Feb. 8, 1949. R. MINKOW 2,461,388

GLUING MACHINE

Filed May 21, 1945 4 Sheets-Sheet 1

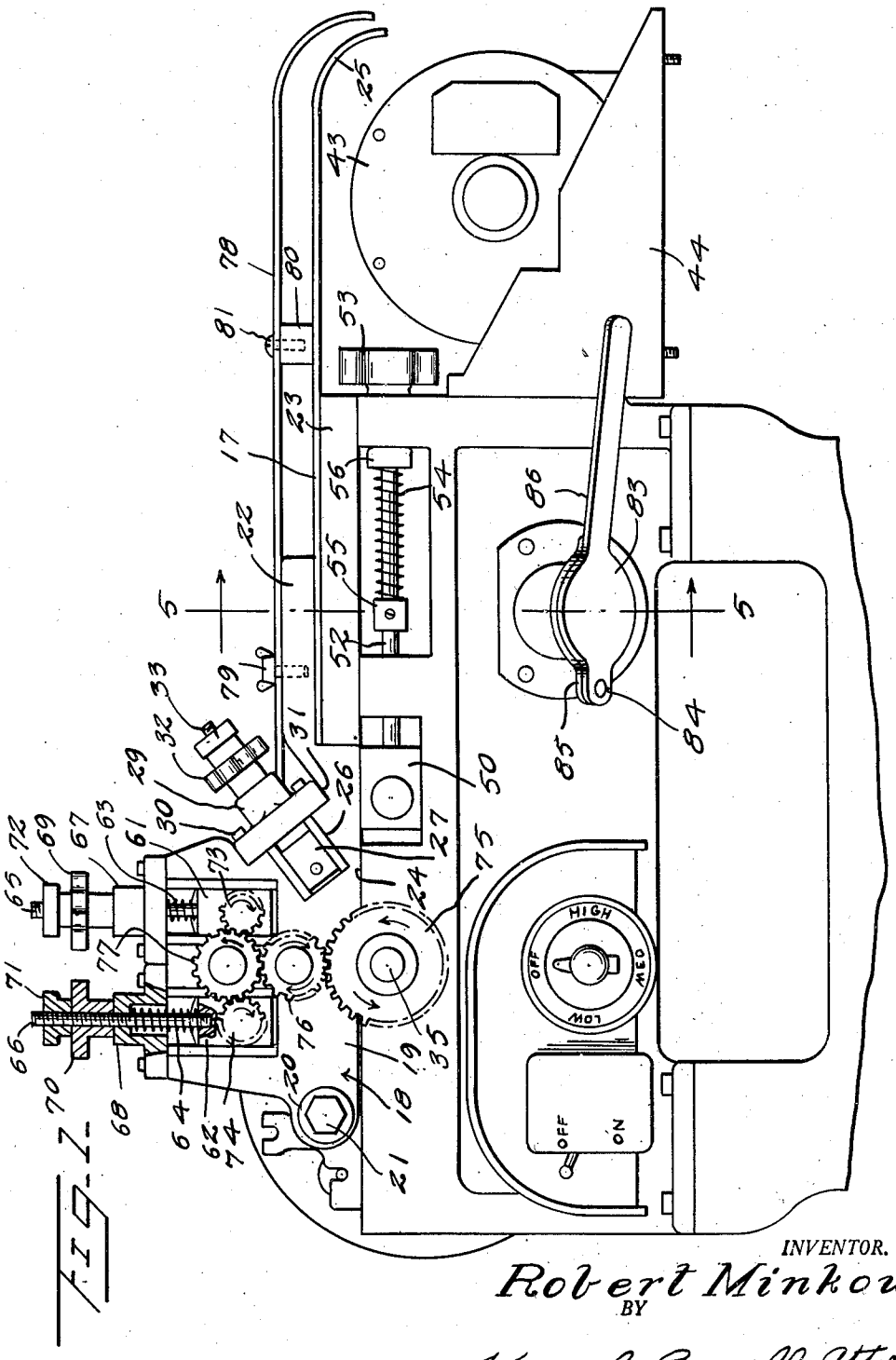


FIG. 1.

