GLUE SPREADING MACHINE

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ATTORNEYS.
This invention relates to machines which are adapted to apply glue or other liquid substance to the desired faces of blanks of any material such as wood, fibre board, sheet iron, leather or the like, and more particularly to machines adapted to be utilized in the process of forming any number of laminations of materials or for the veneering of any material. For the sake of simplicity of terminology such machines are referred to herein as “glue spreading machines”.

An object of the invention is to provide an improved glue-spreading machine which is simple and compact in construction, efficient in operation, readily adjustable, and economical of manufacture and assembly.

Another object is directed to the provision of an improved glue-spreading machine which is equipped with means for mixing the glue or other liquid substance to be used thereby, and more particularly to the provision of a machine wherein the glue-mixing and glue-feeding operations may be conducted simultaneously with the glue-spreading operations of the machine and to the provision of readily accessible means to receive glue for mixing.

Another object is directed to the provision of an improved glue-spreading machine equipped with means for regulating the film of glue or other material applied to the blanks, and more particularly to the provision of readily adjustable means for controlling the position of scraper rolls or other regulating members with respect to the spreader rolls.

Another object is directed to the provision of a construction wherein ready access may be had to the machine for cleaning or adjusting the same, and more particularly to the provision of readily operable means for moving the scraper rolls or other regulating members to one side of their operative position.

Other objects of the invention will in part be obvious and in part appear hereinafter.

This invention accordingly comprises the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the constructions herein-after set forth and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description of a preferred embodiment illustrative of the invention taken in connection with the accompanying drawings, in which:

Figure 1 is an elevation of the machine from the side at which the blanks are delivered for feeding, certain portions of the machine being cut away;

Fig. 2 is a vertical section along the line 2—2 of Fig. 1, viewed from the left of that figure;

Fig. 3 is a vertical section along the line 3—3 of Fig. 1, also viewed from the left;

Fig. 4 is an elevation of the left-hand end of a portion of the machine of Fig. 1, partly broken away;

Fig. 5 shows, on an enlarged scale, and viewed from above a section taken diagonally along the line 5—5 of Fig. 1, the bottom of Fig. 5 corresponding to the left-hand end of Fig. 1;

Fig. 6 is an enlarged detail view, partly in section, taken from the left-hand end of the machine of Fig. 1, showing the end of the upper glue-trough;

Fig. 7 is an elevation of a portion of the right-hand end of the machine of Fig. 1, showing the hopper for the mixing tank;

Fig. 8 shows, viewed from above, a horizontal section taken along the line 8—8 of Fig. 1;

Fig. 9 is a similar view of a horizontal section through the line 9—9 of Fig. 1;

Fig. 10 is a sectional view, somewhat similar to Fig. 8 which illustrates a type of supplemental adjusting-mechanism for a scraper-roll;

Fig. 11 is a section taken in the direction of the arrows along the line 11—11 in Fig. 10;

Fig. 12 shows a modified form of glue-supplying means; and

Fig. 13 shows a reservoir equipped with means for permitting the passage of a gaseous cooling medium through the glue therein.
members 14 and 15 on which are supported, in a manner hereinafter set forth, a pair of spreader rolls 16 and 17 adapted to receive therebetween, from a table 18, the blanks the surfaces of which are to be coated, and to spread glue or other liquid substance thereon. Adjacent these glue spreader rolls 16 and 17, respectively, there are provided glue troughs 19 and 20 from which the rolls are adapted to receive glue for applying the same to the blanks.

With a view to preparing glue for use in the glue troughs, the invention contemplates the provision of a mixing tank 21, located at the base of the machine, beneath the spreader rolls, so as to provide a compact machine, to facilitate the preparation of the glue, and to avoid the laborious and clumsy operations involved in supplying material to elevated mixing tanks such as have heretofore been used. In order to carry the prepared glue to the troughs 19 and 20, the mixing tank 21, in the present instance, is connected at 22 with a supply line extending from any suitable source of fluid pressure such as a compressed air tank, and there is formed at the other end of the tank an outlet port 23 from which a pipe 25 extends upwardly along one end of the machine, out of the path of the blanks to be glued, or otherwise coated, to a reservoir 36 supported at the top of the machine upon the frame members 14 and 15. In order to conduct glue from the reservoir 26 to the troughs 19 and 20 there is provided, in the present instance, a pipe 27, which extends downwardly from the reservoir 26 along one end of the machine so as to lie out of the path of blanks being fed between the rolls 16 and 17.

