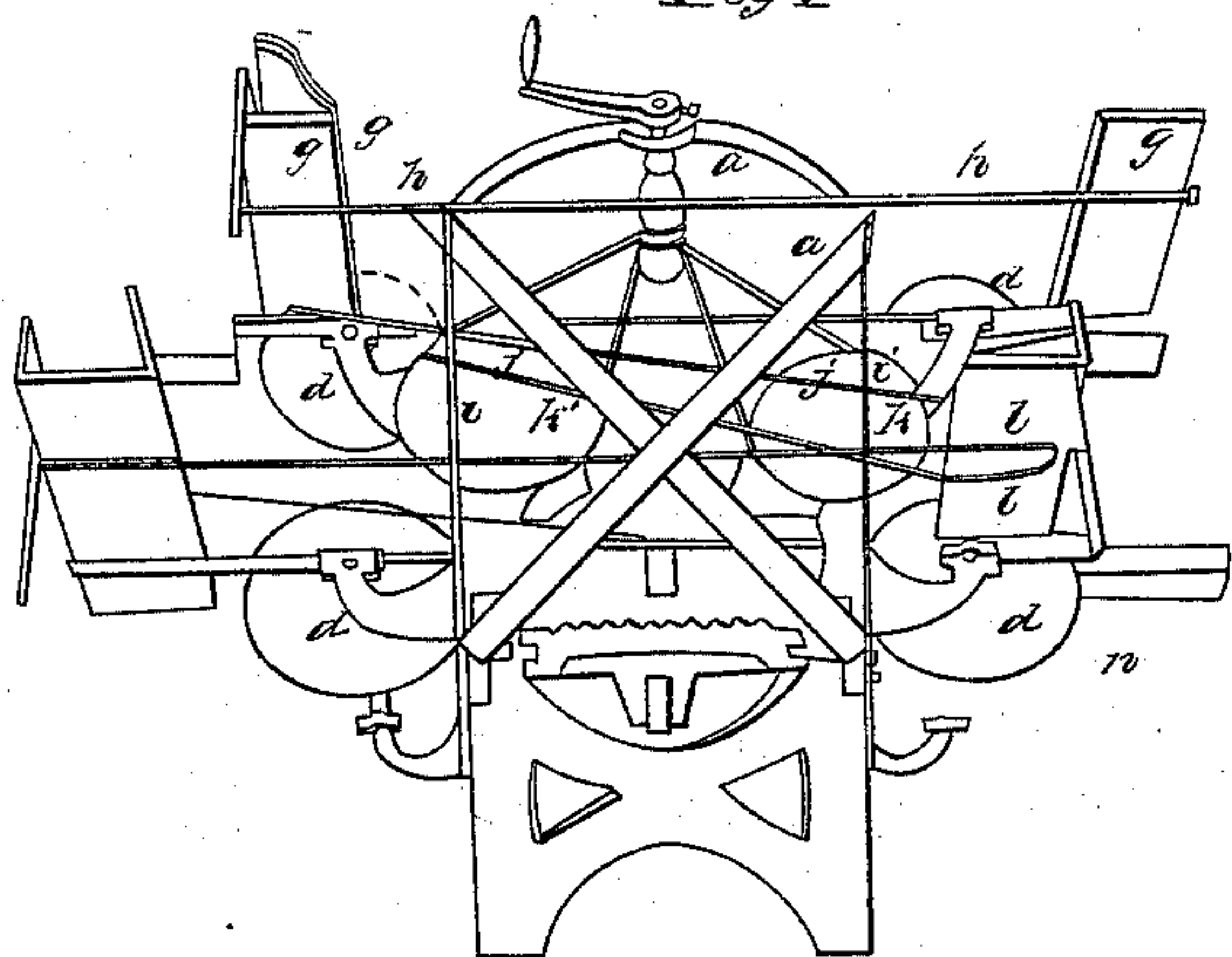


*W. L. Ormsby,  
Splitting Wood.*