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GLUING MACHINE

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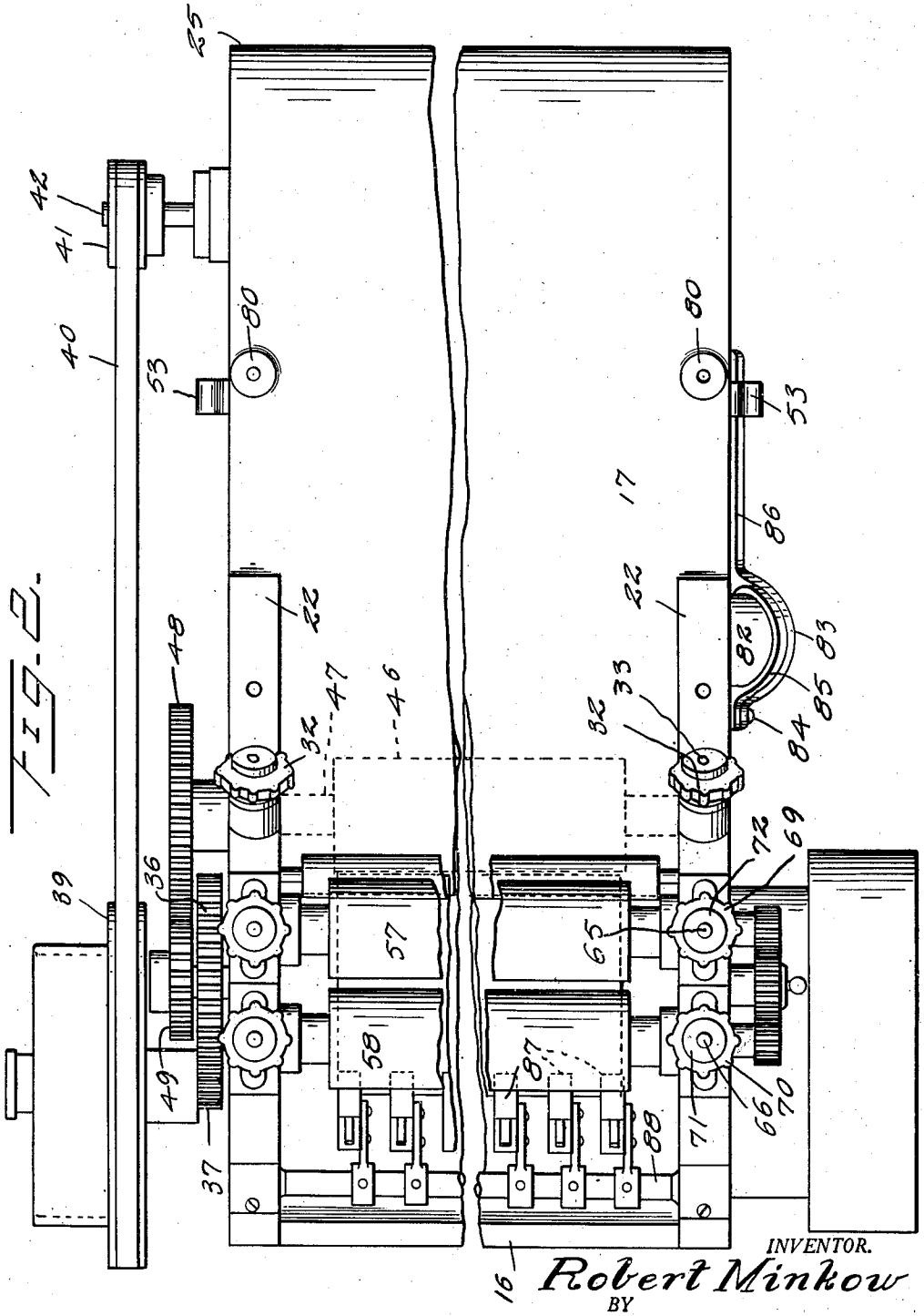


FIG. 2.

