

F. O. HOAGLAND.
 APPARATUS FOR FILLING RECEPTACLES.
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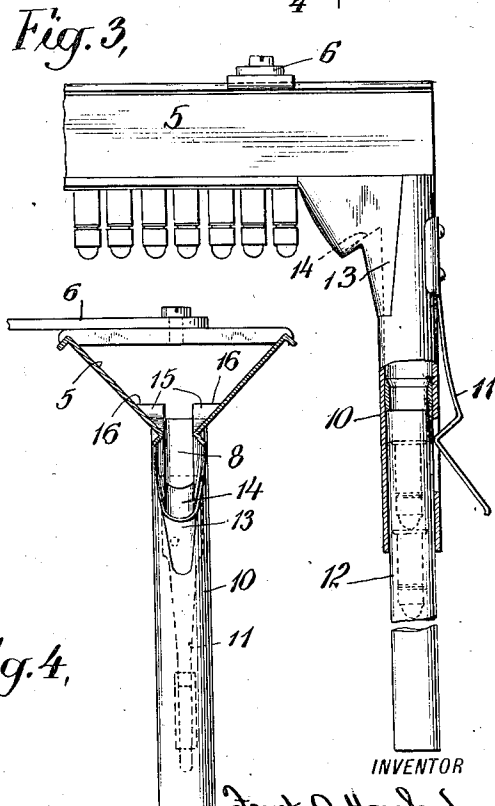
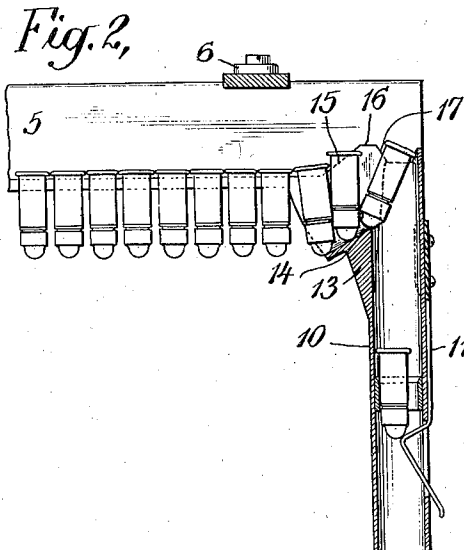
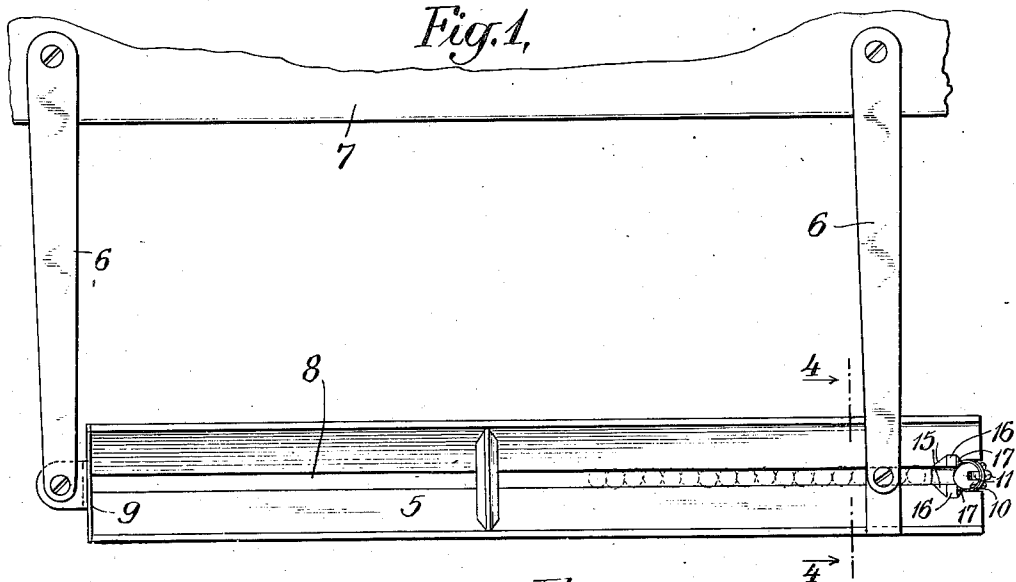


Fig. 4,

WITNESSES

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APPARATUS FOR FILLING RECEPTACLES.

