

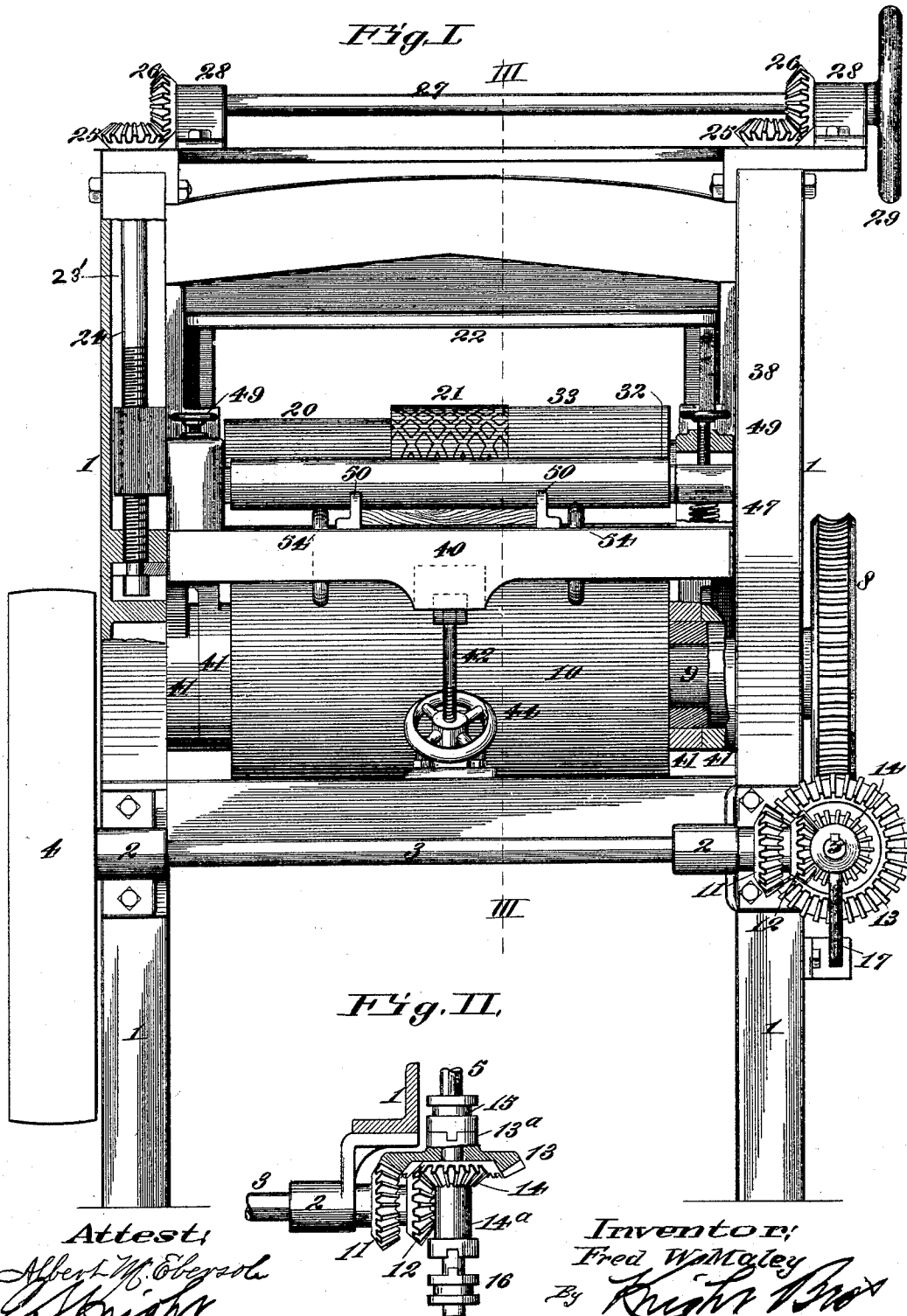
(No Model.)

3 Sheets—Sheet 1.

F. W. MALEY.
EMBOSSING MACHINE.

No. 519,961.

Patented May 15, 1894.



