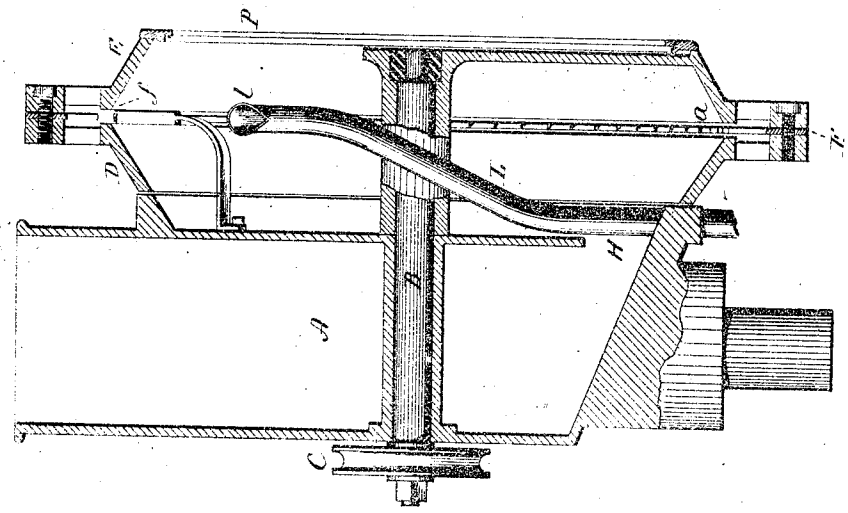
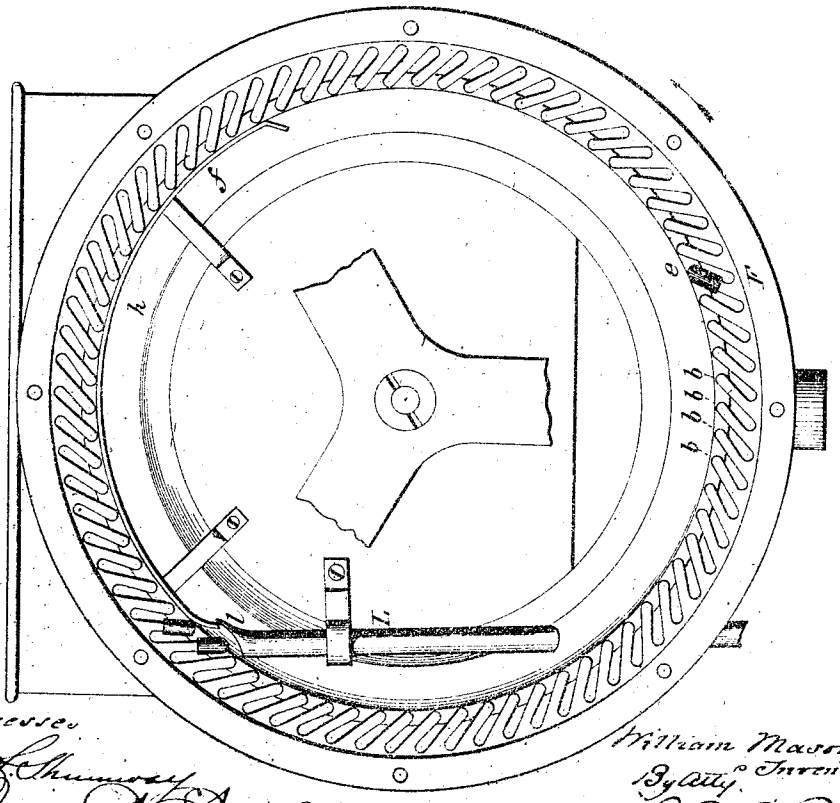
(No Model.) 2 Sheets—Sheet

W. MASON.

MACHINE FOR FEEDING METALLIC CARTRIDGE SHELLS INTO TUBES.

No. 271,886. Patented Feb. 6, 1883.





Witnesses
C. H. Shumway
Jos. A. Earle

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By Atty.s Inventor
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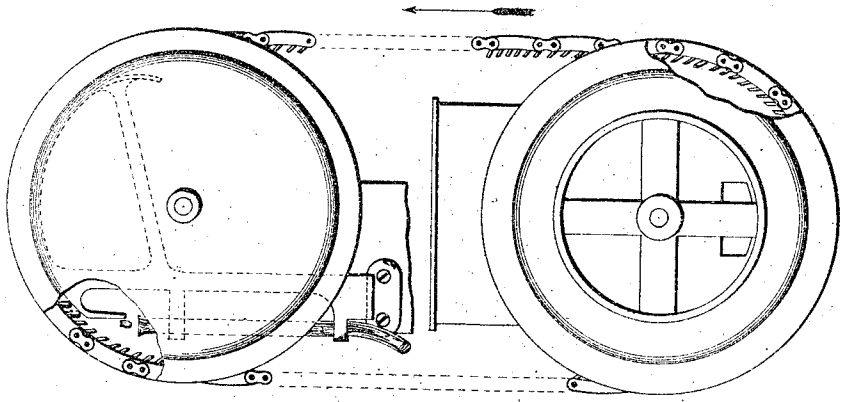

fig 3

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

MACHINE FOR FEEDING METALLIC CARTRIDGE-SHELLS INTO TUBES.

