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H. S. SWAYNE.

Machine for Filling Moldings.

No. 201,960. Patented April 2, 1878.

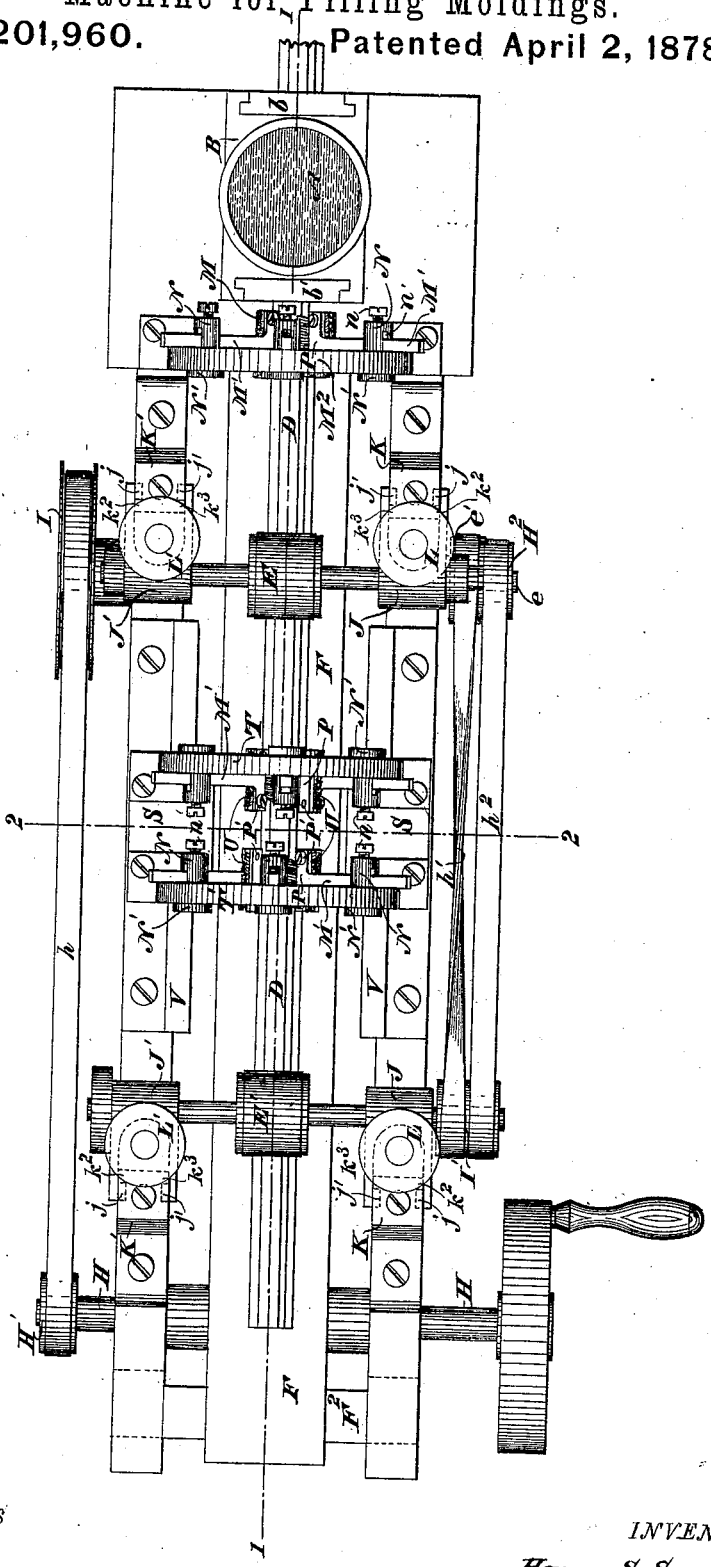

Fig 1.

WITNESSES

Wm A. Skinkle.

Geo. W. Brock

INVENTOR

Henry S. Swayne.

By his Attorneys.

