Dec. 25, 1951 E. J. DERDERIAN 2,579,802

FIBER CASE GLUING MACHINE

Filed May 15, 1945

2 SHEETS—SHEET 1

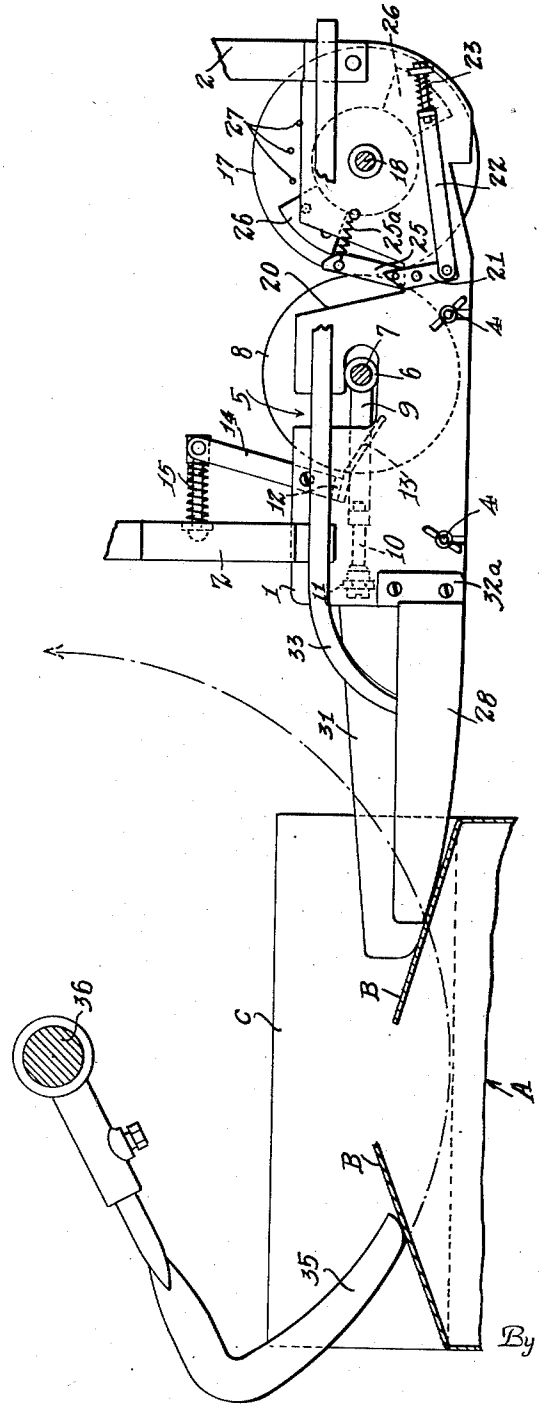


Fig. 1

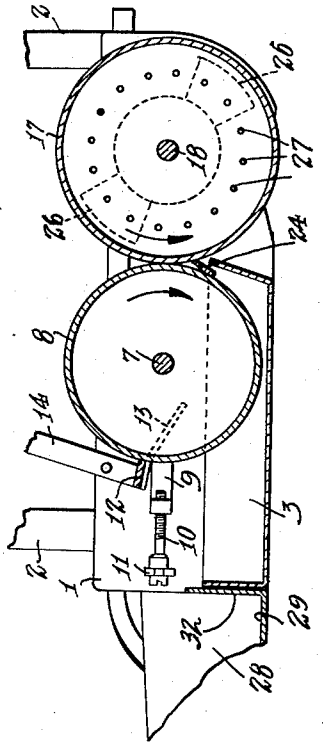


Fig. 2

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FIBER CASE GLUING MACHINE

Filed May 15, 1945 2 SHEETS—SHEET 2

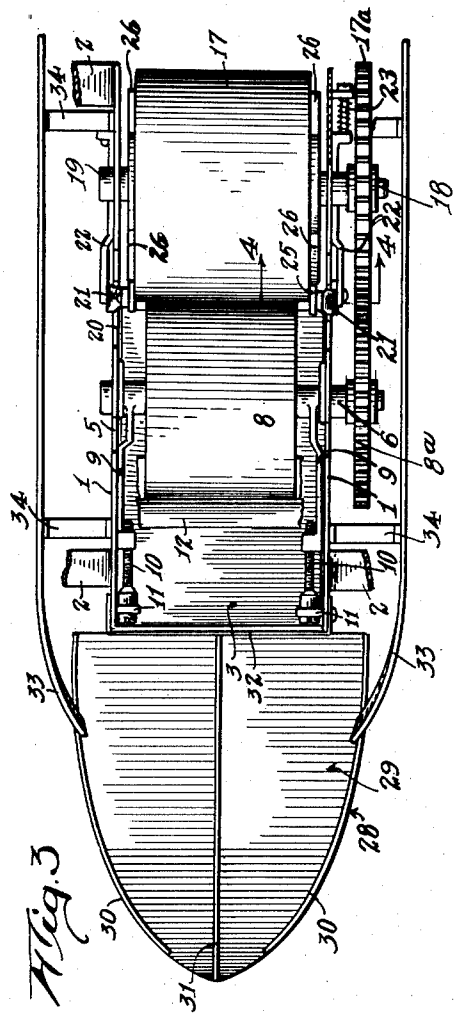


Fig. 3

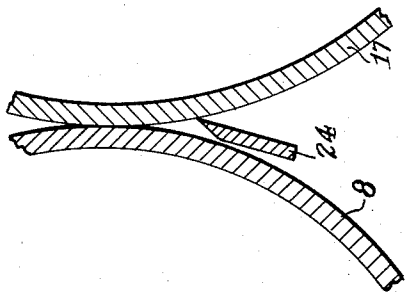


Fig. 5

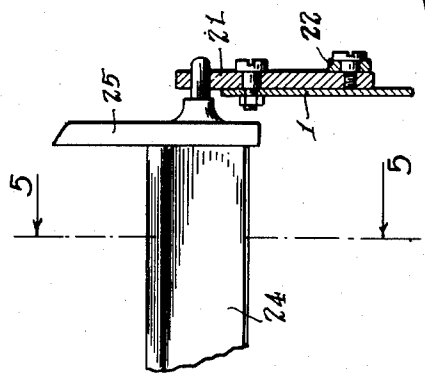


Fig. 4

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UNITED STATES PATENT OFFICE

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FIBER CASE GLUING MACHINE

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3 Claims. (Cl. 93—36.4)

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My invention relates to fiber case gluing machines, and among the objects of my invention are:

First, to provide a gluing machine arranged to apply an adhesive to the outer surfaces of the inner flaps of a fiber case while avoiding application of the adhesive to the contents of the fiber case or to undesirable areas.

Second, to provide a gluing machine which requires less width of floor space than conventional gluing machines.

Third, to provide a gluing machine of this character which insures a uniform and adequate but not excessive coating of adhesive and which machine is capable of rapid operation.

Fourth, to provide a gluing machine of this character which may be readily adjusted for fiber cases or cartons of different sizes.

With the above and other objects in view, reference is directed to the accompanying drawings, in which:

Figure 1 is a side elevational view of my gluing machine with a carton in position to enter the machine.

Figure 2 is a fragmentary longitudinal sectional view thereof.

Figure 3 is a plan view thereof.

Figure 4 is an enlarged fragmentary transverse sectional view through 4—4 of Figure 3.

Figure 5 is another enlarged fragmentary sectional view through 5—5 of Figure 4, showing particularly the scraper blade in relation to the gluing and applicator rolls.

My gluing machine is adapted to form a part of a fiber case sealing machine which involves conveyors designed to feed fiber cases in position for engagement by the gluing machine, and to carry the cases through the gluing machine and into devices designed to press the flaps of the fiber case or cartons against the glued areas. Such apparatus is for the purposes of the present invention conventional, and therefore not shown.

The gluing machine per se includes a pair of vertically disposed side plates 1 supported by suspension straps 2 from a suitable overhead framework (not shown). The side plates support therebetween a glue pan 3, the side plates being provided with slots to receive laterally directed studs extending from the glue pan, which are adapted to receive thumb screws 4.

