

July 27, 1926.

J. CHVOJKA

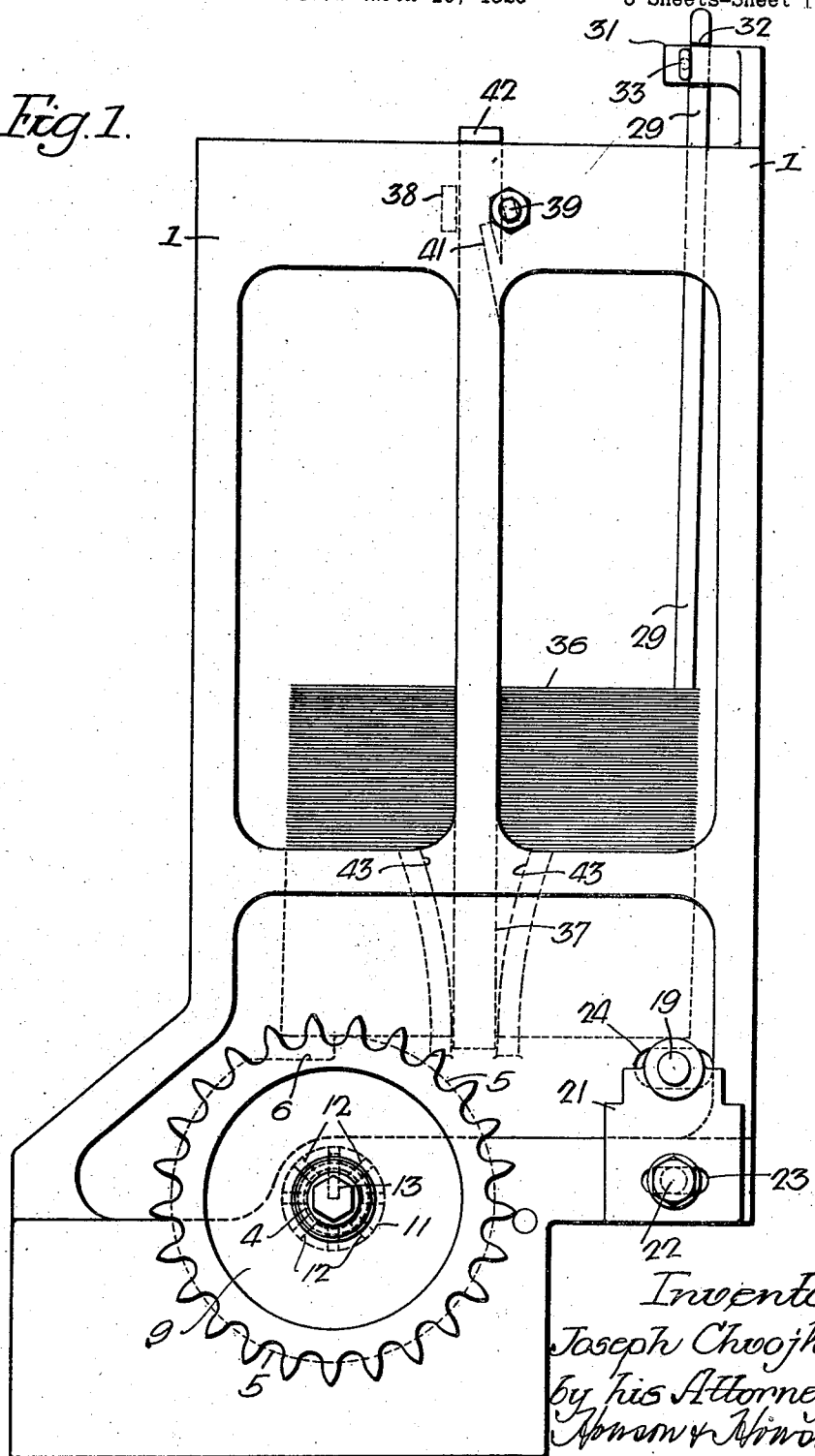
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ARTICLE DELIVERING DEVICE

Filed March 10, 1923

3 Sheets-Sheet 1.

Fig. 1.



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Fig. 7.

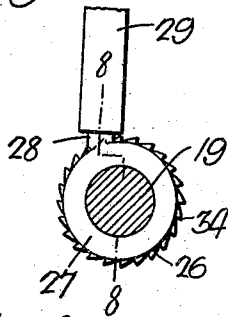


Fig. 8.

