

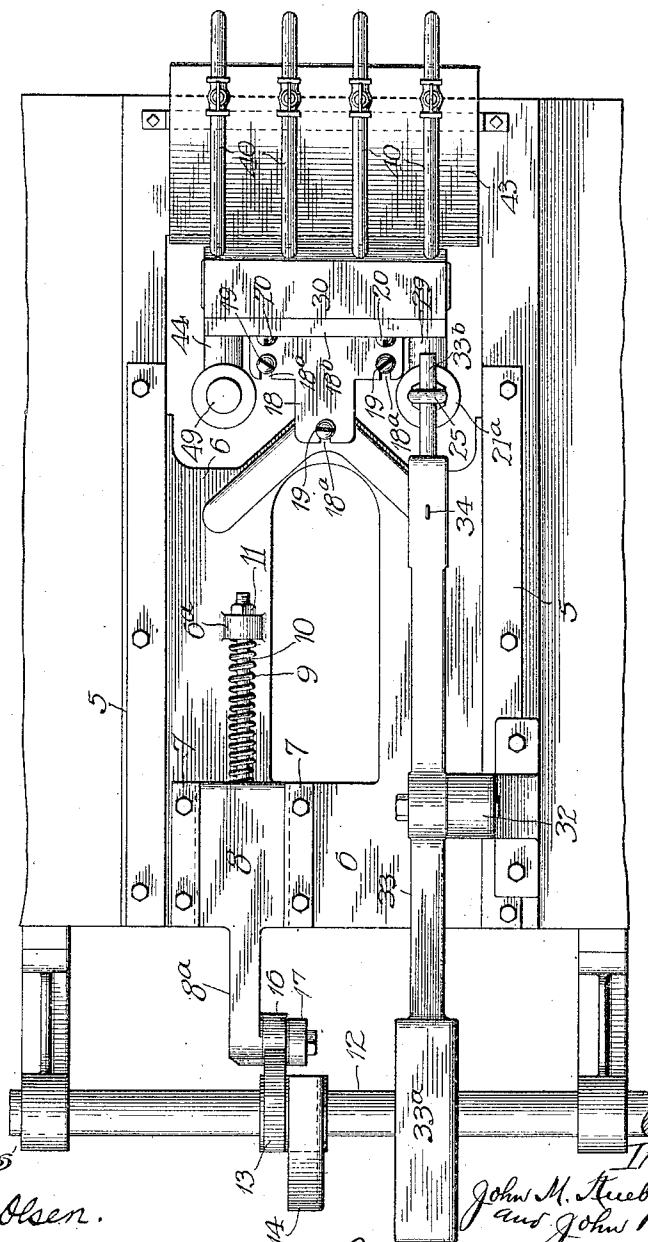
J. M. KUEBLER & J. R. FRANTZ.
GLUING MECHANISM.
APPLICATION FILED FEB. 17, 1913.

1,122,616.

Patented Dec. 29, 1914.

3 SHEETS—SHEET 1.

Fig. 1.



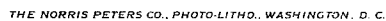
Witnesses
Martin H. Olsen.
Robert Dobberman

Inventors
John M. Kuebler
and John R. Frantz
By Rector, Kibben Davis & Macauley,
Their Attys.

APPLICATION FILED FEB. 17, 1913.

Patented Dec. 29, 1914.