Baldwin, Hopkins & Peyton.

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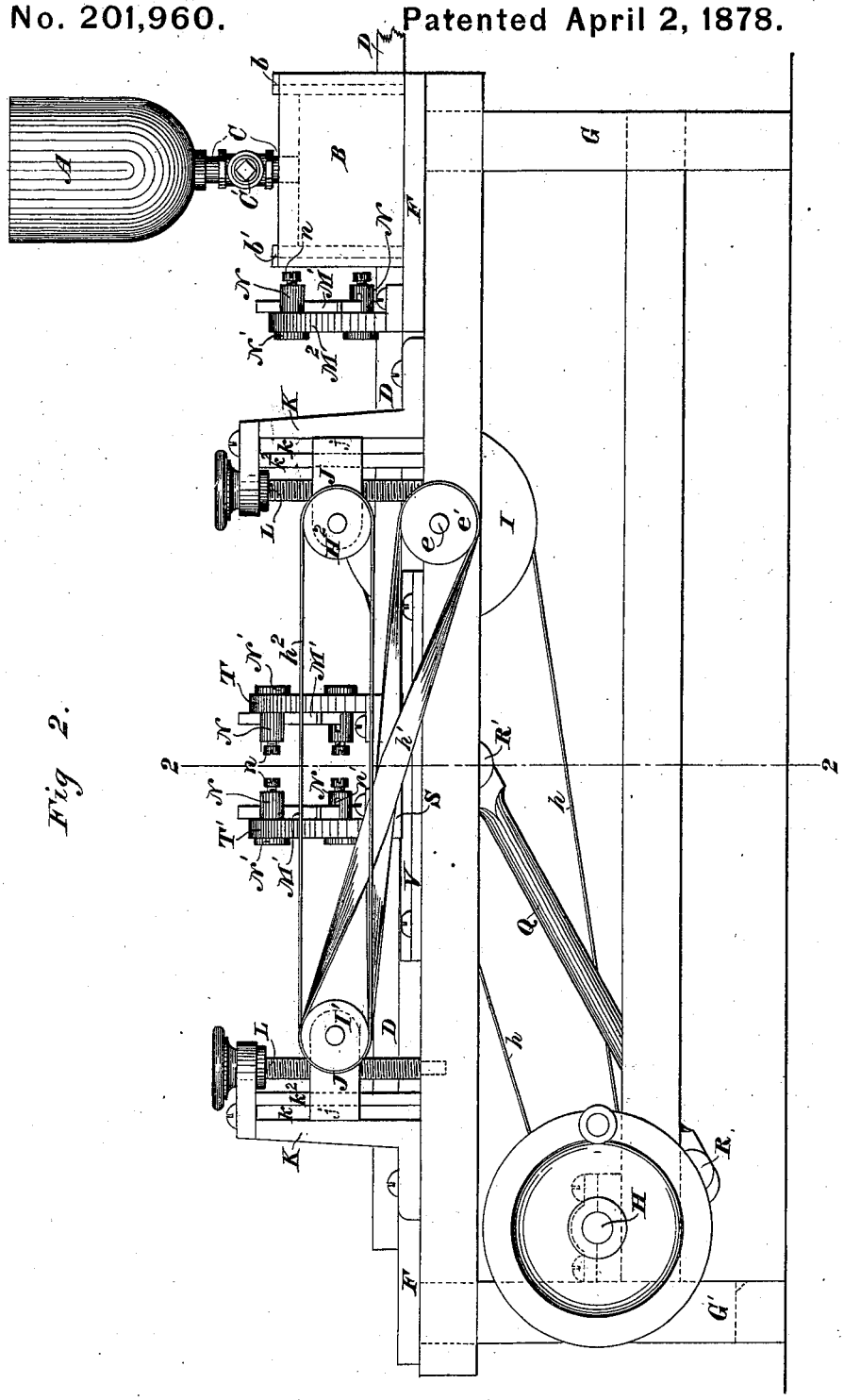

Fig 2.

