No. 612,348. Patented Oct. 11, 1898.

A. KOHLER.

WOOD EMBOSSING MACHINE.

(Application filed Dec. 18, 1897.)

(No Model.)

FIG. 1.

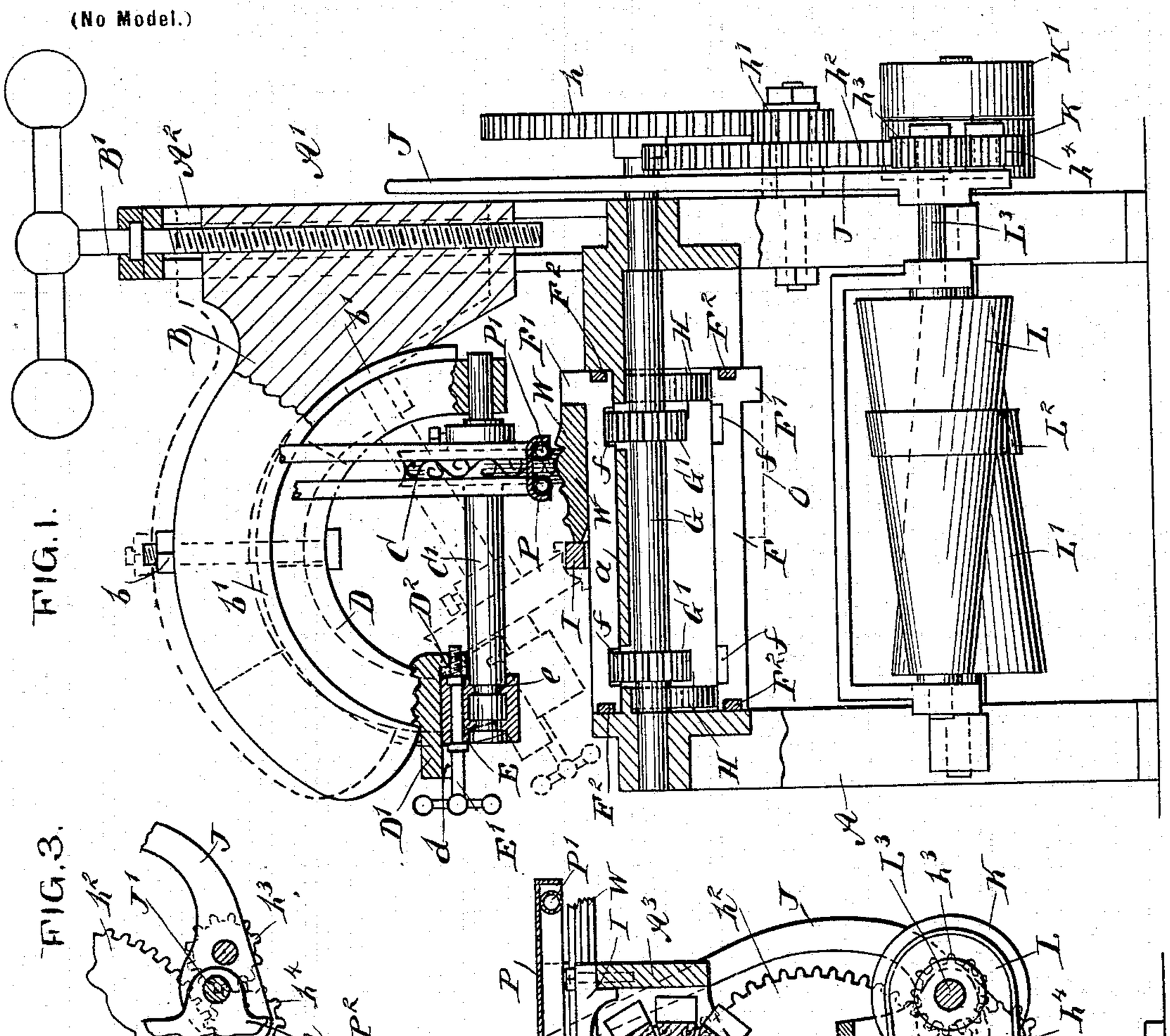

FIG. 3.