A branch pipe 28 extends laterally above the trough 19 and emptying into the center of the upper trough 19; and a branch pipe 29 extends below the trough 20 and opens at 30 into the central portion of the bottom of the trough, assuring an even distribution of glue in the troughs. Suitable valves, such as shown at 31 and 32 may, of course, be provided, to regulate the flow of glue. Suitable valve means, such as shown at 34, may be provided for closing the port 23 while glue is being mixed in the tank 21, to prevent unmixed material from clogging the port. Moreover, if a sufficient flow of glue is not provided by gravity, the reservoir 26 may be connected, as at 35, with a source of fluid pressure.

The mixing tank 21 is provided, in the present instance, with an inlet port 38 provided with a closure 39 and having adjacent to it a funnel-like supply receptacle such as the hopper 40 to which material can be transported in any desired manner, as by means of a floor truck, with the utmost ease. The hopper 40 is preferably provided with a cover 41 which is supported on a yoke 42 (see Fig. 7) swinging on a pivot 43 and formed with a suitable catch such as shown at 44. Preferably the cover is arranged to be clamped tightly in place by a screw 46 operated by means for a hand wheel 47. Within the mixing tank there are provided, in the present exemplification, a plurality of radial mixing arms 50 mounted on a rotatable shaft 51 and also two blades 52 extending the length of the mixing tank and supported, in a position to clear the radial arms 50, by arm 53 mounted on a tubular shaft 54 at one end of the tank and by arms 55 mounted on a transmission 56 at the other end. In order to rotate the shafts 51 and 54 in opposite directions, these members are operatively connected respectively by means of worm gears 57 and 58 to worms on vertical shafts 59 and 60 which carry intermeshing gears 61 and 62. The vertical shaft 60, in the present instance, has a radially keyed to its upper end the male member 65 of a gear type clutch, the female member 64 of which is formed on the lower face of a bevel gear 63 carried on the lower end of another vertical shaft 66. The latter shaft has an enlarged head 67 formed at its upper end and is held in place by means of a frame member 68. The slidable clutch-member 63 is operated by means of a lever 69 pivoted at 70 and provided with suitable means, such as a spring-pressed ball 71 adapted to rest in either of two sockets 72 and 73, to hold the lever in its adjusted positions. The bevel gear 65 meshes with a bevel gear 74 carried on a shaft 75 which is operated by any suitable source of power.

As will be seen the exemplified mixing means will act upon the various components of a glue, such as dry glue and water, to produce a homogeneous, somewhat viscous, fluid; and the invention contemplates the provision of apparatus, which, as will be understood, may be of any desired type, capable of acting as glue mixing means, i.e., means which is adapted to transform dry and liquid ingredients of a glue into a homogeneous fluid mass.

With a view to operatively connecting the rolls 16 and 17 with the driving shaft 75, the head 67 of the shaft 66 is formed to provide a female member 78 of a gear type clutch, the male member 79 of which is slidable mounted on a vertical splined shaft 80. In order to operate the slidable clutch-member 79, there is provided a lever 81 pivoted at 82 and equipped with suitable means such as a spring-pressed ball 83 adapted to fit in sockets 84 and 85 to hold the lever in its adjusted positions. On the shaft 80 there is carried a worm 88 with which there meshes a worm gear 89 carried on the shaft 90 of the lower spreader roll 17; these members being arranged (as will be seen from Fig. 4) to rotate the roll 17 in a counter-clockwise direction when viewed from the left of Fig. 1.
The shaft 90 is revolvably mounted, by means of mounting members 90' on the frame members 91 and 92. With a view to preventing the roll 17 from carrying glue upwardly along its ends, there are provided members such as shown at 93 extending over the top of the lower glue trough at either end thereof between the ends of the roll and the end portions of the member 94, which serves to provide the walls of the trough.

