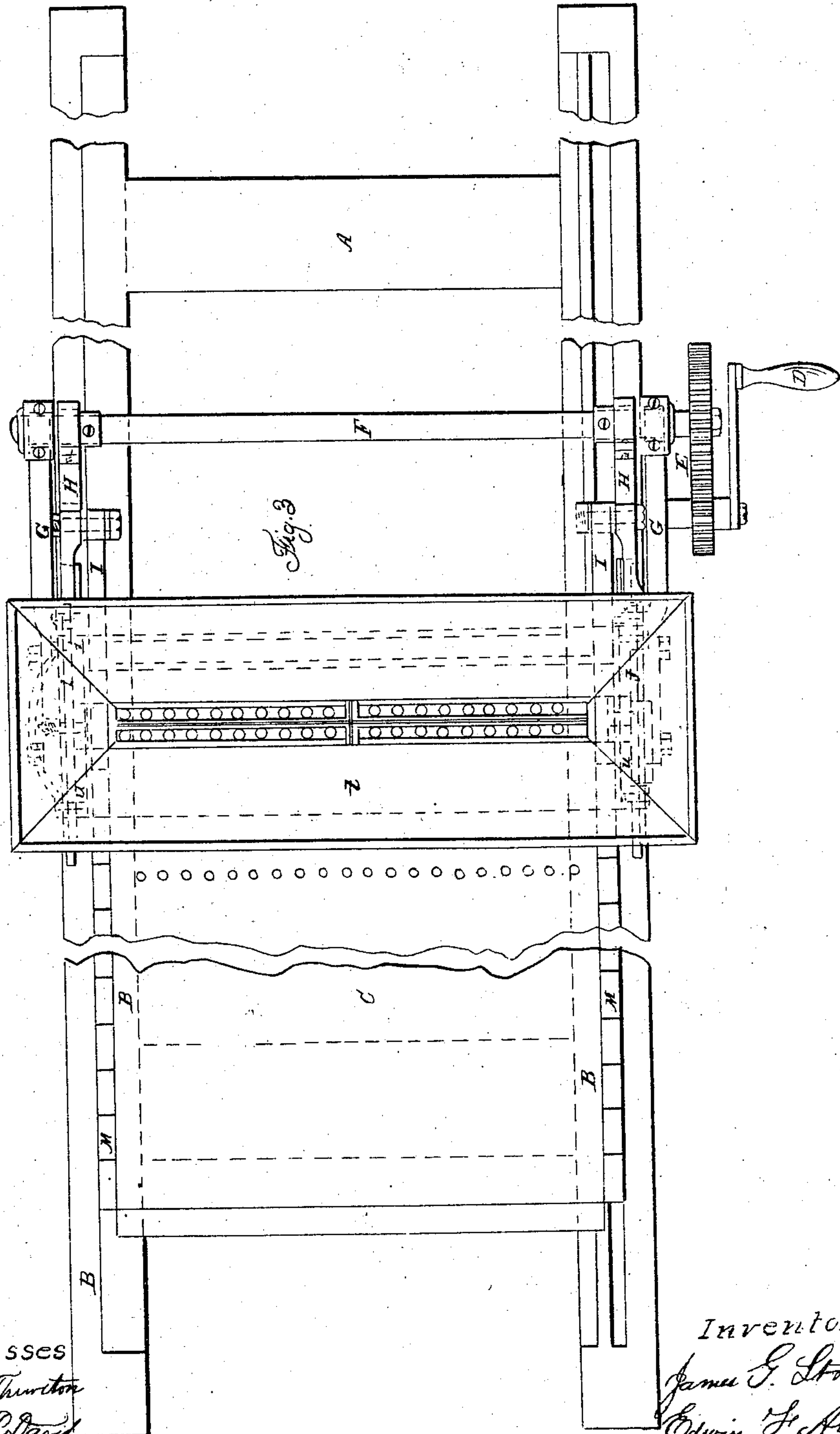
James G. Low
Edwin F. Allen

STOWE & ALLEN.

Filling Cartridges.

No. 43,550.

Patented July 12, 1864.



Witnesses
John D. Thurston
Oliver P. Davis

Inventors
James S. Stowe
Edwin S. Allen

UNITED STATES PATENT OFFICE.