SPECIFICATION forming part of Letters Patent No. 271,886, dated February 6, 1883.

Application filed October 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MASON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Machines for Feeding Metallic Cartridge-Shells into Tubes; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view with the outer portion of the hopper removed; Fig. 2, a vertical central section; Fig. 3, a modification.

This invention relates to a device for feeding hollow articles like cartridge-shell blanks to machines for further operation upon the said blanks—such, for instance, as cups to the drawing-press or blanks to the header. Such blanks are required to be delivered with the closed end downward. Feeding devices for this class of work have been made, consisting of a wheel revolving within a hopper and carrying hooks on its periphery, the points of which are in the direction of the revolution of the wheel. The hooks, passing through a mass of blanks, catch such as happen to be presented mouth toward the hook. In the use of such feeds considerable loss is experienced because of damage to the blanks by the action of the hooks upon them in the mass. It is to this class of feeds my invention particularly relates, and has for its object to overcome difficulties hitherto existing in this class of feeds; and it consists in a hopper, preferably revolving, having an annular groove on its inner surface, within which a series of pins are arranged in the same annular plane as the groove, and to revolve in the said plane, and projecting forward in the direction of revolution, the end of the pins substantially below the inner surface of the hopper, and so that the said pins, revolving, will catch such blanks as are presented in line of the groove with their mouths toward the pin, and without interference or contact with other blanks in the hopper, as more fully hereinafter described.

A represents a receiver arranged to contain a large mass of blanks to be fed, and arranged in a convenient position to the hopper, B the driving-shaft arranged in suitable bearings, here represented as a bearing through the receiver, and caused to revolve by the application of power thereto through a pulley, C, or otherwise.

On the shaft B the revolving hopper is arranged. This hopper, as here represented, consists of two parts, D E, the division between the two parts being in a plane at right angles to the axis of the shaft, the inner surface of the two parts inclined toward their meeting edges. At the intersection of the inclines an annular groove, *a*, is made, about the same width or little greater diameter than that of the blanks to be fed, and should be somewhat deeper than the length of the blanks. In this groove an annular series of fingers, *b*, are arranged, more or less in number. These are here represented as formed or projecting from a ring, E, arranged between the two parts D E of the hopper, so as to stand centrally in the groove, the pins of considerably smaller diameter or transverse area than the interior of the blanks. The fingers are inclined forward in the direction of revolution, as seen in Fig. 1. From the receiver an opening, H, conducts the blanks from the receiver into the revolving hopper, these blanks lying in a mass of greater or less extent at the bottom of the hopper—that is, the lowest point in the hopper. As the hopper revolves the blanks are tumbled, which will cause a constant agitation of the blanks and a consequent change of position, so that more or less of the blanks will come into a position bringing their axis parallel with the line of revolution and over the groove *a* in the hopper, and such as find that position with the mouth toward the fingers will fall upon the finger which may be presented thereto, as seen at *c*, Fig. 1; but such as are otherwise presented will be carried around by the hopper until, by their own gravity, they fall back, and in so falling their position is constantly changed, until eventually all will have been caught by the fingers. The blanks caught by the fingers, as at *c*, Fig. 1, are carried around with the fingers and upward; and

to prevent their falling from the fingers as they approach the upper side of the hopper, where they are to be inverted, a guard, *f*, is arranged, over which the blanks will ride, as seen at *h*, Fig. 1, the said guard holding the blanks upon the fingers until they arrive at the mouth of the feed-tube L, as seen at *l*, Fig. 1, where they pass from the guard and fall from the finger into the tube by their own gravity, and thence are conducted to the place where the next operation is to be performed upon them. The front of the revolving hopper is made of glass, so as to show to the operator whether or not there are blanks in the hopper or whether the work is properly performed.

By constructing the hopper with the annular groove and arranging the fingers in that groove, the fingers so close the groove that the blanks cannot enter to come in contact with the fingers, except they be presented with their axis in the plane of the groove, and the fingers cannot come in contact with any blanks except such as, having found the said parallel position, present their mouths toward the fingers, so as to fall thereon. Hence there is no possibility of injury to the mass of blanks in the hopper, nor to the fingers passing through the mass.

While I prefer to attach the fingers rigidly to the hopper and cause the two to revolve together, they may be on separate shafts and revolve in the same relation to each other, or one may revolve faster than the other, or the fingers in the direction of the feed and the hopper in the opposite direction, or the hopper may remain stationary and the fingers revolve, depending upon some other means of agitating the blanks, such as the removal of those blanks which naturally fall upon the fingers.

