No. 892,597. PATENTED JULY 7, 1908.

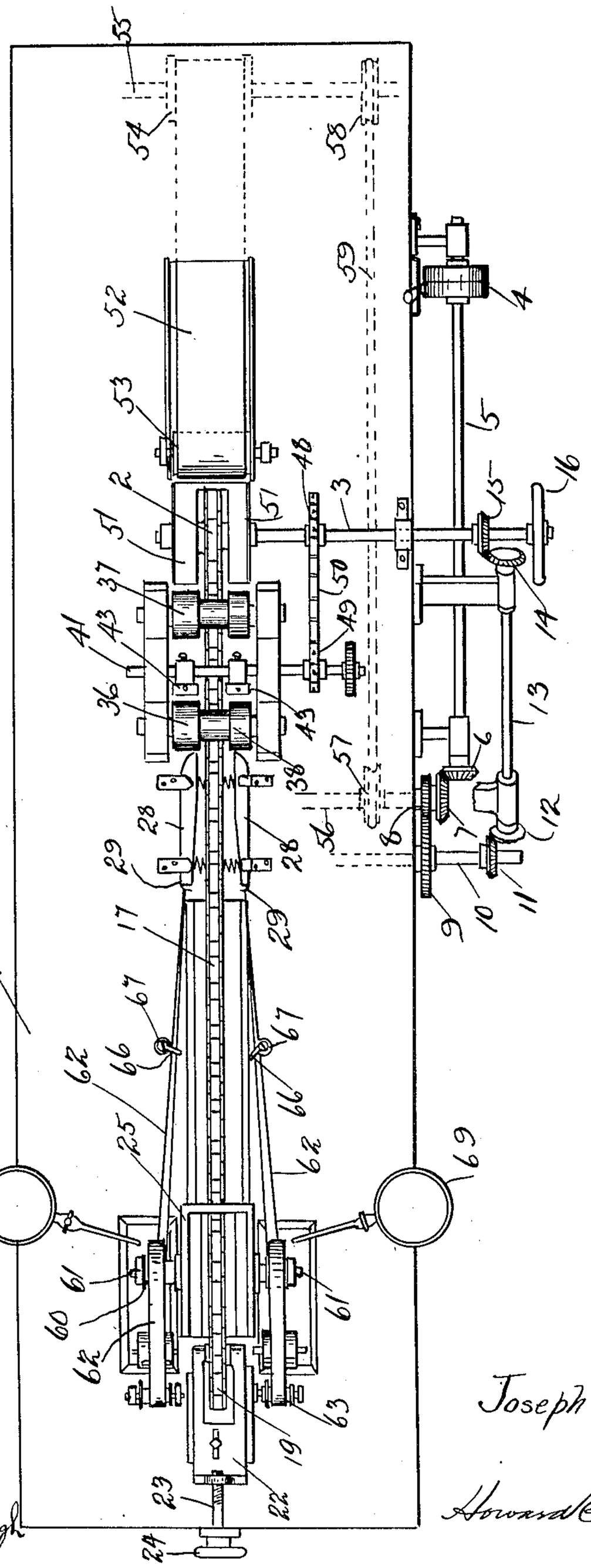
J. W. LACROSS.

MACHINE FOR COVERING BOARD WINDERS.

APPLICATION FILED MAR. 14, 1907.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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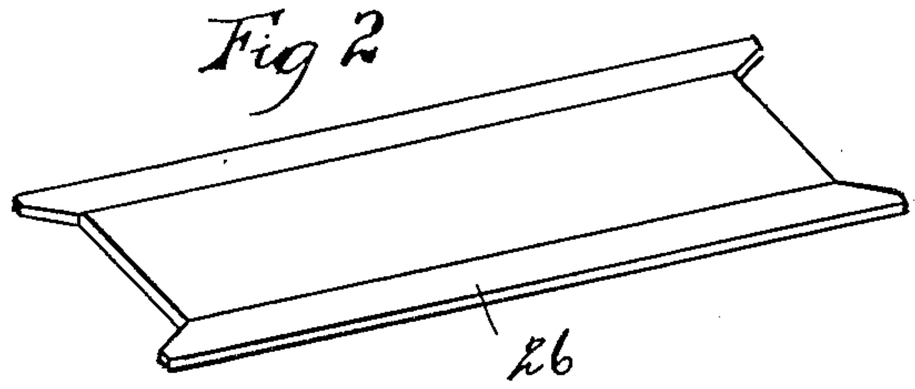
4 SHEETS—SHEET 2.

