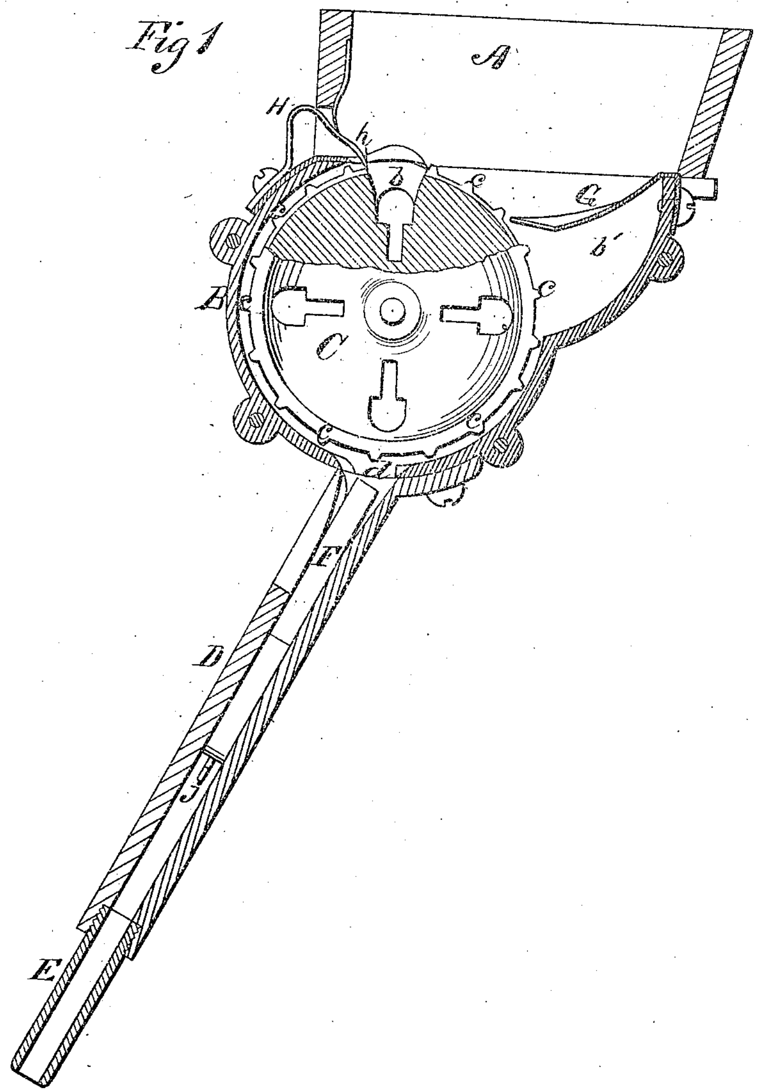
2 Sheets--Sheet 1.

A. C. CAREY.

Machine for Feeding Cartridge-Shells.

No. 161,382. Patented March 30, 1875.

Fig 1



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2 Sheets--Sheet 2.

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Fig 2

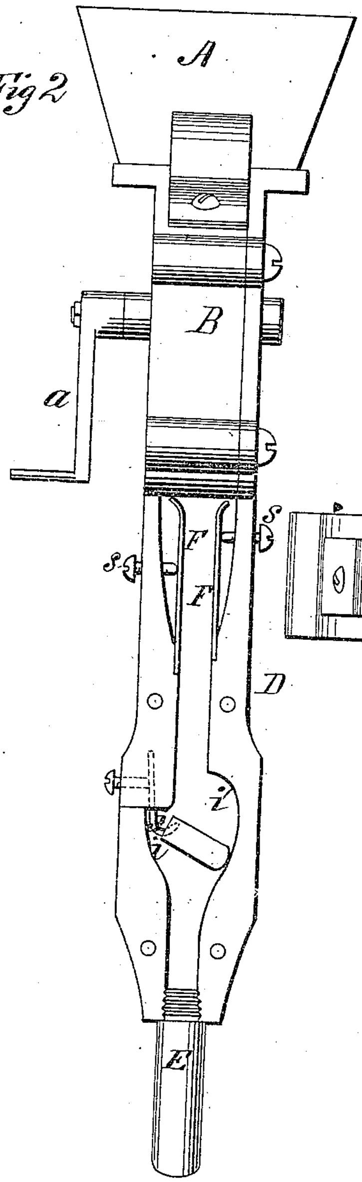
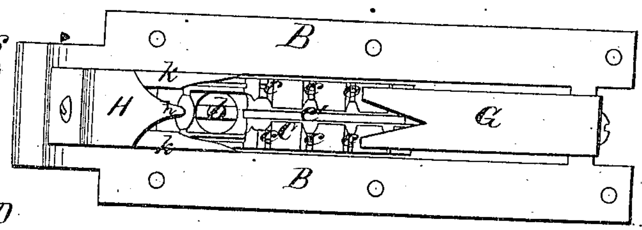


Fig 3



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UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR FEEDING CARTRIDGE-SHELLS.

Specification forming part of Letters Patent No. **161,382**, dated March 30, 1875; application filed February 6, 1875.

To all whom it may concern:

Be it known that I, AUGUSTUS C. CAREY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and valuable Improvement in Machine-Feeders for Cartridges, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal vertical section of my machine. Fig. 2 is a front view of the same, and Fig. 3 is a top-plan view.