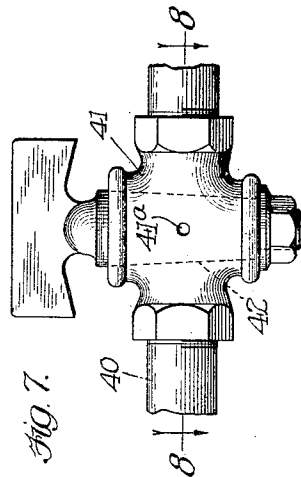
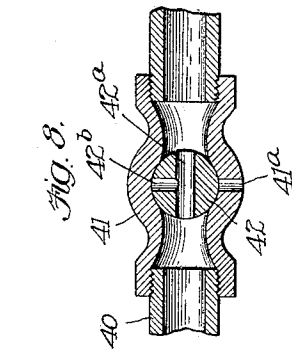
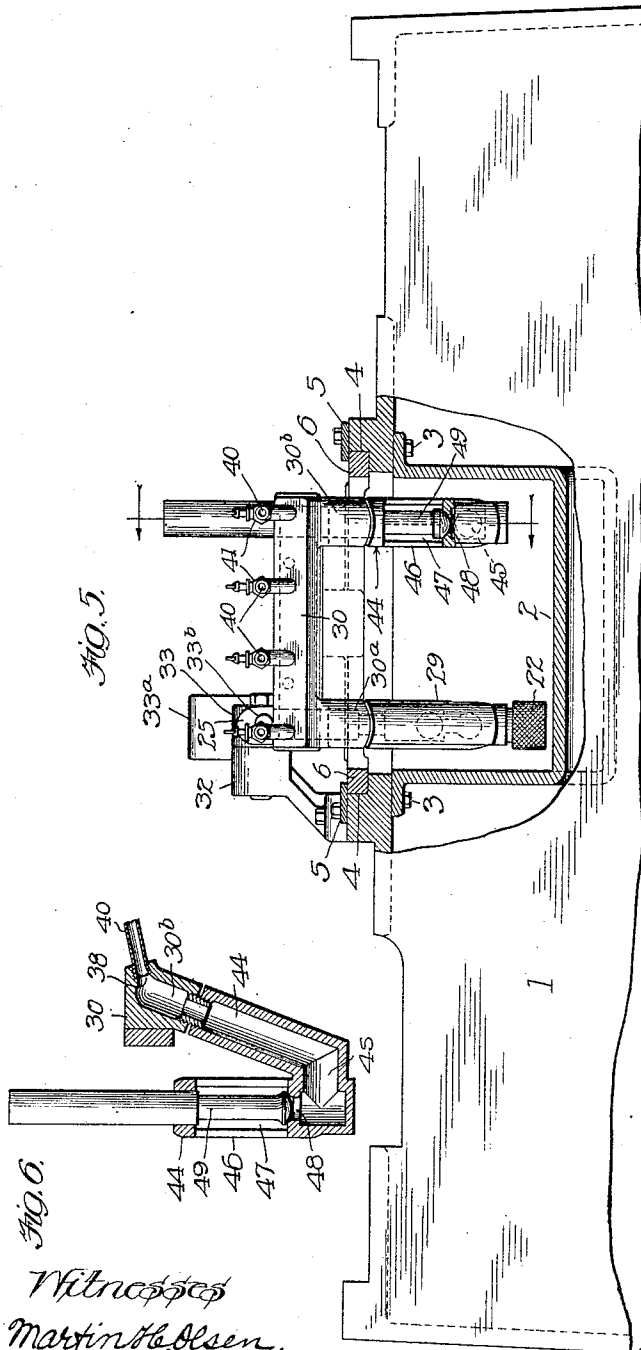
3 SHEETS--SHEET 2.



J. M. KUEBLER & J. R. FRANTZ.
 GLUING MECHANISM.
 APPLICATION FILED FEB. 17, 1913.

1,122,616.

Patented Dec. 29, 1914.
 3 SHEETS-SHEET 3.



Witnesses
 Martin H. Olsen.
 Robert, Dobberman

Inventors
 John M. Kuebler
 and John R. Frantz
 By Rector, Hibben, Davis & Macaulay
 Their Attys.

UNITED STATES PATENT OFFICE.

JOHN M. KUEBLER, OF WAUSAU, AND JOHN R. FRANTZ, OF OSHKOSH, WISCONSIN,
ASSIGNORS TO E. B. HAYES MACHINE COMPANY, OF OSHKOSH, WISCONSIN, A COR-
PORATION OF WISCONSIN.

GLUING MECHANISM.

1,122,616.

Specification of Letters Patent.

Patented Dec. 29, 1914.

Application filed February 17, 1913. Serial No. 748,933.

To all whom it may concern:

Be it known that we, JOHN M. KUEBLER, of Wausau, Marathon county, Wisconsin, and JOHN R. FRANTZ, of Oshkosh, Winnebago county, Wisconsin, have invented certain new and useful Improvements in Gluing Mechanism, of which the following is a specification.

Our invention relates to a gluing mechanism or machine adapted and intended more particularly for use in the wood working art for the purpose of applying glue to the dowel holes of rails, stiles, etc.

The object thereof is to produce a simple and efficient mechanism for automatically accomplishing this result.