Fig 2



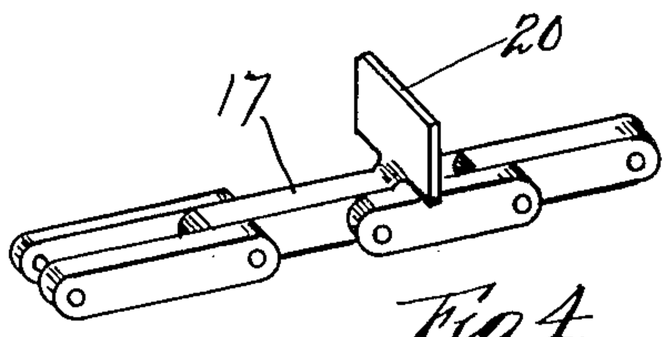
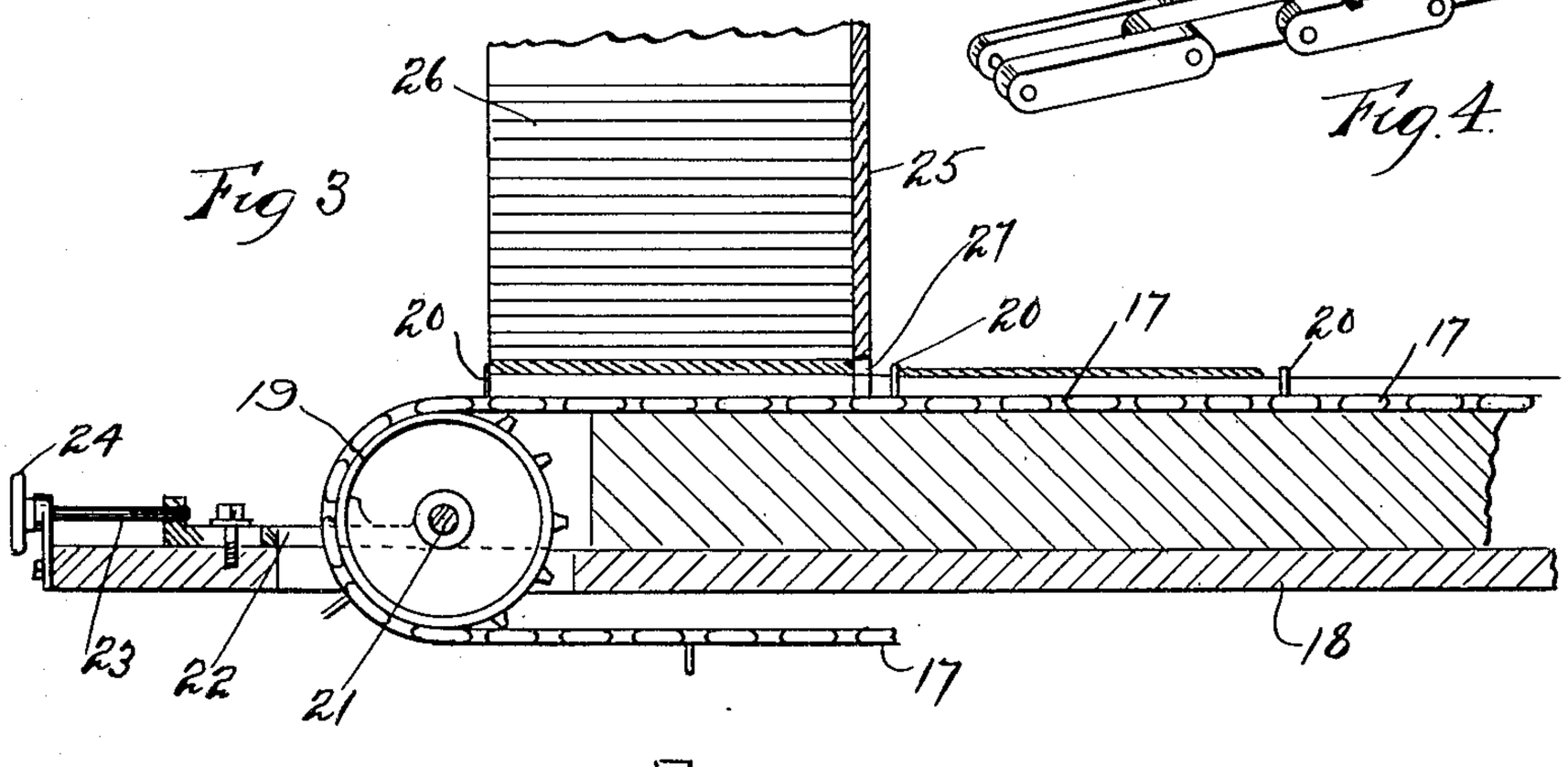


Fig. 4.

