(No Model.) 2 Sheets—Sheet 1.

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

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

APPARATUS FOR MAKING COMPOUND LUMBER.

No. 422,795. Patented Mar. 4, 1890.

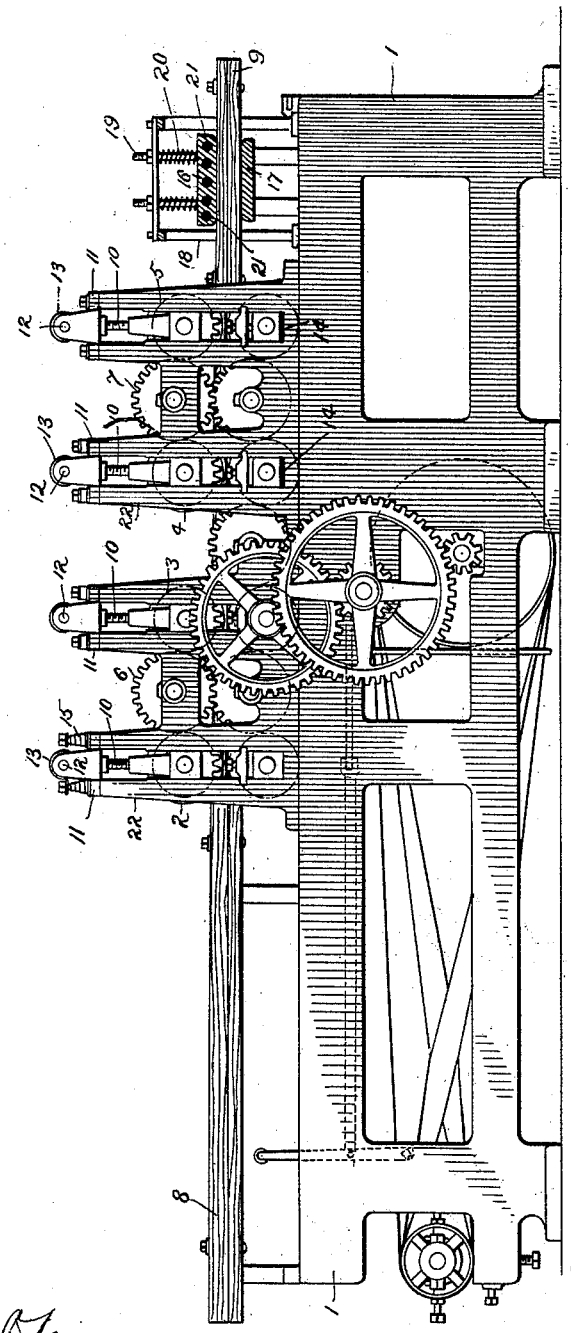

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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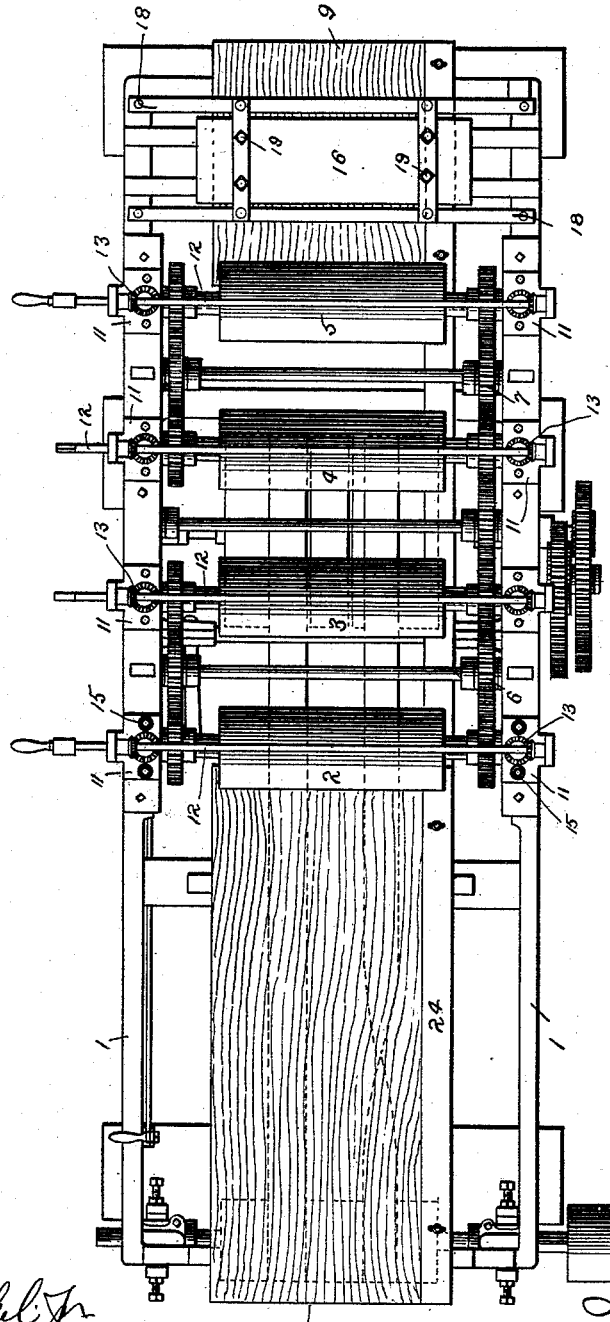

Fig. 2.

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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. 422,795, dated March 4, 1890.

Application filed August 28, 1889. Serial No. 322,249. (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 at New York, county of New York, and Brooklyn, county of Kings, both in the State of New York, respectively, have invented certain new and useful Improvements in Apparatus for Making Compound Lumber, of which the following is a specification.