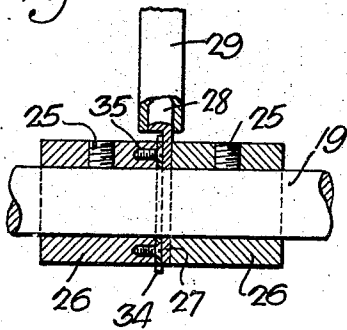
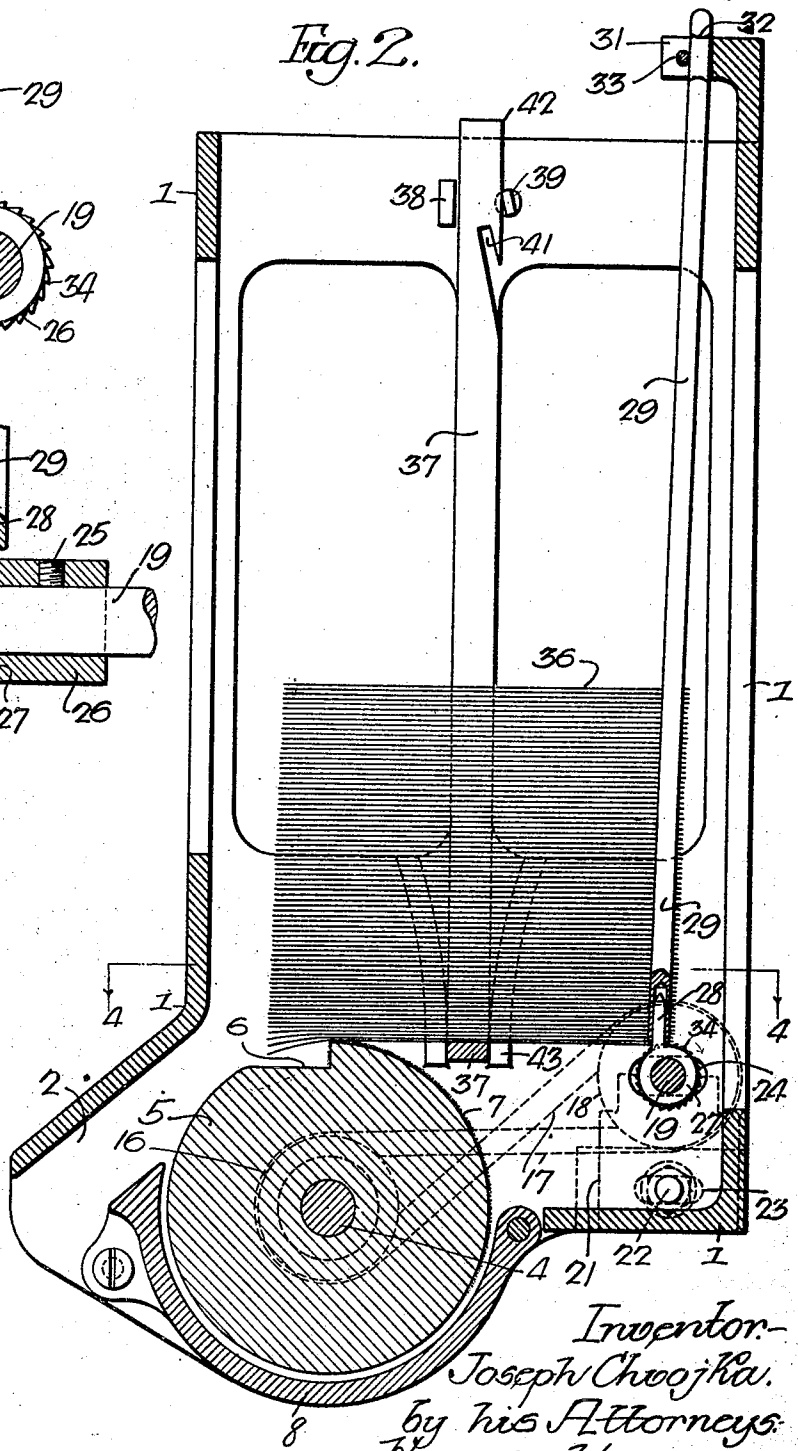


Fig. 2.



