June 13, 1950 J. M. MINKOW 2,511,781

GLUING MACHINE

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Fig. 1.

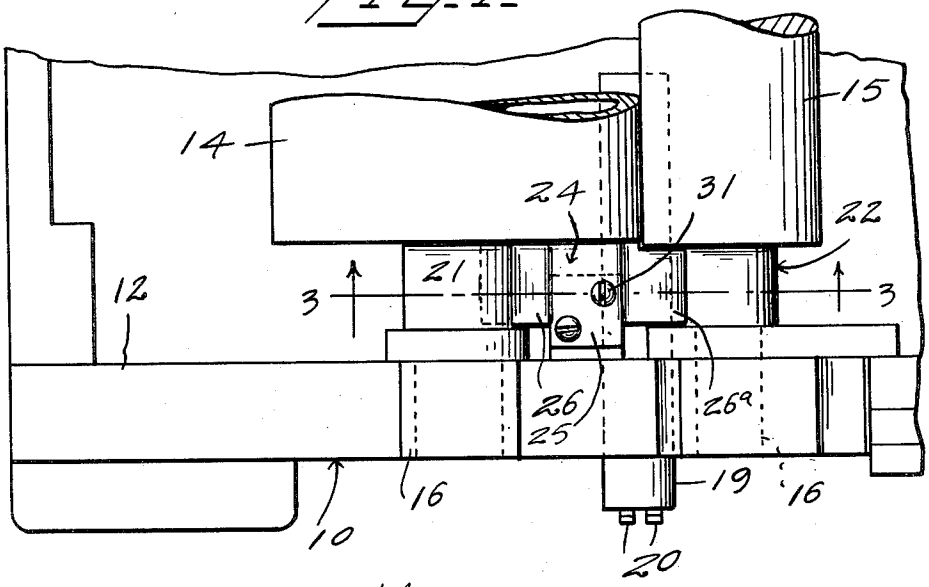
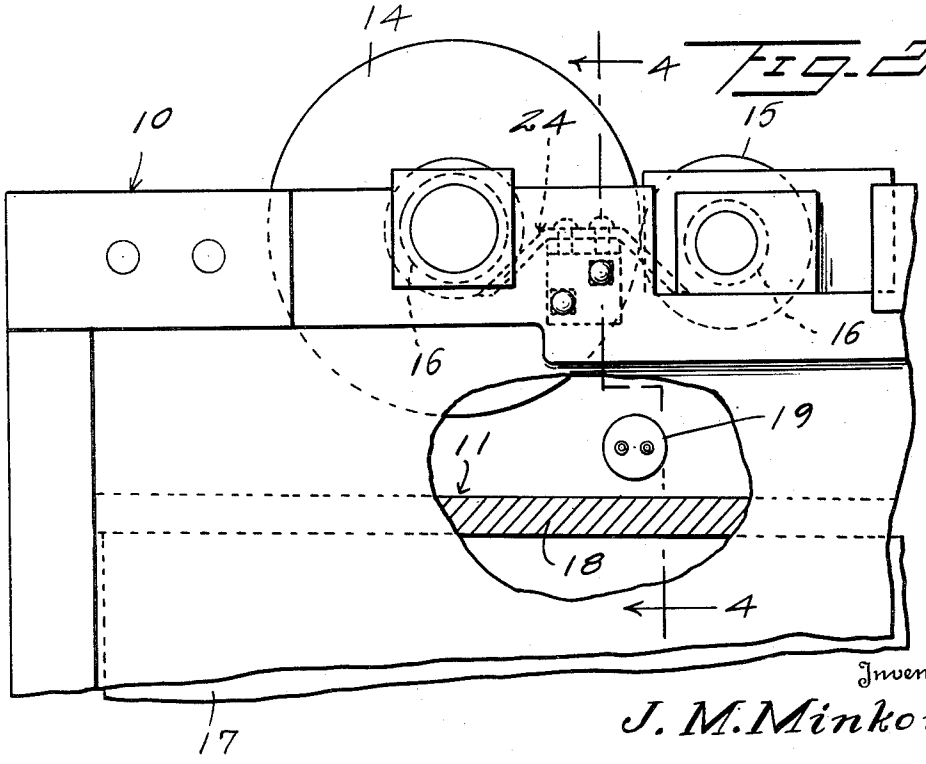


Fig. 2.