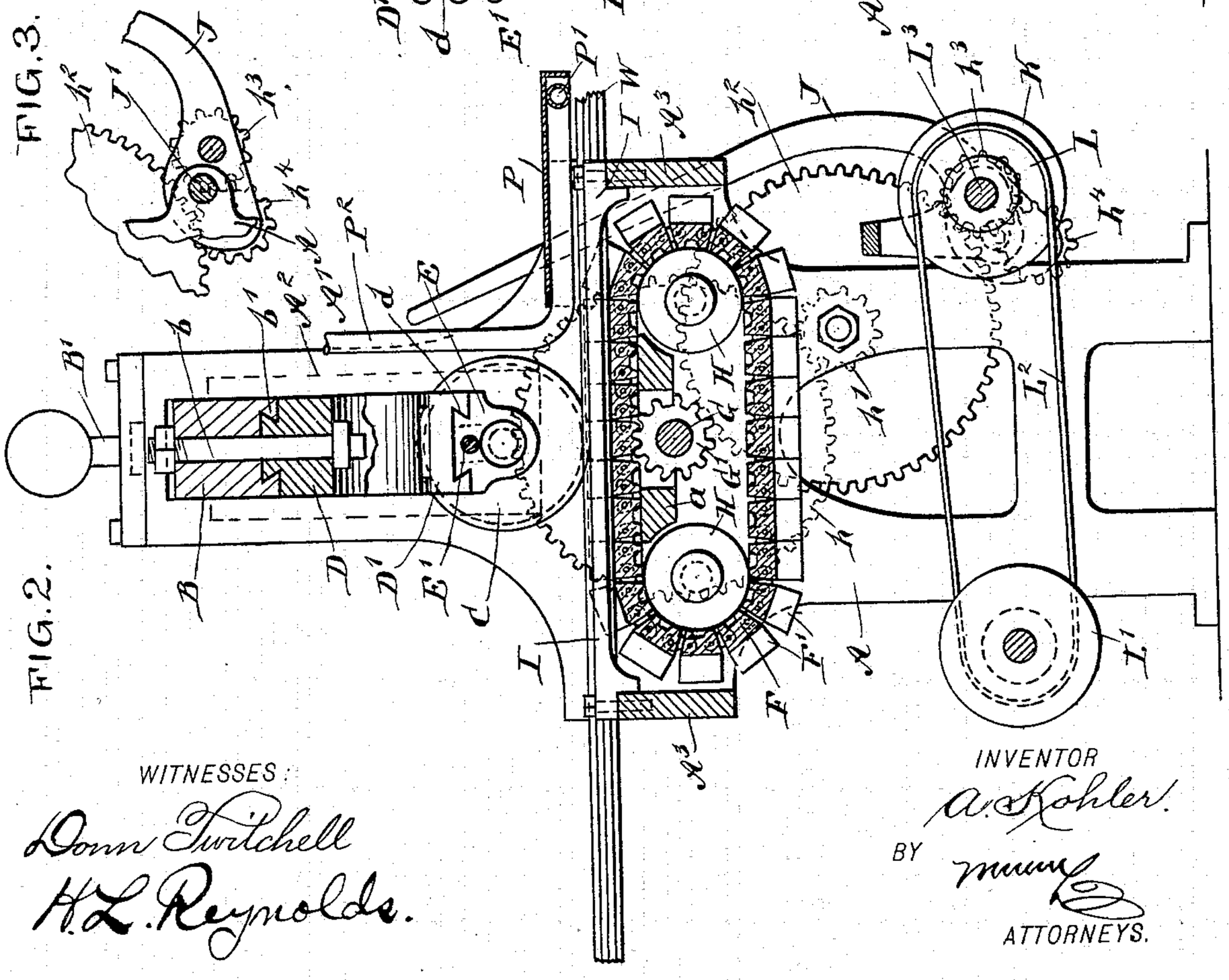

FIG. 2.

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ALOIS KOHLER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO GEORGE STARK, OF SAME PLACE.

WOOD-EMBOSSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 612,348, dated October 11, 1898.

Application filed December 18, 1897. Serial No. 662,408. (No model.)

To all whom it may concern:

Be it known that I, ALOIS KOHLER, of New York city, in the county and State of New York, have invented a new and Improved Wood-Embossing Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in wood-embossing machines which have a circular die which impresses its pattern in the wood while the latter is passed beneath the die; and it consists of certain improved features which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the machine, partially in section. Fig. 2 is a side sectional elevation of the machine, and Fig. 3 is a detailed elevation showing the means for reversing the direction of the machine.