The upper spreader roll 16 is carried on a shaft 95 which is rotatably mounted, by means of removable mounted members 96, upon an independent frame member 97. With a view to permitting the vertical adjustment of the upper roll 16 and its associated members with respect to the lower roll 17 so as to adapt the same for use with blanks of varying thickness, the member 97 is slidably mounted for vertical adjustment on vertical shafts 98 and 99 which are rotatably held in the frame members 14 and 15, respectively. In the present instance, the member 97 is formed with lugs 100 and 101 which receive the upper ends of shafts 98 and 99 and are supported thereon by means of nuts 102 and 103 which are screw-threaded on the shafts 98 and 99, respectively; and the shafts are arranged to be rotated through the medium of bevelled gears 104 and 105 on the vertical shafts, and bevelled gears 106 and 107 on a transverse shaft 108 which is adapted to be rotated by means of a hand wheel 109. The nuts 102 and 103 are normally prevented from rotating by means of removable blocks, such as 109 (see Figs. 2 and 5) having fluted grooves 109' which key with fluted surfaces on the nuts. Springs 110 and 111 are interposed between the frame member 97 (which supports the upper spreader roll) and the nuts 102 and 103, to permit the upper roll to yield when a blank is being fed between it and the lower roll, so as to provide any required pressure upon the blank by the upper roll, this pressure being regulated by the adjustment of the position of the independent frame member 97 carrying the upper spreader roll. Upon removal of the blocks 109, and by the manual adjustment of one or the other of the nuts 102 and 103, the alignment of the upper spreader roll 16 may be regulated. The independent frame member 97 comprises end pieces 112 and side pieces 113 and 113', which, together with the spreader roll 16, provide the walls for the upper glue trough 19.

The upper spreader roll 16 is arranged for rotation in a clockwise direction (Fig. 4) in response to the rotation of the shaft 80; the shaft 95 of the roll being provided for this purpose with a worm gear 114 meshing with a suitable worm 115 which is held within a casing 115', forming a part of the frame member 97, and is slidably fitted on the splined shaft 80.

In accordance with the usual practice, there are provided adjacent the rolls 16 and 17 upper and lower spreader rolls 116 and 117 positioned, respectively, beneath a longitudinal opening 118 in the bottom of the trough 19, and adjacent the top of the trough 20, and adapted to be rotated, in the present instance, in a direction opposite to their respective spreader rolls, by suitable means.

As exemplified, the shaft 119 of the upper spreader roll carries, at the right-hand end of the machine of Fig. 1, a pinion 120 (see Fig. 8) which meshes with the inner gear surface 121 of a combination ring gear 122, the outer gear surface 123 of which meshes with a gear 124 carried by the shaft 99 of the upper spreader roll 16; and the shaft 125 of the lower spreader roll carries, at the left-hand end of the machine of Fig. 1, a pinion 129 (see Fig. 4) which meshes with the inner gear surface 130 of a combination ring gear 131, the outer gear surface 132 of which meshes with a gear 133 carried by the shaft 90 of the lower spreader roll.

In order that the charge of glue to the spreader rolls may be properly controlled, the exemplified spreader rolls are adjustably mounted. With this in view, each of the bearings 134 of the upper spreader roll shaft is formed with a tubular arm 135 (see Fig. 8) within which a spring 136 presses outwardly against an insert 137. These inserts carry guide-pins 138 which extend into two guide-slots 139 in each tubular arm, and into each insert is threaded a screw 140 which is rotatably mounted in a yoke 141 serving to support the spreader rolls and their associated mechanism. As will be apparent the springs 136 serve to press the spreader roll toward the spreader roll and the screws 140 serve to move the former toward or away from the latter so as to reduce or increase the charge of glue applied to the blanks by the spreader rolls. Each of the screws 140 has at its head a bevel gear 142 which meshes with a bevel gear 143 carried on a rotatable shaft 144 extending lengthwise of the machine and equipped with a hand wheel 145. The assembly is carried by bearings 146 in lugs 147 extending from the independent frame member 97. In order normally to prevent movement of the bearings 134, each of them is formed with a projection 148 which fits into a recess 149 in an arm 150 which, in the present instance, forms a part of the independent frame member 97; and with a view to preventing close contact and possible binding between the rolls 16 and 116, there is provided in each arm 150 a set screw 151 bearing against the corresponding projection 148 and adjustable to assure the desired clearance between the two rolls, as well as the proper alignment of the spreader roll.
With a view to closing the end of the gap between the upper spreader roll and its scraper roll, there are provided on the ends of the scraper roll shaft 119 discs 122 (see Fig. 5), which are pressed against the ends of the roll by means of springs 153. There is also provided above the scraper roll a blade 154 (Figs. 3 and 6) which is adjustably supported on the frame member 113 in any suitable manner, as by bolts 155, a pivotal plate 156, and adjustable bolts 157, and serves partially to close the opening 118 at the lower side of the trough and to clean the scraper roll 116 as it rotates.

