

May 9, 1944.

J. E. TURNOCK ET AL

2,348,233

CARTRIDGE COATING MACHINE

Original Filed March 27, 1940 4 Sheets-Sheet 1

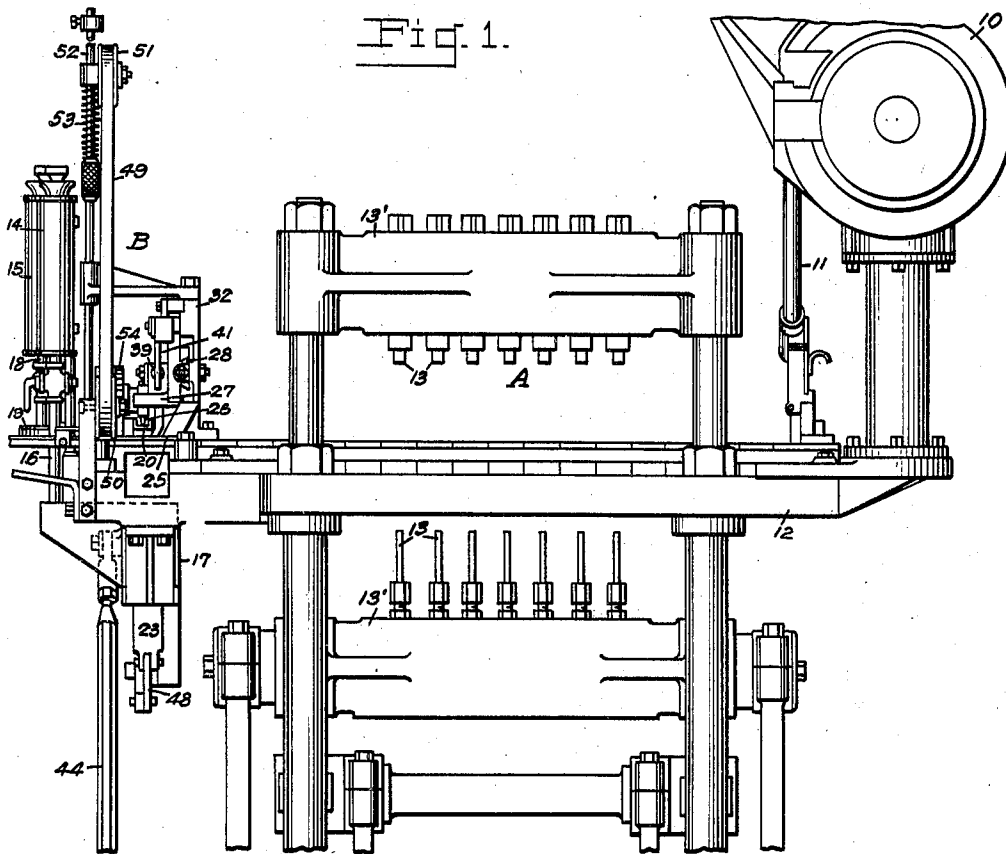


Fig. 7.

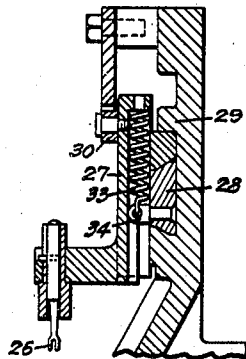
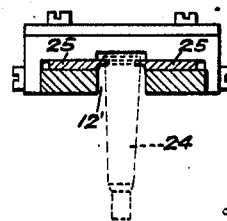


Fig. 6.



