Oct. 29, 1929. L. STUSAK 1,733,284

FURNITURE PRESS

Filed Sept. 12, 1928 2 Sheets-Sheet 1

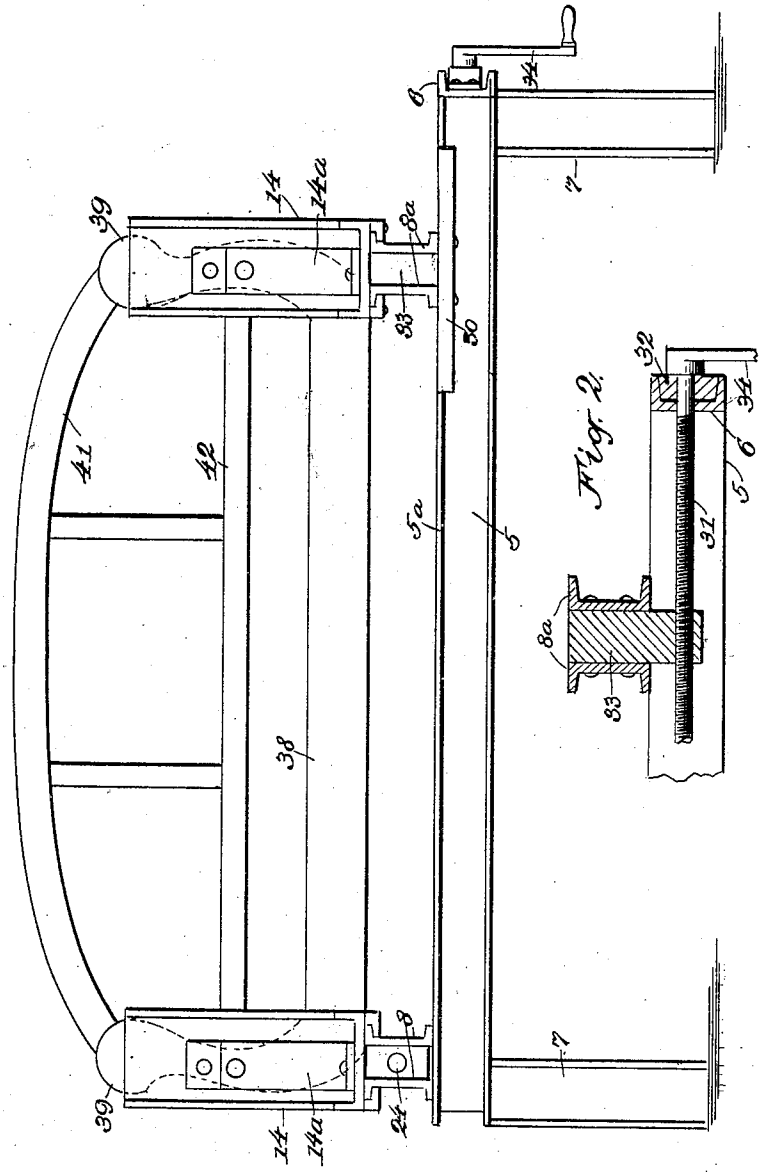


Fig. 1.

Fig. 2.

