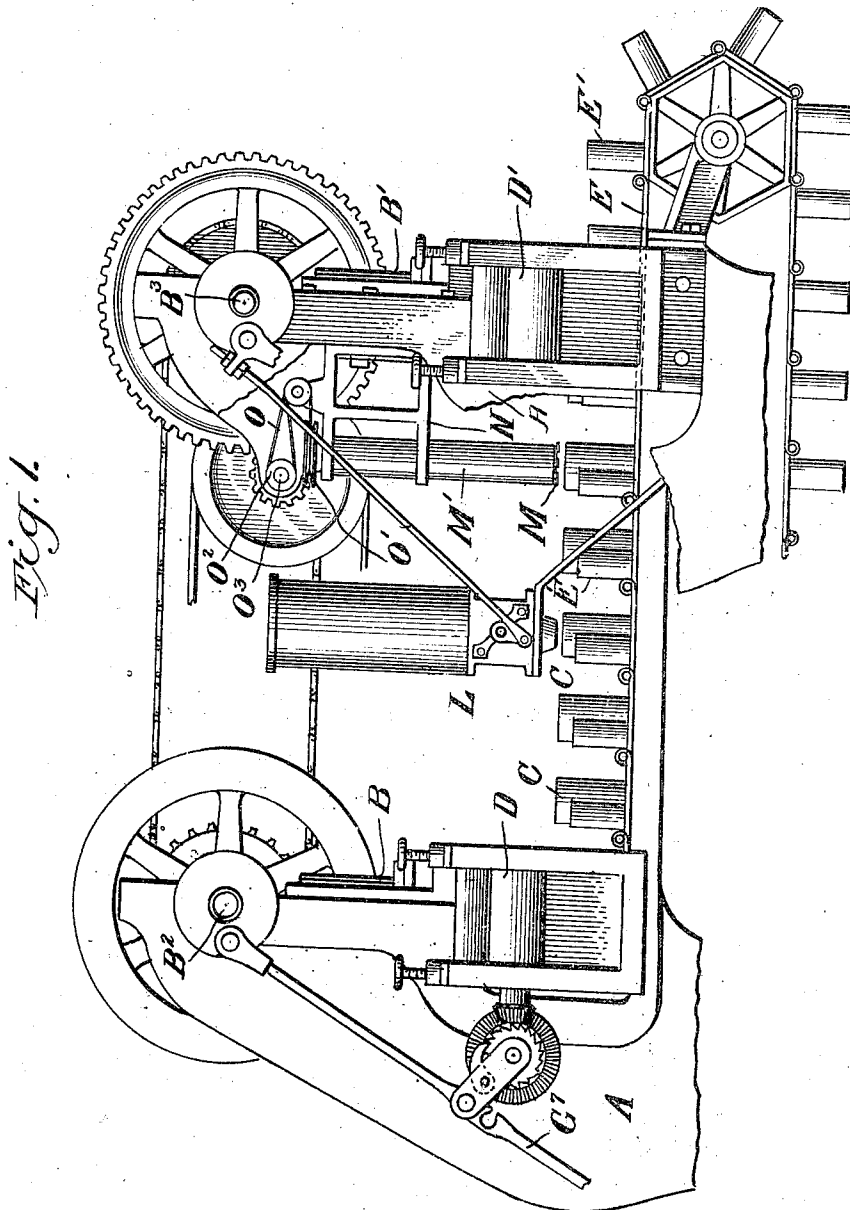


985,902.

3 SHEETS—SHEET 1.



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GLUE APPLYING APPARATUS FOR BOX MACHINES.
APPLICATION FILED JULY 19, 1909.

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Patented Mar. 7, 1911

3 SHEETS—SHEET 2.

Fig. 2.

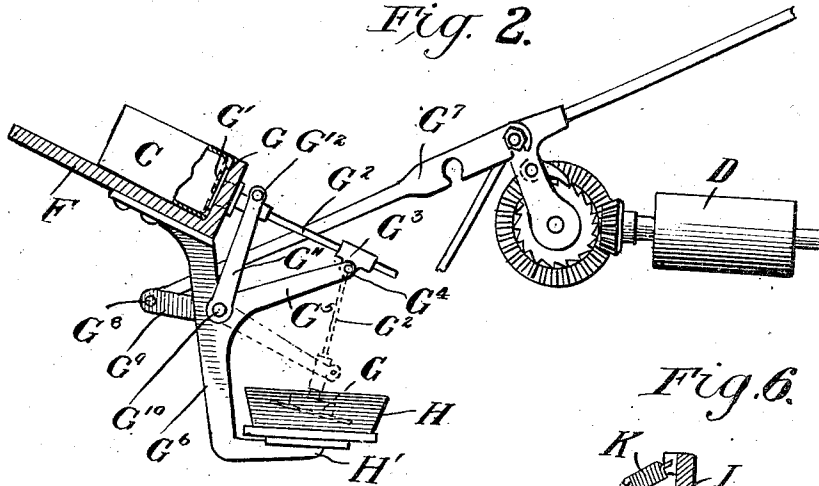


Fig. 6.