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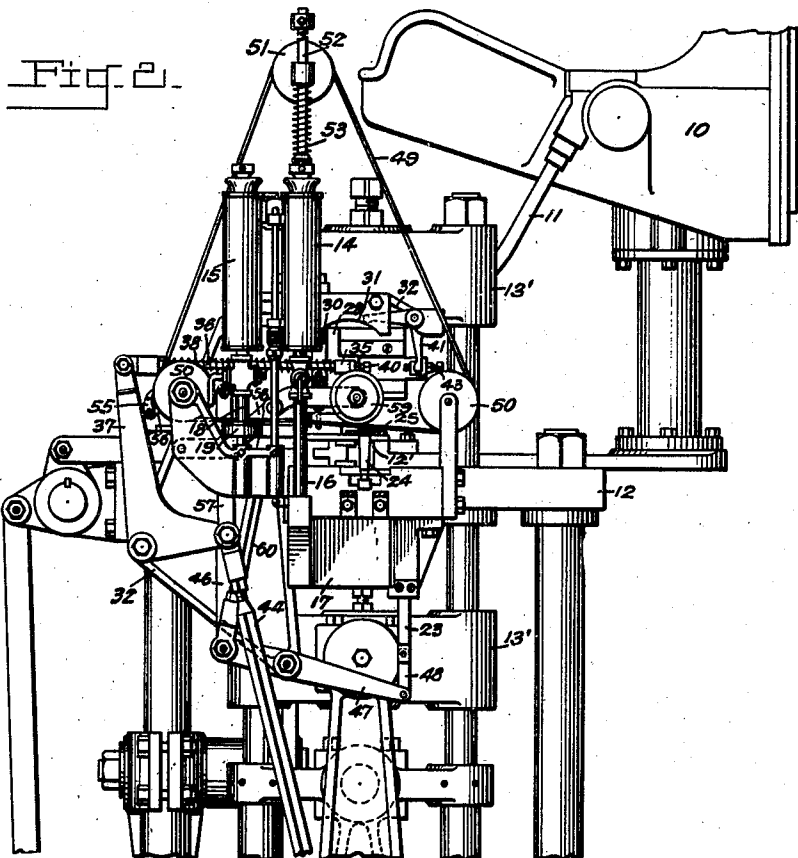
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Fig. 3.

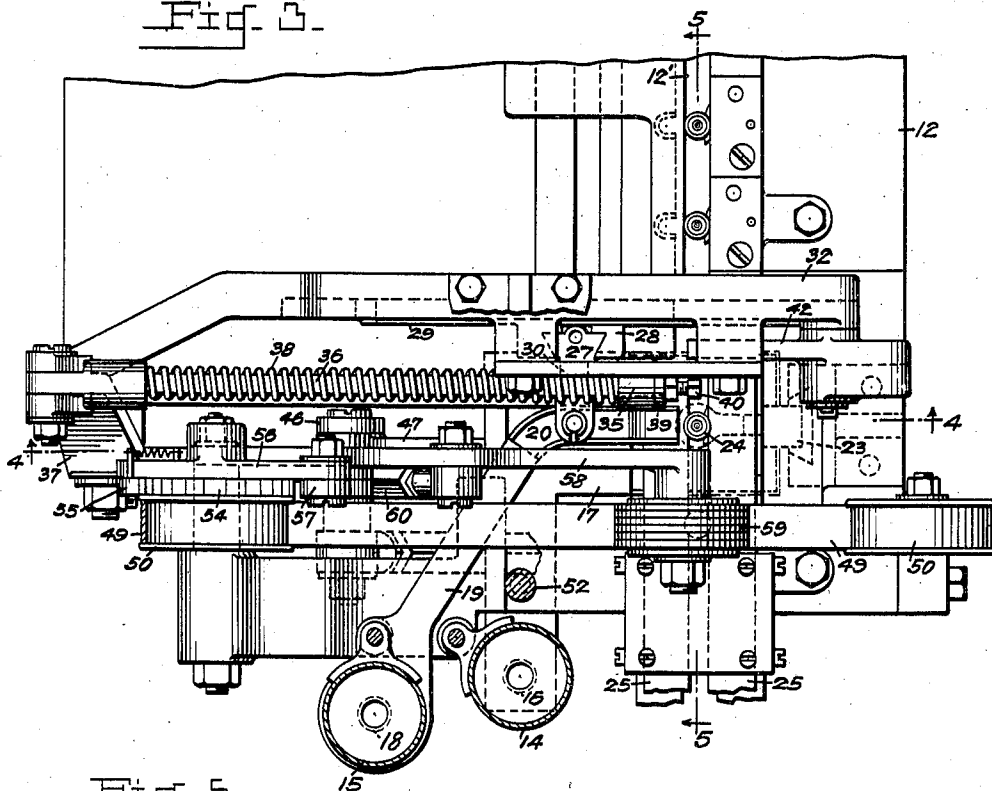
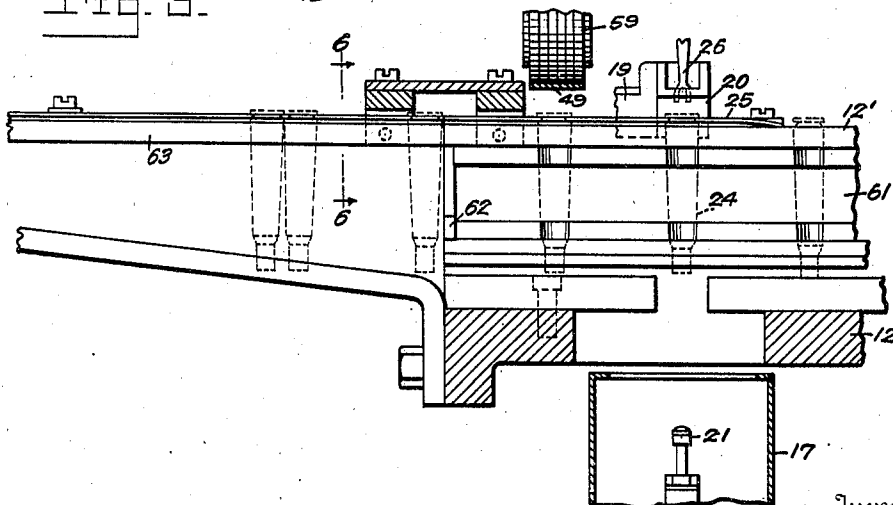