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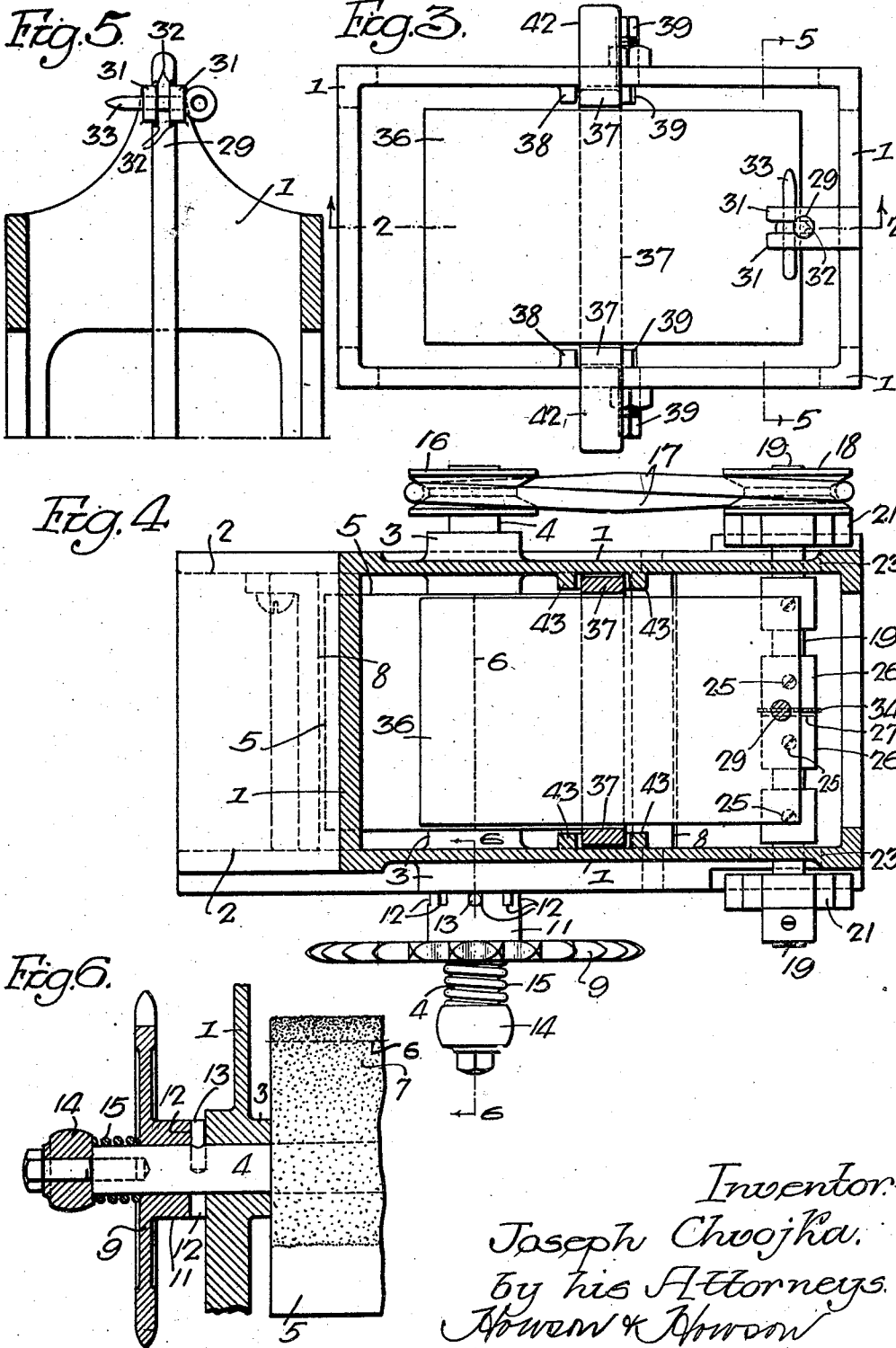
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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ARTICLE-DELIVERING DEVICE.

Application filed March 10, 1923. Serial No. 624,259.

My invention relates to devices for delivering paper slips or the like at a desired point and at predetermined intervals, the device being adapted for use, for example, in connection with article-wrapping machines where it is desired to place a slip in each of the wrapped packages. The device, however, is not limited in its use to any particular form of machine or, in fact, to any machine at all, since it may be employed under any conditions where it is desired to deliver at a given point a slip of paper or its equivalent at predetermined intervals.