This machine is provided with a suitable frame A for holding the work-supporting table, said frame having uprights A′ at one side extending above the table and provided with guides A^2, adapted to receive and guide the end of an arm B, said arm carrying the die. This arm and the frame are connected by any suitable dovetail or other guiding connection, and the arm is adjusted vertically in the guides by means of a threaded rod B′, which is provided with a collar near the upper end that has a revoluble bearing in the upper end of the standard A^2, by means of which the arm B may be raised and lowered. The rod B′ screws into the end of the arm B.

The arm B is formed on its under surface as a segment of a circle and is provided with a dovetail slot adapted to receive a similarly-shaped rib *b′* upon the upper or outer surface of the segment-bar D. The arm B and bar D are secured to each other by means of a bolt *b*, which passes through slots in both of said members. By this means the bar D, which carries the shaft of the embossing-die C, may be adjusted to any angular position within its limits, so that the die may be placed perpendicular to the surface which it is desired to emboss.

The shaft C′, which carries the die C, is journaled at one end in the arm D and at its other or outer end in the bearing-block E, said block being connected to the arm D by means of a dovetail rib upon the block, which slides in a dovetail slot *d* in the end of the bar D. To provide a longer bearing for said bearing-block, a lug or projection D′ upon one end of the bar D is provided. Upon the inner side of the bar D a downwardly-projecting lug D^2 is formed in line with the slot *d*. A shaft E′ passes through the bearing-block E, in which it may turn, but not reciprocate, and is threaded in the lug D^2, by means of which the die may be adjusted laterally. By screwing the shaft E′ out of the lug D^2 the bearing-block E, shaft C′, and die C may be slid to the left until free of the bearings and the die C conveniently changed.

The bearing-block E is constructed as a thrust-bearing, so that it will engage the shaft C′ and cause this shaft to reciprocate with it, thus permitting accurate lateral adjustment of the shaft and die C. This thrust-bearing, as shown, is produced by having grooves *e* formed in the shaft and corresponding ribs on the bearing-block entering said grooves.

The work-supporting table is an endless belt which is given motion beneath the die and carries the work along with it. This endless belt is composed of a series of slats F, which are connected together by links F^2. These slats have upwardly or outwardly projecting lugs or knees F′ at one end thereof, which are adapted to engage one side of the work to hold it in place and prevent its lateral displacement. The endless chain formed by these slats is passed over guide-pulleys H at each end thereof and is operated by means of pinions G′, mounted upon a shaft G and engaging teeth *f*, formed in each end of the slats and upon their under or inner surfaces. The belt is supported beneath the work and held against lateral displacement by resting upon bearing-plates which extend beneath the ends of the slats and bear against the ends thereof. To accomplish this construction, the links F, connecting adjacent slats, are recessed into the ends of the slats. The pinions G′, engaging the slats at opposite ends,

will give a positive forward movement to the belt and prevent the possibility of any twisting action therein.

The work is placed upon a belt with one edge in engagement with the knees F′ and the other edge in engagement with a movable guide-bar I, said bar being provided with knees engaging the inner surfaces of cross-bars A^3, forming a part of the frame. This guide-bar rests upon the top edge of the bars A^3 and is adjustable in position along said bars to suit different widths of materials. The guide-bar I is held down upon the frame by means of bolts passing through slots in the ends thereof and entering holes in the cross-bars A^3.

The shaft G is turned by a train of gears consisting of the gear *h*, mounted upon the end of the shaft G and meshing with the pinion *h′*, mounted upon an intermediate shaft. This pinion *h′* is laterally connected with the gear h^2, and the latter is rotated by connection with either of the pinions h^3 or h^4. The pinion h^3 is mounted upon the shaft L^3, which carries the cone-pulley L. The cone-pulley L is rotated by a belt L^2 from the coöperating cone-pulley L′, and the cone-pulley L′ is rotated by means of the tight pulley K, which is mounted upon its shaft. This shaft is also provided with the usual loose pulley K′, which receives the belt when the machine is not in operation.

When the pinion h^3 is in mesh with the gear h^2, the pulley-belt, which carries the material beneath the die, will be rotated in one direction. The lever J carries the bearing of the shaft L^3 and is pivoted at J′ to the frame of the machine. This lever also carries the shaft of the pinion h^4, said pinion h^4 being held at all times in mesh with the pinion h^3. If the lever J be swung downward, it will swing the pinion h^3 out of engagement with the gear h^2 and throw the pinion h^4 into engagement with the gear h^2. The result of this will be to change the direction of rotation of the gear h^2, and consequently to change the direction of motion of the endless belt. By this simple means the direction of operation of the machine may be reversed. It is of course necessary to the successful operation of this device that the pivot of the shaft J and the center of the shaft L^3 be located relatively to each other so that the shaft L^3 be at the same distance from the shaft of the cone-pulley L′ in both positions.