In the ordinary mode of making compound lumber of strips having ribbed and grooved faces glued and pressed together it has been found that after the combined strips leave the presser-rolls, whereby they are subjected to great pressure, there is a tendency of the parts to swell and expand or twist and warp, which results in a greater or less separation of the parts. To prevent this and otherwise facilitate the manufacture, we have devised the machine hereinafter fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section of a machine embodying our invention; and Fig. 2 is a top plan view of the same.

Transversely across the top of the frame 1 are journaled several pairs of pressure-feed rollers, of which four pairs 2, 3, 4, and 5 are shown, although any desired number may be used, and which are operated by any suitable mechanism, trains of gear-wheels 6 and 7 being shown in the drawings, which receive their motion from any suitable power. Each pair of rollers is journaled in bearings in its appropriate frame or slotted guide 22, secured to the top of the frame 1. The upper roller of each pair of rollers is adjustable, by means of which the different sets may be adjusted relatively to each other, so that a constantly-increasing pressure will be given by each succeeding pair of rollers. In this manner the two pieces of lumber, which have been previously grooved and glued and placed together with their grooved and glued surfaces in contact, as shown at 8 in Fig. 1, are passed between the first pair of rollers 2, where the tongues of each piece is forced into the grooves of the other piece with a certain amount of pressure. From there the lumber is passed to the succeeding pairs of rollers by the rotation of the rollers, all of which are so arranged as to rotate with a corresponding rate of speed, but each pair forcing the two pieces of lumber together with a greater pressure than was exerted upon them by the preceding rollers, until when they emerge from the last pair of rollers they appear considerably thinner, as shown at 9.

The upper rollers may be adjusted vertically by any suitable mechanism; but we have found it very convenient and effective to use two screw-threaded shafts 10 10, having their lower ends engaging with the bearings for the rollers and journaled at their upper ends in a head or cross piece 11, the top of the frame for each pair of rollers being connected with one of these cross-pieces. Each pair of shafts 10 10 are turned in unison by means of the transverse shaft 12 and the bevel-gears 13 13, thus always keeping the surfaces of the two rollers parallel as the upper one is raised or lowered.

Each pair of the rollers, and especially the last two, may have their bearings made yielding below by means of rubber blocks or cushions 14 14, weights or other devices, and in order that the lumber may be more readily entered between the first pair of rollers, on account of the greater amount of compression to be made upon the two pieces, and also to yield sufficiently to prevent any damage if the tongues of the one piece do not readily enter the grooves of the opposite piece, two pairs of springs 15 15 are placed above the head 11 of the guides for the first pair of rollers. As the upper roller is raised by the entrance and the passage of the lumber, the head is forced up against the springs and away from the tops of the guides, thus permitting of a greater vertical movement of the upper roller than could be had without the use of the springs 15 15 or suitable yielding device. A suitable guide 24 is adjustably secured to the frame of the machine, so as to guide the edge of the boards and control the entering of the tongues into the grooves and guide the board straight through the machine. After the lumber has been passed between these pairs of rollers, as above

described, in which the pressure has been increased to as great a degree as desired, it has been found that there is a tendency for the two pieces to separate or come apart, owing to the fact that the moisture of the glue tends to dampen the wood and cause the tongues to swell and force themselves out of the grooves, and also to cause the entire boards to warp or curl up and away from each other. To remedy these defects, we have constructed our press with a flat pressure-plate 16 to the rear of the last pair of rollers with its under surface in a line with and adapted to bear upon the upper surface of the compound lumber as it passes out from the pressure-rollers. A corresponding plate or support 17 is located directly underneath the pressure-plate, the surface of the two being such a distance apart that any desired amount of pressure can be applied to the lumber as it passes between them. In order to permit of different thicknesses of lumber passing under the pressure-plate, it is made adjustable relatively to the support beneath it, and instead of making them rigid to apply a positively-determined amount of pressure the upper one may be yielding or spring-actuated by means of the frame 18, adjusting-pins 19, and springs 20.

To facilitate the entrance of the lumber to and its exit from between the pressure-plate and support, the inner, front, and rear edges of both of them are made beveled or rounding. As the surfaces of these two pieces are flat and entirely or nearly parallel, as it is desired to exert the same or a slightly-increasing pressure on the lumber as it passes between them, the separation of the lumber as it passes from the last pressure-roller is entirely avoided and the junction of the two pieces remains the same after it leaves the press as it was while passing through it. To also assist in keeping the boards together after they leave the press, the pressure-plate may be heated in any desired manner—as, for instance, by making it hollow and passing a heating medium through it, as by means of a coil of pipes 21 within or upon it, as shown, whereby the lumber may be warmed sufficiently to cause the glue to dry to a certain extent, and thus assist in keeping the two pieces together. As the plate can be placed at any suitable distance from the last pair of rollers, and as it can be made of any desired width, the two pieces of lumber are thus forced and held together until the glue has set or hardened sufficiently to prevent the boards from separating after they pass out from under the plate.

Having thus described our invention, we claim—

1. The combination of the vertical guides and bearings therein for the upper roller, screws extending from said bearings through nuts, gears for turning both nuts from one shaft, a cap-plate carrying said shaft and nuts, and springs 15 15, arranged to resist the upward movement of the cap-plate, substantially as described.

2. In a machine for making compound lumber, the combination, with a press having a series of gradually-approaching pairs of pressure-rollers, of a pressure-plate following the rear pair of rollers, substantially as described.

3. In a machine for making compound lumber, the combination, with a press having a series of pressure-rollers, of a pressure-plate and a heater therefor, substantially as described.

4. In a machine for making compound lumber, the combination, with a press having pressure-rollers, of a frame and pressure-plate having adjusting devices, springs bearing against said plate and frame, and a support, 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.