The lower scraper roll shaft 125 is carried by the table 18 and is provided with adjusting mechanism which is similar to that provided in connection with the upper scraper roll shaft 119 and the parts of which are designated by similar reference numerals. In this case the recesses 149 are formed in frame members 158 (see Fig. 9).

If desired, there may be provided additional adjusting mechanism intermediate to the ends of the scraper rolls, one such arrangement, as applied to the scraper roll 116, being shown in Figs. 10 and 11, where there is exemplified an annular segment 100 adapted to bear against the scraper roll and having pointed ends 161. On the segment there is mounted a tubular arm 135 and connecting mechanism similar to the connection for the bearings 152 (see Fig. 8) and having similar reference numerals applied thereto.

When scraper rolls such as heretofore described are employed in connection with a glue spreading machine, difficulty is ordinarily experienced in gaining access to the spreader rolls and their associated parts in order to clean the machine, since the scraper rolls are ordinarily so mounted that they can be removed only with difficulty.

With a view, therefore, to permitting the ready removal of the upper scraper roll 116 from its normal position, the yoke 141 which carries the upper scraper roll and its associated parts, is mounted by means of arms 103, to swing on the trunnions 146, as seen in Fig. 8. In order to swing the roll 116 outwardly so as to permit ready access to the underside of the spreader roll 16 and the trough 19, all that is necessary is to turn the hand wheel 145 sufficiently to carry the projections 148 out of the recesses 149, and then to move the scraper roll shaft 119 in a direction toward the left of Fig. 1 so as to draw the pinion 120 out of mesh with the internal gear 121. For the purpose of effectuating this movement there is provided in the exemplified construction a lever 164 (see Fig. 2) pivoted at 165 and provided with a forked end 166 which rests in a groove 167 (see also Fig. 5) in the left-hand end of the scraper roll shaft 119.

Preferably there is provided a catch screw 168 which prevents accidental displacement of the lever.

With a view to permitting the table 18, which carries the scraper roll 117 and its associated mechanism, to be swung upwardly and outwardly to permit ready access to the lower scraper roll and glue trough, the table is mounted by means of lugs 169 to be swung on a shaft 170 so that when the projections 148 are withdrawn from the recesses 149 in the member 158 by the rotation of the lower hand-wheel 145, and the pinion 129 then drawn out of mesh with the internal gear 120 by movement of the scraper roll shaft 125 in a direction toward the right of Fig. 1, the table 18 and the parts carried thereby may be readily swung to the side of the machine.

For the purpose of withdrawing the pinion 129 from the gear 130, there is provided at the right-hand end of the table 18 a lever 172 (Figs. 3 and 9) pivoted at 173, having a forked end at 174 resting in a groove 175 on the scraper roll shaft 125, and provided with a catch screw 176. If desired, the table 18 may be provided with removable cover member, such as shown at 176" (Fig. 3), to enable the operator to look at the glue trough without swinging the whole table.

If desired, suitable heating chambers may be provided against one or more of the glue-containing parts; there being provided, in the present instance, a heating chamber 177 (Fig. 3) adjacent the lower half of the mixer tank 91, a chamber 178 adjacent the base of the lower glue trough 20, and a chamber 179 at one side of the upper glue trough 19. These chambers may, of course, be connected with any suitable source of heat, or they may be replaced by other types of heating means.

In many instances, and particularly when fluid pressure means are employed to carry the glue from a reservoir to the glue troughs, it is desirable to provide a plurality of reservoirs. To this end there may be employed an arrangement such, for example, as shown in Fig. 12, wherein there are provided two reservoirs 26" and 26", both of which are provided with inlet connections to a pipe such as 25 and outlet connections with a pipe such as 27, and suitable controlling valves so as to permit one reservoir to be connected with the glue-trough supplying pipe while the other is connected to and filled from the mixer. As indicated in this figure, a fluid pressure supply tank 180 may be readily mounted upon a pair of reservoirs such as 26" and 26" and suitably connected therewith.

If it is desired to cool the glue in a reservoir, the reservoir may be provided with suitable connections to a source of a gaseous cooling medium, such, for example, as compressed air and with suitable means to permit the escape of gas therethrough. One such arrangement is shown in Fig. 13, wherein...
a reservoir 26 is formed adjacent its bottom with suitable air inlets 181 through which air or other gas may be permitted to filter so as to cool the glue in the reservoir to a temperature such as may be desired. In the top of the reservoir 26 there may be provided a suitable dome such as shown at 182, equipped with an opening 183, through which the cooling air may escape from the reservoir.