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GLUING MACHINE

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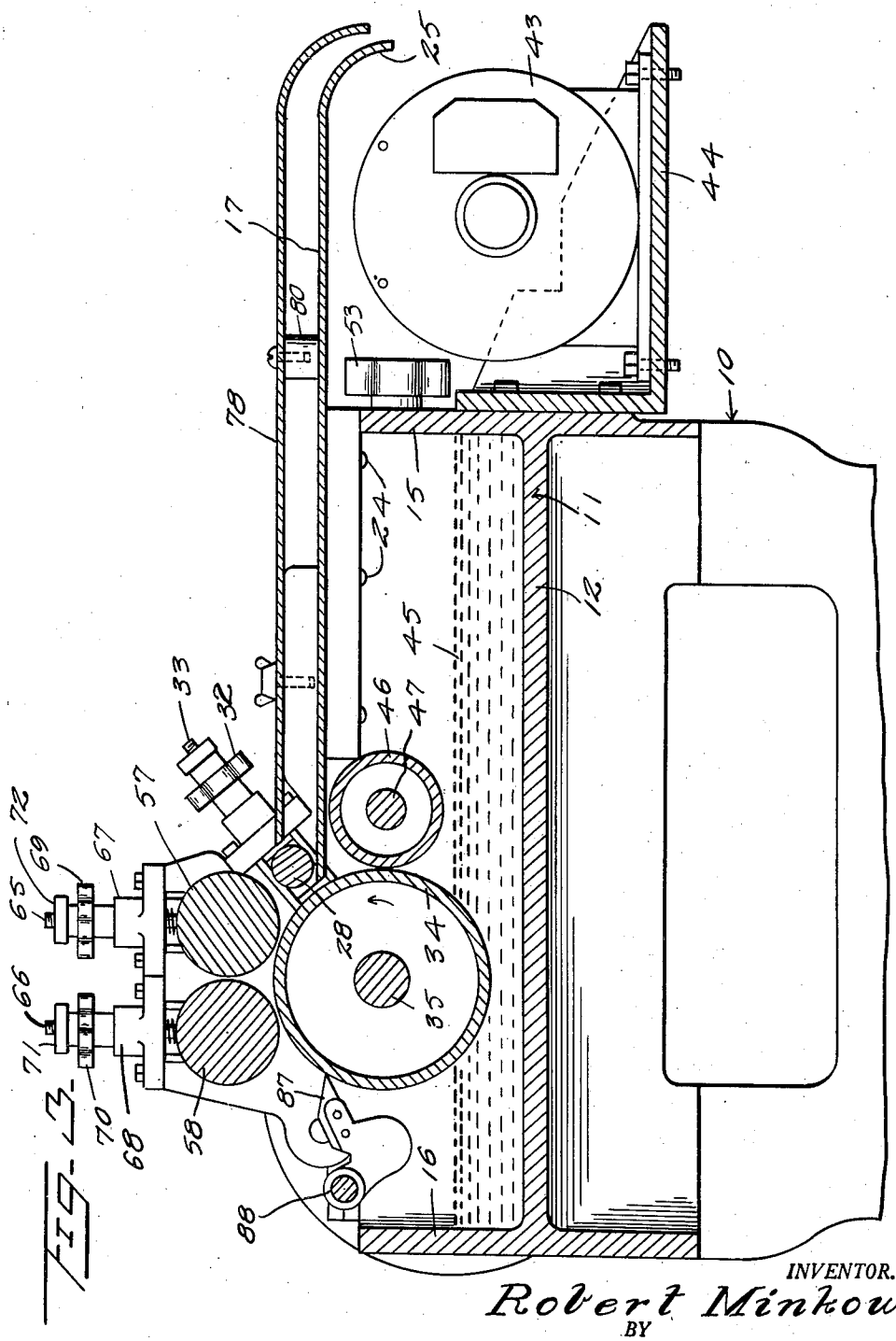


FIG. 3

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GLUING MACHINE

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Fig. 4.