WITNESSES

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Fig 3.

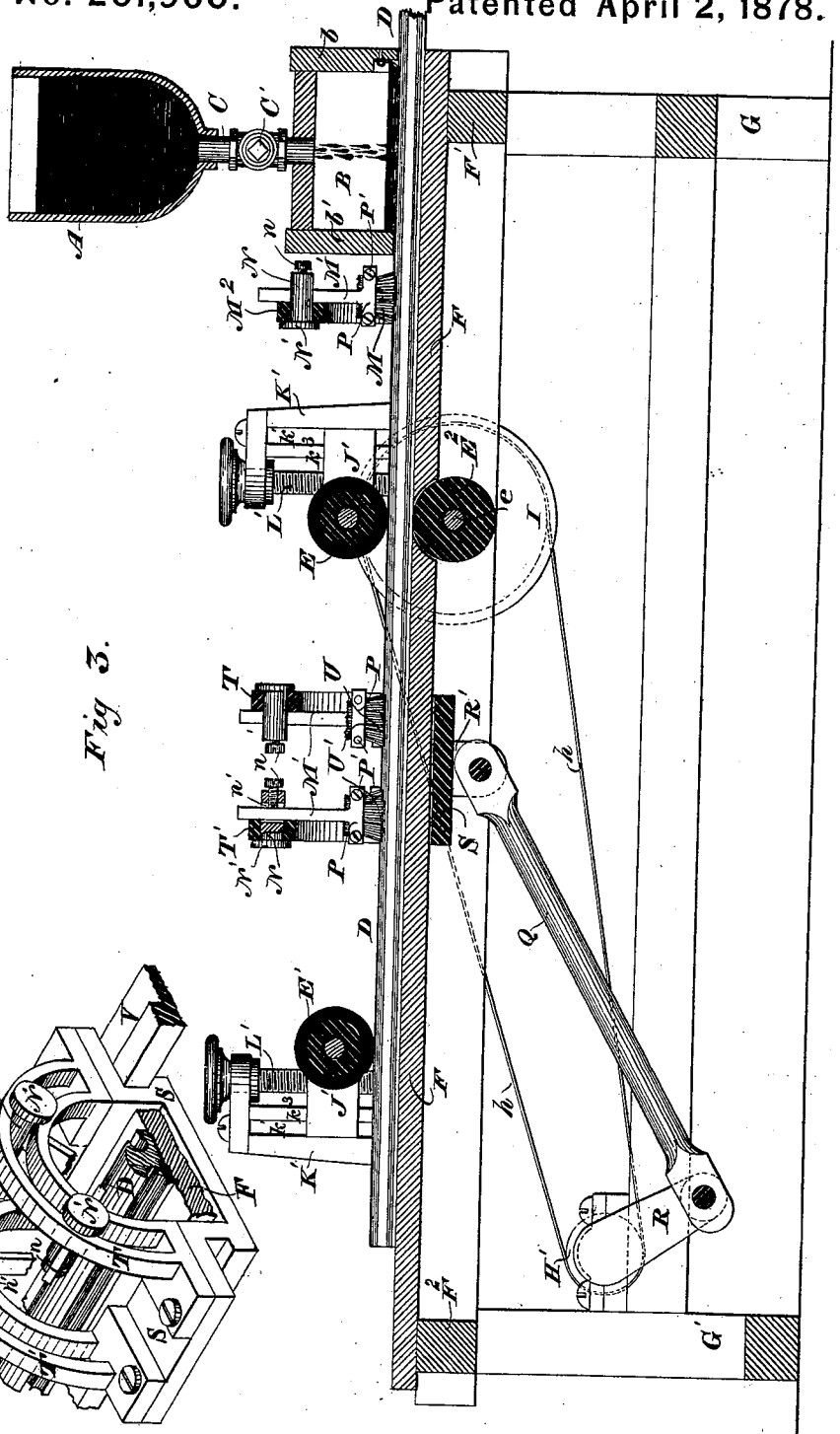

Fig 4

WITNESSES

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Fig 5.