1,085,125.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK O. HOAGLAND, a citizen of the United States, residing at Bridgeport, Fairfield county, in the State of Connecticut, have invented certain new and useful Improvements in Apparatus for Filling Receptacles, of which the following is a specification.

This invention is directed to the provision of an improved means for filling receptacles, the articles to be inserted in the receptacles being arranged therein in a predetermined relation.

More particularly, the invention relates to means for filling receptacles of tubular form wherein the articles are to be arranged one above the other in a single line lengthwise of the tube.

The object of the invention is to provide an improved apparatus of this character which is simple in construction and can therefore be manufactured at low cost and with which the receptacles may be rapidly filled by reason of the avoidance of jamming or wedging of the articles one on another.

The invention involves the provision of a guide or trough along which the articles may be moved in a row in parallel relation and from the end of which the articles drop successively into the receptacle. In combination with such a guide, means are provided at the end thereof for causing each article to assume an inclined position relatively to the other articles of the row immediately before dropping. This means is such that as a row of the articles is moved along in the guide, each article, as it comes to the end of the guide, will assume an inclined position with the upper end away from the other articles of the row and overlying the space into which the article is to drop; thereafter, the lower end of the article will be moved free of the guide and then the article will drop by gravity into the receptacle.

The invention is of particular utility in filling tubes with cartridges. It is common practice to supply cartridges, especially those of small caliber, in tubes wherein the cartridges are arranged in line and from which the cartridges may be readily transferred to the magazine of a gun. The in-

vention will therefore be described in connection with this use but it is to be understood that it may be employed for other purposes and therefore is not limited to use in a particular manner.

The preferred embodiment of the invention is illustrated in the accompanying drawing in which—

Figure 1 is a top view of the apparatus, Fig. 2 is a central section through one end thereof, Fig. 3 is an elevation of one end of the apparatus, broken away and sectioned in part, and Fig. 4 is a sectional view on line 4—4 of Fig. 1.

Referring to these drawings, the apparatus includes a trough or guide 5 which may be mounted in any suitable manner, as by means of arms 6, upon a suitable support 7. The trough or guide 5 preferably consists of two sheet-metal plates arranged parallel with each other and spaced apart by a small distance so as to provide a slot 8 between them. The two plates constituting the guide are preferably arranged at an angle to the horizontal, as best shown in Fig. 4, so that they form a trough which is narrower at the bottom than at the top. At one end the guide or trough is closed by a plate 9. At its opposite end the trough is open so that a plurality of articles moved along in the slot 8 of the trough will drop successively from the end of the trough by gravity. At this end, a tubular member 10 is provided extending downwardly from the trough and constituting a means for positioning the receptacle into which the articles are to be filled. The tube 10 is secured to the trough 5 at its upper end and this end of the tube is open so that the articles will drop from the trough into the tube. The tube is provided with a movable stop 11 which is adapted to project through a slot in the wall of the tube. This stop 11 is preferably made from a strip of sheet-metal and is secured at its upper end to the tube, the lower end of the strip having a double bend therein as shown. The tubular receptacle into which the articles are to be filled is shown at 12; this tube is adapted to have its upper end inserted within the tube 10 and moved upwardly therein so that it engages the stop 11 and displaces the latter,

the stop being moved from the position in which it is shown in Fig. 2 to the position in which it is shown in Fig. 3.

When the apparatus is used for filling cartridges into tubes, the cartridges are supplied to the trough 5 and are caused to move therein to a position in which they are suspended within slot 8, the slot being of such width that its walls will engage the rims at the upper ends of the cartridges and hold the cartridges suspended thus in parallel relation as shown in Fig. 2. When the cartridges are so arranged, a row of them of substantial length can be moved along in slot 8 with the rims of the cartridges sliding upon the edges of the two plates forming the trough.

