

No. 808,756.

PATENTED JAN. 2, 1906.

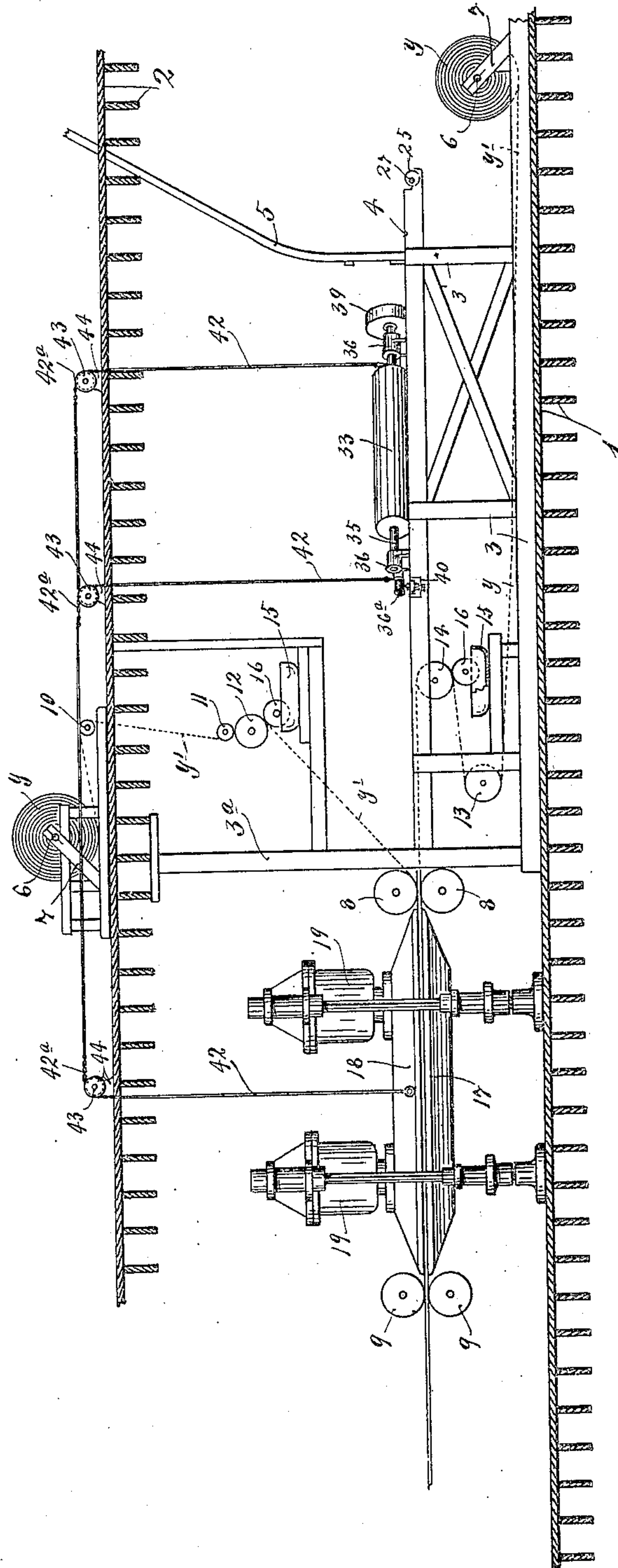
C. J. JOHNSON & W. B. PORTER.

COMPO BOARD MACHINE.