One object of the invention is to provide a device of this type comprising means for interrupting delivery of the slips or other articles involved without stopping the operating parts.

Another object of the invention is to provide a device of this type having a magazine for the articles which is adjustable to an inoperative position permitting refilling of the magazine without interruption in the operation of the working parts.

A further object of the invention is to provide automatic means for insuring a proper operating position for the magazine.

A still further object of the invention is to provide novel means for insuring the delivery of each of the slips or articles in the magazine without affecting the remaining articles.

A still further object of the invention is to provide easily adjusted means whereby the mechanism of the device may be coordinated with the mechanism of any machine with which the device may be associated so that the mechanisms are synchronized to give delivery of the articles at proper times.

The invention further resides in novel and advantageous features of construction hereinafter set forth.

In the attached drawings:

Figure 1, is a side elevation of a device made in accordance with my invention;

Fig. 2, is a vertical section through the device on the line 2—2, Fig. 3;

Fig. 3, is a plan view of the device;

Fig. 4, is a horizontal section on the line 4—4, Fig. 2;

Fig. 5, is a section on the line 5—5, Fig. 3;

Fig. 6, is a section on the line 6—6, Fig. 4;

Fig. 7, is a fragmentary section illustrating a detail of the feeding mechanism, and

Fig. 8, is a section on the line 8—8, Fig. 7.

With reference to the drawings, the device comprises in its present form a casting 1 which constitutes the main frame in which the working parts of the device are mounted, the casting comprising at the front and bottom thereof an opening 2 which constitutes the delivery port through which the slips or other articles are discharged from the interior of the casing.

Mounted in bearings 3, 3, on the sides of the casing and extending across the opening 2 is a shaft 4, which shaft carries a feed roll 5 having, as best shown in Fig. 2, a longitudinal recess 6, from one edge of which extends a frictional area 7, which may be formed in any manner desired, but which in the present instance is constituted by a comminuted abrasive material, such as emery, secured on the face of the roll by means of a suitable adhesive or cement. Numerous other materials may replace this abrasive, such, for example, as a rubber compound or any substance which is adapted to frictionally engage a smooth surface such as is presented by a slip of paper or the like. A semicylindrical shield 8 is secured in the opening 2 below the roll 5, as illustrated in Fig. 2.

As best illustrated in Fig. 6, one projecting end of the shaft 4 carries a sprocket 9 through which, and a suitable sprocket chain (not shown), the shaft may be connected with any suitable source of power. In the present instance, the inner face of the hub 11 of the sprocket is provided with a plurality of radial grooves 12 which are adapted for the reception of a pin 13 projecting radially from the shaft whereby the sprocket 11 is prevented normally from rotating independently of the shaft. A suitable head 14 is provided on the end of the shaft and acts as an abutment for one end of a spring 15 whose other end bears against the outer face of the sprocket and tends to hold the sprocket against the pin 13. It will be apparent that by forcing the sprocket outwardly against the spring, the sprocket may be released from the pin 13 so that it may be adjusted rotationally upon the shaft.

Upon the opposite end of the shaft 4 is a pulley wheel 16 which is connected by means of a belt 17 with a similar pulley 18 upon a shaft 19 mounted in suitable bearings 21, 21, at the bottom and rear of the casing, these bearings 21 being adjustably secured

to the casing by means in each case of a bolt 22 which extends through the casing and through a horizontal slot 23 in the bearing bracket. With this arrangement, it will be apparent that these bearings may be adjusted laterally with the shaft 19 which they carry, horizontal slots 24 corresponding to the slots 23 being provided in the side walls of the casing for passage therethrough of the shaft 19.

Secured to the shaft 19 intermediate the side walls of the casing by means in the present instance of set screws 25, 25, are a pair of sleeves 26, 26, said sleeves confining therebetween an apertured disk 27 having projecting upwardly therefrom a pin 28 which is adapted to fit within the lower recessed end of a rod 29 and thereby to anchor the said lower end of the rod in a given position relative to the shaft 19, as best illustrated in Fig. 7. This rod 29 extends upwardly through the casing at the back and is confined at the top between a pair of lugs 31, 31, which latter occupy recesses 32, 32, in the sides of the rod, as best illustrated in Fig. 5, a pin 33 being passed through apertures in the outer ends of the lugs 31, and providing means for detachably securing the upper end of the rod between the lugs.