The piece of molding or other work which is to be embossed is placed upon the endless belt and beneath the die C. The forward travel of the belt will carry this molding beneath the die. The die C being held down firmly upon the work by means of the threaded bar D′, the pattern which is formed on the surface of the die will be embossed in the wood.

To secure satisfactory operation of such machines, it is necessary that the die be heated. This is ordinarily secured by directing a flame upon the die. This is usually a gas-flame or a flame from a gasolene-burner. This may be used in connection with my device; but other means for securing the same result are shown. This consists of a shield P, which is concaved on its under side and extends over the molding W before it enters beneath the die. Beneath this shield is a heating device, which acts upon the molding before it enters beneath the die and heats it so that it will rapidly receive the impression of the die without injuring the fiber of the wood. This heating mechanism, as shown in the drawings, consists of pipes P′, which extend just above the wood and beneath the shield, and are supplied with steam at the proper temperature. These pipes extend upward alongside the arm B, as shown at P^2. These pipes, instead of having steam therein, may be supplied with gas and the heating accomplished by discharging gas therefrom beneath the shield, said gas being ignited and furnishing the necessary heat. The wood being heated in this manner before it reaches the die will be in condition to receive the impression. In using this heating device it is possible to use the ordinary means for heating the die if the same is necessary. With my improved construction of machine it will be possible to emboss a larger amount of material in a given time than with the ordinary device, which requires a long shoe to receive the material. Moreover, by reason of the mounting of the shaft C′ upon an adjustable segment it is possible to throw the die into an angular position to emboss the molding in which the surface to be embossed is not parallel with the back of the molding. This position of the device is shown by dotted lines in Fig. 1. This obviates the necessity for the construction of the shoes heretofore mentioned. It thus saves considerable expense and is also more rapid in its work, as placing the material in the shoes and removing it therefrom consumes considerable time. By previously heating the molding as described the molding may be passed beneath the die at a higher rate of travel than would be possible where the die alone is relied upon for heating the wood. The machine is otherwise much more convenient than the ordinary machine.

Where a molding is to be embossed on a surface which will necessitate throwing the die to an angular position, it may be desirable to carry the material at some distance from the knees F′, as shown by the dotted lines in Fig. 1. To secure this, removable blocks may be secured to the upper surfaces of the slats F, as indicated by the dotted lines at O in Fig. 1. These may be quickly secured or removed, as desired.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An embossing-machine, having an arm with an under bearing-surface curved to the segment of a circle, a segmental bar engag-

ing therewith, a shaft journaled in the ends thereof and adapted to receive the die, said segment-bar and arm being connected by dovetail slides and having each a central slot extending in opposite directions from the center, and a clamping-bolt passing through said slots, substantially as described.

2. In an embossing-machine, the combination of a rotary die and an endless-belt table, said belt being composed of connected cross-slats each having an upwardly-projecting knee at one end forming a side thrust-bearing for the work and driving means therefor engaging the belt immediately below the die, substantially as described.

3. An embossing-machine, comprising a revoluble die having means for adjusting its angular position, an endless belt forming the work-supporting table and composed of connected slats having upwardly-projecting knees at one end adapted to take the side thrust, and teeth formed on their inner sides, a toothed pinion mounted to rotate in engagement with the teeth of the slats and located immediately below the die and bearing-bars at each end of the slats and overlapping the ends and bottom sides thereof, substantially as described.

4. In an embossing-machine, the combination of a rotary die, and a shaft therefor having adjustable bearings whereby the angular position of the shaft may be changed, with an endless belt forming the work-supporting table and consisting of connected slats having upwardly-projecting knees at one end adapted to act as a work-guide and to receive the side thrust, and having teeth on their under sides and driving means therefor consisting of a cross-shaft and pinions engaging the teeth on the slats and located immediately under the die, substantially as described.

5. A wood-embossing machine, having a movable table supporting the work and consisting of an endless belt, a fixed table having longitudinal guiding-surfaces supporting the belt at its edges and taking directly the thrust of the die upon the belt, a revoluble die located above the belt and between its supports and adapted to engage the opposite side of the work and a driving mechanism engaging the belt directly beneath the die, substantially as described.

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Witnesses:
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