JAMES G. STOWE AND EDWIN F. ALLEN, OF PROVIDENCE, RHODE ISLAND,
ASSIGNORS TO BURNSIDE RIFLE COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR FILLING CARTRIDGES.

Specification forming part of Letters Patent No. 42,550, dated July 12, 1864.

To all whom it may concern:

Be it known that we, JAMES G. STOWE and EDWIN F. ALLEN, both of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Machines for Filling Cartridges; and we do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side elevation. Fig. 2 is an end elevation. Fig. 3 is a top view. Fig. 4 is a top view of the cut-off slides detached. Fig. 5 is a side view of the same. Fig. 6 is a side view of the slide and locking work. Fig. 7 is a side and top view of the pawl and finger.

The machine which is exhibited in the accompanying drawings consists of the following principal parts: First, a hopper to hold the gunpowder in the mass; second, a charger consisting of a series of chambers with suitable cut-off slides to receive the proper quantity of powder from the mass and to deliver it to the cartridge-cases; third, a carriage with a table thereon, which is perforated in order to hold the empty cartridge-cases with their mouths upward, which carriage travels with an intermittent motion underneath the series of charges; fourth, a mechanism to lock the slide which delivers the powder to the cases until the instant when it is proper that it should be delivered; and, fifth, a mechanism for arresting the progressive motion of the carriage and the movement of the charging apparatus as soon as the last row of cartridge-shells has been filled.

The manner in which these several parts are combined together and made to discharge their several functions in the performance of the result to be accomplished is as follows:

A A is a rectangular frame of sufficient length to accommodate the carriage, hereinafter to be described, which holds the rack or table for the empty cartridge-cases. To this frame all the working parts are attached. The powder is placed in a mass in the hopper *t*, which, with the charger K K, to which it is attached, is mounted across the top of the frame A A. The charger consists of a metallic bar, through which are cylindrical chambers arranged in longitudinal rows, in combination with a cut-off slide on the top of the bar and a delivery-slide upon the bottom of the bar, alternately

covering and uncovering the apertures. The diameter and depth of each of these chambers determines the quantity of powder which composes a charge.

The cut-off and delivery slides *k k* are perforated with cylindrical holes, which correspond in number and in size to the chambers in the charger K, and are operated to admit the powder to the charger and to deliver it to the cartridge-cases as follows:

The crank-shaft D' carries a gear-wheel, which communicates motion to the wheel B on the shaft F. Upon this shaft are two eccentric-wheels, H H, which, by means of their straps and the rod connected therewith, give, as the shaft F revolves, a reciprocating motion to the slides J J. These slides work in suitable keepers across the ends of the check and delivery slides *k k*. One of these slides J J has upon its inner face two inclined planes, which, as the slide travels, will strike against projections upon the cut-off and delivery slides and move them alternately in the direction for covering the mouths of the chambers in the charger, the inclined planes being so arranged that when the holes in the cut-off slide are concentric with the chambers in the charger the spaces between the holes in the delivery-slide will cover the same on the lower side of the charger, and vice versa. Each slide is brought back to position by the tension of a spring, *m m*, as shown in Figs. 4 and 5.

The drawing represents the charger as having two rows of holes only. It is evident that a greater number may be used if desired, provided that the mechanism which accommodates the motion of the carriage, presently to be explained, is accommodated to the number employed.

B is a carriage, which travels from front to rear of the machine, directly under the charging apparatus just described, upon ways, or upon a track-rail for the purpose placed upon the top of the frame. This carriage has a table or rack, C, which is perforated with holes for containing the cartridge-cases, the holes in each row as well as the rows themselves corresponding in their distances from each other with the chambers in the charging apparatus. This rack or perforated table can be removed at pleasure from the carriage and another be substituted in its place. Upon the upper surface of the carriage, and upon

either side, are ratchet-teeth *M*, the distance of which from each other should conform to the distance which the carriage is to be moved to bring the successive rows of cases underneath the mouths of the charging-chambers. In the present instance the ratchet-teeth are each of sufficient length to move the table to the extent of two rows of cases, that being the number which the charging apparatus is arranged to supply at once. The carriage *B* has an intermittent progressive movement underneath the charging apparatus, which is derived from the pawls *I I*, worked by the eccentrics *H H* on the shaft *F*, which derives its motion from the crank-shaft, so that the cartridge-cases, in rows of two at a time, are in this instance successively brought up to the position for being filled directly underneath the chambers in the charger.