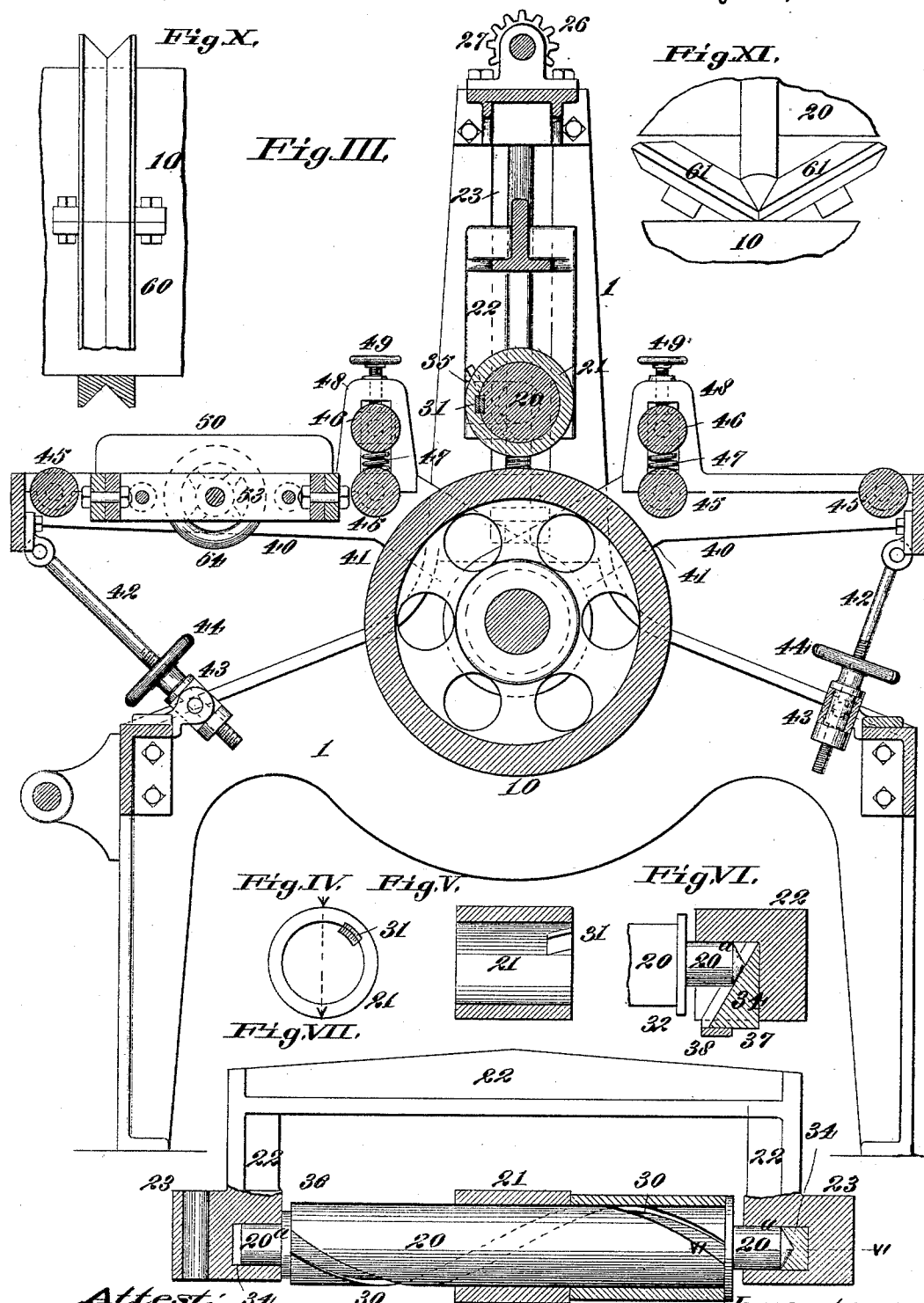
Attest:
Albert W. Eberbach
Knight

Inventor:
Fred W. Maley
By Knight Bros
attys

F. W. MALEY.
EMBOSSING MACHINE.

No. 519,961.

Patented May 15, 1894.