Instead of arranging the fingers in the form of a ring, they may be arranged upon an endless chain, as seen in Fig. 3, the lower one forming the hopper, the same as in the first illustration, and the fingers on the links of the chain working the same as in that case, the chain passes over a wheel above, provided with the same guard, and delivers the blanks to the tube in the same manner. It will be seen, therefore, that it is not essential to my invention that the fingers shall be arranged in a ring or circular shape, it only being essential to my invention that the hopper be constructed with an annular groove, in which the fingers travel by the revolution of the shaft which carries them, and with or without a corresponding revolution of the hopper, whereby the blanks fall into the groove upon the fingers, and are thereby taken upward over a guard and delivered to the feeding-tube.

The receiver A may be dispensed with and the mass of blanks introduced directly to the hopper; but I prefer the receiver, for the reason that it may contain a much greater quantity of blanks than could be practically placed in the hopper and deliver the blanks to the hopper as those in the hopper are taken away.

While the employment of the guard to positively retain the blanks on the fingers until they arrive at the mouth of the tube is desirable, it may be dispensed with, and the mouth of the tube or conductor arranged at a point where the shells would naturally fall from the fingers by their own gravity. I therefore do not wish to be understood as limiting my invention to the employment of the guard.

I have designated the conductor as a "tube," and in general practice a tube is used to conduct the blanks to the mechanism which is to perform the subsequent operations upon the blank; but I wish to be understood by the term "tube" as embracing any suitable conductor arranged to receive the blanks from the fingers and deliver them at any desired point.

I claim—

1. In a feeding device for cartridge-shell and similar blanks, the combination of a hopper constructed with an annular groove, a series of inwardly-projecting fingers arranged in said groove and so as to be revolved in the same plane of the groove, and a delivery-tube to receive the blanks from the fingers, substantially as described.

2. In a feeding device for cartridge-shell and similar blanks, the combination of a hopper constructed with an annular groove, a series of inwardly-projecting fingers arranged in said groove and so as to be revolved in the same plane of the groove, with a guard, over which the said fingers pass in their revolution, and a delivery-tube, to the mouth of which the said fingers are presented as they pass from the guard, substantially as described.

3. In a feeding device for cartridge-shell and similar blanks, the combination of a hopper constructed with an annular groove, a series of inwardly-projecting fingers arranged in said groove and so as to be revolved in the same plane of the groove, with a guard, over which the said fingers pass in their revolution, and a delivery-tube, to the mouth of which the said fingers are presented as they pass from the guard, and a receiver for the blanks opening to said hopper, substantially as described.

4. A revolving hopper constructed with an annular groove upon its inside, a series of inwardly-projecting fingers arranged in said annular groove and so as to revolve in the same plane with the hopper, combined with a guard, over which said fingers will pass in their revolution, and a delivery-tube, to the mouth of which the said fingers will be presented as they pass from over said guard, substantially as described.

5. A revolving hopper constructed with an annular groove upon its inside, a series of inwardly-projecting fingers arranged in said annular groove and so as to revolve in the same plane with the hopper, combined with a guard, over which said fingers will pass in their revolution, and a delivery-tube, to the mouth of which the said fingers will be presented as they pass from over said guard, and a receiver

for the blanks opening to said hopper, substantially as described.

6. The combination of a revolving hopper constructed with an internal annular groove, a series of inwardly-projecting fingers arranged in said groove and so as to revolve with the hopper, a guard over which said fingers will pass in their revolution, and a delivery-tube, to the mouth of which the fingers will be presented as they pass from over said guard, substantially as described.

7. The combination of a revolving hopper constructed with an internal annular groove, a series of inwardly-projecting fingers arranged in said groove and so as to revolve with the hopper, a guard over which said fingers will pass in their revolution, and a delivery-tube, to the mouth of which the fingers will be presented as they pass from over said guard, and a receiver for the blanks opening to said hopper, substantially as described.

8. A revolving hopper constructed with an annular groove, the inner surface of the hopper inclined toward said groove, and inwardly-projecting fingers arranged in said groove and to revolve in the same plane with the hopper, combined with a guard, over which the said fingers will pass, and a delivery-tube, to the mouth of which the said fingers are presented as they pass from over the guard, substantially as described.

9. A revolving hopper constructed with an annular groove, the inner surface of the hopper inclined toward said groove, and inwardly-projecting fingers arranged in said groove and to revolve in the same plane with the hopper, combined with a guard, over which the said fingers will pass, and a delivery-tube, to the mouth of which the said fingers are presented as they pass from over the guard, and a receiver for the blanks opening to said hopper, substantially as described.

WILLIAM MASON.

Witnesses:
T. G. BENNETT,
G. E. HODSON.