(No Model.) 3 Sheets—Sheet 1.

I. R. JOSLIN & C. M. THOMPSON.

L. JOSLIN, Administratrix of I. R. JOSLIN, Deceased.

APPARATUS FOR MAKING COMPOUND LUMBER.

No. 422,794. Patented Mar. 4, 1890.

Fig. 1.

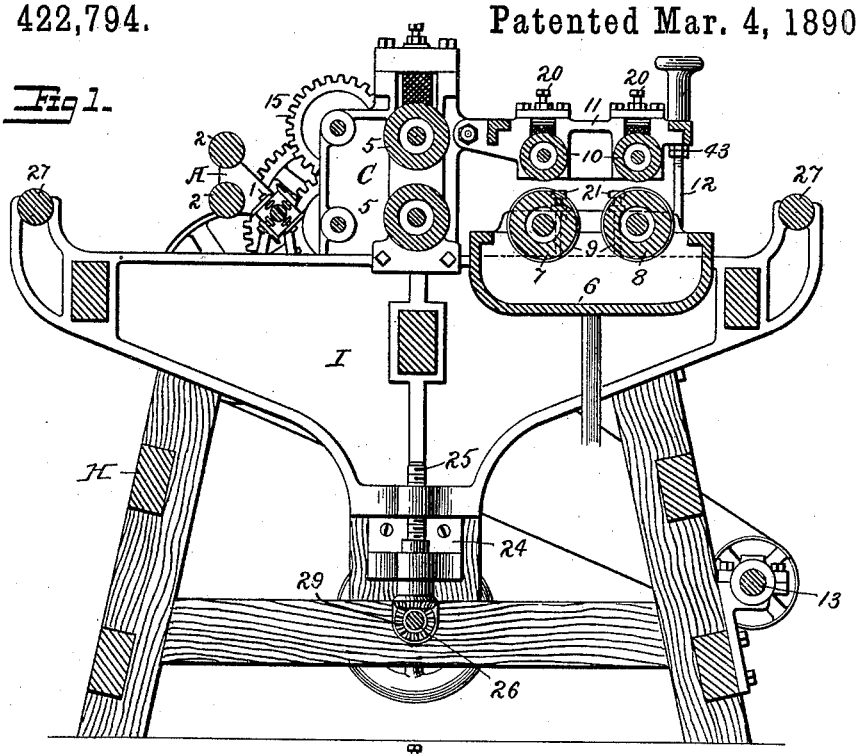
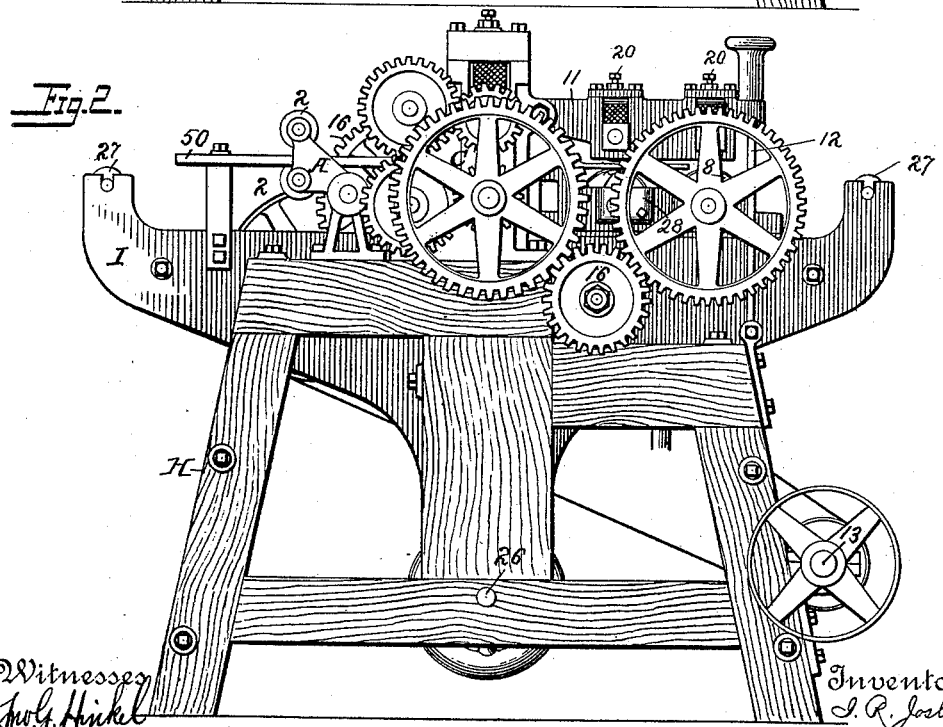