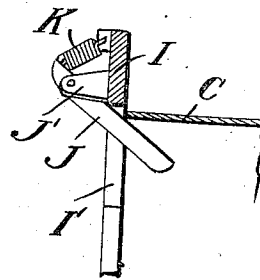


Fig. 3.

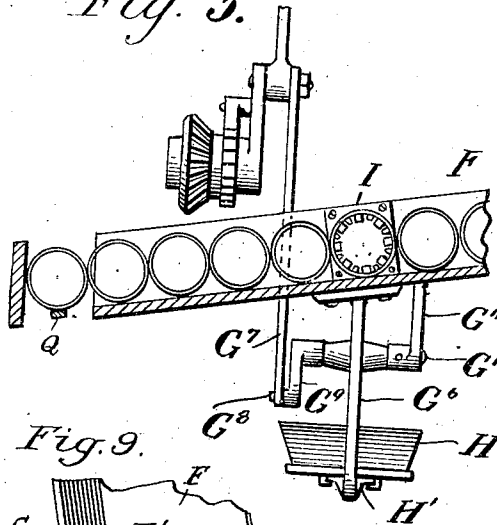


Fig. 7.

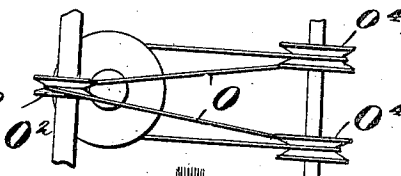


Fig. 9.

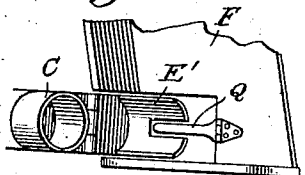
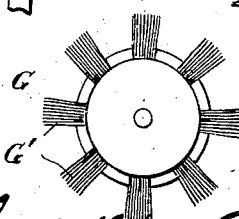


Fig. 10.



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3 SHEETS-SHEET 3.

Fig. 4. 5

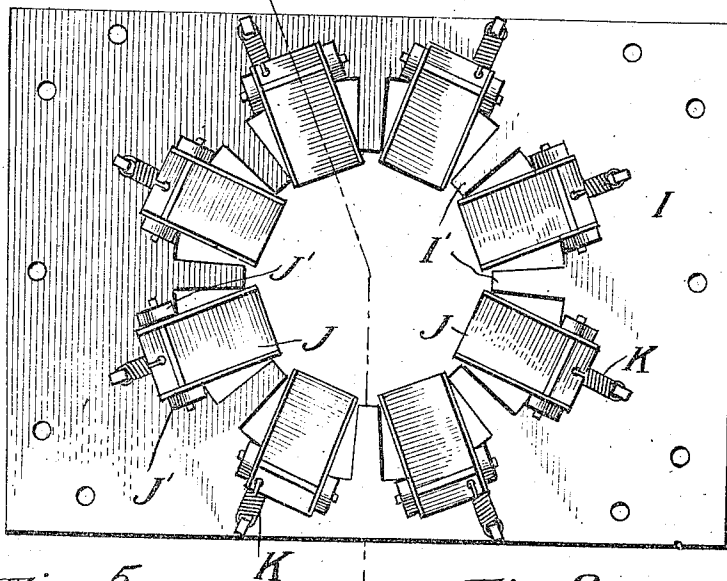


Fig. 5.