The mode of operation of the machine will be readily apparent from the foregoing. Suitable material is introduced into the mixing tank 21, through the hopper 40, which is so positioned that material can readily be introduced therein from the floor on which the machine rests. When the tank has been sufficiently filled, the clutch 69 is thrown in and the glue mixed to a suitable extent. Thereupon fluid pressure is applied to the mixing tank through the connection at 22, and the glue forced from the tank through the conduit 25 to the reservoir 26, thereby placing a supply of glue in the reservoir. Glue may be conducted from the reservoir to the glue troughs 19 and 20, as required, by the adjustment of the valve 32. The glue may be refilled and reoperated and the supply in the reservoir 26 augmented from time to time without in any way interfering with the performance of continuous glue-applying operations by the machine.

The upper spreader roll may be suitably positioned for the gluing of any desired type of blank introduced between the spreader rolls from the table 18, by the adjustment of the nuts 102 and 103; and the scraper rolls may be suitably positioned by the adjustment of the hand wheel 145, and, if necessary, of the screws 151, so as to operate with a maximum of efficiency under the particular conditions to be found in the ensuing operations. The machine thus being in readiness to operate, the clutch 81 is thrown in and blanks introduced between the spreader rolls from the table 18, the machine being adapted to operate continuously and with a minimum of attention. When thereafter the operation of the machine is stopped and it is desirable to clean the machine, the upper and lower hand wheels are turned sufficiently to move the projections 149 out of the recesses 149, and the levers 164 and 178 operated to disconnect the gearing, whereupon the yoke 141 and the table 18 may readily be swung outwardly on their pivots so as to permit easy access to the spreader rolls and the parts of the machine associated therewith.

When desired, a suitable air-compressor unit, to provide fluid pressure for use in the transfer of glue and/or for the cooling of the glue, may be operatively connected with the driving means of the machine.

It is to be understood that the term "glue" as used herein is intended to include all liquid substances such, for example, as glue, paint, or other liquid-coating materials, which it may be desired to apply to the surfaces of blanks of any material for any purpose.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a glue-spreading machine, the combination of means providing a glue mixing chamber, a pair of spreader rolls above said chamber, a pair of reservoirs above said spreader rolls, valved means to conduct glue from said mixing chamber to one or the other of said reservoirs, fluid pressure means to force glue through said conducting means, and other valved means to conduct glue from one or the other of said reservoirs to said rolls.

2. In a glue-spreading machine, the combination of a spreader roll, a scraper roll, means providing bearings for said scraper roll, screw means to move each of said bearings toward and away from said spreader roll, an adjusting element, and means connecting each of said screw means with said adjusting element for simultaneous actuation thereof.

3. In a glue-spreading machine, the combination of a pair of spreader rolls, means to supply glue to each of said spreader rolls, a scraper roll associated with each spreader roll, adjusting mechanism to regulate the position of each scraper roll with respect to its associated spreader roll, and means associated with each adjusting mechanism and tending to press said scraper rolls toward their respective spreader rolls, said pressing means being yieldable to permit the scraper roll to ride over obstructions picked up by the spreader roll.

4. In a glue-spreading machine, the combination of a spreader roll, a scraper roll associated therewith, adjusting mechanism at each end of said scraper roll for adjusting the position thereof with respect to the spreader roll, supplementary adjusting mechanisms intermediate the aforesaid adjusting mechanisms, an adjusting element, and means whereby the said adjusting mechanisms are operated simultaneously by actuation of said adjusting element.

5. In a glue-spreading machine, the com.
combination of a spreader roll, means to supply glue to said spreader roll, a scraper roll associated with the spreader roll, bearings for the scraper roll, and means to mount said bearings for pivotal movement on an axis extending along one side of the machine to permit the scraper roll to be swung to a position at the side of the machine.

6. In a glue-spreading machine, the combination of a spreader roll, means to supply glue to the spreader roll, a scraper roll associated with the spreader roll, means to adjust the position of said scraper roll with respect to said spreader roll to regulate the film of glue carried by said spreader roll, means to mount said scraper roll to permit the same to be swung outwardly away from said spreader roll toward one side of the machine, locking means normally preventing a swinging movement of said scraper roll, and means comprising said adjusting mechanism for releasing said locking means.

