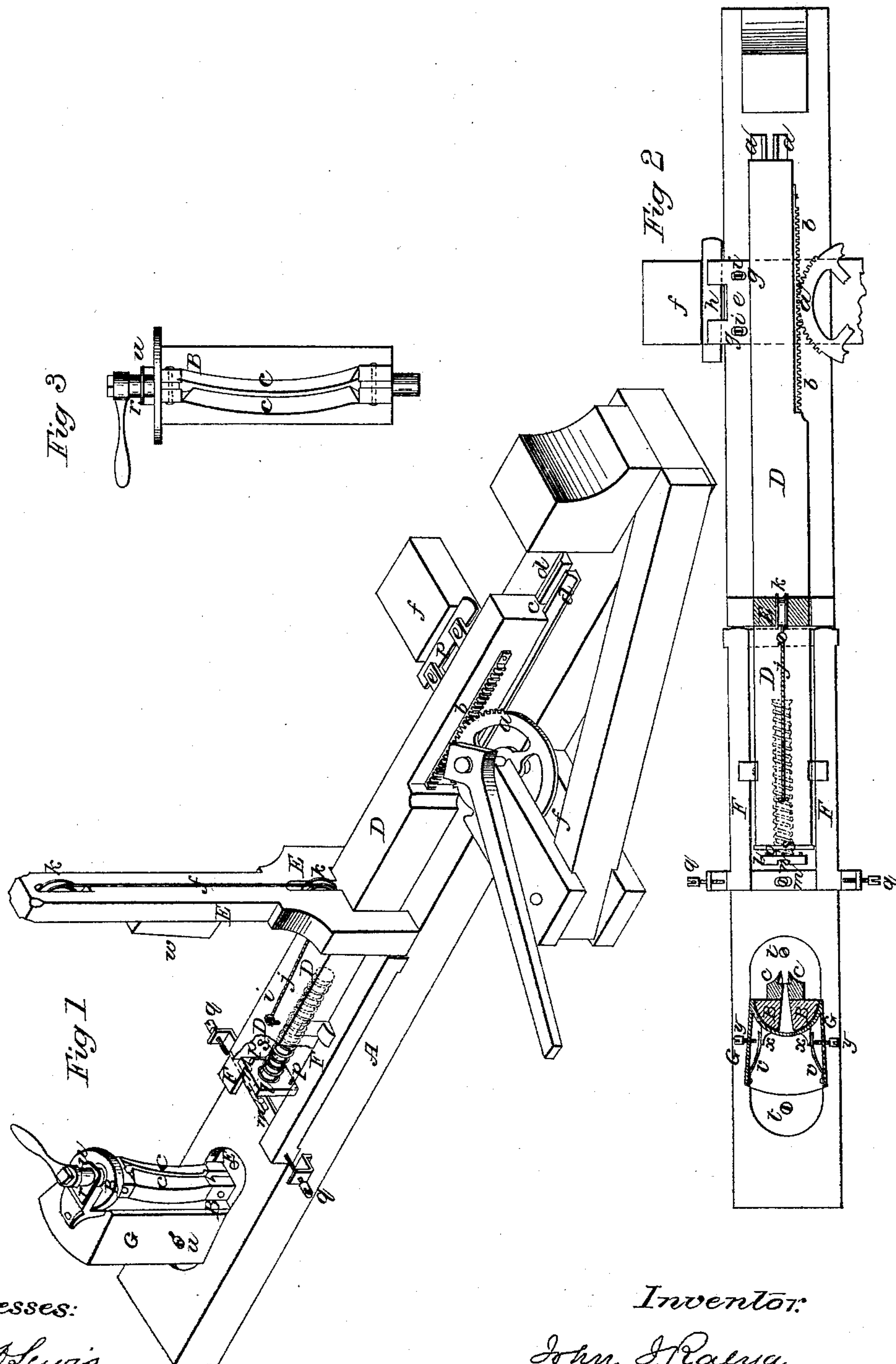


J. J. Ralya,
Dressing Staves.

N^o 55,708.