APPLICATION FILED JUNE 21, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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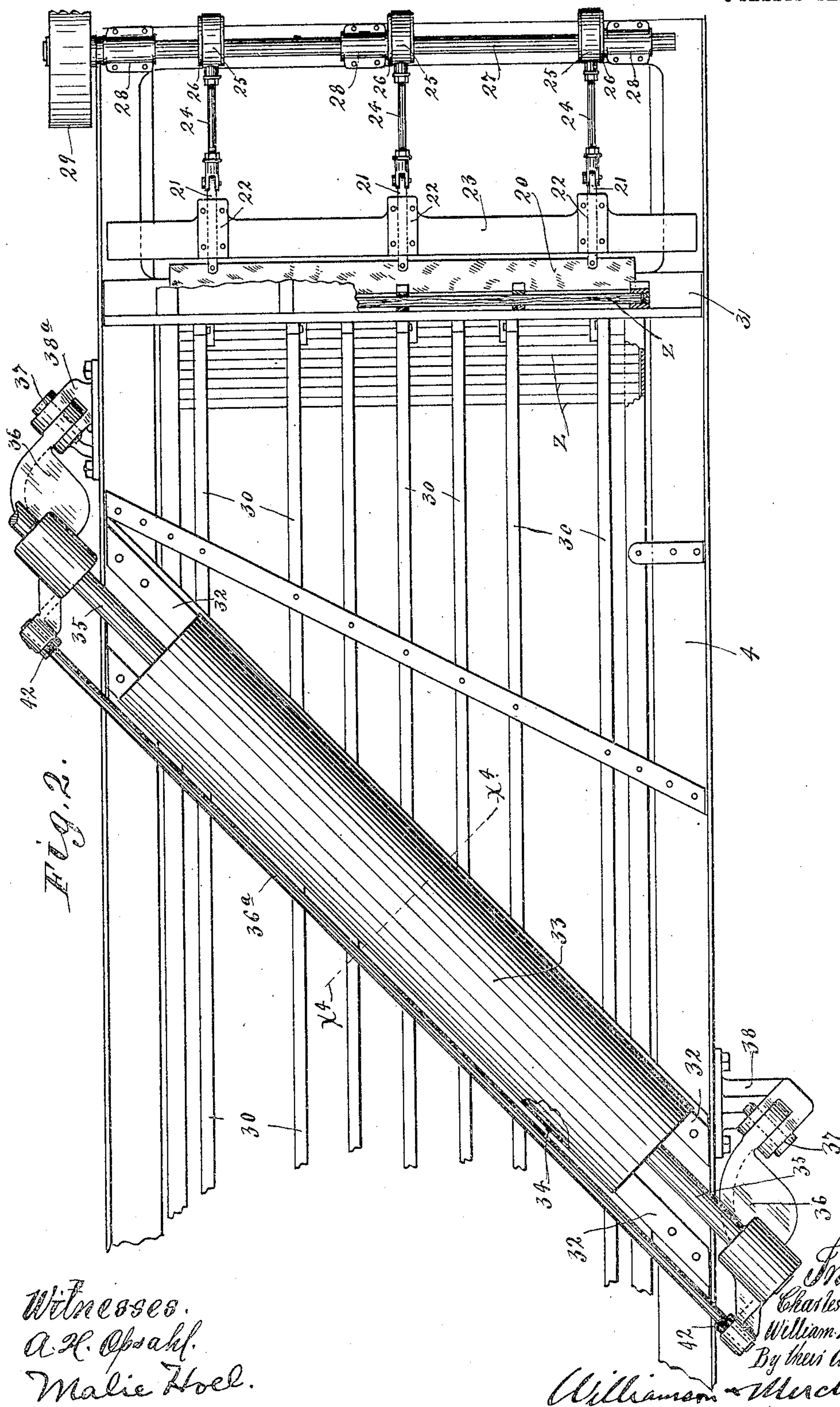
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