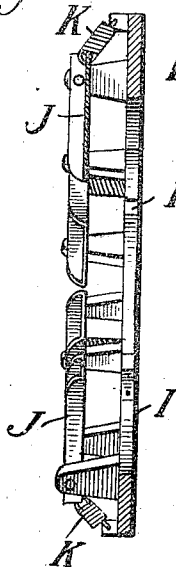
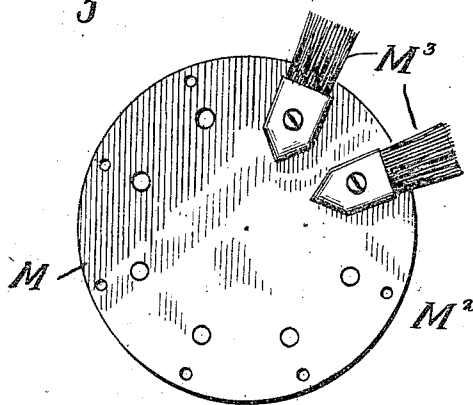


Fig. 8.



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GLUE-APPLYING APPARATUS FOR BOX-MACHINES.

985,902.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed July 19, 1909. Serial No. 508,385.

To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Glue-Applying Apparatus for Box-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates particularly to automatic devices for applying glue to the interior of box bodies so that when the closures or tops and bottoms are inserted they will be secured in place by the glue.

The apparatus shown involves devices without novelty herein claimed for feeding open box bodies to an intermittently moving belt which presents them in succession to closure inserting devices, filling devices, and other closure inserting devices.

In the accompanying drawings, Figure 1 is a side elevation of the main portion of the apparatus. Fig. 2 is a like view of parts seen at the left in Fig. 1 with other parts added. Fig. 3 is a view of parts seen also in Fig. 2, looking from the left in that figure. Fig. 4 is an enlarged view of certain fender devices seen also in Fig. 3. Fig. 5 is a section on the line 5-5, Fig. 4. Fig. 6 is a partial sectional view showing in different position parts seen in Fig. 5. Fig. 7 is a plan view of certain parts seen also in Fig. 1. Fig. 8 is a bottom plan view illustrating the construction of a portion of the glue applying device for the final closure. Fig. 9 is a fragmentary plan view showing a part of a certain chute and of a conveyer belt which takes boxes therefrom. Fig. 10 is a plan view of a brush which is seen in edge view in Fig. 2.

In these views, A represents a frame supporting vertically reciprocating plunger devices B, B' driven by connected crank shafts B², B³, for forming and inserting closures in bottle or box bodies C carried by a belt E having box receiving wings E' and driven step by step from the crank shafts B², B³, or either of them. The closures are formed from stock strips fed to the plunger devices by rollers D, D'. Between the two closure plungers is placed a filling mechanism, also driven from one of the crank shafts, and the operations are so timed that during an in-

terval of rest for the belt different boxes are receiving, respectively, the first closure, the filling material, and the final closure. The box bodies are fed to the belt by an inclined transverse chute, F, down which they move by gravity, the belt taking the foremost box, which is replaced by another, to be taken in turn, and so on. The chute is cut away at its lower end as shown in Figs. 3 and 9, so that when the foremost box rolls down to the end wall of the chute it would fall but for being supported by a finger Q hinged so that in case it is struck by the belt wings it yields and drops back uninjured. The conveyer belt lies in the same vertical transverse plane as the opening in the chute, and its wings, E', which are slotted to pass the finger Q, lift the boxes in succession, another box instantly rolling down to replace each one that is lifted. None of these devices have *per se* novelty herein claimed, and for that reason they are not shown nor described in greater detail. The side of the chute F is cut away opposite the place for one of the boxes other than the foremost, and through the opening a glue brush is passed into the corresponding box (and before this glue has fully set this box reaches position beneath the first plunger device, which inserts a closure and pushes it down to the glued portion, or lower end. Obviously it is desirable to apply the glue in such manner as to avoid smearing. The brush G which applies it is made up of slightly separated sections G' all radially located and equally spaced in a plane perpendicular to the axis of the box at the time the brush is inserted. The brush is fixed to the end of a rod G² which slides freely in a sleeve G³ pivoted at G⁴ to an arm G⁵ of a bracket G⁶ depending from the chute F, and it is moved by a pitman G⁷ adjustably connected with the crank shaft B² and pivotally connected at G⁸ with an arm G⁹ projecting from a shaft G¹⁰ mounted in the bracket G⁶ and provided with another arm G¹¹ which is pivotally connected at G¹² with the brush. The glue is carried in a suitable pan H detachably engaging a portion H' of the bracket G⁶. If the brush be in the position indicated in dotted lines, movement of the pitman G⁷ to the left swings it upward and thrusts it into the box C. The opening in the side of the chute is

made larger than the boxes, and in this aperture is set a fender consisting of a plate I cut away to form a central opening into which project equally spaced arms I' against which a box may rest.