Fig 3



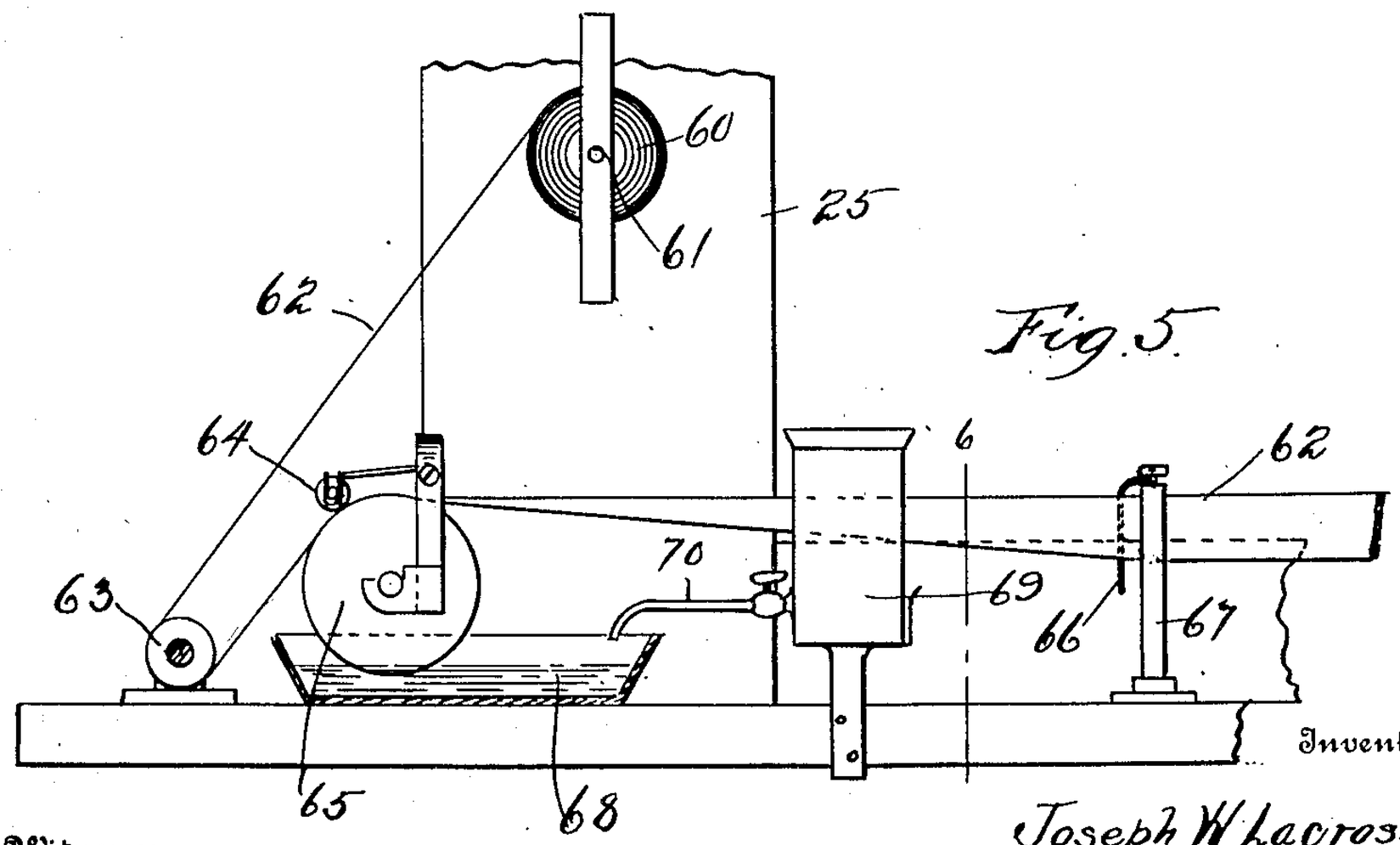


Fig. 5.

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4 SHEETS—SHEET 3.

Fig. 6.

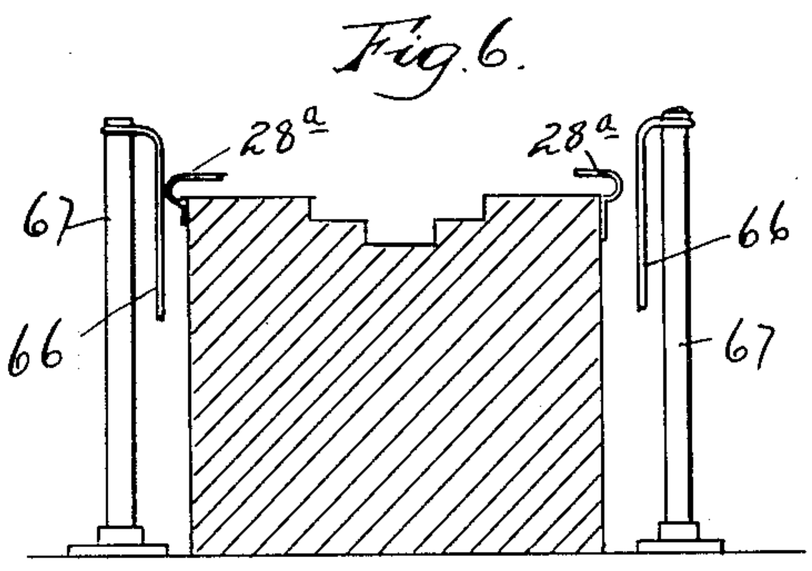
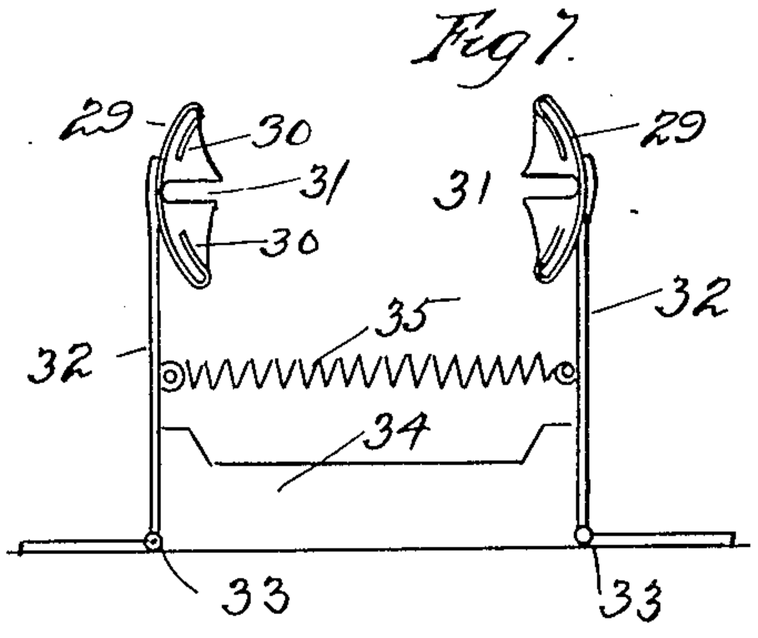