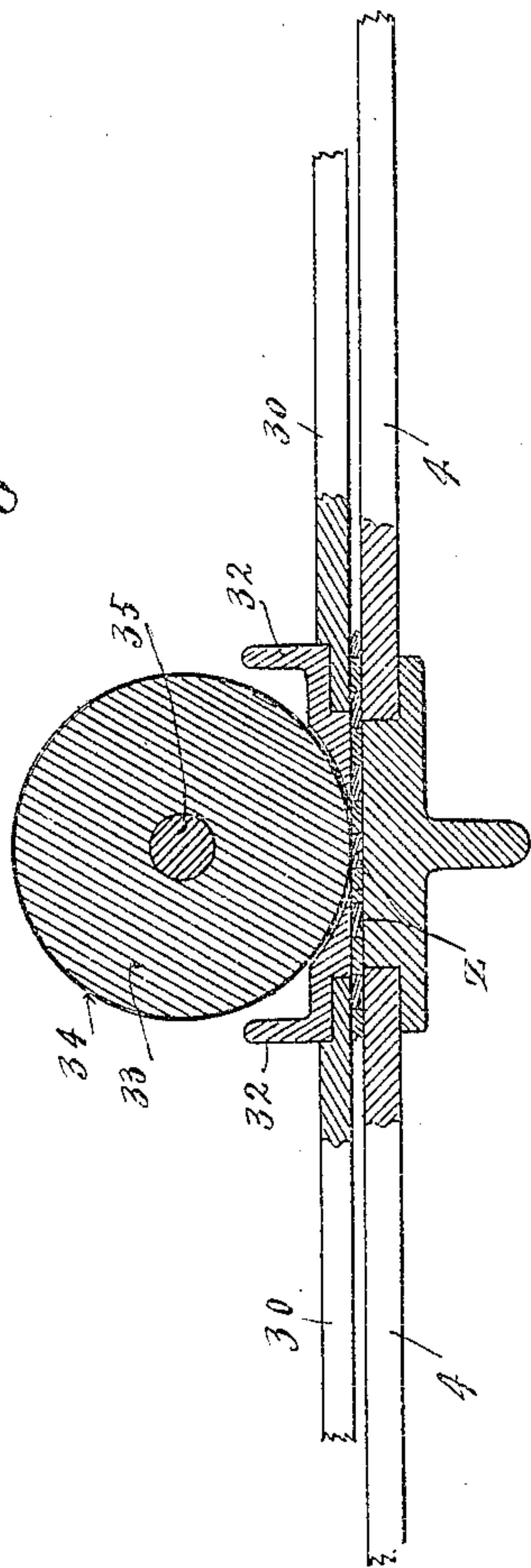
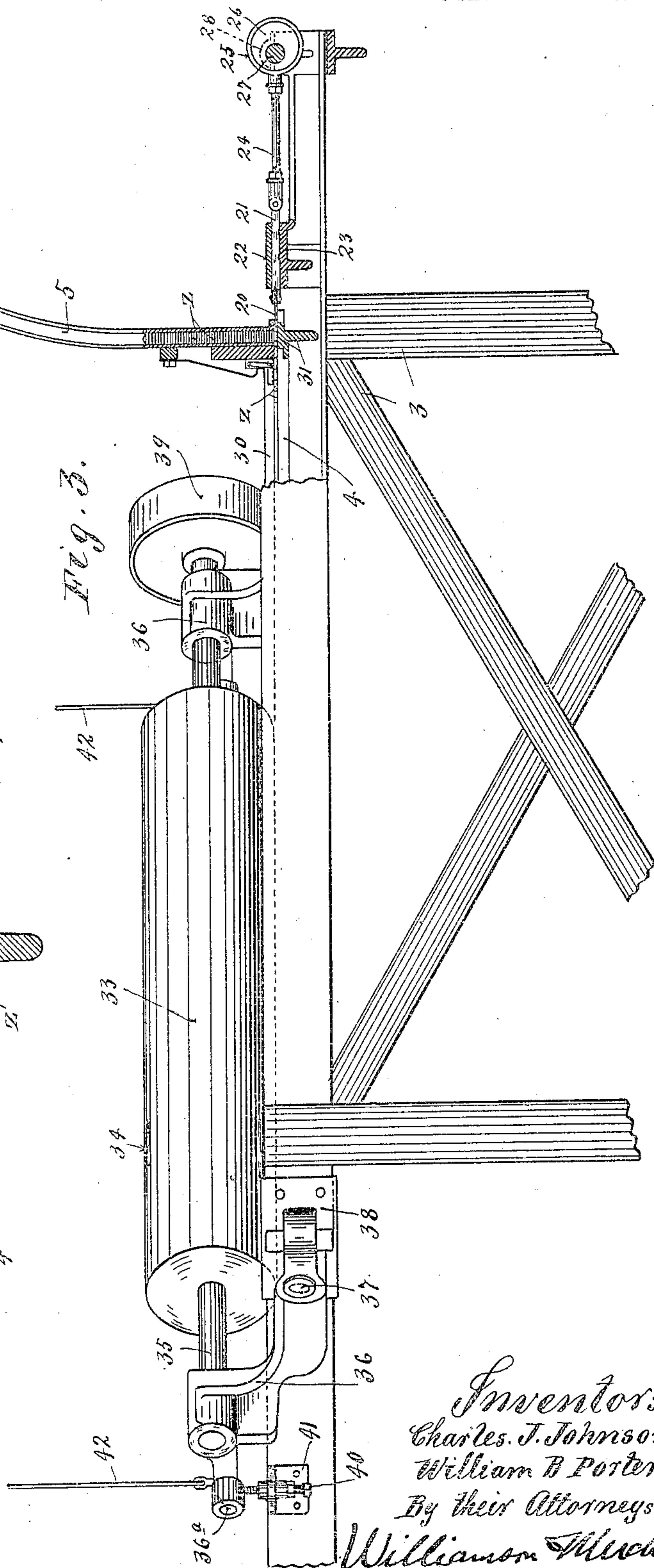