Patented June 19, 1866.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN J. RALYA, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN STAVE-MACHINES.

Specification forming part of Letters Patent No. 55,708, dated June 19, 1866.

To all whom it may concern:

Be it known that I, JOHN J. RALYA, of the city of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Dressing Staves; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective representation of my improved stave-dressing machine. Fig. 2 is a plan or top view, showing portions of the machine in section. Fig. 3 is a front view of the head-stock and knives.

In the several figures like letters refer to similar parts.

My invention consists in certain improvements in machines for planing or dressing staves, which are chiefly directed to the remedying the difficulties arising from the irregular thickness of the rough staves and the twist in the grain of the wood from which they are made.

The machine represented in the drawings is designed to be driven by horse-power, because that is usually most convenient, as the machines are portable and are frequently required in localities where steam-power cannot be procured. My improvements are, however, applicable to machines driven by steam-power by obvious accommodation.

To enable others skilled in the art to make use of my invention, I will proceed to describe the construction and operation of my improved machine.

In the drawings, A is the horizontal bed-plate or frame of the machine, at or near the end of which is placed the head-stock B, which carries the stave-dressing knives C C, in front of which, placed horizontally on the bed-plate, is the ram D, by which the staves are forced through the head-stock between the knives, and are thereby shaved or dressed on both sides with the proper curve and to a uniform thickness.

The ram D has a reciprocating motion toward the knives and back again. The forward motion is effected by the segmentally-toothed wheel *a*, which gears into the rack *b* in the side of the ram D. On the under side of the ram D is a flange, *c*, which extends

downward between two ways or rails, *d d*, which are fastened to the bed-plate A by bolts *i i*, passing through slots *g* in the plate *e*, so that the plate with the ways *d d* may be adjusted sidewise by the wedge *h*. The object of this adjustment is to cause the rack *b* and teeth of the wheel *a* to gear more or less deeply into each other, and thus slightly increase or diminish the length of stroke of the ram D toward the knives C C, which serves all the purposes of a more delicate adjustment. The return of the ram, after having been forced forward by the wheel *a*, is effected by a weight, *w*, attached to the end of the rope *j* and passed over the pulleys *k k* in the upright pulley-post E, which is placed between the wheel *a* and the head-stock B on the frame A, far enough from the center of the wheel to allow the horse to pass. As the ram is pressed forward the rope *j* draws the weight *w* up the pulley-post E, but as soon as the rack *b* is free from the teeth of the wheel *a* the weight *w* descends and pulls the ram back.

The use of the pulley-post E is a great convenience, as it has been heretofore the practice to attach the rope to the end of the ram and pass it over a pulley at the rear end of the frame, the weight descending into a pit sunk in the ground.

The forward end of the ram or driving-bar D is furnished with a movable head, *l*, which is crotched or furnished with a vertical groove, *n*, on its face, so as to hold the stave in place and prevent it flying off as it is being forced between the knives. The head *l* has a cylindrical shank, *o*, which enters a cavity in the end of the ram D, and around the shank *o* is a strong spiral spring, *s*, which allows the head to yield a little, so that the head can be pressed up close to the edges of the knives without injury to the machine.

The pins *p p*, projecting from the inner face of the head *l*, enter grooves in the end of the ram and prevent the head turning more than a little on its axis. By this arrangement the head can turn sufficiently to accommodate a twist in the stave in passing between the knives C C.

The ram D, in front of the pulley-post E, slides between guides F F, placed on the frame of the machine on each side of it and connected together by a cross-piece, *m*.

The head-stock consists of a cast-iron frame, B, having a journal, *r*, at each end, or at top and bottom, by which it is connected with the box G, which is screwed or bolted at *t t* to the frame of the machine, the lower journal, *r'*, of the head-stock entering a circular hole in the bottom plate of the box G, and the upper journal, *r*, passing through a collar, *u*, projecting from the upper plate of the box. The back of the head-stock is semi-cylindrical, the journals *r r'* being in the center of the curve of the back, so that the head-stock fits close to the box G as it turns on its axis.

