

C. H. WARREN.  
MOLDING MACHINE.

No. 179,436.

Patented July 4, 1876.

Fig. 1.

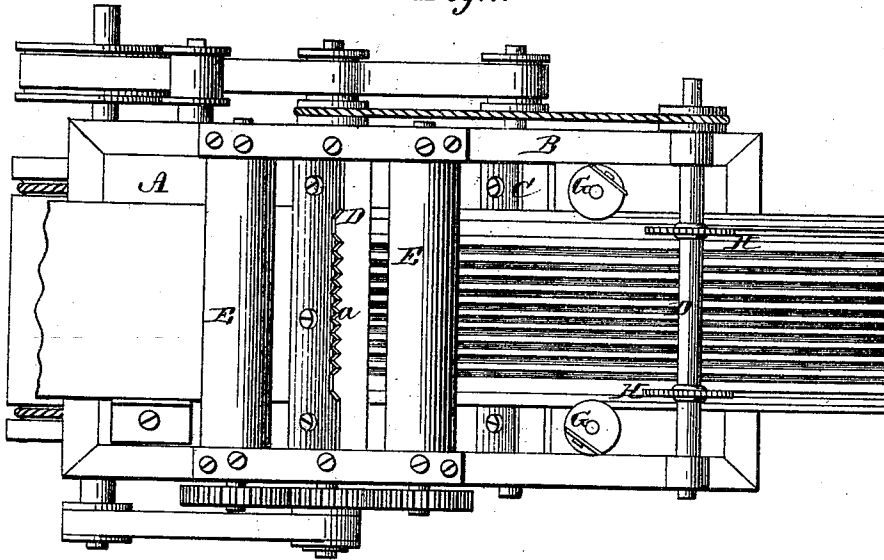
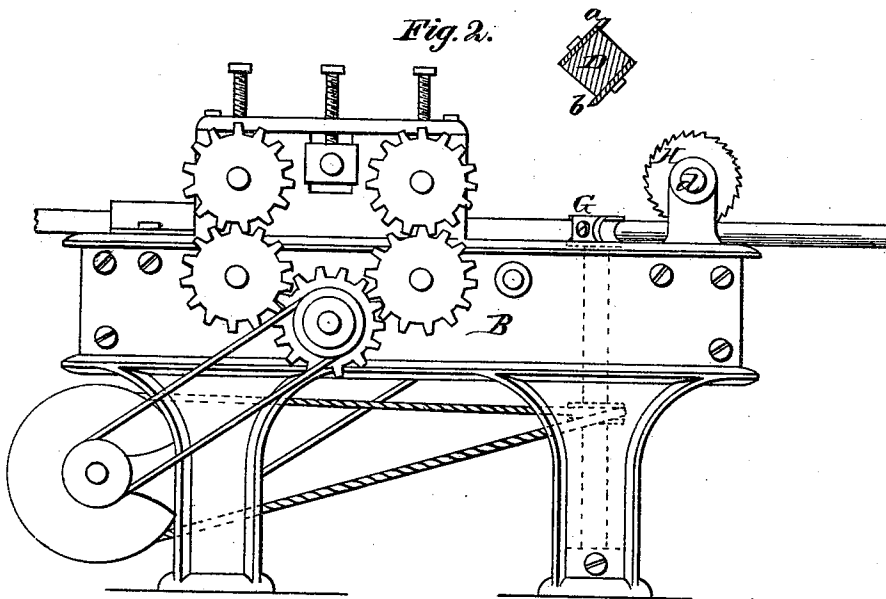


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES H. WARREN, OF TOLEDO, OHIO.

## IMPROVEMENT IN MOLDING-MACHINES.

Specification forming part of Letters Patent No. **179,436**, dated July 4, 1876; application filed December 3, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES H. WARREN, of Toledo, in the county of Lucas and in the State of Ohio, have invented certain new and useful Improvements in Molding-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for making wash-boards, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of my machine.

The bed A and feed-works of the machine contained in the frame B are constructed in the ordinary way for planing-machines having two horizontal cutter-heads, C and D, one dressing the under side and the other dressing the upper side of the board. The upper head D is located between the two feed-rollers E E, and provided with one corrugated knife, *a*, and one or more smooth knives, *b*.

It is found that the smooth knives, in combination with the corrugated knife, not only allow the machine to work much easier, but slightly dressing off the top of the corrugations, making them all of a height, thus making the board of uniform thickness. In connection with this I use two vertical shaping-heads, G G, that are arranged the proper distance apart, and perform the double function of making the board a proper width, and also the required shape on the edges.

Over the rear part of the machine is a horizontal arbor, *d*, provided with two saws, H H, which cut a small groove in each edge of the board, for the purpose of receiving the

ordinary edge of the folded zinc in its proper place, said sheet-zinc being corrugated to conform to the corrugation of the board, and fastened thereto, as above stated, after the board has been cut up into proper length for wash-boards.

The operation is as follows: The lumber being taken from the pile in its rough state, and passing through the machine it is corrugated and brought to a thickness by the two horizontal planer-heads, the corrugated and smooth knives *a b* dressing the upper side, and the lower head C dressing the opposite side, of the board. In passing through, the board comes in contact with the two vertical heads G G, which brings the board to the proper width, also giving it the proper shape or finish on the edge, and as it continues to pass through it comes in contact with the saws H on the horizontal saw-arbor, which cuts small grooves in the edge of the board, thus completing the work at one operation, making it ready to be cut up in proper length, and receive the zinc and sides or legs, which completes the wash-board ready for market.

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

The combination of the cutter head D, having corrugated knife *a* and smooth knife *b*, the cutter-head C having one or more smooth knives, the shaping-heads G G, and the shaft D, having saws H H, all constructed and arranged with respect to the frame B, and operated by the gears and belts, whereby the lumber in the rough is passed through and formed into wash-boards at one operation, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of October, 1875.

C. H. WARREN.

Witnesses:

E. W. TOLERTON,  
F. A. KUMLER.