

E. G. Matthews,
Wood Molding Machine,

Patented Oct. 22, 1840.

N^o 1,836,



Fig 1

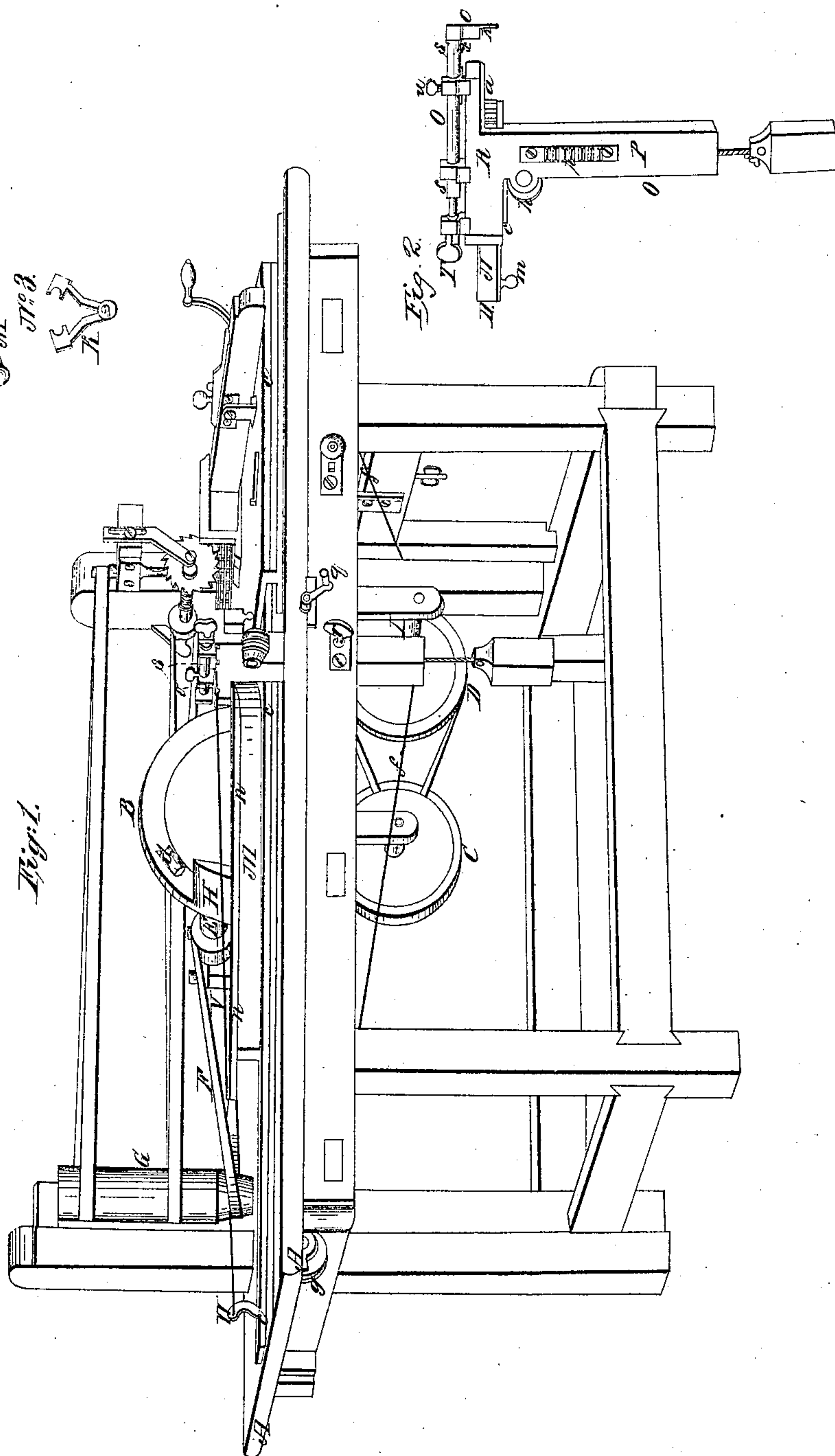
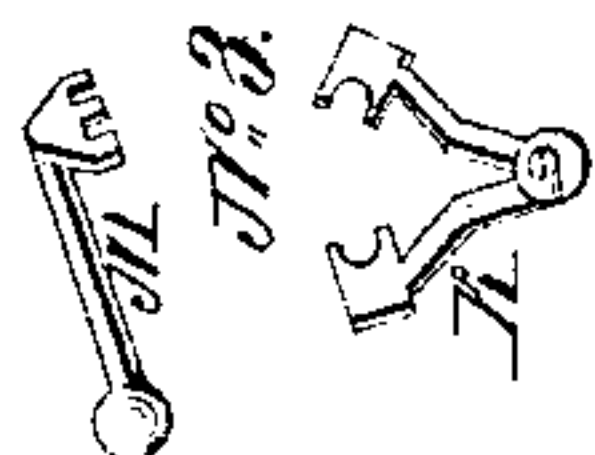


Fig. 2.

UNITED STATES PATENT OFFICE.

ELBRIDGE G. MATTHEWS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO DRAPER RUGGLES, JOEL NOURSE, AND J. C. MASON.

MACHINE FOR HEWING PLOW-BEAMS, CARRIAGE-SHAFTS, CROSS-BARS, AND OTHER TIMBERS.

Specification of Letters Patent No. 1,836, dated October 22, 1840.