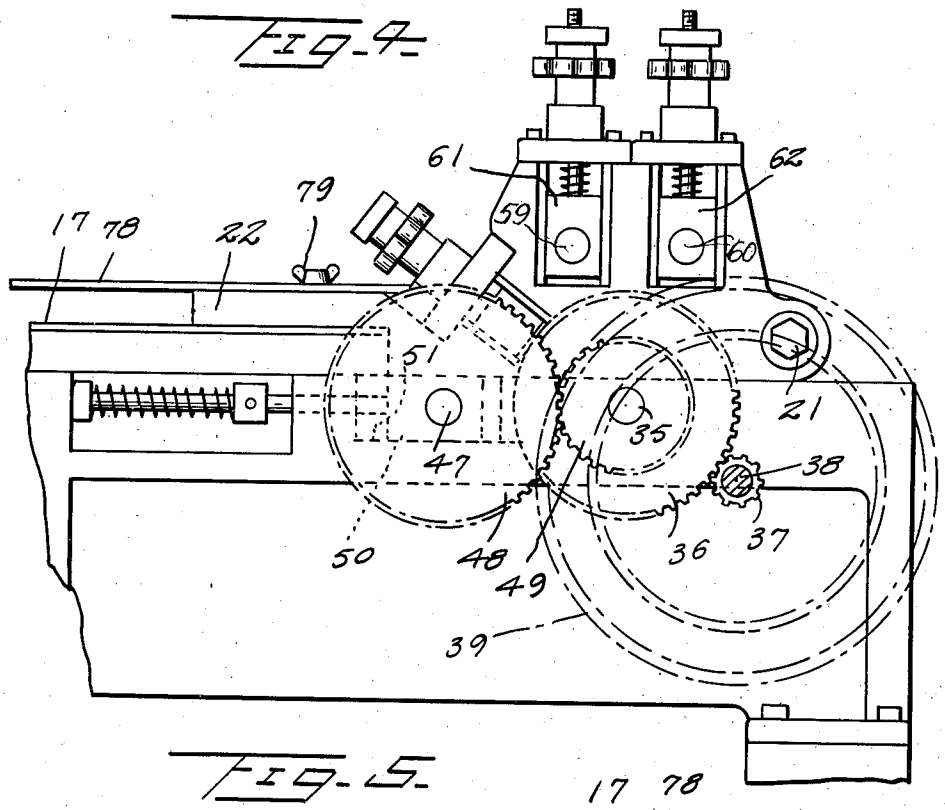
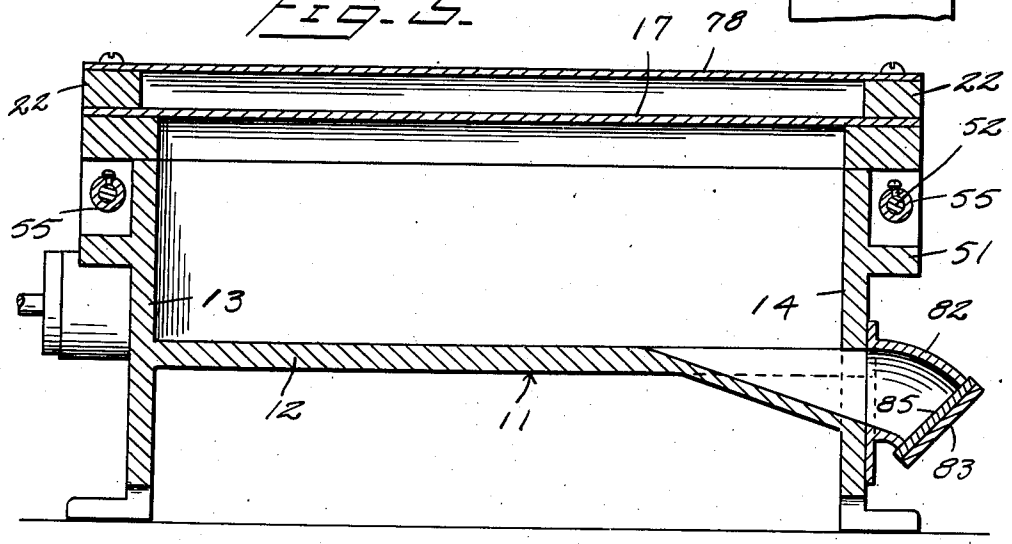


Fig. 5.



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UNITED STATES PATENT OFFICE

2,461,388

GLUING MACHINE

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Application May 21, 1945, Serial No. 594,895

1 Claim. (Cl. 91—51)

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This invention relates to gluing machines for applying glue to paper, cardboard, leather and other flexible or rigid materials employed in the manufacture of paper boxes, luggage, leather goods, games, toys, novelties, display mounts, table pads, desk pads, and numerous other products of flexible or rigid or stiff material. The machines of this invention are useful in a vast field of manufacturing purposes wherever a means for readily applying adhesive material to a surface is required.

An object of this invention is to provide an improved table construction for gluing machines which will permit the gluing of either thin or thick sheets.

Another object of this invention is to provide an improved mounting for a gluing table which will permit upward swinging of the table to an inoperative position to provide for filling the glue container and which will enable the operator to easily and quickly clean the glue roller or doctor roller, add glue, stir the glue and attend to any operation requiring quick, easy and ready access to the glue or adhesive container. Without the use of tools or other equipment, the operator may swing the table unit up and out of the way, in a manner as hereinafter set forth, the table unit including the feed roll and top roll, or as the case may be, the cardboard attachment when the latter is used.