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COMPO-BOARD MACHINE.

No. 808,756.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed June 21, 1905. Serial No. 266,255.

To all whom it may concern:

Be it known that we, CHARLES J. JOHNSON and WILLIAM B. PORTER, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Compo-Board Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to machines for the manufacture of composition lumber, such as that disclosed in Letters Patent of the United States issued to George S. Mayhew of date February 9, 1892, under No. 468, 355. Such composition lumber is now very generally known as "compo-board."

Our present invention is especially intended as an improvement on that type of compo-board-manufacturing machine set forth and claimed in the prior patent of C. J. Johnson and W. H. Springer, No. 679,698, issued of date July 30, 1901, but is capable of general application to other machines of the general character indicated. In the operation of the said prior patent to Johnson and Springer the compo-board is constructed by a process which may be briefly stated as follows: Thick paper or cardboard is obtained in large rolls, and the strips taken from the two rolls are covered on their inner surfaces with a proper kind of glue. Narrow wooden slats, which are to lie transversely between the paper strips, are automatically inserted between said strips and are pressed therebetween to drive out the surplus adhesive material and thoroughly impregnate the paper and wooden slats therewith. The paper strips and the slats are intermittently fed to assembling positions, and the progress thereof is stopped long enough to press together and partially dry the said strips and slats, after which the pressed and assembled strips are drawn forward to make room for newly-assembled members that are to be cut into regular lengths. The pressing together of the paper strips and slats, as above stated, is preferably accomplished by a hydraulic press, one member of which is fixed and the other of which is movable. In practice it has been found that the slats which make up

the body-filler between the paper strips will vary considerable in thickness, so as to give an uneven surface to the paper and to make poor connection between the faces of the slats and the paper strips.

As one of the principal features of our present invention we provide a roller or drum, which is covered with sandpaper or otherwise provided on its periphery with a cutting-surface, and arrange this roller for action on the upper surfaces of the slats at an oblique angle to the direction of travel of the said slats while on their way to an assembling position within the press. By this arrangement the sandpaper roller or drum, which may be herein designated, broadly, as a "surfacing-roller," is arranged so that it will always overlap a plurality of the slats, will simultaneously act thereon, and will hold the said slats pressed tightly down upon the feed-table.

As another important and radically new feature of our invention we operatively connect the surfacing-roller with the movable member of the press in such manner that said roller will be lowered into its operative position whenever the movable member of the press is raised into an inoperative position, and, conversely, the said surfacing-roller will be raised into an inoperative position whenever the movable member of the press is forced downward into an operative position. Otherwise stated, we provide automatic mechanism for throwing the surfacing-roller out of action when the press is thrown into action, and vice versa, thereby preventing the said surfacing-roller from cutting grooves in the slats that are being fed to the press and while they are held stationary under the said surfacing-roller during that time when the press is thrown into action to press together the assembled slats and strips of paper.

What we consider the most improved form of mechanism for carrying out the novel features of construction above outlined is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view, partly in side elevation, partly in vertical section, and partly in diagram, illustrating the several novel features of our invention applied to a machine very much of the

general character disclosed in the said Johnson and Springer patent above identified. Fig. 2 is a plan view of the parts broken away, showing the right-hand position as viewed in Fig. 1 of the mechanism shown in Fig. 1. Fig. 3 is a view in side elevation, with some parts broken away and some sectioned, showing substantially the same parts shown in Fig. 2; and Fig. 4 is a vertical section taken on the line $x^4 x^4$ of Fig. 2.