This invention has relation to improvements in machine-feeders for cartridges. The object of the invention is to do away with hand-feeding in such machines wherein the articles to be operated upon are required to be presented thereto in a given position, and to accomplish the same result by machinery in a positive and unerring manner. To this end the nature of the invention consists in combining with a hopper for receiving the articles promiscuously a feeding-wheel and a tubular duct for conducting the said articles from the hopper to a heading, punching, or other like mechanical device, a device whereby the article to be operated on will be positively delivered in an unerring manner to the said machine in the required position, as will be hereinafter more fully explained.

In explaining the mechanical devices used, and their mode of co-operation for the purpose mentioned, I propose to select metallic cartridge-shells as the articles to be operated on, and to show that, although thrown promiscuously and in large numbers into the hopper, they will be unerringly presented to a heading-machine, for the purpose of forming a flange thereon, with their closed ends foremost; but while using these shells as a means for explaining the operation of my feeder, I do not wish to be understood as confining myself to this especial use, as the device which I have invented is applicable with equally good results to any articles which are required to be fed in a given position to any machine. With these premises I proceed with the explanation.

In the annexed drawings, A designates a preferably rectangular bottomless hopper, which is rigidly, but removably, secured to the upper horizontal edge of a sectional cylindrical casing, B, for a rotating feed or drop wheel, C, having its bearings in the said case, and operated either by means of a crank-arm, *a*, or by means of any other available or suitable motor, through the medium of a band-wheel applied upon the end of the shaft of the said wheel. This wheel is provided with a suitable number of pockets or cups, *b*, cut radially in its periphery; also, with transverse corrugations *c*, and a peripheral longitudinal groove, *c'*, for a purpose hereinafter explained. Casing B communicates by means of a throat, *d*, with an inclined and preferably sectional tubular duct, D, whence the cartridge-shells are delivered through a detachable nozzle, E, to the header. If the hopper be now charged with shells, and the feed-wheel be rotated, as each cup *b* comes uppermost it will receive one of these shells, and will be carried around by wheel C in its rotation until it reaches throat *d*, falling through which it will be discharged through nozzle E with that end downward which was uppermost when the shell entered the said cup. This would cause the open end of the shell to be presented quite as often as its closed end. The latter being the one desired, I cause it to be always presented by the following simple device, to wit: Recesses *i i'* are cut in eduction-tube D, at or near the center of its length, into the former of which a hooked catch, *j*, is adjustably secured with its point upward, and slightly projecting beyond the edge of the tubular conduit, as shown in Fig. 2. The other recess, *i'*, is nearly semicircular in form, and it extends a certain distance above recess *i*. If, now, a shell is discharged into eduction-tube D with its open end downward, hook *j* will become engaged over the edge of the shell, arresting its downward progress momentarily, and causing it to rotate upon the said hook as a pivot into recess *i'*, with its closed end down, when, falling off the hook, it will escape from nozzle E with the desired end foremost. With a view of preventing pipe D from being clogged by a shell lodging crosswise to its enlarged upper end, I use spring throat-plates F, rigidly secured as to their lower ends in the said tube, and extend-

ing upward to throat *d*, at which point their ends diverge, forming a device in the nature of a funnel. These plates are adjustable to or from each other, for the purpose of widening and narrowing the throat by means of set-screws *s* passing through the walls of the said tube, and abutting against the said plates, as shown in Fig. 2. Casing B, before alluded to, has an extension, *b'*, with a segmental bottom, over which is secured to the end of the said extension an agitator, G, engaging with corrugations *c* of the feed-wheel, so that when the latter is actuated it will impart a rapid vibratory motion to the agitator, and will thus prevent the shells resting thereon from settling or clogging up the casing, thus insuring their being accurately fed to the wheel. This agitator is preferably made of spring-steel, but any other elastic springy metal may be used, if in practice it proves desirable. With a view to guiding the shells accurately to their places in the feed-cups, and to prevent them from lodging crosswise over the edge of the same, whereby they would be mashed and put out of shape, I make use of a clearing-finger, H, rigidly secured at *l* to the wheel-casing, and having a pointed end, *h*, working smoothly in the peripheral groove *c'*. Finger H being fixed, and the wheel movable upon its axis, every part of the said wheel will be operated on by the said finger, and in the event of two or more shells becoming jammed over any one of the pockets at the moment the said pocket comes under the finger, this clog or glut will be effectually broken up. I also use fingers *k*, rigidly secured in any suitable manner to the casing, arranged at each side of the same, and extending a suitable distance over the periphery of the feed-wheel, which fingers are beveled or inclined to form a channel, engaging with which the shells will be moved toward the middle of the feed-wheel into groove *c'*, whence they will fall into the cups or pockets.

In practice, where it is necessary to deliver the articles to the header in a horizontal position, I propose to substitute a curved nozzle instead of a straight nozzle, E, as shown in Fig. 1.

I claim—

1. In a machine-feeder for cartridge-shells, &c., the combination of the hook J, arranged in a recess, *i*, of the eduction-tube D, with wheel C and hopper A, substantially as specified.

2. The eduction-tube D, having recesses *i i'* and hook *j*, adapted for use substantially as specified.

3. The adjustable throat-springs F, in combination with a feed-wheel, C, and hopper B, substantially as specified.

4. The finger H, in combination with a peripherally-grooved feed-wheel, C, substantially as specified.

5. The fingers *k*, in combination with a peripherally-grooved feed-wheel, having pockets *b*, substantially as specified.

6. The feed-wheel C, having corrugations *c*, peripheral groove *c'*, and cups *b*, substantially as specified.

7. The agitator-spring G, in combination with a transversely-corrugated feed-wheel, C, and a hopper, A, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AUGUSTUS C. CAREY.

Witnesses:

JOS. B. LOOMIS,

GEORGE E. UPHAM.