Speaking in general terms our machine comprises one or more automatically operated gluing fingers connected with a pump for pumping glue from a supply vat or receptacle through a finger or fingers and into the dowel holes into which the fingers have been automatically inserted, the different operations being properly timed.

Our mechanism or machine may be used singly or in connection or immediate association with mechanism for boring the dowel holes and also mechanism for driving the dowels after the holes have been supplied with glue by our mechanism, and moreover our machine may be used in duplicate for the purpose of operating simultaneously on opposite ends of a rail or other stock.

Various features of advantage and utility in our mechanism will be apparent from the description hereinafter given.

In the drawings Figure 1 is a plan view of our machine embodied in a mechanism employing a series of four glue fingers; Fig. 2 a side elevation thereof with portions broken away; Fig. 3 a section on the line 3—3 of Fig. 2; Fig. 4 a perspective of the operating cam; Fig. 5 an end elevation with portions thereof broken away; Fig. 6 a section of the relief valve; Fig. 7 an elevation of one of the valves or cocks in the glue fingers, and Fig. 8 a section on the line 8—8 of Fig. 7.

In the drawings we have shown one embodiment of our invention in which a series of four glue fingers are employed but it will be understood that modifications may be made therein without departing from the

spirit of our invention and also that a greater or less number of these fingers may be used.

As herein shown a suitable main frame 1 supports the mechanism including the glue vat or receptacle 2 which is supported within the interior of such main frame in any suitable manner, the same being here shown as secured by means of bolts 3 to the under side of the interior of such frame and on either side of an opening in the top or bed-plate 1^a of such frame. Upon the top surface of this bed-plate there are two parallel guideways 4 formed by right angled recesses in the bed-plate and two parallel strips or plates 5 bolted to the bed-plate. Within these guideways there slides or reciprocates a carriage 6 which is substantially in the form of a flat plate and which has a driving connection of a yielding character for a purpose hereinafter made apparent. This carriage is itself provided with similar guideways by means of the strips or gibs 7 secured to the carriage and in these guideways there is received an actuating plate 8 having a downwardly extending portion or bracket 8^a. This plate 8 is normally held in fixed relationship with the carriage but is adapted to yield in case of any interference or obstruction to the free or normal movement of the carriage such as occasioned by one or more of the glue fingers striking an obstruction of any sort and therefore not being capable of their extreme movement. This yielding connection between the carriage and its actuating plate comprises a spring 9 encircling a rod 10 extending from one side of the plate 8 and passing through a lug 6^a on the carriage and held in place in respect thereto by means of the nut 11. The actuating plate 8 and the carriage 6 are driven by means of the rotatable driving shaft 12 through the medium of the two cams 13 and 14 which in the present instance are shown as an integral part of the same hub 15 secured to the drive shaft. The bracket 8^a is provided on one side with two cam rollers 16 and 17 which are located at different heights thereon with the roller 17 extending farther out from the bracket than the other roller as shown in Fig. 1. The cam 13 coöperates with the roller 16 and the cam 14 with the roller 17.

The shaft 12 rotates in a clockwise direction (Fig. 2) with the result that the cam 13 will contact roller 16 and drive it together with the plate 8 and carriage 6 forwardly, that is to the right in Figs. 1 and 2. Upon the continued movement of the drive shaft the cam 14 will come into play, its marginal or segmental flange 14^a engaging the lower cam roll 17 and retracting the carriage and the parts carried thereon which will be hereinafter described. By means of these cams a properly timed reciprocating movement is imparted to the carriage.

At the front end of the carriage there is attached a bracket 18 which is removably attached by means of the three screws 19, the bracket being provided with slots 18^a adjacent said screws in order to facilitate the removal of this bracket 18. To this bracket there is secured the pump mechanism including the pump proper, delivery pipe and a relief valve, the same being attached by means of the screws 20 to a vertical flange 18^b of the bracket 18. This pump mechanism comprises a vertical pump casing 21 depending into the glue or adhesive contained within the glue vat 2 and communicating with such vat through the strainer 22 and the inlet port 23 in the lower end of the chamber 24 in which the piston or plunger 25 reciprocates. This port is governed by the ball 26 acting as a check valve so that after the piston has made its upward or suction stroke and drawn a charge of glue within the piston chamber and the side extension 24^a thereof the ball will seat and close the port 23 and the piston will discharge the glue through the delivery or discharge port 27 at the front side of the casing, which latter port is controlled by the ball 28 acting as a check valve. This delivery or discharge port 27 is contained within an extension or tube 29 projecting forwardly in an inclined direction as clearly shown in Fig. 2 and the same is secured in suitable manner to the depending extension 30^a of a casing or manifold 30 as by being screw-threaded to the nipple 31 to which said extension is also screw-threaded. This manifold is the part that is secured by the screws 20 to the bracket 18 by which means the pump as well as the relief valve hereinafter described are attached to the reciprocating carriage and are held suspended within the glue vat. The piston or plunger 25 may be operated in any suitable manner and in the present instance it is shown as being operated from the drive shaft 12 by the following driving connections.

