

(No Model.)

2 Sheets—Sheet 1.

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SHELL FEEDING MECHANISM FOR CARTRIDGE LOADING MACHINES.

No. 528,095.

Patented Oct. 23, 1894.

Fig. 1.

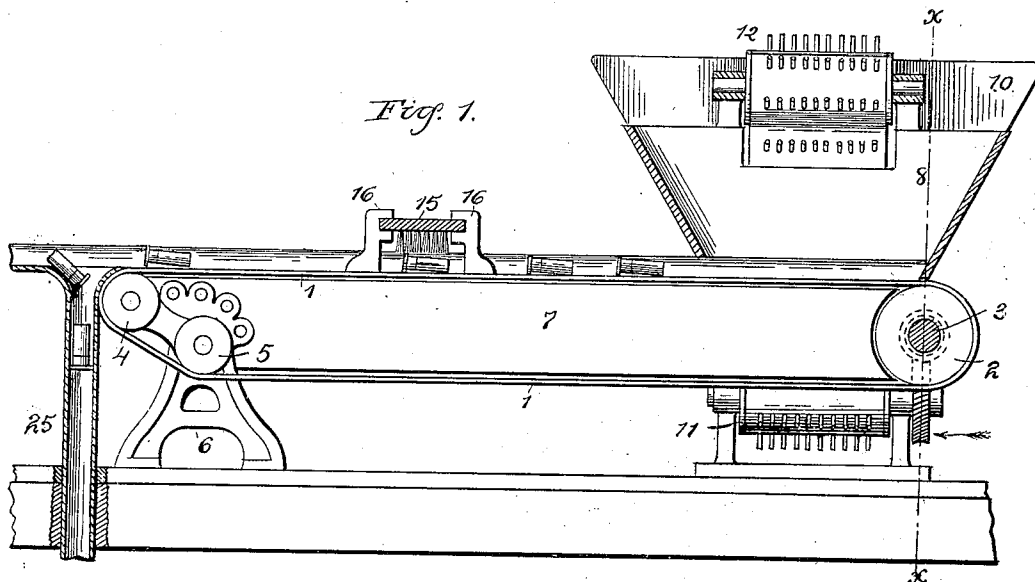
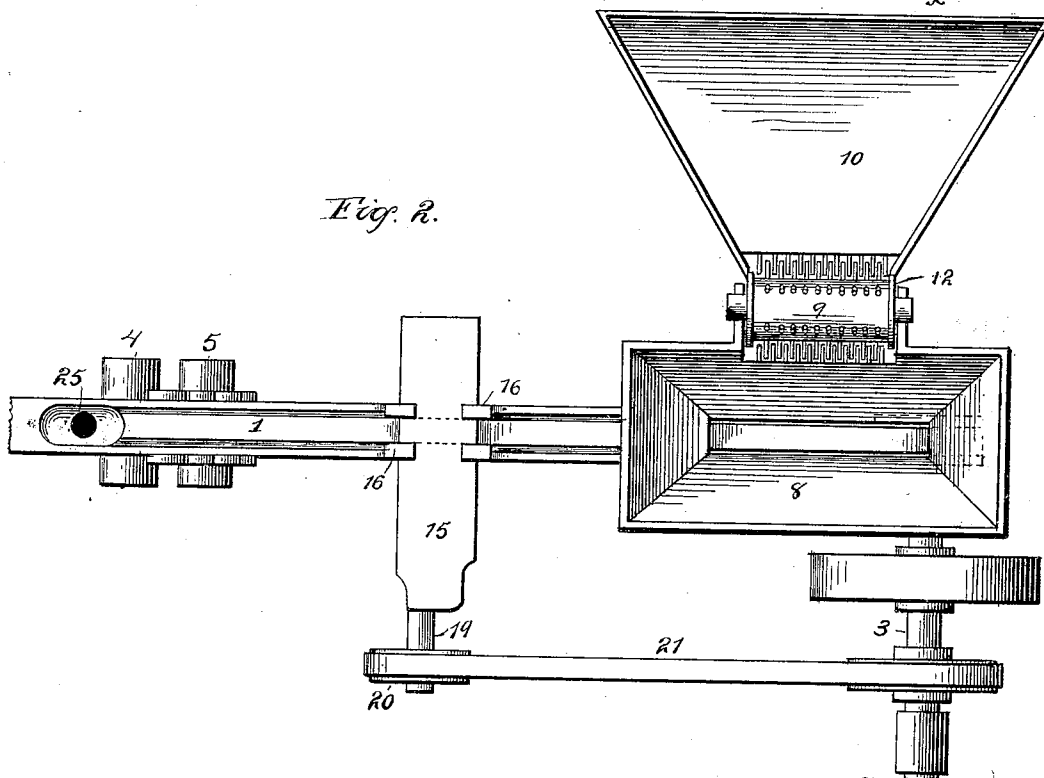


Fig. 2.