Fig. 7.



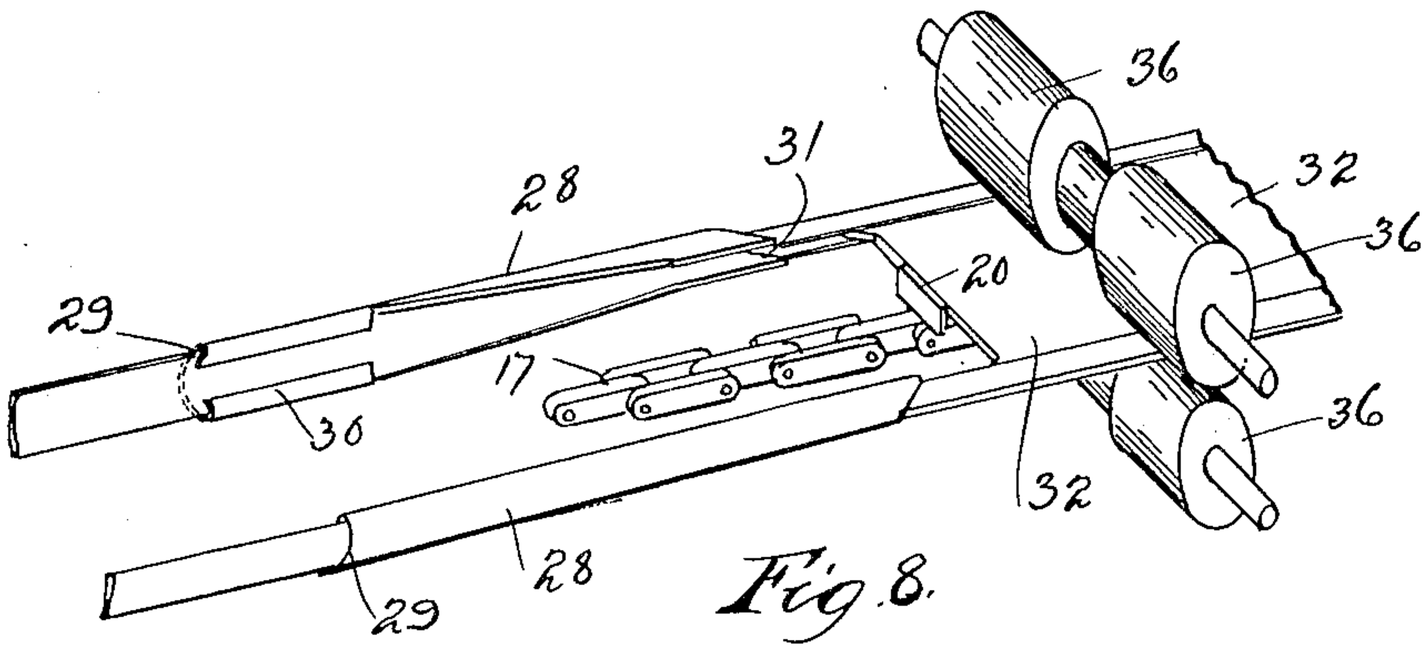


Fig. 8.

Fig. 9.