Attest: 31
Albert M. Ebersole
C. Knight

Inventor:
Fred W. Maley
By Knight & Co.
Attys

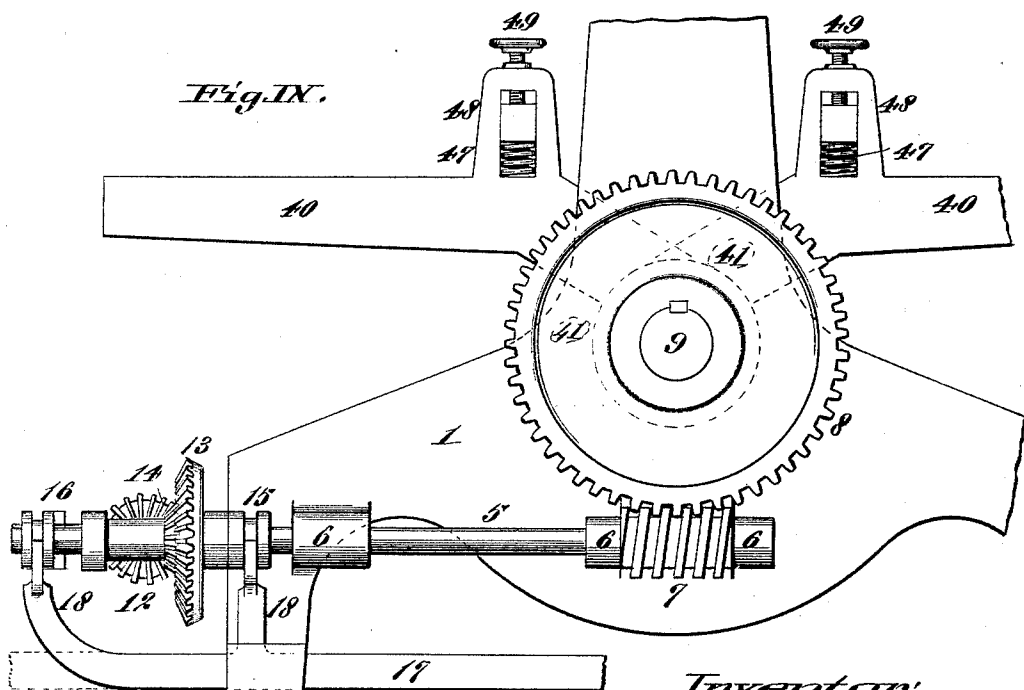
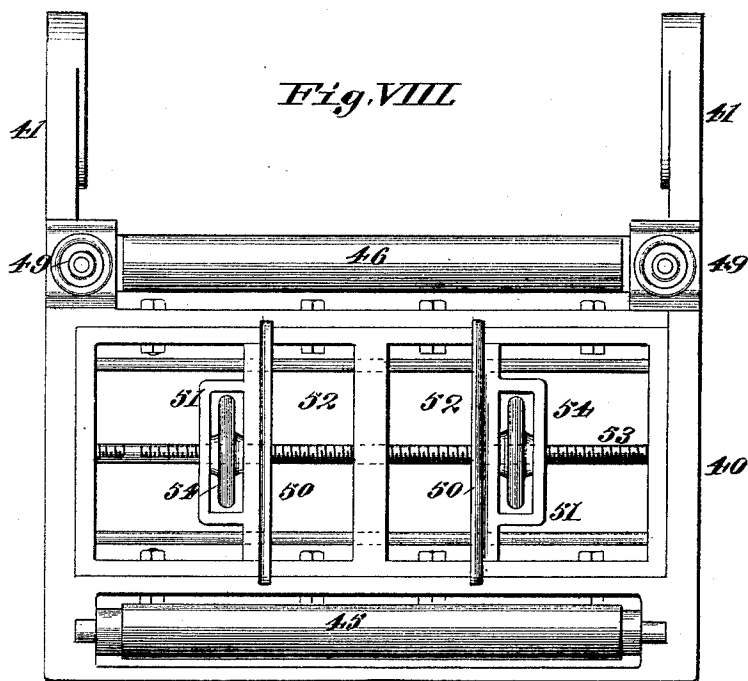
(No Model.)

3 Sheets—Sheet 3.

F. W. MALEY.
EMBOSSING MACHINE.

No. 519,961.

Patented May 15, 1894.



Attest,
Alfred W. Ebersole
C. Knight

Inventor,
Fred W. Maley
By *Knight Bros*
attys

UNITED STATES PATENT OFFICE

FREDRICK W. MALEY, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO CHARLES W. HILL AND DANIEL P. ALEXANDER, OF SAME PLACE.

EMBOSSING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,961, dated May 15, 1894.

Application filed January 21, 1893. Serial No. 459,222. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK W. MALEY, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Embossing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in embossing machines; and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is an elevation, part in section, illustrative of my invention. Fig. II is a detail, horizontal section, illustrating the duplex driving gear. Fig. III is a vertical section, taken on line III—III, Fig. I. Fig. IV is an end view of the die. Fig. V is a longitudinal section of the die, taken on line V—V, Fig. IV. Fig. VI is a detail section, taken on line VI—VI, Fig. VII, and showing the manner of holding the die spindle so as to permit it to expand and contract. Fig. VII shows the spindle holding frame, part in elevation, and part in section, and shows the spindle in elevation, and the die and its retaining sleeve in section. Fig. VIII is a top view of one of the tables of the machine. Fig. IX is an enlarged, detail elevation. Figs. X and XI are detail views, illustrating attachments for the main drum, to be utilized when working irregular pieces of wood.