Another object of this invention is to provide an auxiliary table which is secured to the main table and which will transform the paper sheet or other flexible material gluing machine to a cardboard or other rigid or stiff sheet material gluing machine.

A further object of this invention is to provide an improved feeding means for the sheets so that either thin or thick sheets may be passed through the machine.

A still further object of the invention is to provide an improved roller assembly which will permit the transformation of the paper sheet or other flexible material gluing machine into a cardboard sheet or other heavy or rigid or still material gluing machine.

The improvements hereinafter set forth and described provide a machine having a combination of functions such as being a machine which will take care of gluing of thin flexible materials

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as well as heavier and rigid materials up to as much as $\frac{7}{16}$'' in thickness without any mechanical changes being required, adjustment for the different thicknesses being accomplished merely by turning knobs.

With the foregoing objects in view, and others which may hereinafter more fully appear, the invention consists of the novel construction, combination and arrangement of parts, as will be more specifically described, and illustrated in the accompanying drawings wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention, as claimed.

In the drawings:

Figure 1 is a detail side elevation, partly broken away, of a gluing machine constructed according to an embodiment of this invention.

Figure 2 is a plan view, partly broken away, and in section, of the machine.

Figure 3 is a longitudinal section through the machine.

Figure 4 is a fragmentary side elevation of the machine opposite from the side shown in Figure 1.

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Referring to the drawings the numeral 10 designates generally a frame structure having mounted at the upper end thereof a glue receptacle generally designated as 11. The receptacle 11 includes a bottom wall 12, opposite side walls 13 and 14, and opposite end walls 15 and 16. The receptacle 11 is open at the top and is adapted to be closed at the top by means of a flat table 17. The table 17 is secured to a pair of pivoted side members 18 which are of like construction. Each side member 18 includes an elongated body 19 formed with an ear 20 at the rear thereof through which a pivot bolt 21 engages so that the table 17 may be raised in order to provide for filling of the receptacle 11. The body 19 is provided with a forwardly extending arm 22 which engages over the upper side of the table 17. A pair of elongated bars 23 are disposed on the lower side of the table 17 adjacent each longitudinal edge, and are secured to the table 17 by fastening members 24.

The arm 22, as shown in Figure 1, is upwardly

offset from the lower edge of the body 19, and the bar 23 has the lower side thereof substantially co-planar with the lower edge 24 of the body 19. The forward end of the table 17 is downwardly bent, as indicated at 25, and provides a guide means in addition to a guard for the motor which, as will be hereinafter described, is positioned below the projecting end of the table 17.

The body 19 is formed with a guide slot 26 which is inclined to the vertical, and within which the bearing 27 for a feed roller 28 is adapted to rotatably engage. A bushing 29 is secured by fastening members 30 to the cutout 31 formed in the body 19, and a roller tensioning nut 32 is threaded on a bolt 33 which is connected with the bearing 27. It will be understood that the bearing 27 is spring-pressed to paper-engaging position, and the nut 32, which is threaded on the bolt 33, is adapted to provide the necessary adjusting means for adjusting the bearing 27.

The feed roller 28 is disposed at the forward end of the table 17, and is disposed closely adjacent a gluing roller 34 mounted on a shaft 35. The shaft 35 is journalled through the side walls 13 and 14, and has secured to one end thereof, a gear 36. The gear 36 meshes with a driving gear 37 of relatively small diameter which is mounted on a shaft 38 carrying a driving pulley 39. The pulley 39 has trained thereabout a belt 40 which is also trained about a pulley 41 carried by a motor shaft 42. The motor shaft 42 is operated by a motor 43 which is secured to a bracket 44 extending from the front wall 15 of the frame structure.

The roller 34 is adapted to engage within glue 45 which is mounted in the receptacle 11, and the glue picked up by the roller 34 is adapted to be partially removed by means of a roller 46 mounted on a shaft 47. The shaft 47 is journalled between the side walls 13 and 14 and has secured thereto a gear 48 which meshes with a small gear 49 fixed to the roller shaft 35. The shaft 47 is rotatably carried by a pair of bearing blocks 50 which are horizontally slidable and adjustable in a guide means 51 formed in the side walls 13 and 14. The guide means 51 is in the form of a horizontal flange extending laterally from each side wall and the bearing block 50 is slidable on the upper side of the flange 51. A rod 52 is fixed at one end of the bearing block 50 and extends rearwardly through the rear wall 15 of the receptacle 11, and has threaded thereon a nut or tensioning member 53.