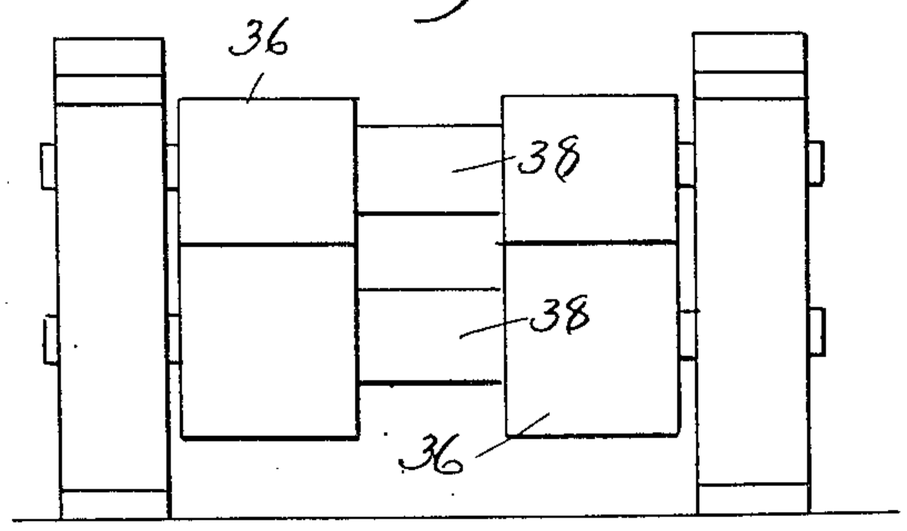
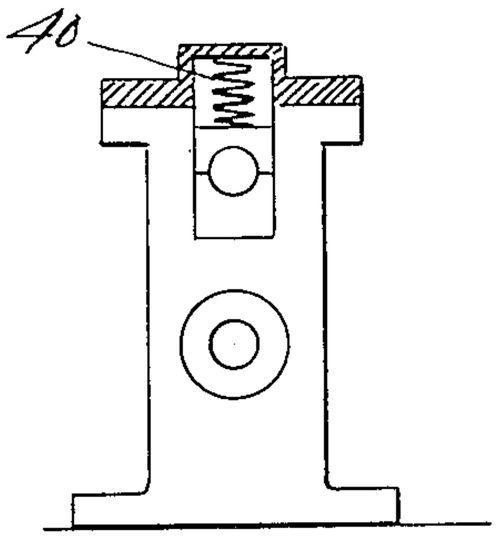


Fig. 10.



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4 SHEETS—SHEET 4.

Fig. 11.

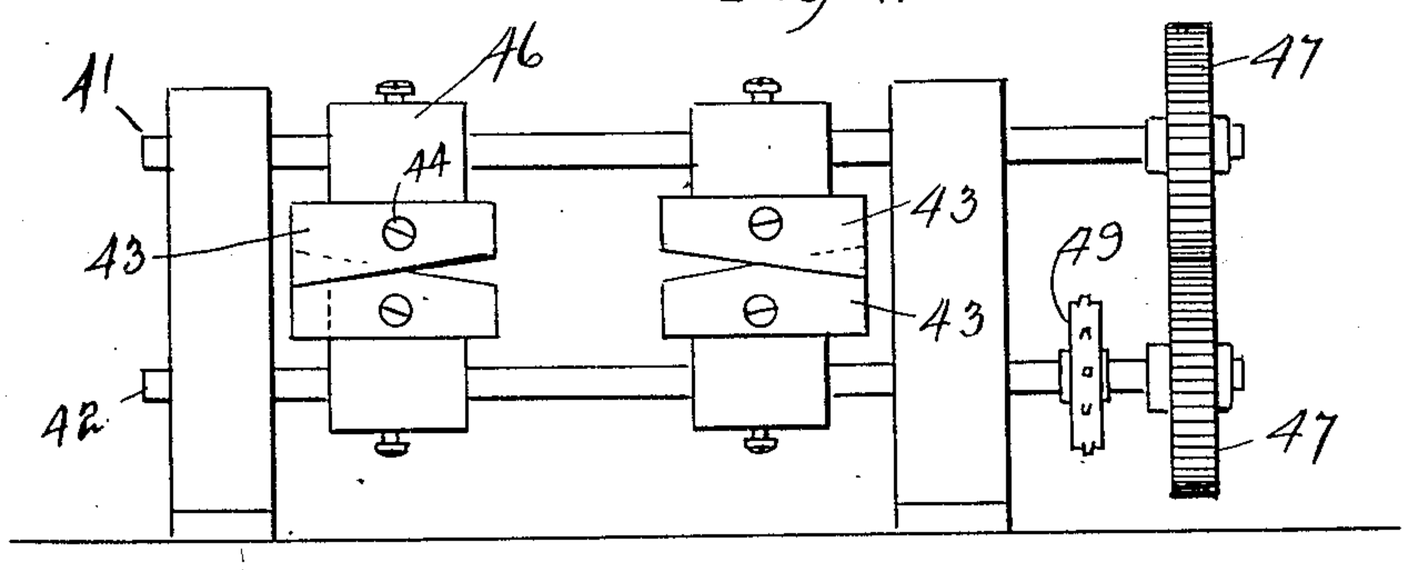


Fig. 12.