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

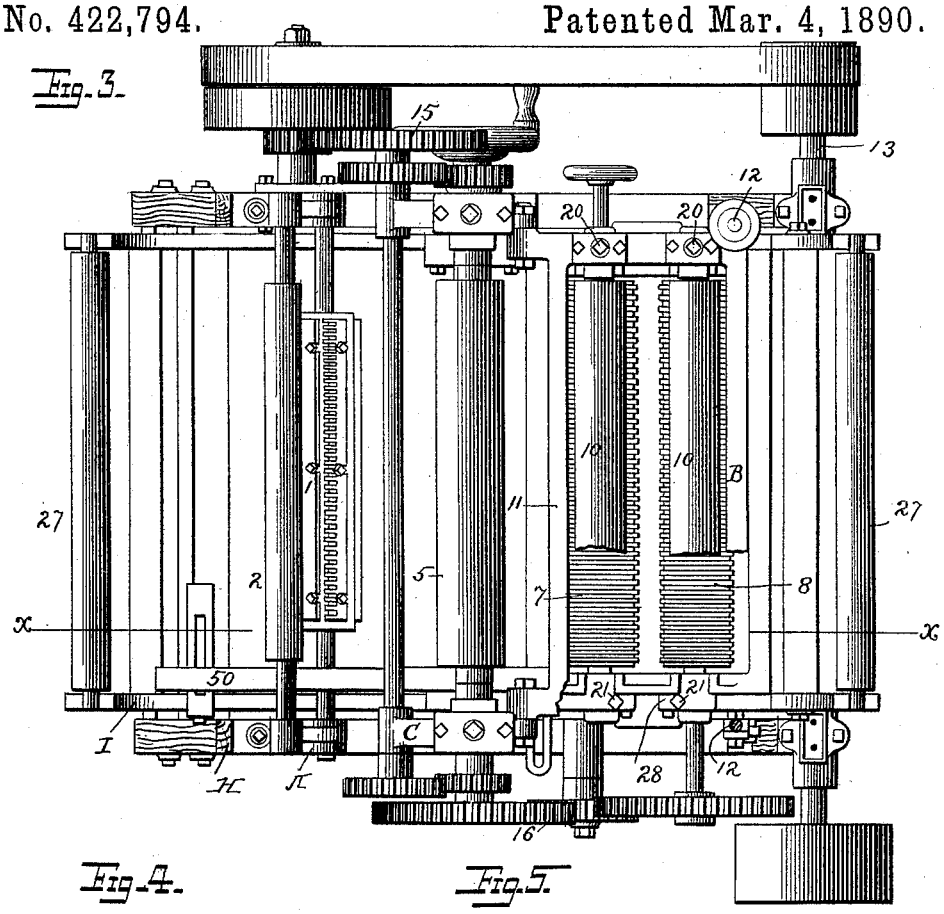


Fig. 4.

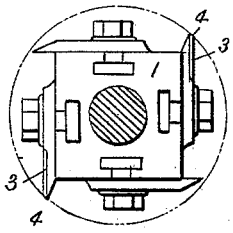


Fig. 5.

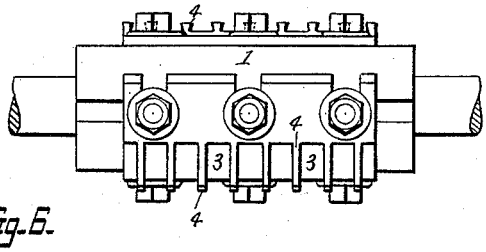
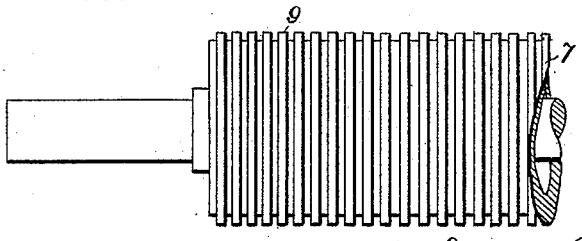


Fig. 6.



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(No Model.) 3 Sheets—Sheet 3.