Referring to the drawings, 1 represents the main frame of the machine, to which is secured boxes 2, in which is journaled the main shaft 3.

4 is the driving pulley on the shaft 3.

5 is a counter-shaft journaled to the frame 1 by boxes 6, (see Figs. II and IX.) The shaft 5 is provided with a worm 7 which engages a worm-wheel 8 secured to the shaft 9 of the main drum 10. As the shaft 3 is turned, its motion will be imparted to the drum, and to give the drum a variable speed, I secure a large bevel wheel 11, and a small bevel wheel 12, to the shaft 3. The bevel wheel 11 is adapted to be engaged by a similar wheel 13, and the bevel wheel 12 is adapted to be engaged by a similar wheel 14, the wheels 13

and 14 being mounted loosely on the shaft 5, but held from end movement thereon. The hub 13^a of the wheel 13 is adapted to be engaged by a clutch collar 15, having a spline connection with the shaft 5, and the hub 14^a of the wheel 14 is adapted to be engaged by a clutch collar 16 having a spline connection with the shaft 5. The sliding clutch collars 15 and 16 may be operated to move them along the shaft 5 by any suitable means. I have shown a bar 17, with arms 18 and 19 engaging annular grooves in the collars, (see Fig. IX.) It will thus be understood that, by moving the collars, either set of gearing 11, 13, or 12, 14 may be brought into operation, and thus the speed with which the drum is moved may be varied.

20 represents a spindle upon which the embossing die 21 is mounted. This spindle is journaled in a vertically movable frame 22, having extensions 23 fitting in grooves or slots 23', in the main frame, as shown in Figs. I, III and VII. It will thus be seen that the frame can be raised and lowered to move the embossing die to or from the main drum 10, as may be found necessary.

As a means for moving the frame, I have shown vertical screws 24 having bevel wheels 25 on their upper ends, which are engaged by similar wheels 26 on a horizontal shaft 27 journaled in boxes 28, and provided with a hand-wheel 29. By turning the hand-wheel these screws 24 are moved simultaneously to raise and lower the frame 22, and consequently the spindle 20, and the embossing die.

In embossing machines there is a perceptible expansion and contraction of the embossing die, under the different temperatures to which it is subjected. To allow for this expansion and contraction, and yet to keep the die at practically always the same position on the spindle is one of the objects of my invention. This I accomplish by providing the spindle with a curved groove 30, in which fits a projection 31 on the inside of the die, (see Figs. IV, V and VII.) Between the die and a collar 32 on one end of the spindle I locate a sleeve 33, which is of sufficient length to hold the die at the proper position lengthwise on the spindle. As the spindle always turns in the same direction, when in operation, its

tendency, owing to the projection 31 fitting in the groove 30, is to crowd against the sleeve 33, thus dispensing with the necessity of putting anything on the spindle to keep the die from moving in the other direction along the spindle, or away from the sleeve 33, and thus the die is permitted to expand and contract, while having no liberty to play or move along the spindle while the machine is in operation. In these machines there is also a perceptible expansion and contraction of the spindle, and to provide for this is another object of my invention. This I accomplish by providing the frame 22 with grooves 34 which receive the journal ends 20^a of the spindle, these grooves being made to extend laterally to one side of the frame, as shown at 35, Fig. III, so that the spindle is easily inserted and removed. One end of the spindle fits up against the frame 22, as shown at 36, Fig. VII, while the collar 32 on the other end of the spindle does not come in contact with the frame. 37 is a wedge shaped block, fitting against the conical journaled end of the spindle having the collar 32. This block is held to its position by a spring 38, (see Figs. I and VI.) As the spindle expands, the wedge-shaped block 37 will yield outwardly under the influence of the spring 38, and when the spindle contracts again, the block will be forced in to compensate for the contraction by the spring 38, the block always holding the journal up to its bearing.