Upon the bracket 32 on the main frame is pivoted a lever 33 having its outward or rearward end 33^a weighted and having its forward end formed as a rod 33^b entering an eye or opening at the upper end of the rod of the piston 25 and screwed in a hole in

such lever by a pin 34, Fig. 2. This piston rod has a series of four lateral ribs 25^a intermediate its length which ribs are adapted to fit the circular interior of the upper ring portion 21^a of the casing 21 in order to guide the piston or plunger. From the outer end of the lever 33 there depends a bracket 35 carrying at its lower end a cam roller 36 which is adapted to be operated by a cam 37 secured to the drive shaft 12 whereby the lever 33 will be rocked in proper time to effect the reciprocating movement of the piston 25.

The manifold 30 is here shown as provided with a series of four outlet ports 38 with which communicate a series of four parallel glue fingers 40 extending forwardly and adapted to be reciprocated in the movement of the carriage for insertion into the dowel holes of the stock operated upon. Each of these glue fingers is provided with a valve of the peculiar construction illustrated in detail in Figs. 7 and 8. Each valve consists of a casing 41 and a plug 42 having a transverse way or passage 42^a extending diametrically therethrough and a radial passage 42^b which extends from the circumference of the plug to the middle of the passage 42^a. The casing 41 is provided at one side with a hole or port 41^a with the result that when the valve or plug is turned so as to cause registration between the way 42^a and said port 41^a, with the port 42^b pointing rearwardly, the glue will not pass through the entire length of the glue finger but will be vented through the side of the valve body or casing and will drop upon the inclined pan 43 by which it will be conducted back to the glue vat. By these means any one or more of the glue fingers may be put out of commission and the provision of this vent will prevent any trouble that might otherwise result by reason of the congealing of the glue in the finger or fingers which are shut off. This construction and arrangement of valve is also desirable inasmuch as when any one or more of the fingers are closed, the normal and not any additional pressure will be occasioned in the tubes which are delivering glue.

It is preferred to employ in connection with our pump mechanism a relief device in order that a predetermined and uniform pressure may be given to the glue supplied to the glue fingers or tubes. As herein shown this relief device is in the form of a relief valve comprising a casing 44 which is secured to the depending branch 30^b of the manifold in the same manner as the delivery tube or pipe 29 is secured to this manifold, all as clearly indicated in detail in Fig. 3. This casing communicates at its lower end through a port or passage 45 with the lower end of a valve casing 46, whose chamber 47 has at its lower end an inlet port 48.

This latter port is controlled by the rounded lower end of a valve plunger 49 whose upper end may be extended or weighted in order to hold the valve plunger seated with a pressure equal to a predetermined degree. By attaching a weight to the upper end of this valve any additional amount of pressure on the glue as delivered from the glue fingers may be obtained. In case of any excess amount of pressure on the glue the relief valve will rise thereby permitting the glue to pass from the manifold through the casing or pipe 44, ports 45 and 48 and valve chamber 47 from whence it escapes from the upper end thereof and into the glue vat

Describing a complete cycle of movement of the operating parts, it will first be assumed that the carriage is in its retracted or outer position to the left in Figs. 1 and 2, the glue fingers being at this time also in retracted position because they are indirectly supported and carried by this carriage. Rotation of the drive shaft 12 will cause the cam 13 to cooperate with the cam roller 16 and reciprocate the carriage forwardly thereby carrying the glue pump and glue fingers forwardly and inserting the latter within the holes of the stock. Then as soon as this insertion takes place the cam 37 rocks the lever 33 thereby reciprocating the piston 25 downwardly and forcing or pumping glue through the glue fingers and into said holes. When this operation is completed the cam 14 will engage the cam roller 17 and retract the carriage and glue fingers to the position from which we started thereby completing the cycle of movement.