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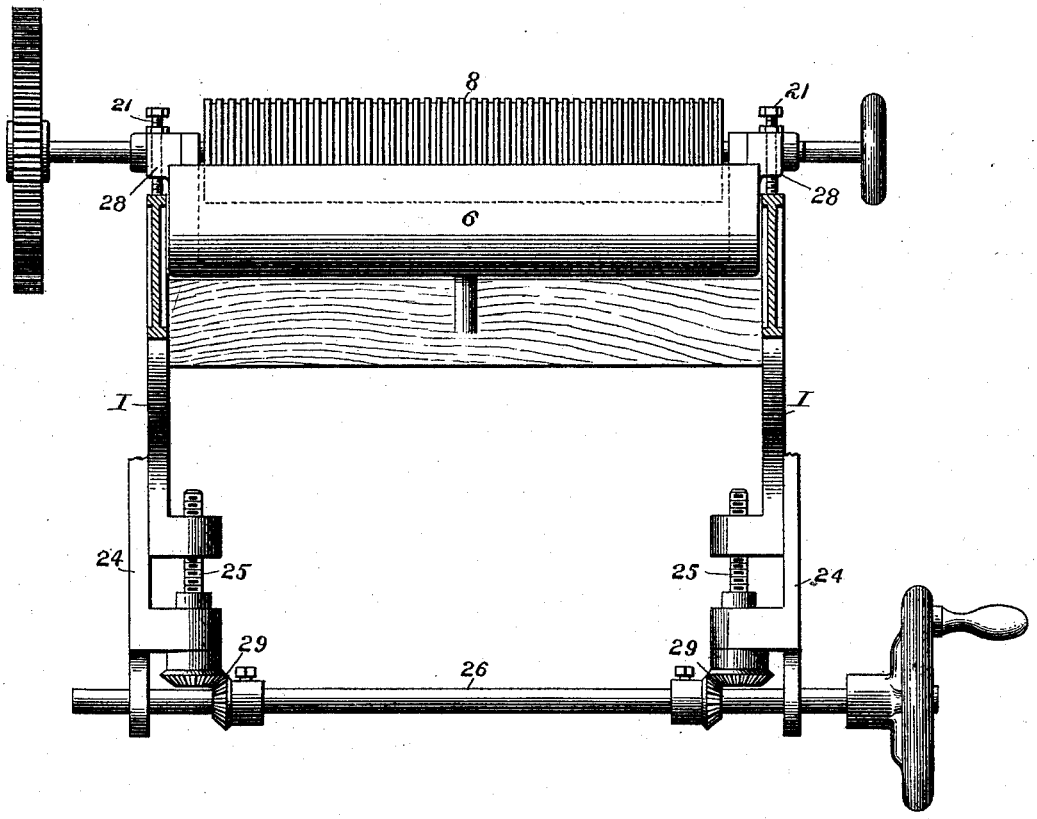
Fig. 7.



Witnesses
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W. S. McArthur

Inventors
Isaac R. Joslin
Colin M. Thompson.
By their Attorneys
Foster Freeman

UNITED STATES PATENT OFFICE.

ISAAC R. JOSLIN, OF NEW YORK, AND COLIN M. THOMPSON, OF BROOKLYN, NEW YORK; LAURINDA JOSLIN ADMINISTRATRIX OF SAID ISAAC R. JOSLIN, DECEASED.

APPARATUS FOR MAKING COMPOUND LUMBER.

SPECIFICATION forming part of Letters Patent No. 422,794, dated March 4, 1890.

Application filed August 26, 1889. Serial No. 322,023. (No model.)

To all whom it may concern:

Be it known that we, ISAAC R. JOSLIN and COLIN M. THOMPSON, citizens of the United States, residing, respectively, at New York, New York county, and Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Apparatus for Making Compound Lumber, of which the following is a specification.

Our invention relates to machines for preparing what is popularly known as "compound" lumber, in which two boards or pieces of lumber, generally a cheaper and a more expensive kind, are tongued and grooves and then forced together after they have been coated upon the contacting-faces with glue or cement. As each piece of lumber must be properly prepared upon the one side before the glue is applied, we have devised a single machine whereby a second handling is saved of taking the boards, as heretofore, from one machine and feeding them to the other, and also have secured a saving in time, as the glue can be applied on one portion of the board while the planer is still operating on another portion.

