# W. M. Forler,

## Making Combs.

No. 1,837. Patented Oct. 28, 1840.

Fig. 1.

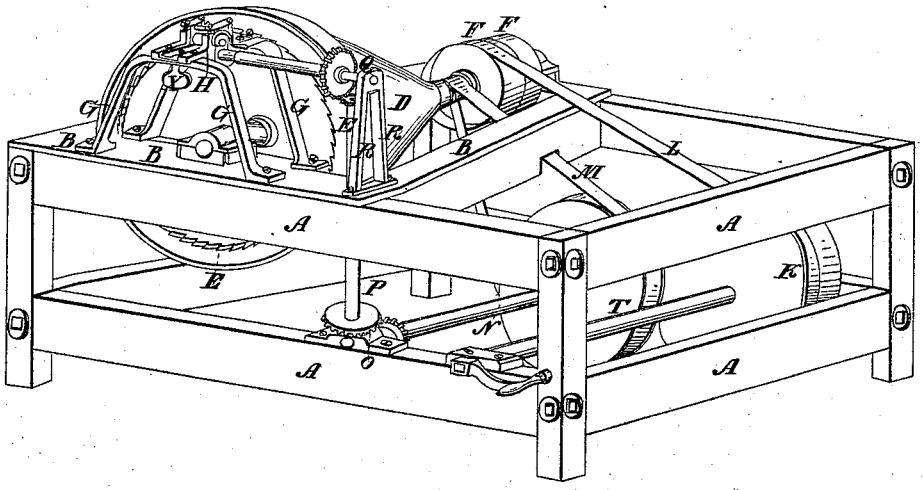



Fig. 2.

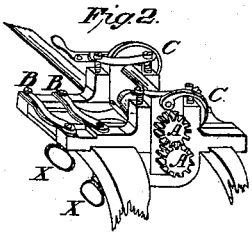
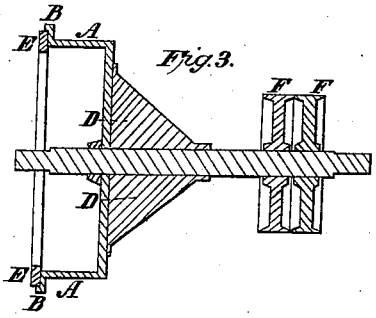



Fig. 3.



# UNITED STATES PATENT OFFICE.

WILLIAM M. FOWLER, OF NORTH BRANFORD, CONNECTICUT, ASSIGNOR TO JULIUS PRATT, FENNER BUSH, AARON PRATT, ZINA K. MURDOCK, GEORGE READ, ALPHEUS STARKEY, GEORGE SPENCER, AND JOHN C. RODGERS.

## MACHINE FOR PLANING AND FORMING IVORY OR OTHER COMB-PLATES.

Specification of Letters Patent No. 1,837, dated October 28, 1840.

*To all whom it may concern:*

Be it known that I, WILLIAM MALTBY FOWLER, of North Branford, in the county of New Haven and State of Connecticut, have invented a new and useful Machine for Planing or Fashioning Ivory or other Comb-Plates.

The object of this invention is to obtain and apply a circular cutter of a proper diameter to form the curving sides of a comb in fashioning the plate; and to bring forward the plate, steadily firmly and with speed to the operation of the cutter and thereby perform the work with mechanical accuracy and unusual expedition.

To enable others skilled in the art to make and use my invention, I hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in and by which—

Figure 1 is a perspective view of the whole machine, viewed from a position opposite the corner on the right of the front. Fig. 2, a view from the opposite corner, the main wheel being removed and exhibiting some parts of the machine which could not be seen from the first position. Fig. 3, is a transverse section of the main wheel axle and pulleys cut lengthwise through the center.

These drawings are made from the model representing the machine in all parts, one fourth of the size of the machine for use.