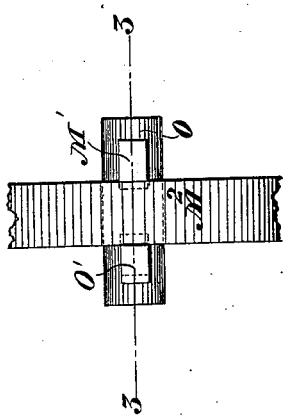


Fig 6.

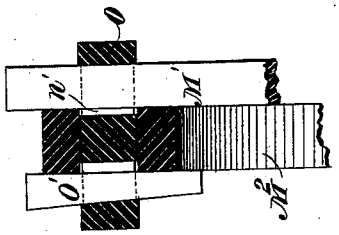


Fig 8.

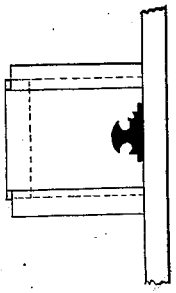
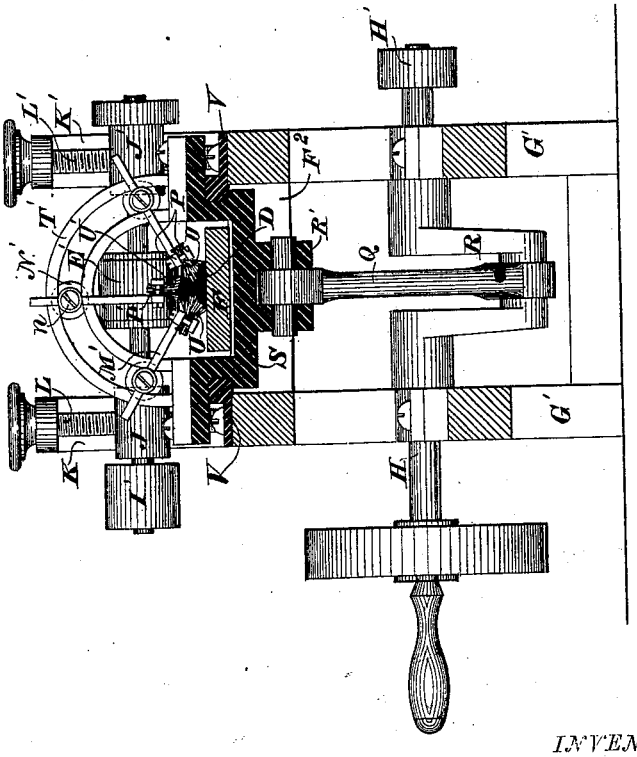


Fig 4.



WITNESSES

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Geo W. Breck

INVENTOR

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UNITED STATES PATENT OFFICE.

HENRY S. SWAYNE, OF TOLEDO, OHIO.

IMPROVEMENT IN MACHINES FOR FILLING MOLDINGS.

Specification forming part of Letters Patent No. **201,960**, dated April 2, 1878; application filed September 11, 1877.

To all whom it may concern:

Be it known that I, HENRY STUART SWAYNE, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Machines for Filling Moldings, of which the following is a specification:

My invention relates to improvements in that class of machinery employed for filling the pores of wood moldings and other strips or pieces of wood, and preparing the moldings, &c., for polishing, varnishing, gilding, &c.

My objects are to insure a proper application or supply of the filling mixture to strips or moldings, to prevent waste, to completely and uniformly fill the pores of the wood, to remove the surplus filling, generally to improve and simplify the machine, and to perform the work rapidly and automatically.

To these ends my improvements consist in certain peculiar constructions of parts and novel combinations of devices, which will hereinafter be described, and specifically designated in the claims.

In the accompanying drawings all my improvements are shown as embodied in a single machine. Obviously, however, some of the parts may be used without the others, and in machines differing somewhat as to details of construction from that therein shown and hereinafter described.