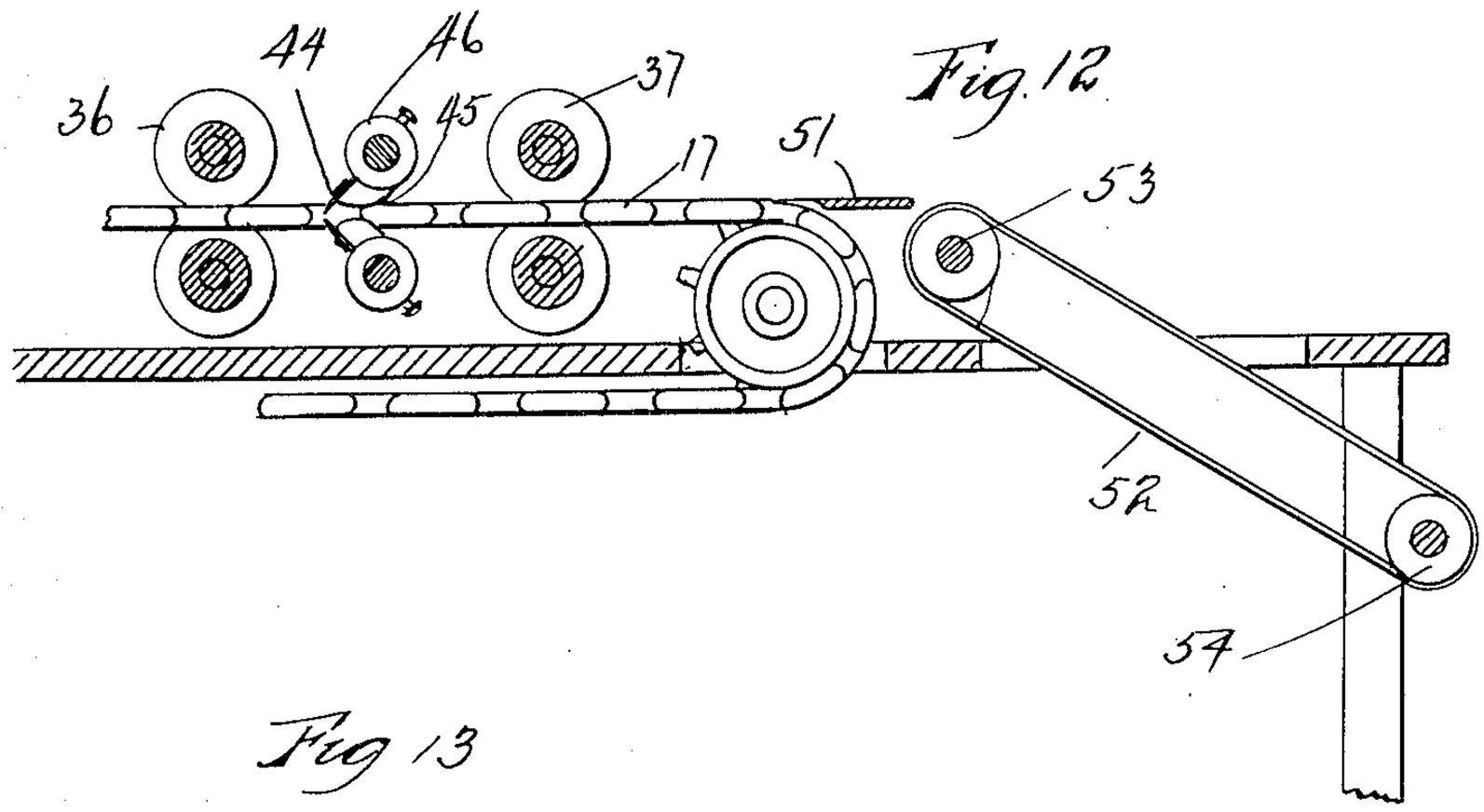


Fig 13

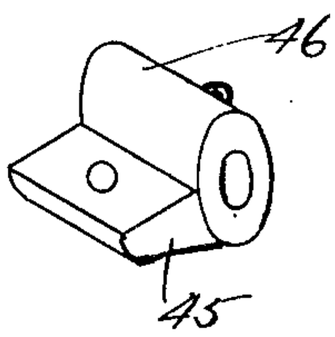
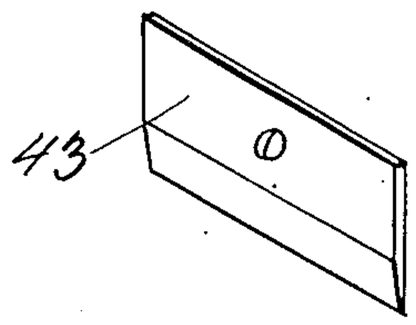


Fig. 14.



Witnesses

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UNITED STATES PATENT OFFICE.

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MACHINE FOR COVERING BOARD-WINDERS.

No. 892,597. Specification of Letters Patent. Patented July 7, 1908.

Application filed March 14, 1907. Serial No. 362,284.

To all whom it may concern:

Be it known that I, JOSEPH W. LACROSS, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Machines for Covering Board-Winders, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to machines for covering the edges of board winders, reels or the like, and has for its object to provide a machine which will automatically apply a ribbon of paper, fabric, or other suitable material, to the edges of a board or reel on which yarn, webbing, cloth, or the like is wound.

In practice when the cloth or webbing is wound onto the board it usually leaves the ends or edges of the same exposed, and it has been the custom to cover these edges with a tinted paper or fabric to give the package a more finished appearance. Most of these boards have heretofore been covered by hand-labor, which was necessarily very slow and expensive, at the same time the work was not accurate or uniform, but by the use of my machine these boards may be covered very rapidly and with absolute uniformity, at the same time reducing the expense of covering to a minimum.