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Fig. 3.

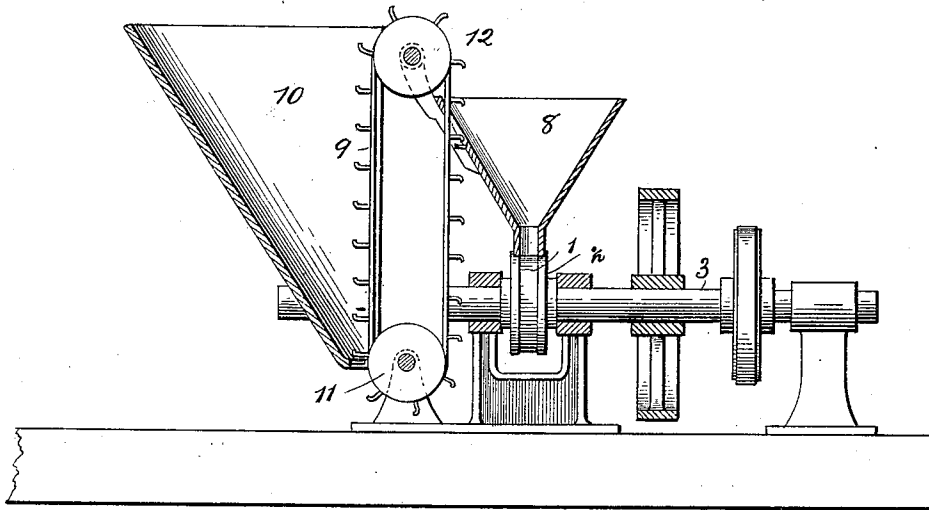
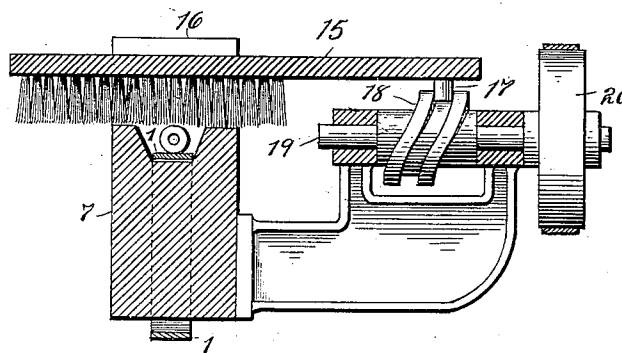


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SHELL-FEEDING MECHANISM FOR CARTRIDGE-LOADING MACHINES.

SPECIFICATION forming part of Letters Patent No. 528,095, dated October 23, 1894.

Application filed March 19, 1894. Serial No. 504,186. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HISEY, a citizen of the United States, residing at Aurora, in the county of Dearborn and State of Indiana, have invented certain new and useful Improvements in Shell-Feeding Mechanism for Cartridge-Loading Machines; 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 improvements in cartridge loading machinery and it consists in an improved device for feeding empty cartridge shells into the shell feeding tubes which are used in connection with all automatic cartridge loading machines, which will hereinafter be fully described, and particularly pointed out in the claims.

In automatic cartridge loading machines, by the operation of which a number of shells are loaded each minute, it is necessary to provide some means for automatically feeding the shells into the shell feeding tubes provided with such machines, as such feeding tubes must always be provided with empty shells so that the shell carrier will be properly supplied, and not only is placing the shells into the feeding tubes by hand laborious, in that it requires constant attention, but there is a likelihood for mistake presented in hand feeding which is not found when the feeding is accomplished by automatic means.

In automatic machines which have been devised for accomplishing the feeding and delivery of empty cartridge shells into the shell feeding tubes of cartridge loading machines, it is common to make use of a rotating endless belt to carry the shells from a hopper in which a number of shells are placed, to the mouth of the shell-feeding tube. Through suitable appliances, shells are deposited at a predetermined rate upon the surface of said belt, and the belt is so arranged in connection with the shell-feeding tube, that the shells which fall from said belt into the mouth of the said tube, always fall with their butt ends downward, thus insuring their being in proper position to receive every load. The chief difficulty, which is met with in the use of

such automatic shell carrier devices, has been to provide means for removing the so called "riders" or extra shells, which are carried along by the belt on top of other shells, and which, unless removed, are apt to clog the shell-feeding tube.

My invention consists in a new device which I have constructed for accomplishing the removal of these "riders." I make use of a reciprocating brush operating crosswise of the endless rotating belt, and sufficiently removed from its surface so that the ends of the bristles of the brush are just high enough from the surface of the belt not to interfere with a single line of shells carried on said belt. This brush in its reciprocating movement acts to sweep off any "riders" which may be carried up the surface of the belt by other shells, and on the return movement of the brush to deposit the "rider" shell, which has been pushed up into its bristles, upon the moving surface of the belt, the construction of the brush being such as to permit this action to take place. I shall describe in connection with this brush, the machine on which I use it, in order that its mode of operation may be fully understood. I do not limit myself to its use on cartridge loading machines, but may use it in connection with any other form of carrier belt.