To facilitate the handling of irregular or warped lumber or boards, I arrange the tables 40 so that they can be moved with relation to a horizontal line, and may, by so moving the tables, compensate for the warp or irregularity of the boards, and, to a great extent or entirely, remove the warp or irregularity. Each table has an extension 41, as shown by dotted lines, Fig. III, and by full lines, Fig. I, by which it is journaled on the shaft 9 of the main drum, and can be moved on this journal, which serves as a pivot. As a means for moving the tables, I have shown a rod 42 connecting the outer end of each table to the frame of the machine, through means of a bracket 43. Each rod has a hand-wheel 44, and by turning this hand-wheel, the horizontal position of either table can be lengthened. Each table is provided with a lower pair of rollers 45, and an upper roller 46 located over the inner, lower roller, with a spring 47 to hold it in its normal position, the spring being located between the boxes of the upper and lower rollers respectively, these boxes being held in standards 48, projecting upwardly from the table. This arrangement of adjustable tables is also important, for the reason that the wooden strips or boards can be passed through the same with the fibers of their upper surface stretched or under tension, (caused by the tables being supported at an angle below the horizontal,) so that the natural warping action of the burning die

will be counteracted, and the molding will come from the machine in a straight condition.

49 are set screws for regulating the distance the rollers 46 can move from the inner rollers 45, and the board or lumber is, of course, fed through between these rollers. By changing the horizontal position of the tables upon which the boards rest, and are held by the upper rollers 46, the irregularity and warping of the boards can be and is compensated for.

50 represents guides which are adjustably secured to the tables on the feed side of the machine, and between which the boards pass, these guides projecting upwardly above the upper surface of the table. Each guide has a head 51 fitting in an opening 52 of the table, and which is traversed by a threaded shaft 53, each head 51 has an opening to receive a hand-wheel 54, and by turning the hand-wheels, the heads, carrying with them the guides, are moved along, so that the distance between the guides can be changed at will.

It is sometimes desired to emboss a piece of molding or other strip which has an irregular back or surface opposite the surface to be embossed, and in such cases, a flange or sectional ring 60 may be secured to the main drum, as shown in Fig. X, the flange or ring having a grooved surface to correspond with the surface of the wood which it is to receive.

In Fig. X I have shown the ring provided with a V-shaped groove, to receive a quarter-round piece of wood, the upper surface of which would be embossed.

As a modification of the ring shown in Fig. X, two disks or wheels 61 may be arranged over the drum 10, as shown in Fig. XI, the disks or wheels being mounted on suitable journals held in any suitable form of frame or support.

I am aware that it is not broadly new to provide a supporting drum or cylinder with grooves or profiles of different shapes to support different shaped strips of wood that are to be embossed, but I am not aware that it has ever been proposed to provide a sectional ring having such irregular grooves or profiles, which is adapted to be clamped on to the ordinary supporting drum when it is desired to treat strips of irregular shapes, whereby the machine may be readily changed from one form to the other.

I claim as my invention—

1. In an embossing machine, the combination of a drum, means for turning the drum, a spindle and an embossing die arranged on the spindle; said spindle having a curved groove to receive a projection on said die, whereby the die is allowed to expand and contract while being held from longitudinal movement on the shaft; substantially as set forth.
2. In an embossing machine, the combination of a drum, means for turning the drum,

a spindle having a curved groove, a sleeve fitting on the groove against a collar secured to the spindle, and a die having a projection fitting in said groove, substantially as and for the purpose set forth.

3. In an embossing machine, the combination of a rotating drum, a vertically adjustable frame, a die spindle mounted in said frame and means for yieldingly pressing said spindle constantly in one direction against a suitable stop, whereby the correct longitudinal position of the spindle is maintained, while its expansion under changes in temperature is permitted.

4. In an embossing machine, the combination of the drum, means for turning the drum, a spindle having a conical journal, and adapted to hold the embossing die, a wedge-shaped block 37, adapted to bear against the conical end of the spindle, and a spring 38; substantially as and for the purpose set forth.

5. In an embossing machine, the combination of a rotatable drum, a die spindle opposed to said drum, and a feed table provided with suitable rollers and capable of being adjusted to any desired angle, whereby the material can be passed through the machine with the top fibers stretched or under tension, so that the tendency of the burning die to warp the molding is counteracted, substantially as described.

6. In an embossing machine, the combination of a rotating drum, a die-spindle mounted in an adjustable frame and a removable sectional collar or ring secured to the drum having an irregular periphery to correspond with the back of the molding or other piece to be embossed, as explained.

FREDRICK W. MALEY.

In presence of—

ALBERT M. EBERSOLF,
E. S. KNIGHT.