7. In a glue-spreading machine, the combination of a spreader roll, means providing a glue trough adjacent the bottom of said spreader roll, a table for feeding blanks to said spreader roll, a scraper roll carried by said table, and means to mount said table to permit the table and the scraper roll carried thereby to be swung outwardly from said spreader roll toward the side of the machine.

8. In a glue-spreading machine, the combination of a spreader roll, a scraper roll associated therewith, adjusting mechanism adapted to move said scraper roll against said spreader roll, and means for limiting the extent of movement of said scraper roll toward said spreader roll, and means for adjusting the position of said limiting means.

9. In a glue-spreading machine, the combination of a pair of spreader rolls, adjusting mechanism associated with one of said spreader rolls, means to operate said adjusting mechanism to move the spreader roll associated therewith toward and away from the other spreader roll, and means forming a part of said adjusting mechanism for regulating the alignment of said one of said spreader rolls with respect to the other.

10. In a glue-spreading machine, the combination of a pair of spreader rolls, adjusting mechanism associated with one of said spreader rolls, means to operate said adjusting mechanism to move the spreader roll associated therewith toward and away from the other spreader roll, and resilient means associated with said adjusting mechanism for resiliently supporting the adjustable spreader roll.

11. In a glue-spreading machine, the combination of a main frame, a spreader roll rotatably mounted on said main frame, an independent frame member, a second spreader roll rotatably mounted on said independent frame member, a plurality of uprights carried on said main frame adjacent the ends of said second spreader roll, and adjusting mechanism associated with each of said uprights for mounting said independent frame member thereon.

12. In a glue-spreading machine, the combination of glue mixing means, a spreader roll, a source of power, means to connect said mixing means and said spreader roll with said source of power for simultaneous operation, means to disconnect said mixing means from said source of power, and means to disconnect said spreader roll from said source of power.

13. In a glue-spreading machine, the combination of a spreader roll, means to supply glue to the spreader roll, a scraper roll associated with the spreader roll, a gear and a pinion connected with said scraper roll and meshing with said internal gear to rotate the scraper roll in response to the rotation of the spreader roll, means to mount the scraper roll to permit the same to be swung outwardly from said spreader roll toward one side of the machine, means to move said pinion out of said internal gear prior to such swinging movement, means normally to prevent the operation of the last-mentioned means, and means to release said operation-preventing means.

14. In a glue-spreading machine, the combination of a driven shaft, glue mixing means, means including a clutch to connect said glue mixing means with said driven shaft, a second shaft, means including a clutch for connecting said second shaft to said driven shaft, scraper rolls extending at an angle to said second shaft, means on the second shaft to drive said scraper rolls, means adjustable on said shaft to drive the other of said scraper rolls, a scraper roll associated with each of said scraper rolls, and means to drive said scraper rolls in response to the operation of said scraper rolls.

15. In a glue-spreading machine, the combination of upper and lower spreader rolls, glue troughs for said spreader rolls, means providing a mixing chamber below the lower spreader roll, means to conduct the glue from said mixing chamber to said troughs, means controllable to connect said spreader rolls with a source of power, mixing means in said mixing chamber, means to connect said mixing means with said source of power, means to mount said upper spreader roll for adjustment with respect to said lower spreader roll, means including a manually operable element for adjusting said upper spreader roll, a scraper roll associated with each of said spreader rolls, means including manually operable elements for adjusting the position of each of said scraper rolls with respect to its spreader roll, means...
to mount each of said scraper rolls to permit the same to be swung outwardly from its spreader roll, locking means normally to prevent a swinging movement of the scraper rolls, and means comprising said adjusting means for releasing said locking means.

10. In a glue-spreading machine, the combination of upper and lower spreader rolls, means providing a trough adjacent an upper surface of the upper spreader roll, means providing a trough adjacent the lower surface of the lower spreader roll, means providing a cover for the end portions of the latter trough, means providing a mixing chamber beneath the lower spreader roll, means to conduct glue from said mixing chamber to said troughs, a scraper roll for regulating the film of glue carried by the lower surface of the upper spreader roll, a scraper roll for regulating the supply of glue carried by the upper surface of the lower spreader roll, adjusting means for each of said scraper rolls and adapted to move the same toward and away from its respective spreader roll, means associated with each of said adjusting means and tending to press the associated scraper roll against its respective spreader roll, means associated with one of said scraper rolls for sealing the gap between said scraper roll and its respective spreader roll at the ends thereof, and means to move each of said scraper rolls and the mechanism associated therewith from an operative position to a position toward one side of the machine to permit ready access to the interior portions of the machine.