Secured to the inner face of one of the sleeves 26 by set screws 35 is a cutter disk 34, said disk being in the present instance toothed, as clearly illustrated in Fig. 7, and thereby constituting in effect a rotary saw, the teeth projecting a slight and predetermined distance beyond the surface of the sleeve 26, to which the disk is attached.

By reference to Figure 8, it will be noted that the pin 28 is offset laterally with respect to the disk 27 to which it is attached whereby the cutter disk 34 is permitted to assume a position substantially directly in line with the center of the said pin and of the rod 29. The rod 29 constitutes a securing and guiding means for the articles which are to be fed from the device, which articles in the present instance are shown in the form of flat sheets or slips of paper 36, each of these slips being provided at its rear end with an aperture through which the rod 29 passes, the slips being passed onto the rod by releasing the upper end of the latter and sliding it forwardly from between the supporting lugs 31. The rod 29, together with a stirrup-shaped member 37 which is adapted to occupy a position in the interior of the casing, constitutes the magazine for the slips 36, the stirrup 37 being supported in the casing in an upright position at each side between a lug 38 projecting inwardly from the side wall of the casing and the inner end of an adjustable bolt 39 which projects through the side wall of the casing, as best illustrated in Figs. 2 and 3.

Each of the upright portions of the stirrup 37 is provided on that edge abutting the bolt 39 with a slotted recess 41 which is shaped to conform to the inwardly projecting end of the bolt 39 whereby when the stirrup is elevated, the said bolts 39 or the inner ends of said bolts may pass into the slots 41 and thereby support the stirrup in an elevated position. To assist in the elevation of the stirrup and to also constitute a means for supporting the stirrup in the lower operative position, each of the upright portions is provided at the top with an outwardly projecting arm or shoulder 42 which overlies the sides of the casing, as best illustrated in Fig. 3. Each side wall of the casing is also provided near the bottom with a pair of lugs 43, 43, which at the bottoms are spaced a distance apart corresponding to the width of the lower end of the stirrup 37, the lugs diverging towards the top, as illustrated in Figs. 1 and 2. The lower end of the stirrup lies between these pairs of lugs whereby the lugs are made to constitute guides for the stirrup, insuring a proper positioning of the lower end of the latter approximately across the center of the paper slips and in proper position to support the slips in the magazine.

The operation of the device is as follows: The magazine being provided with the slips or other articles which it is desired to deliver, operation of the shaft 4 effects rotation of the feed roller 5 upon which the forward end of the lowermost slip 36 rests, as best illustrated in Fig. 2. When the frictional area 7 comes in contact with the lowermost of the slips 36, this slip is carried forwardly and passed through the opening 2. During rotation of the shaft 4, by means of the pulleys 16 and 18 and the belt 17, the shaft 19 is also rotating and with it the cutter 34. The teeth of the cutter, as previously described, project beyond the surface of the sleeve 26 to which it is attached a predetermined extent, which in the present instance is approximately the thickness of one of the slips 36. As the cutter blade is rotated therefore and by reason of the position of the cutter blade with respect to the lower end of the rod 29, as best illustrated in Figs. 2 and 7, the cutter operates upon that portion of the paper immediately to the rear of the aperture through which the rod extends and severs the paper between this aperture and the rear edge of the slip. By reason of this cutting action, the slip is permitted under the action of the roller 5 to slip easily forward from underneath the other slips in the magazine, there being nothing except the frictional contact between the bottom slip and those above it and the smooth upper face of the horizontal portion of the stirrup upon which the slips rest to prevent detachment of the

slip. By reason of the correspondence between the thickness of the slips and the exposed portion of the cutter blade, it will be apparent that the cutter is permitted to sever but one slip at a time, thereby insuring a proper operation of the mechanism and the retention of the slips in their normal positions until individually acted upon by the frictional portion 7 of the feed roller 5.

An exact adjustment of the cutter element 34 is provided by means of the aforedescribed means for adjusting the bearings 21 of the shaft 19. To refill the magazine, the stirrup 37 may be elevated and the rod 29 released as previously described without stopping the working parts; or additional slips may be added to those already in the magazine by merely releasing the rod 29 and without elevating the stirrup, in which case the feeding is uninterrupted. Obviously to interrupt the feeding without stopping the mechanism, it is only necessary to elevate the stirrup.