My invention is fully described in the drawings accompanying and forming a part of this application, in which the same reference numerals refer to the same or corresponding parts, and in which—

Figure 1 is a side view of my feeding device, partly in section. Fig. 2 is a top plan view of such device. Fig. 3 is a section of Fig. 1, taken on the line $x x$, and looking in the direction of the arrow. Fig. 4 is a detail perspective view of the reciprocating brush.

Referring to the drawings, 1 is the endless rotating belt upon the surface of which are carried the empty cartridge shells. It passes at one end over the wheel 2 on the power shaft of the machine 3, upon which is mounted the driving wheel, and at its other end over the pulleys 4 and 5, which are journaled in the standard 6. This belt is of a width not much exceeding that of a single cartridge shell, and the flaring projecting flanges of the

piece 7, which extends the whole length of the belt, form as it were, sides between which the belt runs. Directly over the end of the belt passing around the pulley 2 is supported
 5 a hopper 8, into which shells are discharged by the endless belt 9, which carries the shells up, by means of a series of pins formed at regular intervals on its surface, from a neighboring hopper 10, into which the shells are
 10 dumped promiscuously. This belt runs over the two wheels 11 and 12, and it is caused to rotate by reason of the wheel 11, which is the lower of the two wheels over which it runs, being formed with a worm gear, which engages
 15 with a corresponding gear upon the power shaft. In this manner the ratio of speed between the two traveling belts can be adjusted at will. It is desirable that belt 9 have a much slower speed of rotation than the main
 20 belt 1, as it is always an object in such devices as the present one not to deliver the shells into the hopper through which the main belt runs any faster than they are there wanted. The relatively broad surface of the belt 9 permits
 25 a number of shells to be carried up at the same time by the pins formed on the surface of the same. To prevent shells from dropping out through the opening formed at the bottom of the hopper through which the belt
 30 9 runs during the interval between the passage of the series of teeth projecting from the surface of the belt, projecting pins are formed on the edge of this opening which extend nearly to the surface of the belt 9, and
 35 intermesh with the teeth formed on the same, thus effectually preventing shells from dropping from the hopper.

The shells which are carried up by the belt 9 are deposited in the hopper through which
 40 the belt 1 passes, fall upon its surface and travel along with the belt. Due to the butt end being heavier, most of the shells travel with their butt ends foremost. It might happen that one shell would fall on top of another and be carried with it in this position,
 45 and to prevent these riders from clogging the mouth of the shell feeding tube, I provide a reciprocating brush 15, situated somewhere along the upward travel of the belt,
 50 which acts to sweep off any such riders, as it is supported by the brackets 16 above the surface of the belt only sufficiently far to permit a single shell to pass, and at the return
 55 movement of the brush to deposit the shell, which had been pushed up into its bristles, upon the moving surface of the belt, the con-

struction of the brush being such as to permit the action stated to take place. The reciprocation of the brush 15 is caused by the
 60 projecting lug 17, formed on the handle portion of the same, which works in the cam groove 18 formed in the shaft 19, which shaft 19 is suitably supported, as shown, and has
 65 keyed thereon the pulley 20, rotated by the belt 21. In this manner a reciprocating movement is provided for the brush 15, which may be made of any desired rapidity by varying the ratio of the pulley wheels by which its operation is caused.

The single shells passing from under the
 70 reciprocating brush are carried down to the end of the belt. Their momentum causes them to tend to continue on in a straight line, but if the butt end of the shell is foremost, its weight causes it to fall at once into the flaring
 75 mouth of the feeding tube 25, and if its open end is foremost, the shell flies onward until the said open end has passed the mouth of the feeding tube, when the weight of the
 80 butt end causes the shell to drop as before into the feeding tube. No matter in what position the shell advances along the surface of the rotating belt 1, it thus falls into the
 85 shell feeding tube 25 with its butt end downward, the desired position.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a hopper, a trough having inclined sides, an endless rotating
 90 belt moving in the bottom of the trough, and a shell feeding tube, of a reciprocating brush, operating cross-wise of the belt, but sufficiently removed from the surface thereof to
 95 brush away the "rider" shells, and replace them on the belt at the next reciprocation, and means for operating the same, substantially as described.

2. The combination with a hopper, an endless rotating belt, and a feeding tube, of a
 100 brush acting across the face of the belt and having a lug formed on one end, and a rotating shaft, having a cam groove formed thereon in which the said lug works, for imparting a reciprocating movement to said
 105 brush, substantially as described.

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

CHARLES S. HISEY.

Witnesses:

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 JOSEPH D. WOOD.