The invention is fully set forth in this specification and more particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1—is a plan view of the machine. Fig. 2—is an enlarged detail of one of the winding boards covered on its edges. Fig. 3—is a sectional view showing the magazine in which a large number of the boards are stored, also showing a portion of the carrier belt. Fig. 4—is an enlarged detail of a portion of the chain belt showing one of the carrier plates attached thereto. Fig. 5—is a side elevation of a portion of the machine, showing the roll from which the ribbon is fed to the machine, said roll being supported on the side of the magazine, also showing the manner of carrying the ribbon over the roll to moisten or apply cement to the face of the same before it is attached to the boards. Fig. 6—is a section on line 6—6 of Fig. 5 showing the guides 28^a for the boards as they are carried from the magazine to the folding fingers. Fig. 7—is an end view of the folding fingers showing the manner in which they are flexibly supported to exert a tension on the edge of the boards as the cover is led therethrough. Fig. 8—is a perspective view representing a pair of folding fingers and a ribbon being fed through each of said fingers and being applied to the edges of a board, said board being in the act of passing through one pair of the rolls which press the covering firmly onto the same. Fig. 9—is a front elevation showing a pair of the rolls with the center portion of each cut away to allow the chain and carrier plate to pass therethrough. Fig. 10—is an end view showing the roll bearing frame and the tension spring which causes said rolls to press the covering tightly onto the edges of the board. Fig. 11—is a side elevation showing the cutters which sever the ribbon after having been applied to the board. Fig. 12—is an end elevation of both pair of rolls showing the position of the cutters between the same, also showing the carrier belt which receives the finished boards and deposits them in a proper receptacle in the end of the machine. Fig. 13—is a detail of the blade supporting collar. Fig. 14—is a detail of a cutter blade.

Referring to the drawings, at 1 is the frame of the machine which may be made in any convenient form, but is preferably made in the form of a table on the upper face of which the operating mechanism is mounted, the primary driving pulleys, shafts and gears being arranged on the framework below the top of the table for convenience.

At 2 is the sprocket wheel through which the carrier belt is driven. This sprocket is mounted on its driving shaft 3, which extends out over the edge of the table and receives its motion from the main driving pulleys 4 through the shaft 5, gears 6, 7, 8 and 9, shaft 10, gears 11 and 12, through the inclined shaft 13, and gears 14 and 15. The outer end of this sprocket driving shaft is also provided with a hand-wheel 16 by which the mechanism may be moved and fed by hand when desired.

The driving sprocket wheel 2 imparts a uniform motion to the carrier belt 17, which belt is led along over the top of the machine, back beneath the table 18 and around the sprocket 19 at the entering end of the same. This carrier chain is provided at intervals with small plates or fingers 20, each of which are permanently secured to a link in the

chain. These fingers extend outward from the face of the chain belt and are adapted to engage one of the boards 26, as it passes through the magazine and carry said board through the machine to be operated upon. These plates in practice are usually set in the belt about the length of a board apart.

The sprocket wheel 19 is mounted on the shaft 21, which shaft in turn is mounted on the sliding plate 22 that is held to be adjusted endwise by the screw 23 thereby providing convenient means whereby the tension of this carrier chain belt may be nicely regulated by moving the hand-wheel 24.

At 25 is a magazine which is made in the form of a tall receptacle formed of a shape and size to receive a large number of winding boards 26 piled one upon the other. At the lower edge of this magazine is a narrow slot or opening 27 just wide enough to admit of one board passing therethrough at a time.

One of the essential features of my device is the construction of the ribbon folding fingers 28—28. These fingers are preferably made of thin metal and are formed slightly concaved at the entering end 29, the edges being turned over forming inwardly extending lips or flanges 30—30 through which the ribbon is guided and started on its folding action. From the entering end these fingers are turned gradually inward and drawn together to bring the edges of the ribbon towards each other until at their opposite ends they form a narrow slot 31 just wide enough to receive the edge of the board 32 and the ribbon of paper turned or folded over it, see Fig. 8. These fingers are preferably mounted on the two arms 32—32 hinged at their lower ends 33, said arms being held in an upright position against the stop block 34 by means of the tension springs 35—35, see Fig. 7. At 36—36 and 37—37 are two sets of pressing rolls both rolls in each set being reduced at their center portions 38 and 39 to allow the chain and its carrier plate to pass therethrough. The shaft at both ends of the upper roll in each of these sets is pressed downward by the tension of spring 40 so as to cause a pressure of the roll on the edge of the board and roll the covering firmly thereon.

Located on the shaft 41—42 between these two sets of rolls are the cutters. These cutters are constructed with cutter blades 43—43, each blade being fastened by means of the screw 44 to the lip 45 of the collar 46. The blades are set on a slight angle so that when the upper and the lower blades come together they cut with a shearing action readily severing the covering of paper or cloth between the ends of the boards upon each revolution of the shafts. These shafts are geared together at their outer ends by gears 47—47, the lower shaft being driven from the sprocket driving shaft 3 through the sprocket 48, small sprocket 49 and sprocket chain 50 to run at a speed to cause the cutters to sever the ribbons at the end of each board.

At 51—51 are guide plates over which the boards are passed, after leaving the rolls 37. They are then transferred to the carrying belt 52 which removes them to the end of the table. This carrier belt runs on the pulleys 53 at its upper end and 54 at its lower end, which latter pulley being mounted on the shaft 55 is driven from the shaft 56 through the pulleys 57 and 58 and belt 59.