A spring 54 is disposed about the rod 52 and bears at one end against a collar 55 which is fixed to the rod 52 and bears at its opposite end against a washer 56 loosely disposed about the rod 52. A pair of pressure rollers 57 and 58 are secured to shafts 59 and 60 respectively, which are journalled in vertically adjustable bearings 61 and 62. The bearings 61 and 62 are carried by each of the side members 18, and are spring-pressed downwardly by means of springs 63 and 64 respectively which are disposed about bolts 65 and 66 respectively. The bolts 65 and 66 extend through bosses 67 and 68 secured to the upper edge of the side members 18, and adjusting nuts 69 and 70 are threaded on the bolts 65 and 66 and are adapted to be locked in adjusted position by lock nuts 71 and 72.

The shaft 59 has secured to one end thereof a gear 73 and the shaft 60 has secured to one end thereof a gear 74. The shaft 35, at the end thereof opposite from the gear 36, has secured thereto a gear 75, with which a gear 76 rotatably carried by the side member 18 meshes. An idler gear 77 meshes with gear 76 and also meshes with both of the gears 73 and 74.

In order to provide a means whereby heavy cardboard or other heavy fibrous sheets may be glued in this machine, I have provided an auxiliary table 78 which is disposed over the paper sheet table 17. The table 78 is secured by fastening members 79 to the arms 22 and spacer members 80 are disposed between the two tables 17 and 78 forwardly of the arm 22, and maintain the forward portion of the upper table 78 in parallel relation with the lower table 17. Fastening members 81 detachably secure the upper table 78 above the lower table 17. The spacer members 80 may be firmly secured in any suitable manner to the upper side of the lower table 17, adjacent the opposite longitudinal edges thereof.

The glue receptacle 11 has extending therefrom, from one side thereof, a discharge nipple 82 which is normally closed by a cap 83 pivotally secured as at 84 to an ear 85 formed on the nipple 82. A lever or handle 86 is carried by the cap 83, and provides a means whereby the cap 83 may be moved to an open position to permit the gravitating discharge of the glue from the receptacle 11.

When the papers or other sheets are passing through the machine engaging over the table 17, with the table 78 removed, the thin paper sheets will engage between rollers 28 and 34 and rollers 57, 58 and 34. In order to provide for lifting or removal of the glued sheet from the roller 34, I have provided a plurality of lifting fingers 87 which are secured to the shaft 88 extending between the side walls of the frame structure at a point above the receptacle 11.

In the use and operation of this device, the table 78 is removed when thin paper sheets are to be glued. These sheets move over the table 17 engaging beneath the feed roller 28. The paper will then be bent upwardly contacting with the gluing roller 34, and then engaging between the pressure rollers 57 and 58. The paper sheets are then lifted or removed from the gluing roller 34 by the lifting fingers 87.

Where a relatively heavy sheet is to be glued the auxiliary or upper table 78 is secured above the lower table 17. The heavy sheet will then pass upwardly over the feed roll 28, and between this roll and the first pressure roller 57. The sheet will then contact with gluing roller 34 and the glue from this roller will engage the lower surface of the cardboard or heavy sheet and adhere thereto.

With a machine of this kind both thin and heavy sheets can be glued it only being necessary to apply the upper table to the machine where heavy sheets are to be glued.

It will be understood that where reference has been made to paper and cardboard or thin and heavy sheets that there is comprehended, as hereinbefore set forth, flexible or rigid or stiff materials of any character for which the machine is suitable.

I claim:

A gluing machine for coating either flexible or stiff materials comprising a frame, a glue well carried by said frame, a pair of elongated side members, means pivotally mounting said members on said frame, a gluing roll carried by said frame and extending into said well, a pair of pressure rolls rotatably carried by said side members engaging said gluing roll above said well, a feeding roll on said frame forwardly of

said gluing roll, a sheet feeding table carried by said frame below said feeding roll for feeding flexible sheets onto said gluing roll below the uppermost edge thereof, and a second table removably secured on said first table for feeding stiff sheets onto the uppermost edge of said gluing roll substantially in a plane formed by the coacting areas of the surfaces of said gluing roll, said feed roll and said pressure rolls.

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