Figure 1 is a plan or top view; Fig. 2, a side elevation; Fig. 3, a vertical longitudinal section on the line 1 1 of Fig. 1; Fig. 4, a vertical transverse section on the lines 2 2 and 2 2, Figs. 1 and 2. Fig. 5 is a top or plan view, showing a modification of the fastening for the rubber holder or stock; Fig. 6, a section on the line 3 3 of Fig. 5. Fig. 7 is a view, in perspective, of the two-part rubber-supporting frame, showing a modification in the arrangement of the holders for the rubbers. Fig. 8 is an elevation of the filling-chamber, showing one of its end doors with the opening therein fitting around the molding, the molding being shown in cross-section.

The filling material, which may be of any of the well-known cheap compounds suitable for the purpose—such, for instance, as a mixture of benzine, whiting, and some coloring matter suited to the particular wood of which the molding to be treated is made, or plaster-of-paris in the semi-fluid state—is placed in a suitable reservoir or holder, A, mounted upon the top of and communicating by a hollow support or supply-pipe with the inside of the filling box or chamber B, through which the molding passes endwise. The box is made with open ends, and provided with detachable end pieces or doors *b b′*, and is mounted and firmly secured in a fixed position upon the front of the supporting-frame of the machine. These doors are shown as adapted to slide in and out of place vertically in guide-grooves in the box sides. They are fitted snugly to prevent leakage of the material from the box, and may readily be removed and other doors substituted, for a purpose hereinafter explained.

The doors have openings in them at their lower ends, shaped to correspond, or nearly so, with the transverse outline of the molding being operated upon. These doors, especially the outer one, *b*, have suitable packing, such as a felt lining, secured around the edges of their openings for the moldings, to prevent leakage.

The openings in the detachable box ends or doors shown in the drawings correspond to the form of the molding represented in Figs. 4 and 8. The molding passes through the box end *b′* with sufficient freedom (that is, the packing does not fit tight upon the molding) to allow the filling substance immediately adhering to the molding to pass out; or the packing around the opening of the door *b′* may, in some cases, be dispensed with, when in this way a sufficiently-close fit of the opening around the molding may be attained to prevent injurious waste or too thick a coating upon the molding as it leaves the filling-box.

When the form or outline in transverse section of the molding or wood strip is varied the doors or box ends are changed, new doors being employed, with openings substantially corresponding with the form of the molding. Slight changes in the forms of moldings would not render a change of doors necessary when a self-adjusting or yielding packing is employed around their orifices.

A gate or cock, C′, in the tubular post C of the reservoir A serves to regulate the supply of the filling-mixture to the filling-box, through which the molding passes, and to shut off the supply when the work is to cease or the doors

to be changed for new moldings. The level of the liquid or semi-liquid filling substance should be at least as high as the top of the molding, but preferably above it, as shown in Fig. 3. Any surplus filling oozing from the box ends, or escaping when the ends are removed, may be collected in a suitable trough and reconveyed to the reservoir.

The molding-strips D being first started through the filling chamber or box B by hand, are automatically fed forward by feeding-rollers E E^1 E^2, the openings in the doors serving to guide and keep the molding in proper position. As fast as one strip is fed through the filling-chamber another takes its place, the new strip being butted at its forward end against the rear end of the leaving piece by hand, or it may be by suitable automatic feed-supplying devices.

The molding-strips, as they pass endwise through the machine, move upon a smooth-surfaced stationary bed or supporting table or piece, F, fixed upon cross-pieces F^1 F^2 of the frame, which is strongly and otherwise suitably constructed of a skeleton-form, and provided with legs or uprights G G G′ G′.