Fig. 5.



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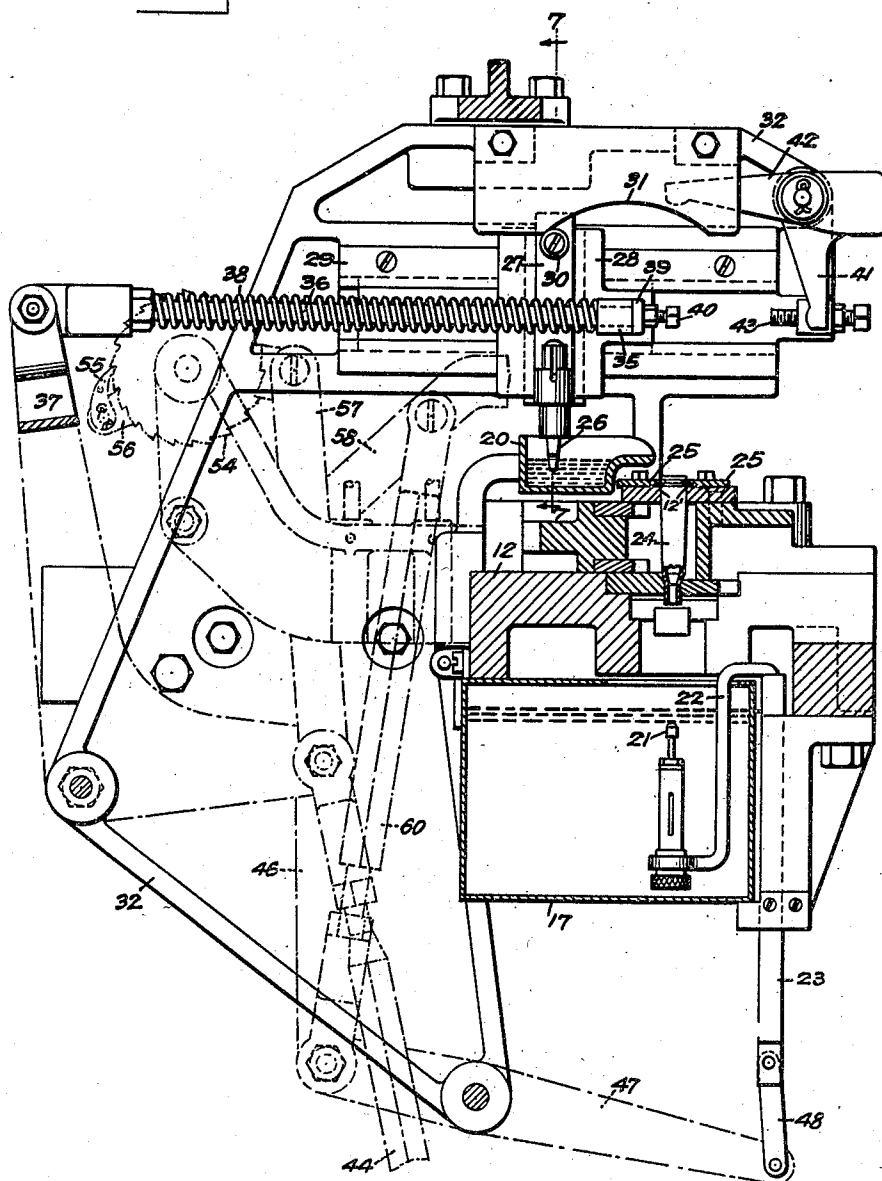
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Fig. 4.