Fender plates J are pivoted between ears J' to project inward a little beyond the arms I' and to swing between the latter. These plates J are normally held parallel to the plate I by springs K at their outer ends, and each is provided with lateral marginal flanges. These fender or guide plates correspond in number and location with the sections of the large brush, so that when the brush is thrust through the plate I each section strikes one of the fender plates, swinging it into the mouth of the bottle as indicated diagrammatically in Fig. 6. The brush section is thus bent back as it advances past the margin of the box or bottle, and as it leaves the fender it springs out against the wall of the bottle or box depositing glue thereon. The fender returns to normal position, and as the brush is withdrawn it is drawn outward in contact with the wall but evidently not in such manner as to leave an excess of glue thereon. The arrangement is such that the fenders, so far as their free ends are concerned, come in contact with nothing but the brush sections. Before the glue thus applied has fully set, the box has been taken from the chute by the belt and has received a closure from the devices at B. After receiving this closure, each box comes to rest beneath a filling device L, operated from the crank-shaft B³, and at a later period of rest it receives glue in its upper end. This glue is applied by a brush M at the lower end of a receptacle M' revolvably mounted in and carried by a bracket N fixed to the plunger device B'. The receptacle is rotated by a belt O passing around a pulley O' upon the receptacle, and a pulley O² upon a shaft O³ connected by gears with the crank shaft B'. Between the two pulleys just mentioned, the two folds of the belt pass around two pulleys O⁴ upon the bracket, as indicated in Fig. 7. The belt may be elastic if desired, although it has not been found necessary, practically. The bottom of the receptacle is perforated at M², Fig. 8, and over these openings are secured small brushes or brush sections M³ which receive the glue slowly discharged upon them through the apertures. When the plunger descends to insert a closure in one of the boxes, this brush is pressed down into the mouth of a following box and rotated therein, so that when this box in turn receives a closure, the latter will be secured in place.

What I claim is:

1. In apparatus of the class described, the combination with a brush adapted to apply glue to the interior of a box upon all sides thereof, of means for thrusting the brush

axially into the open end of a box, and a fender device adapted to press the brush from the walls of the box while it is moving inwardly but not while it is moving outwardly past the margin of the same.

2. The combination with a support for an open box, of a glue brush made up of distinct radial sections, means for thrusting the brush axially into a box carried by said support, and a series of radial pivoted fender plates in position to receive the brush sections, respectively, as the brush advances and deflect them inwardly away from the margin of the box, substantially as set forth.

3. The combination with an inclined chute for box bodies, of a plate fixed in the wall of the chute and having a central opening with arms projecting into the opening to support the ends of boxes in the chute, a series of radial fender plates pivoted to swing between said arms to inclined position over the box margin, springs resisting such swinging, a glue brush having distinct sections arranged to meet said fender plates, respectively, as the brush enters said opening, and means for moving the brush through the opening and withdrawing it.

4. The combination with an open glue receptacle, of means for supporting an open box body in proper position above and at one side of said receptacle, a sleeve pivoted above the receptacle to swing in an approximately vertical plane, a brush sliding freely in said sleeve, and means for swinging the brush in said plane and simultaneously sliding it in said sleeve to bring it into alignment with the box, thrust into the same and withdraw it therefrom.

5. The combination with a device for advancing a series of open boxes, of means for applying glue to the interior of one end of each box as it reaches a certain point, means for placing a closure in said end, means for filling the boxes in succession, means for applying glue to the interior of the open end of each filled box, and means for then inserting a closure in said ends.

6. The combination with means for filling and advancing an open box, means connected with the filling means for inserting a closure in the open end of the box, and intermediate devices for applying glue to the interior of the open end of the filled box.

7. The combination with means for advancing a box, of box filling devices above a certain part of the path of the box, a rotary glue applying brush above another part of said path, a closure inserting plunger above another more advanced part of said path and means whereby the closure inserting movement of the plunger inserts the brush in another box.

8. The combination with means for advancing a series of boxes, of box filling devices arranged to fill the boxes successively

as they reach a certain part of their path,
a plunger arranged to insert closures in the
boxes successively at a more advanced part
of said path, and a rotary, brush carrying
5 glue receptacle carried by said plunger in
position to enter open boxes while they are
between said filling device and said plunger.

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

CHARLES FRANCIS JENKINS.

Witnesses:

B. H. DAILEY,
CAROL K. MORRISON.