The ribbons of material, which are applied to each side of the boards, are preferably brought to the machine on rolls 60—60 which rolls are supported to turn freely on pins 61—61 on either side of the magazine casing. Each ribbon 62 is led from its individual roll down under the guide roll 63, up under the contact or pressure roll 64, and over the top of the moistening roll 65, thence through the guide wire 66, supported on the post 67, there it is turned up on its edge and carried through the folding fingers 28—28, where the edges are bent or folded over the edge of the boards as they move along therewith. The springs 35 on said fingers tend to press the material tightly to the edge of the board and the rolls 36 and 37 press the same tightly to the top and bottom of the boards and cause it to adhere firmly thereto. The movement of the boards to which the ribbons are attached, serve to draw them in at a corresponding speed to be subsequently attached to the boards which follow. After these ribbons have been firmly attached to both edges of the boards by passing through the first set of rolls they are severed by the cutters and then carried out through the second set of rolls.

At 68 is a trough which may contain either cement or water, the same being replenished from the reservoir 69 through the supply pipe 70. In practice when the ribbons are gummed and dried before being brought to the machine, water is held in the trough 68 and is carried by the soft-faced roll 65 to moisten the gummed face of the same, but when the ribbon has not been previously gummed the trough 68 contains cement which is applied to one face of said ribbon as it passes over the roll.

This machine is comparatively simple in construction and may be run without the aid of a skilled attendant, it being only necessary to keep the magazine supplied with boards and the troughs with the cementing material, and after first threading up the ribbons and getting the machine started it will continue to run and automatically cover the boards in an accurate and uniform manner at a very rapid rate, severing the ribbons and depositing the finished boards at the opposite end of the machine.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is:

1. In a machine of the character described, a carrier, a magazine for supplying said carrier, means for folding a pair of ribbons one over each edge of said articles, said carrier being adapted to automatically feed said articles and said ribbons to said folding means, and means for pressing and securing said ribbons to said articles.

2. In a machine of the character described, reels for holding a pair of ribbons, means for folding said ribbons over the edges of a board, means for feeding the ribbons and the boards to said folding means, means for cementing and pressing said ribbons to said board, and means for severing the ribbons after they have been applied to the boards.

3. In a machine of the character described, means for carrying boards one after another along through said machine, and means for applying a covering material to the edges of said boards as they pass through said machine and means for subsequently severing said covering material.

4. In a machine of the character described, a carrier for automatically feeding the articles to be covered, a magazine for supplying said carrier, and means for automatically applying a covering material to the edges of said articles as they are carried through the machine.

5. In a machine of the character described, means for engaging boards to be covered, means for feeding a covering material to and folding the same over the edges of said boards, means for pressing and securing said covering to said boards and means for subsequently severing said covering material.

6. In a machine of the character described, means for holding a plurality of winding boards, reels for holding ribbons of covering material, means for feeding said material to each side of said boards and automatically folding them over the edges of the same, means for cementing said ribbons and pressing them onto said boards, means for holding said boards while said coverings are being applied thereto and means for subsequently severing said covering material.

7. In a machine of the character described, means for carrying articles one after another along through the machine, means for carrying a cemented ribbon of covering material on either side of said articles, means for feeding said material along with said articles, and automatically folding it over the edges thereof while in motion, means for pressing said material onto said articles, and means for severing the ribbons after having been applied.

8. In a machine of the character described, rolls for supporting ribbons of covering material, means for moistening or cementing said ribbons, a magazine containing a plurality of boards, ribbon folding means, means for automatically feeding said boards from said magazine to said folding means, means for feeding said ribbons from said rolls to said folding means, means for pressing said ribbons to said boards and means for severing the ribbons after they have been applied to said boards.

9. In a machine of the character described, reels for holding a plurality of ribbons, a magazine containing a plurality of boards, ribbon folding means, an endless belt for feeding said boards from said magazine to said folding means, means for feeding said ribbons to said folding means to the edges of said boards, and means for cementing and pressing said ribbons to said boards.

10. In a machine of the character described, reels for holding a plurality of cemented ribbons, a magazine containing a plurality of boards, ribbon folding means, an endless belt for automatically engaging and carrying said boards from said magazine to said folding means, means for feeding said ribbons to said folding means where they are applied to the edges of said boards, means for pressing said ribbons to said boards, and means for severing the ribbons after they have been applied to said boards.

11. In a machine of the character described, reels for holding one or more ribbons, means for applying cement to said ribbons, a magazine containing a plurality of boards, a pair of flexible ribbon folding fingers, an endless belt for automatically engaging and carrying said boards from said magazine to said folding means, means for feeding said ribbons to said folding means, and a pair of rolls for pressing said ribbons to said boards.

12. In a machine of the character described, means for holding a pair of ribbons, means for applying moisture or cement to said ribbons, a magazine containing a plurality of boards, a pair of flexible ribbon folding fingers, an endless belt for automatically engaging and carrying said boards from said magazine to said folding fingers, means for feeding said ribbons to said folding means, means including said fingers for bending said ribbon over the edges of said boards, a pair of rolls for pressing said ribbons to said boards, and rotary cutting means for severing the ribbons between the boards.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH W. LACROSS.

Witnesses:

HOWARD E. BARLOW,

E. I. OGDEN.