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FIG. 3.

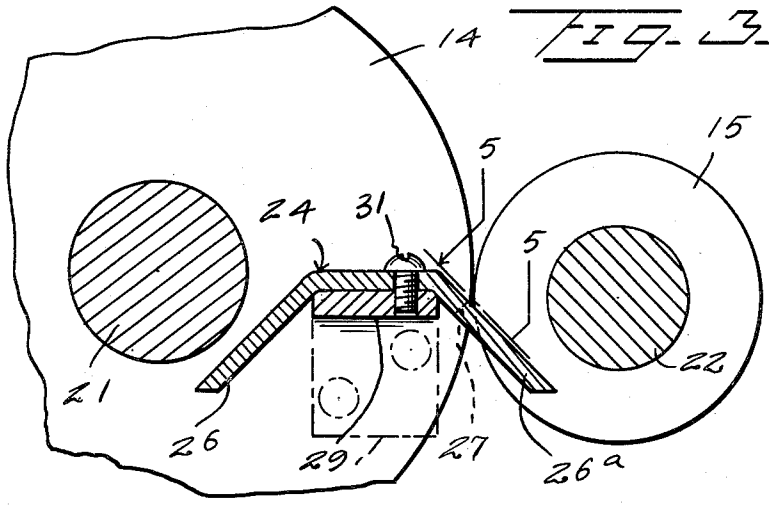


FIG. 4.

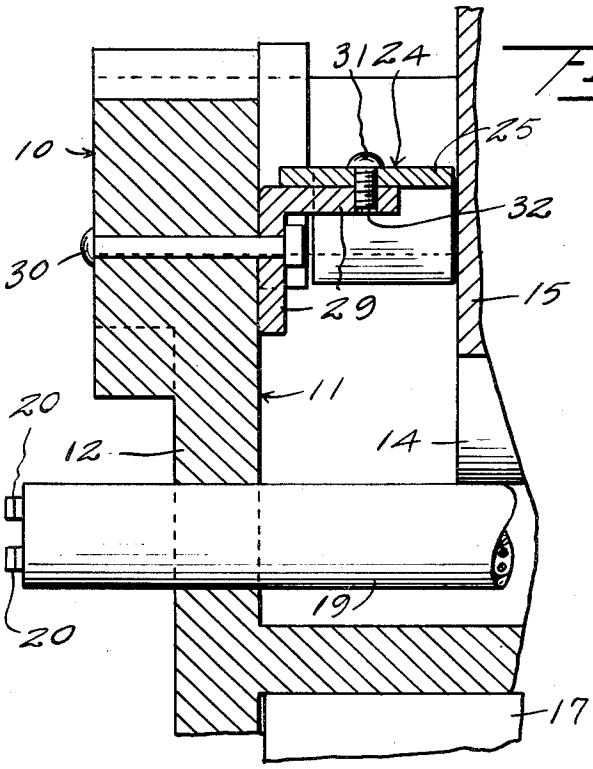


FIG. 6.

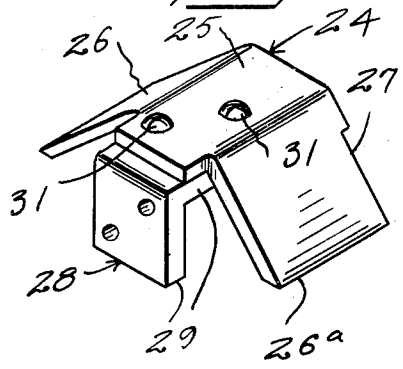
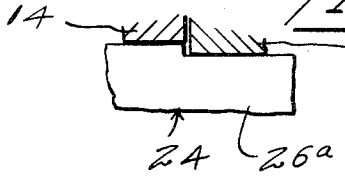


FIG. 5.