By means of this mechanism we are enabled to supply dowel holes with glue in a very simple and automatic manner and to regulate or predetermine the exact amount of the glue. Moreover our mechanism enables us to efficiently and properly apply the glue to the walls and ends of the dowel holes.

We claim:

1. In a gluing machine, the combination of a glue vat, a pump communicating therewith, means for operating the pump, a hollow glue finger connected with the discharge of the pump, and means for relieving excess pressure of the pump.

2. In a gluing machine, the combination of a glue vat, a pump arranged therein, means for operating the pump, a hollow glue finger connected with the pump discharge, and a relief valve connected with said discharge and also arranged within the vat.

3. In a gluing machine, the combination of a glue vat, a pump communicating therewith, a casing connected with the pump discharge, a plurality of hollow glue fingers communicating with the casing, and means for operating the pump.

4. In a gluing machine, the combination of a glue vat, a pump communicating therewith, a casing connected with the pump discharge, a plurality of hollow glue fingers communicating with the casing, a relief valve connected with the casing, and means for operating the pump.

5. In a gluing machine, the combination of a glue vat, a pump communicating therewith, a casing communicating at one end with the pump discharge, a relief valve communicating with the other end of the casing, a hollow glue finger communicating with the casing intermediate said communications of the pump and valve, and means for operating the pump.

6. In a gluing machine, the combination of a glue vat, a pump communicating therewith, a hollow glue finger communicating with the pump discharge, and a three-way valve in the glue finger, said valve having a vent opening.

7. In a gluing machine, the combination of a glue vat, a pump communicating therewith, a hollow glue finger communicating with the pump discharge, and a valve in the glue finger comprising a valve body 41 having vent opening 41^a, a plug valve 42 therein having the transverse way 42^a and radial way 42^b, whereby the glue pumped may be passed through the fingers or vented through opening 41^a.

8. In a gluing machine, the combination of a stationary bed plate, a movable carriage slidable thereon, a glue vat located below the plate, a pump mounted upon the carriage and arranged to communicate with the vat, timed means for reciprocating the carriage and operating the pump, and a hollow glue finger communicating with the pump discharge.

9. In a gluing machine, the combination of a glue vat, a movable carriage, a pump mounted on the carriage and depending into the vat, timed means for reciprocating the carriage and operating the pump, a casing communicating with the pump discharge, and a plurality of glue fingers communicating with the casing.

10. In a gluing machine, the combination of a glue vat, a pump communicating therewith, means for operating the pump and having a sliding connection therewith, means for reciprocating the pump bodily, a manifold communicating with the pump discharge and having a series of outlets, and a series of glue fingers secured to and carried by the manifold in the movements of the pump and manifold, said fingers communicating with the outlets.

11. In a gluing machine, the combination of a glue vat, a pump communicating therewith, means for operating the pump, means for reciprocating the pump bodily, a manifold communicating with the pump

discharge and having a series of outlets, a series of glue fingers communicating with the outlets, and relief mechanism communicating with the manifold.

5 12. In a gluing machine, the combination with a glue vat, a movable carriage, a bracket 18 secured thereto, a pump mechanism attached to the bracket and depending into the vat, and a hollow glue finger communicating with the pump discharge.
10

13. In a gluing machine, the combination of a glue vat, a movable carriage, a bracket 18 secured thereto, a pump mechanism depending into the vat and including a pump
15 proper and a manifold communicating with the pump discharge and secured to said bracket, and a series of hollow glue fingers communicating with the manifold.

14. In a gluing machine, the combination

of a glue vat, a movable carriage, a bracket 20 18 secured thereto, and having a flange 18^b, said bracket being detachably secured to the carriage, a pump mechanism depending into the vat and including a pump proper and a manifold secured to said flange and 25 communicating with the pump discharge, and a series of hollow glue fingers communicating with the manifold.

JOHN M. KUEBLER.

JOHN R. FRANTZ.

Witnesses to the signature of John M. Kuebler:

C. B. BIRD,

BRUNO DIPPMANN.

Witnesses to the signature of John R. Frantz:

J. F. HAYES,

EDW. RHYNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."