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UNITED STATES PATENT OFFICE

2,348,233

CARTRIDGE COATING MACHINE

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Original application March 27, 1940, Serial No. 326,208. Divided and this application November 13, 1941, Serial No. 418,992

6 Claims. (Cl. 91—47)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

This application is a division of our copending application, Serial No. 326,208 filed March 27, 1940.

This invention relates to a machine for acting on cartridge cases, and more particularly to a machine for applying a coating of waterproof material to an ordnance device and for wiping the excess material therefrom.

The purpose of the invention is to provide a simple, effective device for intermittently depositing a uniform waterproof coating to the ends of cartridge cases.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawings in which:

Fig. 1 is a view in front elevation of the machine for acting on cartridge cases,

Fig. 2 is a view in left side elevation showing the coating and wiping devices,

Fig. 3 is a plan view partly in section of the varnishing and wiping mechanism,

Fig. 4 is a sectional view on the line 4—4 of Fig. 3,

Fig. 5 is a sectional view on the line 5—5 of Fig. 3,

Fig. 6 is a sectional view on the line 6—6 of Fig. 5, and

Fig. 7 is a sectional view on the line 7—7 of Fig. 4.

Referring to Fig. 1, the machine comprises a work portion referred to generally as A for performing operations on the base of a cartridge case such as venting, inserting a primer, seating and crimping, and detecting for abnormal conditions. The part described generally as B includes the varnishing or waterproofing mechanism and a device for wiping the excess fluid material from the cartridge bases.

Cartridge cases are fed from a hopper 10 through a passage 11 to a guide channel 12' in a bed plate 12, see Figs. 1 and 2. Channel 12' extends the length of the bed plate and is provided with conventional means (not shown) for indexing a plurality of spaced, inverted cartridge cases to the left. Tools 13 are mounted on a pair of reciprocating crossheads 13' and perform work operations on the bases of the cartridge cases as they are intermittently advanced toward the varnishing and wiping mechanism B.

The bed plate 12 extends at one side of the machine to carry the varnishing mechanism B which comprises a pair of reservoirs 14 and 15 (Figs. 2 and 3), the reservoir 14 adapted to supply varnish or a waterproofing material through a valved pipe 16 to a lower tank 17 (Fig. 4) below the plate 13 and the reservoir 15 adapted to supply varnish through a valved pipe 18 and trough 19 (Fig. 3) to an upper tank 20 above the plate 12. An applicator 21 (Fig. 4) disposed in the lower tank 17 is carried by a bent rod 22 which extends out of the tank and is fixed to a vertically slidable bar 23. The applicator 21 is adapted to enter the mouth of the cartridge case 24 and coat the inside wall evenly with varnish.

The upper tank 20 is disposed at one side of the cartridge 24 which at this stage in its travel is raised in the guide channel and is supported by spaced rails 25—25 (Figs. 4 and 5) which engage the rim of the cartridge case. An applicator 26 associated with the upper tank is carried by a vertically movable slide 27 which in turn is carried by a horizontally movable slide 28 mounted in guide 29. A roller 30 on the vertical slide is arranged to engage a transversely disposed arcuate cam 31 fixed to a bracket 32 and it is held against the cam by means of a compression spring 33 (Fig. 7) whose lower end is connected to a spring seat 34 carried by the horizontal slide 28.

The slide 28 is formed with a tubular bearing 35 which slidably receives an end of a rod 36 which is pivotally connected to one arm of a bell crank lever 37. A helical spring 38 embracing the rod is confined between the bearing 35 and the outer pivoted end of the rod. The end of the rod which projects through the bearing carries a collar 39 for engaging the bearing and it also carries a set screw 40 for engaging the lower arm 41 of a bell crank lever. The upper arm 42 of this lever is adapted to strike the vertical slide 27 to move the applicator towards the cartridge case 24 where it deposits a drop of varnish on the primer. The slide 28 is moved to the right in Fig. 4 through the intermediation of the spring 38 and it is stopped in a predetermined position by a set screw 43 while the rod continues its movement to strike the arm 41. Movement of the slide to the left is accomplished by engagement of the collar 39 with the bearing 35.

