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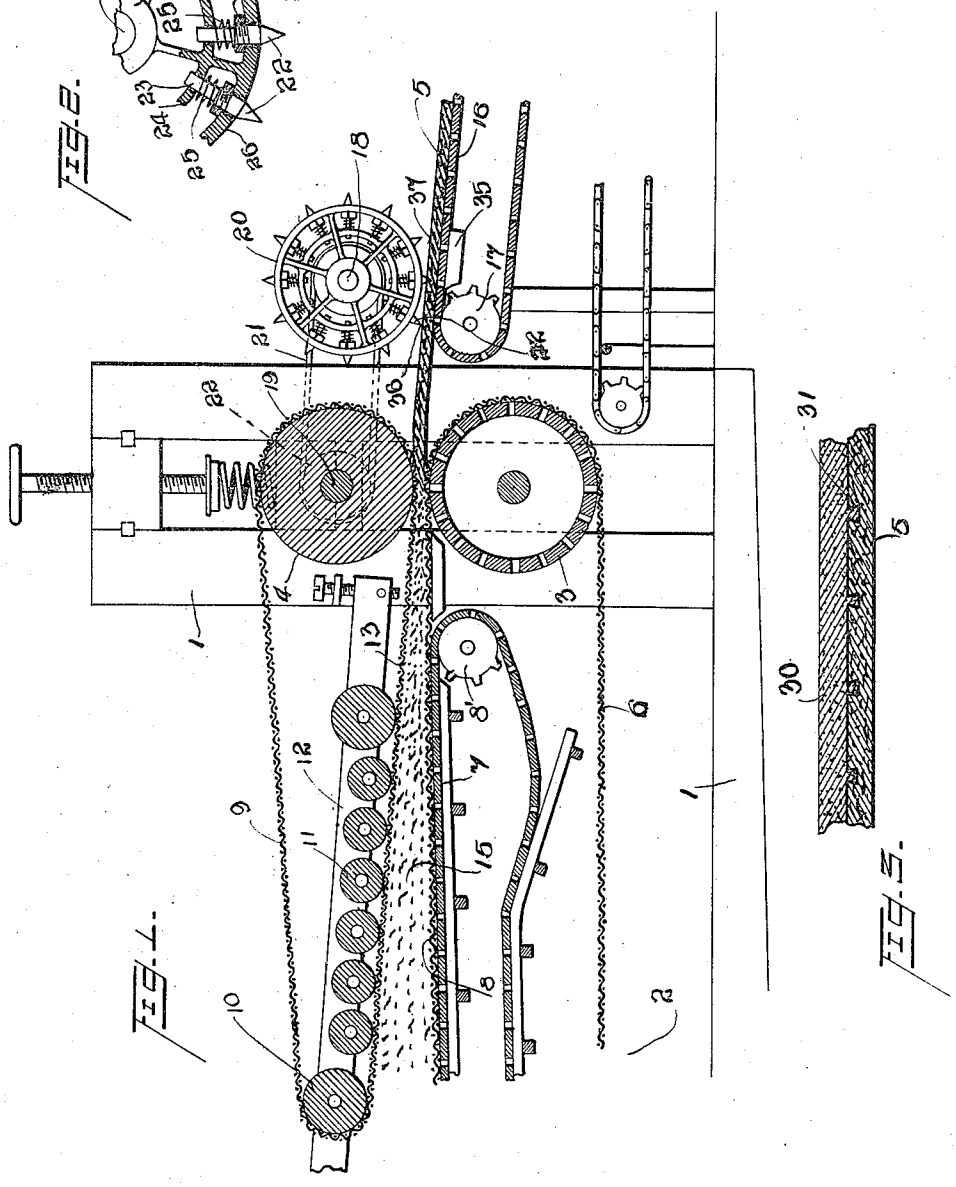
MACHINE FOR PERFORATING INSULITE BOARDS.

APPLICATION FILED OCT. 7, 1918.

1,306,283. Patented June 10, 1919.



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MACHINE FOR PERFORATING INSULITE BOARDS.

1,306,283. Specification of Letters Patent. Patented June 10, 1919.

Application filed October 7, 1918. Serial No. 257,251.

To all whom it may concern:

Be it known that I, JOHN K. SHAW, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Machines for Perforating Insulite Boards; and I 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.

This invention relates to a machine for perforating insulite boards, and has for its object to provide a mechanism for accomplishing this purpose which will be simple in construction, comparatively inexpensive to manufacture, and more efficient in action than those which have been heretofore proposed.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claim.

Referring to the accompanying drawings, forming a part of this specification in which like numerals designate like parts in all the views:—

Figure 1 is a diagrammatic elevational view of a portion of an insulite board making machine with my improvement applied thereto;

Fig. 2 is an enlarged partially sectional view of a portion of the board perforating wheel; and

Fig. 3 is a diagrammatic sectional view of an insulite board provided with perforations or indentations and a plaster coating applied thereto.