To all whom it may concern:

Be it known that I, ELBRIDGE G. MATTHEWS, of Worcester, in the county of Worcester, State of Massachusetts, have invented a new and improved machine for hewing plow-beams, carriage-shafts, cross-bars, and other timbers on curved lines in accordance with edge patterns.

The nature of my invention consists in the application of rotating cutters or gouges to the hewing of crooked surfaces by a new mode of presenting and guiding the timber during the operation.

The annexed drawings are intended to constitute a part of this description.

A A A is a bench resting on a frame with legs, of convenient height.

B is a cast-iron wheel, having gouge formed cutters as at *d*, with shanks inserted through the wheel near the periphery, and keyed. This wheel revolves on the shaft E being driven by the band F passing around the drum G to which impulse is given by steam, horse, water, or other power. *c c c* is a carriage sliding endwise on rails fixed to the bench, having guides on the under side to keep it in place. The carriage is a plank with a plain surface, of convenient width, and may be covered with a plate of zinc or other metal on which the timber to be hewed will slide easily. Its length and breadth must be sufficient for a platform on which to lay the timber and to give it the necessary motion. The carriage is moved by means of a small cord or chain *f f* passing several times around the shaft I to which motion is communicated from the shaft E, through the wheels C and D by connecting belts in the ordinary way, the wheel D being fixed upon the shaft I. One end of the cord passes up and around the pulley *g* and then extends along between the rails under the carriage to the opposite end where it is attached to the carriage. The other end of the cord passes from the shaft up over a pulley in a similar manner at the other end of the bench, extending under the carriage to its opposite end where it is made fast to it. It is obvious that when the wheel D revolves, the cord on one side will be taken up by the shaft, and given out on the other, by which the carriage will be moved either way according to the direction given to the wheel. There are two belts passing down through

the bench, one connecting the shaft E with the wheel C; the other the same shaft with a smaller wheel on the same shaft with C, but hid, in the drawing, behind the wheel C. These two wheels, revolving freely around their common shaft, become alternately fixed to it by a clutch arranged in any of the common methods, moved by a lever, commanded by a rod at the end of which is the knob L at the front of the frame for convenient access by the operator. The wheel C is fixed by the clutch in the operation of hewing, and its comparative diameter is regulated to the desired feed or motion to be given to the carriage. The other small wheel on the same shaft is brought into action by the clutch, to run the carriage back with greater speed to save time, the motion of the shaft being changed by one of the wheels being driven by a cross band.

M represents a timber or plow beam to be hewed. Being reduced roughly to convenient dimensions, it is laid on the carriage with the side to be hewed next to the cutting wheel. The pattern *n, n, n*, Figs. 1 and 3 of which Fig. 3 is a top view, is fastened on the upper side of the timber with tacks *o o o*. It is a strip of board about half an inch thick and from 2 to 4 inches wide, having the edge next to the cutters made to conform to the desired curve or curves to be given to the timber.

O O, Figs. 1 and 2, is an apparatus for guiding the beam as it passes along the cutters, and for gauging the thickness of the scarf to be cut.

P is a square vertical shaft which passes down through the bench to which is secured the horizontal top piece, R.

N is a square slide let into the under side of the top piece, at the end of which slide is the friction roller *a*.

The cord *b* to which the weight U is suspended, passes up through the center of the shaft, over the pulley *h*, and is fastened to the underside of the slide N at or near the point *c*. As the weight descends, the slide is forced forward pressing the friction collar against the side of the pattern with sufficient force to keep it against the lip of the guide *k* and keeping it in close contact with it, while the beam with the pattern attached, is passing along receiving the action of the cutters.

m is a knob by which the operator draws the slide back.

The vertical shaft *P* is raised or depressed in conformity with the thickness of the beam, by a rack *p* with a pinion worked by the crank *q* seen in Fig. 1, and is held in place by a strap passing around it, which is fastened by the thumbscrew *r*. The sliding gauge *s* is moved endwise by the fixed thumbscrew *T* entering the end of the gauge, and is thereby adjusted to a proper distance from the cutters. When adjusted it is held fast by means of the thumbscrew *U*. If the thickness of wood to be taken off the beam in any part of it, be too great to be removed in one scarf, the gauge is set to expose no more than the cutters can well remove at once, and then is set for a second scarf, and so on, till it is reduced to the required dimensions.

The timber in being hewed has a free lateral motion on the carriage, in order that it may be presented fairly in every part of its length, to the cutters conforming to the crooks and curves, at the point where the cutters act upon the beam, being directly against the sliding gauge. It is moved endwise with the carriage by means of a small cord *V* attached to the upright *W* fixed in the carriage. The cord passes above the pattern and through

the loop Fig. 2 and is made fast to the pattern or timber most distant from the upright, that the lateral motion of the timber may be less restrained, and that the action of the cord may be in a direction toward the point on which the cutters are acting.

H is a fender, being a flat piece of iron or other material, fixed to the bench in a vertical position close to the cutters, being a little convex on the side opposite to them. Its use is to prevent the beam from coming in contact with the cutters on the ascending side, as they are designed to cut only in the descending part of their revolution.

Now what I claim as my invention for which I ask Letters Patent, is—

The arrangement above described by which a timber to be hewed is presented to, and guided along before, the cutters, in such manner as that the cutters act upon and hew the side of the timber according to a board or edge pattern, in conformity with any desirable curve or curves given to the edge of the pattern, as above described or in any manner analogous thereto.

ELBRIDGE G. MATTHEWS.

Witnesses:

I. RUGGLES,
E. C. DYER.