17. In a glue-spreading machine, in combination, an upper and a parallel lower glue-spreading roll, one of them mounted for yielding in a direction away from the other, and one of them positively adjustable towards and away from the other, a glue trough for each scraper roll, a chamber containing glue-stirring means, and means for conducting glue from said chamber to said troughs, a scraper roll yieldingly pressed towards each of said spreader rolls and positively adjustable towards and away from its spreader roll, and power-driven means for simultaneously actuating all of said rolls and said stirring means.

18. In a glue-spreading machine, in combination, a power-driven main shaft, a counter-shaft adjustable towards and away from the main shaft, a scraper roll carried by said countershaft, a transverse shaft, bevelled gearing through which the main shaft drives the transverse shaft; a worm-gear fast on said countershaft; a worm slidably carried on said transverse shaft; and means for maintaining said worm in mesh with said worm-gear.

19. In a glue-spreading machine, the combination of glue mixing means adjacent the base of the machine, a spreader roll above said mixing means, a reservoir above said spreader roll, means to conduct glue from said mixing means to said reservoir, means to supply glue from said reservoir to said spreader roll, a source of power, means to connect said mixing means and said spreader roll with said source of power for simultaneous operation, means to disconnect said mixing means from said source of power, and means to disconnect said spreader roll from said source of power.

20. In a glue-spreading machine, the combination of means providing a glue-mixing chamber at the base of the machine, glue-mixing means within said chamber, means to permit the introduction to said chamber from the floor on which the machine rests of gluing material to be mixed, a pair of spreader rolls positioned above said chamber and adapted to receive blanks therebetween to apply glue thereto, a reservoir above said spreader rolls, means to conduct the glue from said chamber to said reservoir, means to supply glue from said reservoir to each of said rolls, a source of power, means to connect said mixing means and said spreader rolls with said source of power for simultaneous operation, means to disconnect said mixing means from said source of power, and means to disconnect said spreader rolls from said source of power.

21. In a glue-spreading machine, the combination of means providing a glue-mixing chamber at the base of the machine, means adjacent the base of the machine and adapted for the reception into said chamber of the gluing material to be mixed, glue-mixing means within said chamber, a spreader roll positioned above said chamber, a glue trough associated with said roll, a reservoir above said glue trough, means to conduct glue from said chamber to said reservoir and from said reservoir to said glue trough, a source of power, means to connect said mixing means and said spreader roll with said source of power for simultaneous operation, means to disconnect said mixing means from said source of power, and means to disconnect said spreader roll from said source of power.

22. In a glue-spreading machine, the combination of a spreader roll, a scraper roll, means providing bearings for said scraper roll, a screw to move each of said bearings toward and away from said spreader roll, a bevel gear at the end of each screw, a shaft transverse to said screws, bevel gears on said shaft meshing with the aforesaid bevel gears, and means for rotating said shaft to operate said screws.

23. In a glue-spreading machine, the combination of a spreader roll, means to supply glue to said spreader roll, a table for feeding blanks to said spreader roll, a scraper roll carried by said table, and means to mount said table to permit the table and scraper roll car-
ried thereby to be swung outwardly from said spreader roll toward the side of the machine.

24. In a glue-spreading machine, the combination of a spreader roll, a scraper roll associated therewith, means providing bearings for said scraper roll, means to adjust the position of said bearings with respect to the axis of the spreader roll, stationary means interposed between said bearings and the axis of the spreader roll, and screws carried by said stationary means and arranged for adjustment to limit the extent of movement of each of said bearings toward said spreader roll, each of said screws being independently adjustable.

25. A machine of the character described, comprising a base adapted to rest on a floor, a glue-mixing chamber disposed directly adjacent said base, glue mixing means within said chamber, a hopper extending from one side of said chamber and arranged to receive materials transported along said floor, a spreader roll above said chamber, a glue trough adjacent said spreader roll, a second spreader roll above the aforesaid spreader roll, a glue trough adjacent said second spreader roll, a reservoir above said second spreader roll, means to conduct glue from said mixing chamber to said reservoir, and means to conduct glue from said reservoir to each of said glue troughs.

In testimony whereof I affix my signature.

ALFRED WILLIAM RAETTIG.