Our invention therefore consists in the construction of the machine, as will be hereinafter more fully set forth, and as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical sectional view of our improved machine. Fig. 2 is a side view. Fig. 3 is a broken top plan view. Fig. 4 is an enlarged sectional view of the planer-head. Fig. 5 is an elevation of the preferred form of the planer-head. Fig. 6 is an enlarged detail view of a portion of one of the gluing-rolls, and Fig. 7 is a detail view showing the means of supporting and elevating the glue-pan and rollers.

The frame I carries at its top the planer mechanism A at one end, a gluing apparatus B at the other, and a feeding device C intermediate the two. The planer A consists more particularly of the revolving head 1 and the feed-rolls 2 2, the head having the alternate bits, two of the bits being notched or recessed, as at 3, to form points or teeth 4, which form the grooves, while the intermediate bits do not extend so far out and smooth off the entire surface of the board. The widths of the grooves in the boards are the same as the widths of the points, so that any two pieces of the lumber that have been operated on by the planer will fit together, the tongues of the one fitting in the grooves of the other. Instead of making the recesses only as wide as the teeth, we prefer to make them three times as wide and to arrange the toothed bits so that the teeth in one bit will fall opposite the middle portions of the recesses of the other, as shown in Fig. 5, as we can thus get more rapid and satisfactory work with at least fifty per cent. less friction.

To give the teeth a good clearance when in operation, and thus prevent the gumming or heating whereby the sharp corners of the tongues on the lumber would be destroyed, the point of each tooth is swaged or made broader than the lower portion. This can be done by a blow upon the end of the tooth or by grinding out the lower portion more than the end.

The lumber is fed to the planer-head by the feed-rolls 2 2, placed directly in front of the cutter-head in the usual manner, although they may be dispensed with and the board forced through by hand until its end is caught by the rolls 5 5 of the feeding device C, which will also then pass it along to the gluing apparatus.

The gluing apparatus consists of a pan 6 at the rear end of the frame I, in which is kept the glue, and which is kept supplied by means of a pipe which leads from the bottom of the pan to any convenient tank or reservoir, which, however, is not shown on the drawings, as it forms no part of this invention. Two rollers 7 and 8 are journaled in bearings upon the end of the glue-pan, with their lower portions immersed in the glue and their upper portions in the line of travel of the board to be glued, so that as the rollers revolve they will be constantly receiving a fresh supply of glue from the pan and as constantly applying it to the under side of the board as it passes over them.

In practice it has been found difficult to apply the glue to every portion of the board's under surface, and especially to the side of

the tongues and the corners of the grooves; hence we have constructed our gluing-rolls as shown more clearly in Fig. 6—that is, the surface is formed or provided with a series of annular rings or projections 9, of such a width and shape as to enter the grooves of the board and apply the glue to the sides, bottoms, and corners of the grooves as thoroughly as possible. The face of the gluing-roller between these rings or projections of course will apply the glue to the outer faces of the tongues of the board, so that when the board is applied to another board similarly tongued and grooved the two will be as securely held together as if they had grown that way. If desired, both of the boards may be coated with the glue, although we prefer gluing but one, and one of the gluing-rollers may be dispensed with; but we also prefer to use two or more, thus insuring a perfect coating of the lumber, and consequently a perfect joining and meeting of the two pieces into one piece. The rollers are made of any suitable material, as iron or steel or hard rubber, and may be mounted on shafts or trunnions, as desired.

To insure a constant contact with the gluing-rollers, the board as it passes over them is held down by the pressure-rollers 10 10, which are journaled in a frame 11, pivotally secured at one end to the portion of the frame carrying the upper one of the feed-rolls 5 5. The opposite end of the frame 11 is adjustably supported upon the legs or rods 12 12, the lower ends of which are pivotally connected with the frame I, and their upper ends are screw-threaded and provided with the adjusting-nuts 43 43. In this manner each of the rollers in the frame can be made to bear upon the upper surface of boards of different thickness, the rollers being separately adjustable by screws 20 within the frame to compensate for the different angles to which the frame is adjusted relatively as its outer end is moved to or from the gluing-rollers, and they may be provided with rubber blocks or other suitable yielding device above their bearings, if desired, to make their pressure elastic or yielding.