Motion is imparted to the feed-rolls by a belt, *h*, passing from a small pulley, H^1, on a driving-shaft, H, to a large pulley, I, on one end of the shaft *e* of the roller E^2, from a small pulley, *e′*, on which shaft *e* passes a crossed belt, *h′*, to a corresponding pulley, I′, on the shaft of the feed-roll E^1, and from this pulley I′ passes a belt, h^2, to a corresponding pulley, H^2, on the shaft of the feed-roller E. By means of the large pulley I and the small pulleys *e′* I′ and H^2, of similar size, a slow feed is given the strips. The feeding-rolls E and E^1 are faced with rubber, to increase friction and prevent injury to the moldings. The lower feed-roll E^2 works in a slot in the table or bed E, upon which the molding is slid along.

To adjust the upper feed-rollers to moldings of different heights or thicknesses, their shafts are mounted in boxes vertically adjustable toward or away from the table F. The shafts being mounted in similar manner and adjusted correspondingly, a description of the attachments and operation of one of the shafts is sufficient. The shaft of the feed-roll E is mounted near its ends in bracket-boxes or housings J J′, which slide up and down upon posts K K′ at the sides or edges of the frame of the machine. Each post is vertically grooved upon its opposite sides, as at *k* k^1, and the bracket-bearings are mortised to embrace the posts, and provided with inwardly-projecting flanges or lips *j j′* to enter the guide-grooves *k* k^1, and are grooved to receive the edge flanges or ribs k^2 k^3 of the posts. The bearings are thus always held in a horizontal position.

The screws L L′ serve to move the shafts up or down. These screws pass through female screws in the bearings, and operate, as is well understood, by turning them in one direction to move the bearings up, and in the opposite direction to move them toward the table and molding.

Both stationary and rapidly-reciprocating rubbers for pressing the filling or preparing material into the pores of the wood, and removing the surplus material from the moldings, are employed. I prefer to employ leather to form the rubbers, and to make them by cutting square-cornered strips or shreds from a piece of hide or leather, as I have found by experiment that leather strips wear better, are more efficient in rubbing or forcing the filling into the pores of the wood, and conform more readily to the shape of the molding than other material, such as pieces of cloth, or brushes, or bristles. Round leather strips or shoe-strings may be used. Brushes scratch the moldings, and remove the filling from the pores, and cloth is too yielding, wears rapidly and unevenly, and soon loses the requisite shape and becomes flabby, and injuriously absorbs the filling.

The stationary rubbers are located near the outlet or opening in the door *b′* of the filling-chamber, and may be arranged sufficiently near the opening, and the strips made long enough to act as a self-adjusting packing or partial stuffing-box, to prevent too much of the filling leaving the box with the strip.

The series of stationary rubbers M, two or three in number, or, it may be, even more, as well as the reciprocating rubbers, are adjustably secured by means of stocks or holders M^1 in their respective supporting-frames, the holders of the stationary rubbers being secured in a frame composed of a slotted arch, M^2, close to the inner end of the filling-chamber. The holders can be adjusted lengthwise as well as laterally, or around the arch, to bring the rubbers into the most advantageous positions, and cause them to conform to the grooves and irregularities of surface of the moldings.

Three stationary rubbers are shown, and this number is deemed preferable, as one acts upon and near the top of the molding, and the others upon the sides. The holders, both stationary and reciprocating, may be secured in the desired positions by adjustable clamps, such as the headed slotted bolts or pins N, or the slotted carrying-pieces O, shown by Figs. 5 and 6. When the securing-pins N are used to carry and clamp the holder arms or shanks, the heads N′ of the pins are drawn tightly against the arched frame, which stands crosswise of the bed, so that the moldings may pass under it, and held firmly in the curved way or slot thereof by set-screws *n*, passing into the perforated internally-threaded ends of the clamp-pins and bearing against the holder-shanks, which, as shown, pass through transverse slots or openings *n′* in the pins.

When the carrying-pieces O are employed, the wedges O′ serve to secure the holders in the desired position, and admit of their adjustment as to the screws *n*.

The strips composing the rubbers are held

in heads or clamps carried by the lower ends of the holders M', which holders for both the stationary and reciprocating rubbers are similarly constructed, the rubbers being removable, so as to be easily renewed when worn. These clamping-heads for both sets of rubbers may be made of two parallel bars, P P, one on either side of the strips of leather, connected by screw-bolts F', as shown in the drawings; or other well-known and suitable securing-heads may be employed.