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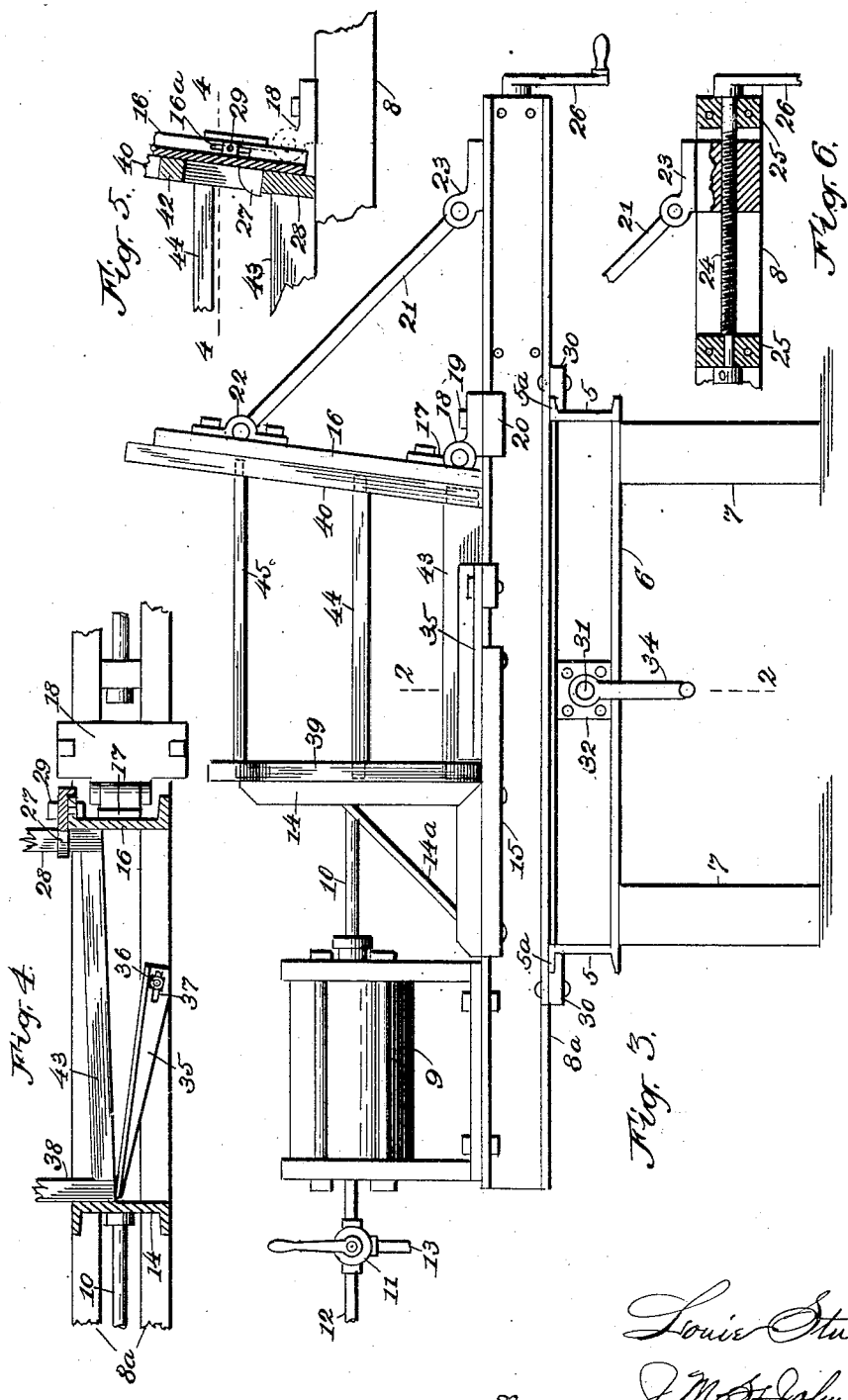


Fig. 5.

Fig. 6.

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE

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FURNITURE PRESS

Application filed September 12, 1928. Serial No. 306,043.

This invention relates to presses used for holding wood structures in close contact in making glued joints, the more special application of the invention being to presses used in the framing of chairs and davenports, or other furniture of an analogous character.

The invention is fully disclosed in the description and claims following, reference being had to the accompanying drawing, in which:—

Figure 1 is a front elevation of a press embodying the invention as in use. Fig. 2 is a fragmentary sectional view in the line 2—2 of Fig. 3, showing the cross-feed for one of the pressure units. Fig. 3 is a side elevation of the machine as in use. Fig. 4 is a fragmentary plan view, partly in section in the line 4—4 of Fig. 5, showing pressure apparatus and a side abutment to hold the frame under pressure in proper and squared position. Fig. 5 is a sectional and fragmentary view designed mainly to illustrate one of the dogs used for holding the inclined back of the davenport frame from sliding up on its abutment under pressure. Fig. 6 is a fragmentary sectional view illustrating the adjustable bracing mechanism for the tilting back abutment.

The press proper is mounted on a supporting frame preferably formed of channel steel, and comprising front and rear sills 5 5, end sills 6 6, and legs 7 7. At one end of this frame is rigidly mounted one of the pressure units. The supporting member 8 is in practice composed of a pair of channel beams with flanges disposed outwardly, and suitably held in spaced relation to each other. The front end of this member carries a rigidly secured pressure cylinder 9, adapted for hydraulic, steam, or compressed air operation, and provided with an extending piston-rod 10 co-operating with the usual piston, not shown. The pressure element is controlled preferably by a three-way valve 11 and its operating lever, co-operating with inlet pipe 12 and outlet pipe 13. The outer end of the piston connects with a pressure-plate 14, which may be designated as the ram when the plate and its appendages are considered as a whole. The plate is formed as a right angle bracket out of channel steel, and provided with a diagonal brace 14a. To the bottom member of the bracket is secured a pair of rabbeted bars 15 to engage the under sides of the supporting beam 8, as shown in Figs. 1 and 3. This holds the ram accurately erect, and allows it to slide back and forth on the beam as much as may be necessary.