Where the device is operated in connection with a machine such as the aforesaid wrapping machine, it is usually found desirable to operate the device directly from the mechanism of the machine with which it is used. Under these circumstances, it is necessary to synchronize the two mechanisms so that the articles are fed at correct intervals in the operation of the main machine. This synchronization may be effected without disturbing the connection between the machines by adjusting the sprocket 9, as previously described.

I claim:

1. The combination with a casing, of a magazine mounted in the casing, delivery means mounted in the casing below the magazine, means for supporting the magazine in the casing in an operative position with respect to the delivery means, mechanism for operating the delivery means to successively extract articles from the magazine, and means for supporting the magazine in an elevated position inoperative with respect to the said delivery means.

2. The combination with a casing, of a magazine mounted in the casing, delivery means mounted in the casing below the magazine, means for supporting the magazine in an operative position in which the said delivery means may operate upon the lowermost article to extract it from the magazine, mechanism for operating the delivery means to successively extract the articles from the magazine, and means for elevating the magazine to remove the contained articles from the delivery means.

3. The combination with a casing, of delivery means mounted in said casing, a magazine supported in a position above the delivery means and comprising a stirrup vertically movable in the casing and an upright rod

fixed in the casing and adapted to pass through apertures in the articles supported by the stirrup, and means for supporting the stirrup both in an operative position in which the delivery means engages the articles in the magazine, and in an elevated position in which the supported articles are raised clear of the delivery means.

4. The combination with a casing, of delivery means mounted in the casing, a magazine mounted in the casing above the delivery means and comprising a stirrup for supporting articles and an upright rod fixed in the casing and adapted to pass through apertures in the said supported articles, means for adjusting the stirrup to a plurality of positions in the casing, and guides for the stirrup preventing lateral displacement in the casing.

5. The combination with a casing, of delivery means mounted in the casing, a magazine mounted in the casing above the delivery means and comprising an article-supporting element movable in the casing and an upright rod pivotally secured in the casing at the bottom, and means for detachably securing the top of the rod to the casing.

6. The combination with a casing, of a magazine mounted in the casing and comprising an article-supporting member and a rod secured to the casing and adapted to pass through apertures in the rear of the supported articles, delivery means mounted in the casing below the magazine and comprising a delivery element adapted to engage the forward ends of the lowermost article in the magazine, and a cutter element adapted to sever that portion of said article immediately to the rear of the said rod.

7. The combination with a casing, of a magazine mounted in the casing and comprising an article-supporting member and a relatively fixed rod adapted to pass through apertures in the rear of the supported articles, delivery means mounted in the casing below the magazine and comprising a delivery element adapted to engage the forward part of the lowermost article in the magazine, a cutter element adapted to sever that portion of the article immediately to the rear of the said rod, and means for adjusting the cutter in the casing.

8. The combination with a casing, of an article-supporting member carried by the casing, article-delivering means mounted in the casing below the said support, a shaft mounted in the casing below the said support, an upright rod pivotally secured to the shaft at the bottom and adapted to pass through apertures in one end of the articles, and a cutter carried by the shaft and adapted to operate on that portion of the article between the said aperture and the edge.

9. The combination with a casing, of an article-supporting member carried by the casing, article-delivery means mounted in the casing below the said support, a shaft mounted in the casing below the said support, an upright rod pivotally secured to the shaft at the bottom and adapted to pass through apertures in one end of the articles, a cutter carried by the shaft and adapted to operate on that portion of the article between the said aperture and the edge, and bearings for the said shaft adjustably secured to the casing.
10. The combination with a casing, of article-supporting means carried by the casing, delivery means mounted in the casing below the support and adapted to engage the forward part of the supported articles, a rod secured to the casing and adapted to pass through apertures in the rear of the supported articles, a shaft mounted in the casing underneath the said rod, a sleeve secured to the shaft, and a rotary cutter secured to the sleeve and projecting beyond the face of the sleeve a distance corresponding approximately to the thickness of the supported articles and adapted to sever that portion of the lowermost article lying rearwardly of the said aperture through which the rod extends.
11. The combination with a casing, of article-supporting means mounted in the casing, delivery means underlying the support and comprising a shaft, a cylinder mounted on the shaft and adapted for engagement with the supported articles, a sprocket loosely mounted on the shaft comprising a clutch element, a corresponding clutch element fixed to the shaft and adapted with the said sprocket element to fix the sprocket to the shaft, and resilient means tending to hold the said clutch elements in interengagement.

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