The side plates are provided with longitudinally directed slots 5 in which are slidably mounted a pair of journals 6 adapted to support the shaft 7 of a cylindrical glue roller 8. The

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lower side of the glue roller dips into the glue pan 3. The journals 6 are provided with forwardly directed arms 9 having inturned forward extremities adapted to receive bolts 10. The bolts 10 are anchored by yokes 11 to the side plates 1 so that rotation of the bolts effects forward and rearward adjustment of the journals 6 and the glue roller 8.

A doctor blade 12 extends across the forward side of the glue roller 8 and is provided with side tongues 13 adapted to ride against the axial ends of the roller to wipe glue therefrom. Adjusting levers 14 extend upwardly from the ends of the doctor blade and are pivotally supported intermediate their ends by the side plates 1. The upper ends of the adjusting levers are pivotally connected to travel nuts into which screw thread adjusting bolts 15, the heads of which are loosely fitted in lugs secured to the forward pair of suspension strips 2. The bolts receive compression springs which hold the bolts in their extended position. Rotation of the bolts adjusts the position of the traveler nuts, the angular position of the levers 14 and consequently the clearance between the doctor blade 12 and glue roller 8.

An applicator cylinder 17 is mounted rearwardly of the glue roller 8. The applicator cylinder is slightly larger in diameter and axial length than the glue roller. Adjustment of the journals 6 is such that the glue roller contacts or is in close proximity to the applicator cylinder 17. The applicator cylinder is provided with a shaft 18 which extends through journals 19 provided in the side plates 1.

The side plates 1 are provided with notches 20 exposing the tangential portions of the glue roller and applicator cylinder. Below the notches 20 the side plates pivotally support intermediate their ends a pair of adjustment levers 21. The lower ends of the levers 21 are connected by links 22 to adjusting screws 23 located toward the rear ends of the side plates 1. The adjusting screws 23 are threaded into the ends of the links 22 and extend coaxially through brackets suitably secured to the side plates 1 and terminate in heads. The adjusting screws 23 receive compression springs which urge the links to their extended positions relative to the brackets in which the screws 23 are anchored. The upper extremities of the adjustment levers 21 journal therebetween a scraper blade 24 which extends between the glue roller 8 and the applicator cylinder 17 below their lines of tangency. The extremities of the scraper blade 24 are provided

with upwardly directed cam arms 25 which are adapted to overlap the axial ends of the applicator cylinder 17. The cam arms 25 engage segmental cams 26 secured to the axial ends of the applicator cylinder. To tilt the scraper blade 24 clear of the applicator cylinder, suitable springs 25a, secured to the cam arms 25 and secured to the frame, urge the cam arms toward the segmental cams.

The axial ends of the applicator cylinder are provided with rings of screw holes 27 so that the segmental cam members may be variously oriented with respect to the applicator cylinder 17. In the construction shown, two such cam segments are shown on each end of the applicator cylinder. The cam segments may vary in arcuate extent and in position, depending upon the size of fiber case or carton it is desired to glue. The scraper blade 24 normally bears against the surface of the applicator cylinder 17, and is caused to move clear of the surface when the cam arms 25 ride on their respective cam segments 26.

The forward ends of the side plates 1 support therebetween a forwardly directed shoe 28. The shoe includes a bottom 29 which tapers forwardly and is curved slightly upwardly. The side margins of the bottom 29 are provided with forwardly converging side walls 30. The shoe 28 is provided with a center rib 31 extending from the forward pointed extremity of the bottom 29 to the rear end of the shoe. The rear end of the shoe is provided with an upturned end plate 32 which includes gears 32a overlying and secured by screws, to the side plates 1. The bottom of the shoe 28 at its rear end is flush with the bottom of the glue pan 3. Deflector rails 33 extend along the side plates 1 and are spaced outwardly therefrom by brackets 34. The deflector rails are spaced a distance sufficiently clear of the side plates 1 to enable the shafts of the glue roller 8 and the applicator cylinder 17 to be equipped with gears 8a and 17a. However, the roller or cylinder 8 or 17 may be driven one by the other without the use of gears. The applicator cylinder 17 rotates counter clockwise and the gluing roller rotates clockwise as indicated by arrows in Figure 2.