The actuating mechanism for the elements carrying the applicators comprises a connecting rod 44 (Figs. 2 and 4) which is reciprocated by the main drive shaft (not shown) and is connected to the lower arm of bell crank lever 37 pivoted

on bracket 32. The connecting rod is also connected by means of a link 46 to a lever 47 which is pivotally mounted on the lower part of bracket 32 and has a link 48 connected to the vertically slidable bar 23.

Referring to Fig. 2 there is shown an endless belt 49 trained around spaced lower pulleys 50—50 and a single upper pulley 51 which is slidably mounted on a vertical rod 52 and normally elevated by a spring 53. A ratchet wheel 54 associated with one of the pulleys is intermittently driven by a pawl 55 carried by lever 56. The lever 56 is actuated by link 57 from the connecting rod 44.

An arm 58 pivotally mounted on the bracket 32 carries a roller 59 which engages the inner reach of the belt above the cartridge case. A link 60 connects the arm with lever 47 and serves to intermittently depress the arm so that the roller will move the belt into contact with the base of the cartridge case in order to wipe excess varnish from the primer.

Referring to Fig. 5, when the cartridge case reaches the end of its travel by the action of the indexing mechanism shown generally at 61, a member 62 on the end of the mechanism pushes the case onto a drying rack 63.

The operation has been described in connection with the description of the component elements.

We claim:

1. In a machine, a bed plate, means for moving cartridge cases with their base end up step by step across the bed plate, a tank at one side of the path of travel of the cartridge cases and adapted to contain a fluent waterproofing material, a horizontal slide carried by the bed plate transversely of the path of travel of the cartridge cases, a vertical slide carried by the horizontal slide, an applicator carried by the vertical slide, a spring normally elevating the vertical slide, an arcuate cam engageable by the vertical slide under action of its spring, a bearing on the horizontal slide, an actuating rod engaging one side of the bearing, a spring on the rod engaging the other side of the bearing, and a lever engageable by the rod to strike the vertical slide when the horizontal slide is at one end of its stroke.

2. In a machine, a bed plate, means for moving cartridge cases with their base end up step by step across the bed plate, a tank at one side of the path of travel of the cartridge cases and adapted to contain a fluent waterproofing material, a horizontal slide carried by the bed plate transversely of the path of travel of the cartridge

cases, a vertical slide carried by the horizontal slide, an applicator carried by the vertical slide, a spring normally elevating the vertical slide, an arcuate cam engageable by the vertical slide under action of its spring, and means for reciprocating the horizontal slide.

3. In a machine, a bed plate, means for moving cartridge cases with their base end up step by step across the bed plate, a tank at one side of the path of travel of the cartridge cases and adapted to contain a fluent waterproofing material, a carriage disposed transversely of the path of travel of the cartridge cases, an applicator carried by the carriage, means for reciprocating the carriage, and means for vertically moving the applicator during reciprocation of the carriage.

4. In a machine, a bed plate, means for moving cartridge cases step by step across the bed plate, means underneath the bed plate for applying a waterproofing material to the lower part of a cartridge case, an operating lever for said means, means above the bed plate for applying waterproofing material to the upper part of a cartridge case, an operating lever for said last named means, and a connecting rod for actuating both of said levers.

5. In a machine of the character described, a bed plate, means for moving the cartridge cases along said bed plate with their base end up and with a step-by-step movement, a tank at one side of the path of travel of the cartridge cases for containing a fluent waterproofing material, a vertically and horizontally movable applicator, means vertically reciprocating the applicator with respect to the tank, and means timed with relation to the points of stoppage of the cartridge cases to move the applicator horizontally to deposit fluid from the tank upon the cartridge case.

6. In a machine of the character described, a bed plate, means for moving the cartridge cases with their open ends down and with a step-by-step movement across said plate, rails on the bed plate and arranged to enter the annular groove in the base of the cartridge cases to guide and support them in their travel across the plate, means for guiding and supporting the lower ends of the cases, a tank below the path of travel of said cases for containing a fluent waterproofing material, an applicator in said tank, and means for vertically reciprocating the applicator into and out of the open end of the cartridge cases.

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