At the end of the trough adjacent to tube 10, means are provided for causing each cartridge as it comes to this end of the trough to assume an inclined position with its upper end away from the other cartridges of the row. This means consists of cam surfaces which coact with the upper end and with the lower end of each cartridge as the latter is moved into coaction with tube 10. A member 13 is provided at the junction of the guide 5 and tube 10 having an inclined surface 14 with which the lower ends of the cartridges coact and up which these ends of the cartridges ride. The member 13 is also provided with inclined cam surfaces 15 which form continuations of the edges of the walls forming the edges of the slot 8. At the upper ends of the inclined walls 15, the upper edges of the member 13 are straight for a short distance as shown at 16 and are then cut away as shown at 17.

A quantity of cartridges supplied to the trough 5 may be readily caused to assume the position in which the cartridges are shown in the drawings, their rims being in engagement with the walls forming the edges of slot 8 and the cartridges being suspended from these walls. The operator then inserts the tubular receptacle 12 in the lower end of tube 10, thereby displacing the stop 11, and while holding the receptacle 12 thus, moves the row of cartridges along in the slot 8 of the guide 5. As the end cartridge engages the inclined surfaces 14 and 15, it is raised slightly until the rim at its upper end comes upon the straight cam surfaces 16. On further movement of the cartridge its upper end becomes released from the straight surface 16 and falls away from the other cartridge of the row so that the cartridge assumes an inclined position as is indicated by the cartridge at the right end of the row shown in Fig. 2. At this time the lower end of the cartridge has not yet passed beyond the upper end of the inclined surface 14. On further movement of the row of cartridges, the lower end of the cartridge which is in the inclined position is moved off the

inclined surface 14 and into the tube 10 whereupon the cartridge falls vertically by gravity into the receptacle 12. After the receptacle has been filled, its upper end is withdrawn from the lower end of tube 10 and as it is so withdrawn the stop 11 moves inwardly so as to arrest the movement of any more cartridges downwardly through tube 10. One cartridge is shown so arrested in Fig. 2.

With the apparatus herein shown and described, the operation of filling the tubes may be conducted with substantial rapidity. This is due primarily to the fact that the cam surfaces at the end of the guide so govern the movement of the cartridges as to prevent them from jamming or wedging one on another, such as would require the operator to manipulate one or more cartridges individually. As the row of cartridges is moved along in the slot or guide, the cartridges come successively to the end of the guide where each cartridge is caused to assume the inclined position temporarily; the movement to this inclined position is a movement of the upper end of the cartridge away from the other cartridges of the row and immediately after this movement of the upper end of the cartridge takes place, the lower end of the cartridge is released by being moved over the end of the cam surface with which it coacts. As this occurs, the cartridge is no longer supported and it drops at once into the receptacle or to a point in the tube 10 where its movement is arrested by stop 11.

It will, of course, be realized that the invention is not limited with respect to the character of the receptacle into which the cartridges are filled. This may be of any form desired. Such an apparatus as that herein shown and described may be used for supplying cartridges directly to the magazine of a gun.

Having described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States is:—

1. The combination of a guide along which a plurality of articles may be moved in parallel relation, a support opposite the end of the guide and displaced therefrom, said articles being adapted to drop successively by gravity through the space between the end of the guide and the support, and means located at said end of the guide for causing each article moved into engagement therewith to momentarily assume an inclined position with its upper end free from the guide, bearing against said support and overlying the space between the guide and the support, while the lower end of the article is still in engagement with the guide, substantially as set forth.

2. The combination of a guide along which a plurality of articles may be moved in

parallel relation, a tube secured to the end of the guide and extending downwardly therefrom, said articles being adapted to drop successively by gravity from the guide into the tube, and means located at said end of the guide for causing each article moved into engagement therewith to momentarily assume an inclined position with its upper end free from the guide, bearing against the wall of the tube opposite the end of the guide and overlying the space within the tube, while the lower end of the article is still in engagement with the guide, substantially as set forth.