The reciprocating rubbers have their movement imparted to them by a pitman, Q, driven by a crank, R, on the main or driving shaft H, this pitman being jointed to a lug or downward projection, R', of a sliding carrier or reciprocating frame, S, upon which the slotted arched frame is mounted. This arched frame is similar to that which carries the stationary rubbers, except that I prefer two arches, T T', instead of one, and the holders and rubbers and manner of attaching are the same as those of the stationary frame.

The side rubbers U U may be carried by the portion T, and the top or central rubber U' by the section T', of the two-part or double-slotted arch.

In this manner, by the use of a double frame and the arrangement of the holders for the rubbers, as in Fig. 7, so that the side rubbers may be carried by one section and the top rubber by the other, and opposite the space between the side rubbers, large rubbers may be employed, and there is less liability of their interfering with each other in operation or in being adjusted.

The three rubbers, or more, may be carried by a single frame, as shown in Fig. 4, like the stationary rubbers, or the rubbers may be duplicated or arranged opposite each other on the two-part frame; but I prefer the arrangement shown by Fig. 7.

The reciprocating carrier-frame is formed with grooves, to embrace and move upon guideways or rails V V, or may be mounted in other well-known similar way.

From the above description it will be readily understood that the wood strip or molding is continuously, regularly, and slowly fed forward upon the stationary bed or table by the feeding mechanism, the filling preparation applied uniformly and with certainty, and caused to fill the pores, into which it is forced or rubbed by the stationary and reciprocating rubbers, the former partially pressing the filling into the pores and removing any undue amount of filling material from the surface of the wood, and the latter thoroughly filling the pores and removing all surplus filling material.

As the reciprocating rubbers move at a much greater speed than that imparted to the molding, it is obvious that they rub the surface of the wood repeatedly and very thoroughly fill the pores, acting in similar manner both in their advancing and retreating stroke.

The moldings are, before being filled, properly prepared to smooth their surfaces by sandpapering or otherwise.

My machine, or a similar one, may be employed to sandpaper or smooth the moldings previous to the filling process, simply by substituting suitable rubbing blocks or holders for sand-paper or other suitable abrasive substance for the strip-rubbers or filling-rubbers, hereinbefore described.

It is further obvious that the sandpapering or preparatory smoothing of the strips and the filling may be carried out by one continuous and connected operation or process by arranging one machine in line with or in front of another, and the strips pass automatically from the front or sandpapering machine to the filling-machine.

I am aware that machines for filling moldings, as well as machines for sandpapering or polishing and enameling moldings, have heretofore been constructed; and do not claim, broadly, such a machine. Nor do I broadly claim the combination of a filling reservoir or chamber, feeding mechanism, and rubbers.

I claim as of my own invention—

1. In a machine for filling moldings, the combination of the table upon which the molding is supported, mechanism substantially such as described for feeding the molding along said table, and the stationary filling box or chamber through which the molding passes to be coated, having detachable ends or doors with openings corresponding in shape to the outline of the molding, whereby the molding is guided and kept in proper position as it is fed forward, which doors may be changed to suit variations in the moldings and prevent waste, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of the filling-chamber, its removable doors having openings through which the molding passes and is guided, the adjustable feed-rolls, and the series of adjustable rubbers, stationary and reciprocating, whereby the machine is adapted to operate upon varying sizes and forms of molding, as described.

3. The combination of the table upon which the molding is supported and fed, the reciprocating carrier, the two-part slotted arch T T', mounted on said carrier, and the series of adjustable rubber-holders carried partly by each section of the arch, as and for the purpose specified.

4. The rubber composed of leather strips, as and for the purpose described.

In testimony whereof I have hereunto subscribed my name.

HENRY STUART SWAYNE.

Witnesses:

N. H. SWAYNE,

FRANK B. SWAYNE.