After the upper feed-roller 5 and the two rollers 10 10 over the glue-pan have been adjusted to give the desired pressure for one thickness of lumber it requires time and trouble to change them all separately, as must be done for a different thickness. To avoid this we have constructed our machine with a frame H, within which the frame I is mounted, which frame I carries the glue-pan, with the gluing-rollers journaled across its top, the lower feed-roller 5, and, if desired, the planer cutter-head A. The lower portion of the frame I is mounted in suitable guideways 24 on the frame H, along which the frame is moved by means of the vertical screw-threaded shafts 25, the transverse shaft 26, and the bevel-gear 29 29. The outer ends of the frame H are provided with the ordinary guide rolls or supports 27 27. Besides the above adjustment for the entire frame I, the glue-pan, and with it the gluing-rollers, is also adjustable vertically by means of the pins 21 21, which pass down through ears 28 28 upon the sides of the pan and rest within their lower ends upon the top of the frame I. With the above-described means for adjusting the frame I, it is evident that after the upper feed-roller 5 and pressure-rollers 10 10 have once been properly adjusted any change for lumber of different thickness is made more quickly and correctly by moving the frame I up or down, as this will give the required change between the upper and lower parts without changing the horizontal position of the parts relatively to each other.

A suitable guide-strip 50 may be adjustably secured to the frame of the machine, against which one edge of the board is kept in contact as it passes through the machine to cause it to pass from the planer to the gluing-rolls without getting out of line.

Motion is imparted to the different parts of our machine from the driving-shaft 13 by any convenient driving mechanism, as suitable belt and pulley mechanism for the planer and the trains of gear-wheels 15 and 16 for the gluing apparatus and feeding device, the only requisite being that the different parts are properly driven to do their work in conjunction with the movement and operation of the other parts.

The operation of our machine is as follows: A board to be operated upon, and which is preferably a trifle thicker than will be needed to make up the piece of compound lumber, is fed to the planer in the ordinary manner, where its under surface is "faced" and also grooved by the action of the two kinds of bits upon the cutter-head. From the planer it passes through the feeding device C to the gluing apparatus, the feeding device passing it to the gluing-rollers at a constant rate of speed, and thus serving the purpose of feeding the lumber both to the cutter and to the gluing devices. As the lumber passes over the gluing-rollers its under surface is evenly and thoroughly covered with a coating of glue, which is taken from the pan and spread on the board by the action of the rollers. After having been covered with glue the board, together with another similarly-prepared one which is applied to the first one with their glued surface in contact, is passed through a press, which will force the two boards together so closely that after the glue has dried or set it will be impossible to separate them.

Having thus described our invention, we claim—

1. In a machine for preparing compound lumber, the combination, with the upper feed-roller and pressure-rollers mounted in a fixed frame, of the lower feed-roller, glue-pan, and the gluing-rollers carried by an adjustable frame, substantially as described.

2. In a machine for preparing compound

lumber, the combination, with a frame having vertical guides, of an adjustable frame mounted in said guides, adjusting mechanism therefor, feed-rollers carried by said frames, and a gluing device carried by the adjustable frame, substantially as described.

3. In a machine for preparing compound lumber, the combination, with a vertically-movable frame carrying the planer mechanism and lower feed-roller, of a glue-pan vertically adjustable on said frame and carrying gluing-rollers, and a fixed frame carrying the upper feed-roller, substantially as described.

4. In a machine for preparing compound lumber, the combination, with a stationary frame H and vertically-adjustable frame I, of a glue-pan resting on the frame I, independently adjustable thereon, and gluing-rollers 7 8, mounted in bearings upon said pan, substantially as described.

5. In an organized machine of the class described, the combination, with a planer and feed-rollers, of gluing-rollers for coating the planed surface of the lumber and a single driving-shaft geared to the planer, the feed-rollers, and the gluing-rollers, substantially as described.

6. In an organized machine of the class described, the combination, with feed-rollers and a planer having grooving-cutters, of a gluing device comprising a glue-pan and grooved rollers mounted upon said pan, said feed-rollers, planer, and gluing-rollers being operated from a single main shaft, substantially as described.

7. In a machine for preparing compound lumber, the combination, in the cutter-head, of alternate plain and toothed knives, the teeth of one toothed knife being arranged midway of the spaces between the teeth of the other, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ISAAC R. JOSLIN.
COLIN M. THOMPSON.

Witnesses:
GEORGE T. LAWRENCE,
JOSEPHINE H. SCHUREMAN.