The numeral 1 indicates a lower floor and the numeral 2 the upper floor of a building in which the machine is installed.

The numeral 3 indicates the framework in the machine, which framework has an upper frame portion 3^a and is provided with a horizontal feed-table 4. At the receiving end of the feed-table 4 is an upright slat-delivery chute or magazine 5, which at its sides is rigidly secured to the framework 3 and the lower end of which terminates above the said feed-table near enough to permit only one slat at a time to be fed laterally therefrom.

The slats are indicated by the character z . The paper-rolls are indicated by the character y , and the strips or sheets unwound therefrom are shown by dotted lines in Fig. 1 and are indicated by the character y' . The said rolls y are detachably held by spindles 6, which in turn are detachably held by supporting-brackets 7, located one at each of the floors 1 2.

The numerals 8 and 9 indicate "drawing-rollers," so called, which are located in pairs and between which the sheets y' of the rolls y are caused to run and by which they are held slightly spaced apart and in different horizontal planes. The upper sheet y' , as illustrated, in passing from the upper roll y to the first pair of drawing-rollers 8 passed over guide-rolls 10, 11, and 12 and the lower sheet y' in passing from the lower roll y to the said first pair of drawing-rollers 8 passed over guide-rolls 13 and 14.

The numeral 15 indicates the pair of upper and lower glue-pots in which glue-applying rollers 16 are mounted to run at their lower portions. The upper portions of said rollers 16 run against the inner surfaces of the sheets y' , the one in the vicinity of the guide-rolls 12 and the other in the vicinity of the guide-rolls 14.

The press acts on the sheets y' and the interposed layer of slats between the drawing-rollers 8 and 9. This press may be of the construction shown in said prior patent to Johnson and Springer, and for the purposes of this case it is only necessary to note the lower and fixed bed-plate or platen 17 and the upper and vertically-movable press-plate 18, which latter receives its vertical movements from cylinder and piston devices 19. (Shown only in outline in Fig. 1.)

The slats are fed one at a time from the bottom of the magazine 5 by a laterally-movable

feed-blade 20, secured on the ends of short plungers 21, mounted in keepers 22 of a transverse guide-bar 23, rigidly secured at its ends to the sides of the feed-table 4. The plungers 21 are connected by pitmen 24 to eccentric-straps 25, that work on eccentrics 26, carried by a transverse counter-shaft 27, which counter-shaft is mounted in bearings 28 on an end projection of the feed-table 4. At one end the counter-shaft 27 is provided with a pulley 29, over which a power-driven belt (not shown) is adapted to run to impart rotary motion to said shaft, and through the eccentric devices reciprocatory motion to the feed-blade 20.

A horizontally-extended and closely-pressed layer of slats z , fed from the magazine 5 onto the feed-table 4, are fed under overlying press-bars 30, rigidly secured at their forward ends to a transverse bar 31, rigidly secured at its ends to the feed-table 4 with its body spaced vertically upward therefrom, so as to permit the said slat to be fed thereunder. At their rear ends slats z may be supported by any suitable means, as by a bar similar to the bar 31, but not shown in the drawings.

At their intermediate portions press-bars 30 are sectioned and are rigidly secured to a pair of parallel laterally-spaced tie-bars 32. (Best shown in Figs. 2 and 4.) These tie-bars 32 extend at an oblique angle or preferably about forty-five degrees to the press-bars 30, which press-bars extend in the direction of the line of feed movements of the slats z from the magazine to the press. A quite large surfacing-roller 33, which carries on its periphery a cylindrical covering of sandpaper 34, overlies the oblique tie-bars 32 and engages with the upper surfaces of the slats z between said tie-bars. This roller 33 is provided with a shaft 35, the ends of which project and are journaled in the vertical movable portions of a pair of bearing-arms 36, that are hinged at 37 to bearing-brackets 38 and 38^a, rigidly secured on the sides of the feed-table 4. At one end the roller-shaft 35 is provided with a pulley 39, (shown in Figs. 1 and 3,) over which a power-driven belt (not shown) is adapted to run to impart motion to said roller 33. The two arms 36 are rigidly connected by a tie-rod 36^a. To variably limit the downward movement of the roller 33, adjustable stops are provided, as shown, in the form of set-screws 40, that work through lugs 41 on the sides of the feed-table 4 and engage the under surfaces of the vertically-movable portions of the bearing-arms 36, as best shown in Fig. 3. As is evident by vertical adjustments of the set-screws 40 the thickness to which the slats will be reduced by the surfacing-roller may be varied.