The stave-dressing knives C C are fitted into and attached to the head-stock, through which there is a passage, corresponding with the space between the knives, to allow of the passage of the staves. The knives are so placed in the head-stock B that the center of motion of the head-stock (or the vertical line passing through the axis of the journals *r r'*) shall fall between the inner face of the knives and between their back and edge, so that the knives may turn to accommodate any bend or irregularity in shape of the staves.

In order to keep the knives in proper position to receive a stave—that is, with the center of the space between them in a right line with the axis of the ram D—two springs, *v v*, are placed back of the head-stock B, in the box G, one on each side, bearing equally in opposite directions against lugs *x x*, which project from the back of the head-stock into the cavity of the box G. These springs allow the head-stock, with its knives, to turn on its axis to allow a crooked stave to pass; but tend always to straighten the knives and keep them straight when not overpowered by the action of the stave in passing through the machine.

On each side of the box G is a set-screw, *y y*, the points of which are in a line with the lugs *x x*, though not quite touching them when the knives are straight. These set-screws may be set so close to one or other of the lugs *x x* as to limit the motion of the head-stock on its axis on either side, and by means of the adjustment of these screws the knives may be made to bear more closely on one side of the stave than on the other. The use of this arrangement is that when a lot of staves are so thin as not to bear shaving on both sides the knives may be set so as to shave or dress one side only.

The knives C C are curved lengthwise along their edge, as shown in Fig. 3, so as to give the proper curve to the stave. They may also be made with a shoulder projecting at an obtuse angle from the outer face of the blade, for the purpose of causing the shavings to break off whenever they begin to sliver and eat into the wood, as described in Letters Patent granted to me on the 31st October, 1865; or they may be made, as shown in the draw-

ings accompanying this specification, with a curve on their outer face, which is a modification in shape, producing the same result as the angular shoulder, by forcing the shaving outward at an angle greater than the wood will bear without breaking, which causes it to snap off just above the edge of the knife.

What I claim as my invention, and desire to secure by Letters Patent, as improvements in stave-dressing machinery is—

1. Setting the head-stock or knife-frame on journals, so that it may admit of a slight motion on its axis to accommodate its position to any twist or irregularity of shape of the stave which is forced between the knives in the operation of shaving.

2. Placing the knives in a head-stock or frame susceptible of motion on its axis in such a way that the center of motion shall be on a line between the inner face of the knives and between their back and edge.

3. Limiting and regulating the range of motion of the knives by means of set-screws, substantially as hereinbefore described.

4. The use of the movable head-piece in the end of the ram, so constructed and arranged as to be susceptible of a limited motion on its axis for the purpose of allowing the stave to turn in its passage through the knives to accommodate any twist or irregularity of shape of the stave.

5. The use of a spring in connection with the movable head of the ram, so as to permit of its yielding slightly in the operation of forcing the stave through the knives, substantially as described.

6. Crotching the end of the ram, so as to hold the stave in place as it is being forced through the knives.

7. The use, in combination with the cutters or knives and ram, of an upright pulley-post to carry the rope and weight for withdrawing the ram after the stave is passed between the knives.

8. So arranging the toothed rack of the ram as to be capable of adjustment toward or from the segmental gear-wheel, for the purpose of regulating the length of stroke of the ram toward the knives, substantially as and for the purpose hereinbefore described.

9. Giving to the knife-blades a concave curve from their outer edge, so as to form a ledge or shoulder, for the purpose of turning the shaving or chip outward at such an angle as to break it off just above the edge of the knife, substantially as hereinbefore described.

In testimony whereof I, the said JOHN J. RALYA, have hereunto set my hand in presence of witnesses.

JOHN J. RALYA.

Witnesses:

A. S. NICHOLSON,
ALLAN C. BAKEWELL.