3. The combination of a guide having a slot therein in which a plurality of cartridges are adapted to be suspended by the rims at their ends engaging the guide at the edges of the slot, a support opposite the end of the guide and displaced therefrom, said cartridges being adapted to be moved lengthwise of the slot in parallel relation and to drop successively by gravity through the space between the end of the guide and the support, and means located at said end of the guide for causing each cartridge moved into engagement therewith to momentarily assume an inclined position with its upper end free from the guide, bearing against said support and overlying the space between the guide and support, while the lower end of the cartridge is still in engagement with the guide, substantially as set forth.

4. The combination of a guide having a slot therein in which a plurality of cartridges are adapted to be suspended by the rims at their ends engaging the guide at the edges of the slot, a tube secured to the end of the guide and extending downwardly therefrom, said cartridges being adapted to be moved lengthwise of the slot in parallel relation and to drop successively by gravity from the guide into the tube, and means located at said end of the guide for causing each cartridge moved into engagement therewith to momentarily assume an inclined position with its upper end free from the guide, bearing against the wall of the tube opposite the end of the guide and overlying the space within the tube, while the lower end of the cartridge is still in engagement with the guide, substantially as set forth.

5. The combination of a guide along which a plurality of articles may be moved in parallel relation, a support opposite the end of the guide and displaced therefrom, said articles being adapted to drop successively by gravity through the space between the end of the guide and the support, and a cam mounted at said end of the guide at less distance from said support than the length of one of said articles and adapted to be engaged by each article to cause the same to momentarily assume an inclined position with its upper end free from the

guide, bearing against said support and overlying the space between the guide and support, while the lower end of the article is still in engagement with the guide, substantially as set forth.

6. The combination of a guide along which a plurality of articles may be moved in parallel relation, a support opposite the end of the guide and displaced therefrom, said articles being adapted to drop successively by gravity through the space between the end of the guide and the support, and two cams located stationarily with respect to the guide at said end of the guide and adapted to be engaged by each article to cause the same to momentarily assume an inclined position with its upper end free from the guide, bearing against said support and overlying the space between the guide and support, while the lower end of the article is still in engagement with the guide, substantially as set forth.

7. The combination of a guide along which a plurality of articles may be moved in parallel relation and from the end of which the articles may drop successively by gravity, and cam surfaces located stationarily with respect to said guide at said end of the guide and co-acting with the upper end and with the lower end of each article to cause the article to assume an inclined position immediately before dropping, substantially as set forth.

8. The combination of a guide along which a plurality of articles may be moved in parallel relation and from one end of which the articles may drop by gravity, a supporting member opposite said end of the guide, and stationary cam surfaces engaged by the upper and lower ends of the articles and causing each article to move into an inclined position before it drops from the end of the guide in which inclined position its upper end bears against said supporting member, substantially as set forth.

9. The combination of a guide along which a plurality of articles may be moved in parallel relation and from the end of which the articles may drop successively by gravity, a supporting member opposite said end of the guide and means for causing each article moved toward said end of the guide to assume an inclined position with its lower end engaging the guide and its upper end disengaged therefrom, bearing against said supporting member and overlying the space through which the article is adapted to drop, substantially as set forth.

10. The combination of a guide having a slot therein in which a plurality of cartridges are adapted to be suspended by the rims at their ends engaging the guide at the edges of the slot, the cartridges being adapted to be moved lengthwise of the slot in parallel relation, and cam surfaces located

stationarily with respect to the guide at one
end of the slot and engaged by the lower
and upper ends of each cartridge as the
several cartridges are moved in the slot,
5 said surfaces causing each cartridge to as-
sume an inclined position, substantially as
set forth.

This specification signed and witnessed
this 20 day of Aug., 1912.

FRANK O. HOAGLAND.

Witnesses:

WILLIAM M. THOMAS,
LEWIS D. CHRISTIE.