Operation of the gluing machine is as follows: A fiber case or carton A is fed toward the shoe 28 of the glue machine by a suitable conveyor system (not shown). The inner flaps B of the carton are partially folded inwardly toward each other, but are normally in somewhat inclined position as shown in Figure 1. The inclined inner flaps tend to hold the outer flaps C in a more or less upright position. The inner flap first engaging the shoe 28 is readily deflected to a flat position. The outer flaps are guided by the side walls 30 of the shoe and the deflector rails 33 into vertical positions so that the inner flaps are fully exposed.

The trailing inner flap normally occupies a position sufficiently flat to slip under the shoe 28. However, to insure proper positioning of the trailing inner flap, a flap depressing lever 35 is provided which is mounted on a shaft 36 journaled forwardly and above the gluing machine by a suitable framework (not shown). The flap depressing lever has a peripheral velocity faster than the conveyor which moves the cartons, and is timed so that it depresses the trailer inner flap just as it approaches the shoe 28. Such flap depressing levers are commonly used in association with gluing devices or other carton handling machines.

The scraper blade 24 is intended to scrape or wipe selected segments of the applicator cylinder clean of any glue. The spacing of the cam segments 26 is such that the scraper is periodically rendered inoperative so that segments of the applicator cylinder are coated with adhesive or glue transferred from the gluing roller. The rotation of the applicator cylinder 17 is so timed with respect to the conveyor system which moves the cartons, that the coated segments roll on the inner flaps B, and a scraped or adhesive free segment of the applicator cylinder rolls across the gap between the leading and trailing inner flaps so that there is no danger of glue dripping into or being applied to the contents of the fiber case. The arrangement of the cam segments and the timing relationship between the drive for the applicator cylinder and the conveyor system, is such that a scraped or clean segment of the applicator roller is presented downwardly between successive cartons. This has the advantage that should either inner flap be directed outwardly from the carton rather than inwardly as it is intended to be, there is no danger of coating the wrong side of the flap.

The outer flaps C tend to fold inwardly against the guide rail 33 so that on passing beyond the gluing machine they are readily guided by suitable deflectors (not shown) into horizontal positions overlying the inner flaps. A conventional sealing machine (not shown) receives the glued cartons and exerts the necessary pressure to effect a seal between the inner and outer flaps.

The glue pan extends under the scraper blade so that the adhesive drips from the scraper blade back to the pan.

Many other embodiments of the invention may be resorted to without deparing from the spirit of the invention.

I claim:

1. A gluing machine for fiber cases, wherein the fiber cases have been disposed with their inner flaps folded flatwise over the contents of the cases and their outer flaps extended upwardly therefrom, the combination of: a roller applicator positioned to apply adhesive to the upper surfaces of said inner flaps; an adhesive supply reservoir; a gluing roller dipping into said supply reservoir and disposed in adhesive transferring relation to said applicator; a scraper blade extending across said applicator; means for moving said scraper blade to and from said applicator to scrape adhesive from preselected portions thereof, said scraper blade positioned to return adhesive to said reservoir.

2. A gluing machine for fiber cases, comprising: a frame structure; means suspending the frame structure in position for movement of fiber cases thereunder; deflectors for folding flatwise the inner flaps of a fiber case and for moving the outer flaps thereof to vertical positions; an adhesive reservoir pan carried by said frame structure; a glue roller dipping into said pan; an applicator roller in adhesive receiving relation to said glue roller and positioned rearwardly of said glue roller and pan to engage the upper surfaces of said inner flaps; and means for removing adhesive from selected portions of said applicator roller and returning the adhesive to said reservoir pan, said frame structure, adhesive reservoir pan and rollers adapted to pass between said vertically disposed flaps.

3. A gluing machine for fiber cases, comprising: a frame structure; means suspending the

frame structure in position for movement of fiber cases thereunder; deflectors for folding flatwise the inner flaps of a fiber case and for moving the outer flaps thereof to vertical positions; an adhesive reservoir pan carried by said frame structure; a glue roller dipping into said pan; an applicator roller in adhesive receiving relation to said glue roller and positioned rearwardly of said glue roller and pan to engage the upper surfaces of said inner flaps; a scraper blade extending across said applicator roller for scraping adhesive from selected portions of said roller and return the adhesive to the reservoir pan; cam means on said applicator roller; and lever means supporting said scraper blade and engageable with said cam means to control movement of said scraper blade, said frame structure, adhesive reservoir pan and rollers adapted to pass between said vertically disposed flaps.

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