A counter abutment to the ram is mounted back thereof, and is made adjustable to the varying angles of davenport frame backs. This abutment may be a casting, but is herein illustrated as a channel steel plate 16 provided with a hinge member 17 to engage a companion hinge member 18, which may be adjusted on the beam, and clamped securely thereto by bolts 19 and clamp-plates 20. The angle of tilt of the abutment plate is regulated by a strut 21 hinged to a block 22 attached to the abutment near the upper end, and at its lower end hinged to a slide 23 movable between the members of the beam 8. The required movement is effected by a screw 24 mounted in bearings 25 secured to the beam members, and provided with an operating crank 26. It will be evident that by this means the foot of the abutment may be approximately located and fixed by the clamps, and the final inclination very nicely and powerfully adjusted to the inclination of the work undergoing pressure.

When the final pressure is brought to bear on the framed structure, it is evident that there will be an inclination to force the back of the frame upwardly on the inclined abutment. To prevent this the abutment is provided with a dog 27 to engage the bottom rail 28 of the davenport frame. As these rails vary in depth the dog is made adjustable, as by a slot 16a in a flange of the abutment, and a fastening bolt 29, as best shown in Figs. 4 and 5.

The structure just above described serves for one end of the frame to be pressed, and is duplicated for the other end of said structure. This other pressure unit, however, is made movable endwise of the main supporting frame, since there is much variation in the length of frames to be jointed by the

press. The beams 8ª are accordingly provided with guide-bars 30 of the same type as the bars 15 above described and engage the main frame flanges 5ª in the same manner. The movement endwise of the main frame is effected by a screw 31 mounted in a bearing 32 and engaging a depending nut 33 secured to the beam 8ª. The beam and its appendages may thus be easily shifted by means of the screw-crank 34.

In Fig. 4 is shown a retaining wing 35 to hold the frame being pressed in proper position endwise. This is adjustably secured to the top-flange of the beams 8 and 8ª (shown only in connection with 8ª) by a fastening bolt 36 through a slot 37. Its position while the frame is under pressure is shown in Fig. 4 and also in Fig. 3. This prevents any twist or other endwise distortion of the frame, with the result that the frame as pressed together takes and holds its proper symmetrical form.

It is to be noted in this connection that the beams carrying the pressure units serve as bed supports for the bottom rails of the frame to be pressed, and thus form the bottom of a three-sided enclosure which holds the frame accurately to the proper shape, from the endwise point of view. In the practical operation of the press the fronts and backs are first framed up according to well known methods of construction. The front includes a broad rail 38 and its connecting arm supports 39, and the back will usually include the bottom rail 28, connecting end standards 40, a top rail 41 and a mid-rail 42. These front and back frames are to be jointed by the end members, comprising the bottom cross-rail 43, mid-rail 44 and the arm member 45, by the customary mortise and tenon joints. The back is self-supporting in its inclined position, permitting the easy entering of the cross members. The front is then placed in position, with the cross-members entered. The wings are adjusted to their proper retaining position. The incline of the back abutment should be approximately that of the back in the finished frame. The pressure element is then admitted to the cylinders and the whole frame is quickly and forcibly joined thereby. If the inclination of the back abutments are not exact any error may be easily corrected by the manipulation of the screw 24.

Having thus described my invention, I claim:

1. In a press of the designated type, a supporting main frame, a pressure unit mounted by guides slidably along said frame, and comprising a bed-beam disposed transversely of the guides, a screw connecting operatively with said beam and the main frame, a rear abutment carried by the beam, a front pressure-plate slidable endwise thereof, and fluid-actuated pressure means carried by the beam and in co-operating connection with the pressure-plate.

2. In a press of the designated type, a pressure unit, comprising a bed-beam, a pressure-plate slidable thereon, pressure apparatus connecting with the pressure-plate, an oppositely disposed abutment having a pivotal connection relative to the bed-beam, and means connecting with the abutment adapted to simultaneously tilt and apply pressure to the same.

3. In a press of the designated type, a pressure unit comprising a bed-beam, a pressure-plate slidable thereon, means for applying pressure to said plate, an oppositely disposed abutment hinged in relation to the bed-beam, a strut pivotally connecting with the abutment at one end, a slide pivotally engaging the other end, and a screw carried by the bed-beam and in operative engagement with said slide.

4. In a press of the designated type, a pressure unit, comprising a bed-beam, a pressure-plate slidably mounted thereon, means for applying pressure to said plate, an oppositely disposed abutment carried inclinably by said beam, and a dog carried by the abutment and adapted to engage the structure undergoing pressure, and prevent its climbing the inclined abutment.

5. In a press of the designated type, a pressure unit comprising a bed-beam, a sliding pressure-plate mounted thereon, means carried by the beam for applying pressure to the plate, and an oppositely disposed abutment carried by the beam, and an adjustable wing carried by the beam, with means for securing the wing in position to prevent lateral displacement of the structure undergoing pressure.

In testimony whereof I affix my signature.

LOUIE STUSAK.