In Fig. 1, A, A, represent a frame of scantling about five feet long 3 feet wide and 2 feet high. On the top of the frame is a base or platform of iron extending from the front to the rear of the wooden frame as seen B, B. On this iron base, rests, the axis or shaft 27 inches in diameter, of the main wheel which is about two feet in diameter—having a broad flange or rim projecting toward the front about six inches as seen Fig. 3, A, A terminating with a projecting lip about an inch deep as seen at B, B. The main wheel is supported on the back by a tunnel-shaped brace made fast to the shaft and to the wheel as seen Fig. 1, and 3, at D, D. To the projecting lip above described is attached by screws, a circular cutter, with teeth on the inner edge of the circle as seen Figs. 1 and 3. E, E, on the rear end of the shaft are two pulleys, one loose, the other attached to the shaft in usual form, as seen at F F. On the front part of the iron base is a framed support about 13 inches high, for the bed, to receive and convey the work to the cutters as seen Fig. 1, G, G. Connected with this bed, on the sides near the center is a frame to support a pair of rollers, one above and the other below the bed to receive and carry forward the plate, as seen Fig. 1, H, having matched cogs as seen in Fig. 2, A, A. This bed extends within the flange of the wheel about an inch and the comb-plate is held in place upon it, by a cap with two springs over it in front of the cutter as seen Fig. 2, B, B, and one behind the cutter. The bed is adjusted by screws passing through its frame viz. one under the bottom in front of the rollers as seen Fig. 1, X and two under the bottom behind the rollers as seen Fig. 2, X X, and when adjusted, is held in place by four screws passing through the bed into the frame, two before and two behind the rollers. This bed is so formed as to admit of inner beds to fit the size of different combs, to be drawn out and put in at pleasure; the sides rising to half the thickness of the plates to hold them in place. Directly over the rollers and connected with their upper boxes, is an axle and crank armed with a hook at each end of the axle as seen Fig. 2, C, C, to pass between and raise the upper roller when choked or clogged by accidentally lapping the plates. On the right hand corner of the iron base a frame is erected as seen Fig. 1, R, R, to support the end of the shaft of the roller as connected with the gear of the upright shaft P.

Operation: This machine is set in motion by hand, water or other power applied to the shaft T which turns the pulley K connected by a band L, with the pulley F on the shaft of the main wheel. Another band on the shaft of the main wheel as seen at M, passing over a pulley on the shaft N, connected by bevel gearing at O, with the upright shaft P, by bevel gearing at Q, gives motion to the rollers of the bed and by placing the comb-plates successively between the rollers of the bed, they are carried forward under the cutting wheel and reduced to the shape intended on one side and

discharged into a box below—they are then turned over and returned in the same manner to reduce the other side. In this manner this machine with the aid of one person will perform the work, requiring by the process heretofore used, the labor of five or six.

The form of the cutter may be varied. The cutter on the model represents a circular rim of steel about 2½ inches deep and 1¼ thick having beveling teeth of the inner edge of the circle. It may be made of brass with steel teeth on the inner edge let in obliquely and soldered, then filed to an edge and turn filed—or it may be made with two circular rims either of brass or iron studded together ½ an inch apart, with steel cutters let in and crossing them obliquely on the inner edge in manner aforesaid. The length of the teeth or the thickness of the cutter may vary from 1¼ to ½ an inch.

The diameter of the cutters to be attached to the frame main wheel may vary according to the size and thickness of the plates and of the curve necessary to be given to them.

I have tried various other modes of bringing the plate under the cutter. One by a rack and pinion with a stud upon the rack rising half the thickness of the comb plate above the bottom of the bed, moving in a groove and carrying the plate past the cutters, when a blank in the pinion permits the rack to return by force of a spring attached for that purpose. Another mode may be by a chain running over a pulley within the flange, behind the cutter and another pulley in front of the bed, the chain being armed with studs projecting through the bed to receive and carry forward the plates; but at present I prefer the mode exhibited by my model and drawings.

I do not claim as my invention a circular cutter with teeth on the inner edge of the circle merely, nor do I claim merely the mode of feeding by rollers; but

I do claim as my invention—

The application of a circular cutter having a diameter calculated to give the proper curve for planing and fashioning comb-plates, in combination with the mode of feeding, or bringing plates to the operation of the cutter, substantially in the manner as above specified.

WM. M. FOWLER.

Witnesses:
CHAS. BALDWIN, of New York,
SIMEON BALDWIN.