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UNITED STATES PATENT OFFICE

2,511,781

GLUING MACHINE

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Application January 13, 1947, Serial No. 721,783

2 Claims. (Cl. 91—51)

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This invention relates to guards for gluing machines of the type disclosed in my Patent Number 2,461,388, issued February 8, 1949, entitled Gluing machine.

In gluing machines for gluing sheets of material such as paper, cardboard, corrugated board or the like, there are provided a large gluing roller and a wiping roller for removing excess glue from the large roller and for gauging the glue coating which remains on the large gluing roller. During the rotation of these rollers a quantity of glue will always run over the ends of the rollers and will in a short time clog up the roller shafts and bearings. In order to overcome this condition a wiper is supported at each end of the two rollers which contacts both rollers at their ends and returns the excess glue to the reservoir.

Another object of this invention is to provide a side scraper for a roller or the rollers of a gluing machine, which will scrape the excess glue from the side or sides of the roller or rollers and will lead this excess glue directly back into the glue tank so that the glue has no chance of being transferred to the hubs of the rollers and thence into the bearings of the rollers.

Another object of this invention is to provide an improved means for maintaining the glue at the correct temperature. This is accomplished by mounting a thermostatic switch directly beneath the vertical plane of the contacting point between the two gluing rollers. Inasmuch as glue is a very poor conductor of heat, the exact position of the heat regulator is very important in order that the temperature of the glue may be properly maintained. Heaters for the glue are normally beneath the bottom of the reservoir, but the thermostatic regulator for the heater must be properly placed within the reservoir so that the glue coming into contact with the dipping roller will at all times be maintained at the same predetermined temperature and will not be either too hot or too cold.

I have discovered that if the glue at the part of the supply thereof where it is picked up by the dipping roller is maintained at the temperature which has been predetermined as the desired temperature for the entire supply of glue in the machine, the entire problem of maintaining the working temperature of the glue is solved as the temperature of the glue at this pick up point is the critical temperature of the entire supply of glue because that part of the glue supply is what is being steadily used by the machine. Some of the glue picked up at this point is used,

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according to the doctor roll setting, and the excess is returned to the supply tank at about the point of pick-up, glue from the rest of the tank being always drawn to this pick up point and consequently this is the point of greatest circulation of the glue. Therefore maintaining the right temperature at this spot always keeps the glue being immediately used at the correct temperature.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a fragmentary top plan of a gluing machine constructed according to an embodiment of this invention,

Figure 2 is a fragmentary side elevation, partly broken away,

Figure 3 is a transverse section taken on the line 3—3 of Figure 1,

Figure 4 is a section taken on the line 4—4 of Figure 2,

Figure 5 is a fragmentary section taken on the line 5—5 of Figure 3,

Figure 6 is a perspective view of the scraper removed from the gluing machine.

Referring to the drawings, the numeral 10 designates generally a gluing machine of the kind more specifically described in my Patent Number 2,461,388, issued February 8, 1949, entitled Gluing machine, having a glue well 11 formed therein. The gluing machine 10 is formed with a pair of opposite side walls 12 between which are rotatably supported a gluing roller 14 and a doctor roller 15 in engagement with the gluing roller. The opposite reduced ends 21 and 22 of each of the rollers 14 and 15, respectively, comprise bearing members which are journaled in bearings 16 fixed in opposite side walls of the gluing well 11 near the upper edge thereof.

The gluing roller 14 is of relatively large diameter and so disposed that the bottom edge of roller 14 will be partially submerged in the gluing material in the well 11. The doctor roller 15 engages the side of the gluing roller 14 along one edge thereof, for removing the excess material from the gluing roller before the glue is placed on the material to which it is to be affixed. The glue used in gluing machines of this type is usually heated. It is common, therefore, to fix a heater 17 to the well 11 for heating the material within the well 11. The heater 17, as shown in the drawings, is fixed to the bottom wall 18

of the well 11 and substantially applies heat to the entire lower surface thereof.