As a convenient means for causing the surfacing-roller to rise into an inoperative position when the movable press-blade 18 is

lowered and for causing said roller to drop into its operative position when the said press-blade 18 is raised into an inoperative position we provide a pair of lifting connections 42, each of which is attached at one end to one side of said movable press-blade 18 and at its other end to the free end of one of the roller-bearing arms 36. These lifting connections 42, as shown, are each made up of several rods connected by short chains 42^a, that run over guide-sheaves 43, (shown only in Fig. 1,) and which sheaves 43 are, as shown, journaled on suitable bearings 44 on the upper floor 2. In Fig. 1 the lifting connections 42 are shown of unequal length, because of the obliquely-extended surfacing-roller, and the said two connections appear to run the one into the other. This might, in fact, be the construction employed; but preferably the two connections are run independently to the vertically-movable press-blade 18.

The operation of the mechanism above described is obvious from the foregoing description and statements made.

From certain of the statements made it will be understood that the invention is generic in its nature and that its application to the said Johnson and Springer machine illustrates only one of its many possible applications to machines for making compo-board and for performing similar work.

The mechanism described has been put into actual use and has been found extremely efficient for the purposes had in view.

What we claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a machine of the character described, the combination with means for feeding the slats, of a press for action on said slats at the assembling-point, a surfacing-roller operative on said slats, and means for automatically moving said surfacing-roller into an inoperative position, when said press is thrown into action, substantially as described.

2. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing said strips onto said slats, a surfacing-roller operative on said slats, and means for automatically moving said roller into an operative position, when said press is thrown into action, substantially as described.

3. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing said strips onto said slats, a surfacing-roller operative on said slats, and a connection between said roller and the movable member of said press, operating to move said roller into an inoperative position, when said press is thrown into action, substantially as described.

4. In a machine of the character described, the combination with means for feeding the

slats and the paper strips, of a press for pressing said strips onto said slats, a surfacing-roller set obliquely to the line of feed movements imparted to said slats and operating on a plurality of said slats at one time while they are on their way to said press, and means for automatically moving said roller into an inoperative position, when said press is thrown into action, substantially as described.

5. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing the same together, a surfacing-roller operative on said slats, and means for automatically moving said roller into an inoperative position, when said press is thrown into action, substantially as described.

6. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing said strips onto said slats, a surfacing-roller set obliquely to the line of feed movements imparted to said slats and operative on a plurality of said slats at one time, pivoted arms supporting said roller for vertical movements, a connection between said pivoted arms and the movable member of said press, whereby said roller will be raised into an inoperative position when said press is thrown into action, and will be lowered into an operative position when said press is thrown out of action, substantially as described.

7. In a machine of the character described, the combination with means for feeding the slats, including a magazine and a reciprocating feed-blade, of means for feeding paper strips, a press for pressing said strips onto said slats, a surfacing-roller set obliquely to the line of feed movement imparted to said slats and operating on a plurality of said slats at one time, pivoted arms supporting said roller for vertical movements, a connection between said arms and the movable member of said press, operative to throw said roller into an inoperative position, when said press is thrown into action, substantially as described.

8. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing the same together, a vertically-movable surfacing-roller operative on the slats while they are on their way to the assembling position, adjustable means for limiting the downward movement of said roller, and means for automatically raising said roller into an inoperative position when said press is thrown into action, substantially as described.

9. In a machine of the character described, the combination with means for feeding the slats and the paper strips, of a press for pressing the same together, a surfacing-roller operative on said slats while they are on their

way to the assembling position, pivoted arms supporting said roller for vertical movements, and means for automatically raising said roller into an inoperative position when
5 said press is thrown into action, and for lowering the same into an operative position when said press is thrown out of action, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES J. JOHNSON.
WILLIAM B. PORTER.

Witnesses:

CHARLES LOBERT,
L. E. HORN.