As the cut-off and delivery slides and the carriage are both operated by motions derived from the same eccentrics *H H*, it follows that their respective movements can always be made to maintain the same relation to each other. Thus during the forward movement of the carriage the cut-off slide is made to break the connection between the hopper and the charger, and during the backward movement of the pawls *I I* the delivery-slide is made to cut off the communication between the charger and the rows of cartridge-cases directly beneath it.

It is very important that the lower or delivery slide shall not be opened until the upper or cut-off slide has entirely cut off the charger from the hopper, and also that the charges of powder should be delivered to the cartridge-cases upon the instant that the latter have been brought to their proper position directly beneath the charger. This is effected by the use of the counterweighted bell-crank stop *l*, Fig. 7, pivoted to the frame at *a*. The gravity of the heavier arm of this stop causes the shorter arm to be raised, so that a projecting piece upon the end will, after the slide has been moved to close the lower apertures in the charger, enter a socket in the delivery-slide and prevent the spring *M*, which otherwise would tend to move the slide in the opposite direction, from acting. The slide is held locked in this position until by the forward movement of the carriage the end of the pawl *I* strikes against the arm *b* of the stop and overcomes the gravity of the weighted arm. The slide being released, the spring *m* instantly acts to uncover the bottom of the charger-chambers, and the powder is delivered to the cartridge-cases, the cut-off slide having previously cut-off, as already explained, the connection between the hopper and the charger.

After the last row of cartridge-cases has been filled the further movement of the carriage and of the cut-off and delivery slides is arrested by the following means: Underneath the pawls *I I* are placed upright slides *p p*, Fig. 6, which have arms at right angles to

their length, so that when these slides are raised the pawls will be lifted by the arms above the ratchets and ride upon them. These slides are controlled by levers *o*, (same figure,) pivoted to the frames. The stop-pins *u*, upon the sides of the carriage and near to the forward end, by the movement of the carriage, bear against the under faces of these levers, which are made inclined for the purpose, and raise them high enough to lift the pawls from the ratchets. At the same time spring-catches *q*, operated by the spiral spring *r*, are allowed to enter notches in the upright slides *p p* and maintain them in their raised position. The upper ends also of the slides *p p* enter notches in the slides *J J*, which actuate the cut-off and delivery slides *k k*, and all movement of the parts is thereby arrested. The table or rack containing the charged cartridges can now be removed and another rack with empty cases be substituted in its place. The carriage can then be drawn toward the forward end of the machine, and in so doing the stops *s s* on the sides of the carriage and near its rear end will come in contact with the spring-catches *q*, withdraw them from the recesses in which they had entered in the upright slides *p p*, when the slides are permitted to fall, the pawls are re-engaged with the teeth of the ratchet, the cut-off and delivery slides *k k* unlocked, and all the parts in readiness to repeat the operations above described.

We do not limit ourselves to the precise construction and arrangement of the several parts as described, but mean to include all mere variations of form, structure, and arrangement accomplishing the same mode of operation by equivalent means.

What we do claim as of our invention, and desire to secure by Letters Patent, is—

1. A charger having cut-off and delivery slides *k k*, controlling a series of charging-chambers, operated in the manner substantially as described, for the purposes specified.

2. The mode of operation, substantially as specified, by means of which the delivery-slide of the charging apparatus is alternately locked and tripped, for the purposes specified.

3. The mode of operation, substantially as specified, by means of which the movement of the carriage *B* and of the cut-off and delivery slide of the charger *K* is arrested at any determined point in the progress of the carriage, for the purposes set forth.

4. The combination of the stops *s s* with the spring-catches *q q*, substantially as described, for the purposes specified.

In testimony whereof we have hereunto subscribed our names.

JAMES G. STOWE.
EDWIN F. ALLEN.

Witnesses:

B. F. THURSTON,
J. D. THURSTON.