The most critical point where the temperature of the glue is of the utmost importance is that point dirrectly below the gluing roller where the roller emerges from the mass in its rotation. In order to maintain this portion of the material at the desired working temperature, a thermostat 19 is placed in the well 11, directly below the point at which the doctor roller 15 engages with the gluing roller 14. The thermostat 19 is supported from one of the side walls 12 of the gluing machine. For the most desirable characteristics, the thermostat 19 is disposed below the point of contact of the two rollers in the vertical plane passing through that point and extended into the well. The thermostat 19 may be of any conventional style and as shown in the drawings is tubular in configuration, having electric contact points 20 fixed thereto on the outer side, which extend outwardly from the side of the machine.

In the use of gluing machines of this type, the glue being picked up by the gluing roller 14 and partially placed on the doctor roller 15 frequently flows over the ends of each of the rollers onto reduced diameter bearing members 21 of the gluing roller, and reduced diameter bearing members 22 of the doctor roller. The gluing material thus deposited on the bearings greatly interferes with the operation of the machine as a whole.

In order to keep the glue from the bearings, there is provided a scraper 24 which may be attached on the inner side of one wall of the machine and engages the ends of the rollers for scraping the material and for guiding the material back into the tank 11. The scraper 24 is formed of a flat upper portion or supporting member 25 from which depend the scraping blades. The blades are fixed to or formed on the central supporting portion 25 in diverging relation to each other. One blade, as 26, extends downwardly and outwardly from one side of the supporting portion 25 with the inner edge thereof in alignment with the inner edge of the supporting member 25. The other blade, as 26*a*, is disposed in downwardly and outwardly extending relation to the other side edge of the supporting member 25 and is formed on its end with an outwardly offset scraping edge 27. The edge 27 is offset from the inner edges of the supporting member 25 and the other blade 26 for engagement with the outer end of the doctor roll 15. The doctor roll 15 is longer than the gluing roller 14 in order to provide for the doctor roll 15 completely engaging the entire length of the gluing roller 14 so that the disposition of the material on the gluing roller will be uniform throughout its length.

For fixing the scraper 24 in the machine 10, there is provided an inverted L-shaped bracket 28 having right angularly related arms 29. One arm 29 is adapted to be fixed to the side wall 12 by bolts 30 or other suitable fastening devices, and the scraper 24 is adapted to be secured to the other or horizontal arm 29 by bolts 31 which engage through the central portion 25 of the scraper and are threadably engaged in the openings 32 in the horizontal arm 29. The scraper 25 is disposed so that the scraping edges are spaced from the bearings of the rollers to permit the free rotation thereof. It is not necessary that the scraper 25 should engage the hub of the roller because the gluing material as it is scraped from the edges of the rollers and before it can be deposited on the hubs and thus be led into the bearings, is deflected downwardly and returned to the tank.

I do not mean to confine myself to the exact details of construction herein disclosed, but claim all variations falling within the purview of the appended claims.

What I claim is:

1. In a gluing machine including an upwardly opening gluing chamber formed with side walls thereon, a gluing roller rotatably mounted between said side walls, and a doctor roller rotatably carried by said side walls in parallel and surface contacting relation to said gluing roller; roller scraping means comprising an inwardly extending supporting plate carried by each of said side walls, and disposed between the axis of rotation of said gluing and doctor rollers, a second plate supported by said first mentioned plate, a downwardly inclined scraping blade depending from each of two opposite sides of said second plate, said blades being disposed with the inner edges thereof in scraping contact with the end faces of said gluing and doctor rollers whereby the glue on said end faces will be removed from said gluing and doctor rollers and returned to said gluing chamber by reason of the downward inclination of said blades.

2. In a gluing machine including an upwardly opening gluing chamber formed with side walls thereon, a gluing roller having reduced diameter bearing members on the opposite ends thereof journalled in said side walls, and a parallel gluing roller surface contacting doctor roller having reduced diameter bearings journalled in said side walls; roller scraping means comprising an inwardly extending supporting plate carried by each of said side walls and disposed between the adjacent gluing roller and doctor roller bearing members and substantially in horizontal alignment with the axis of rotation thereof, a second plate carried by said supporting plate, a downwardly inclined scraping blade depending from each of two opposite side edges of said second plate, the inner edges of said blades being disposed in end face contacting relation to said rollers whereby the glue on said end faces will be removed from said gluing and doctor rollers and returned to said gluing chamber by reason of the downward inclination of said blades.

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