1 indicates the frame of an insulite board making machine, 2 the space in which pulp fiber and water are usually located, 3 the lower roll, and 4 the upper roll employed for making the insulite board 5. 6 represents the traveling wire gage belt, the upper portion 8 of which over-runs the slatted belt 7, passing around the sprocket 8′, and 9 represents a wire gauze belt passing around the roller 4, and the guiding pulley 10 as illustrated. A plurality of pressure rollers 11 are supported on the frame work 12, and the lower run 13 of the belt 9 contacts with said roller as illustrated. The mass of pulp fiber and water 15 is caught between the upper run 8 of the belt 6, and the lower run 13 of the belt 9 and is gradually forced in between the pressure rollers 3 to form the finished insulite board 5, all in a manner well known.

The said insulite board 5 passes from between the rollers 3 and 4 on to the conveyer belt 16, which passes around the sprocket 17 and carries the said board 5 to any suitable point of delivery. Mounted on a shaft 18 near the shaft 19 on which the roller 4 is mounted is the indenting or perforating wheel 20 as illustrated. Said wheel is rotated by any convenient means, not shown, and is preferably belted, or connected as by means of the belt 21 to the pulley 22, of the roller 4. The connection is such that the wheel 20, and the roller 4 runs in unison. Said wheel 20 is provided around its periphery with a plurality of sharp pointed blades or members such as 22, which are preferably spring pressed as illustrated. A convenient mounting is afforded by passing the shanks 23 of said members 22 through an inner web 24 of said wheel and placing springs 25 between the outer periphery 26 and said web 24. The compression of said springs 25 is conveniently adjusted as by the nuts 27. As is well known, the fiber board known on the market as insulite differs essentially from paper board in general in that it is very much more porous than the paper board, it is very much thicker than is paper board, and it serves in the arts as a substitute for lumber, while at the same time, it serves as a substitute for paper board. Its fibers are different from the fibers found in paper board in that they are of at least three classes. In the one class the fibers are almost slivers. They may be say one to two inches long, and say one eighth of an inch wide. These larger slivers or fibers are mixed with a percentage of smaller or string like fibers, which are say from one half to one inch long, and say about one thirty second to one sixty fourth of an inch wide. Mixed with these first two classes of fibers, is a percentage of hair like fibers, which are from one fourth to one inch long and from one hundredth to one two hundredth of an inch in diameter.

Owing to the particular manner in which this board is made it comes out from the rollers 3 and 4 in a somewhat fluffy or porous condition and is more or less spongy, and resembles cork in its physical and in-

sulating properties. It is for this reason that it is quite difficult to conveniently and effectually make perforations entirely through the said board or to make slots or indentations in its surface, for, the instrument used to indent or perforate the board, if blunt, is liable to strike one of the larger slivers and to thus tear its way through the board. And further, owing to the porous and spongy nature of the board, the surface readily gives way under pressure and the perforation is found not to remain open unless it is made quite large, which is often objectionable.

On the other hand, it is often very desirable, when the board 5 is used in place of lumber to build inexpensive houses or buildings, to coat the said board with plaster such as 30, see Fig. 3. But whereas this plaster will stick to the outer surface of the board 5, yet, indentations such as 31 are found to greatly facilitate the sticking of the plaster 30 on to the boards 5, and therefore, it is very desirable indeed to provide some mechanism such as the wheel 20 and sharp pointed blades or instruments 22. In operation the board 5 passes over the conveyer belt 16 which is provided with a support 35, immediately underneath the wheel 20, and as this wheel revolves with the same peripheral speed, as the wheel 4, a pointed or sharp member 22 will enter the board at or above the point 36, and follow the board throughout its period of contact until it leaves the board at or about the point 37. In the meantime, after contact is had between the member 22 and the board 5, said sharp member sinks deeper and deeper into the board 5 until at its lowest position, whereupon it gradually rises from the depression made until it leaves the said board 5. The blades or pointers 22 being sharp as shown, they readily cut any large fibers or slivers that they may incounter, and thus avoid tearing the board.

In the meantime, should the resistance offered by such slivers be too great, the springs 25 will readily permit the said instruments 22 to yield, and thus avoid tearing the board. The finished board accordingly is provided with depressions or perforations according to the depth that the instruments 22 are permitted to penetrate and they may be readily plastered as soon as the board has been dried, and is delivered from the machine.

It is obvious that those skilled in the art may vary the details of construction as well as the arrangement of parts without departing from the spirit of the invention, and therefore, I do not wish to be limited to the above disclosure except as may be required by the claim.

What I claim is:—

In a machine for making indentations in a fiber board, the combination of a pair of pressure rolls to move the said board; a conveyer belt on which said board is received; a support below the upper run of said belt; an indenting wheel mounted above said support and conveyer belt; connections between said indenting wheel and one of said rolls for compelling the peripheral travel of said indenting wheel to be the same as the travel of said board; a plurality of spring pressed, adjustable sharp pointed indenting members adapted to contact with said board carried by said indenting wheel; and means to adjust the penetration of said members and the compressions of their springs, substantially as described.

In testimony whereof I affix my signature.

JOHN K. SHAW.