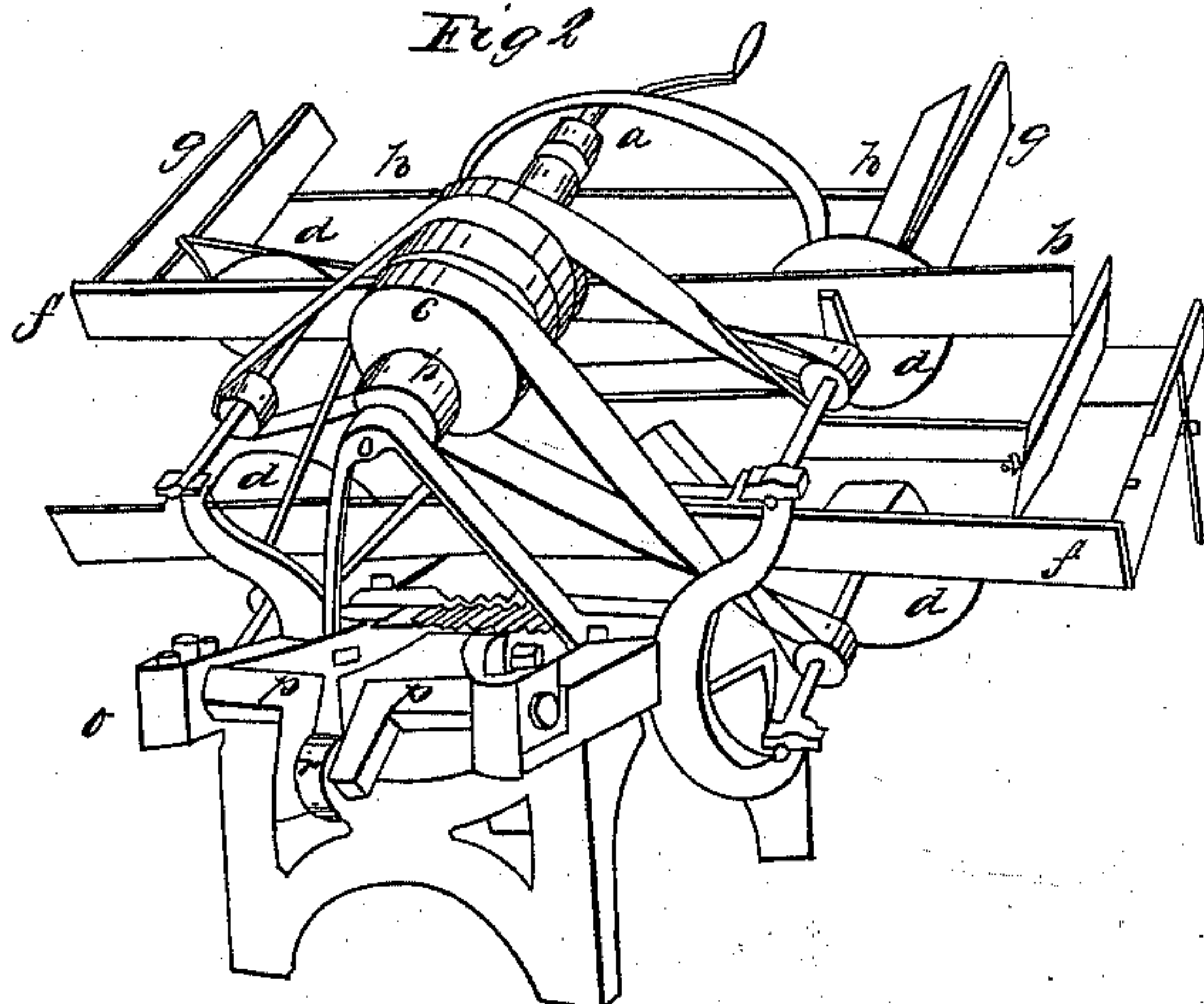
*N<sup>o</sup> 17,169.*

*Patented Apr. 28, 1857.*

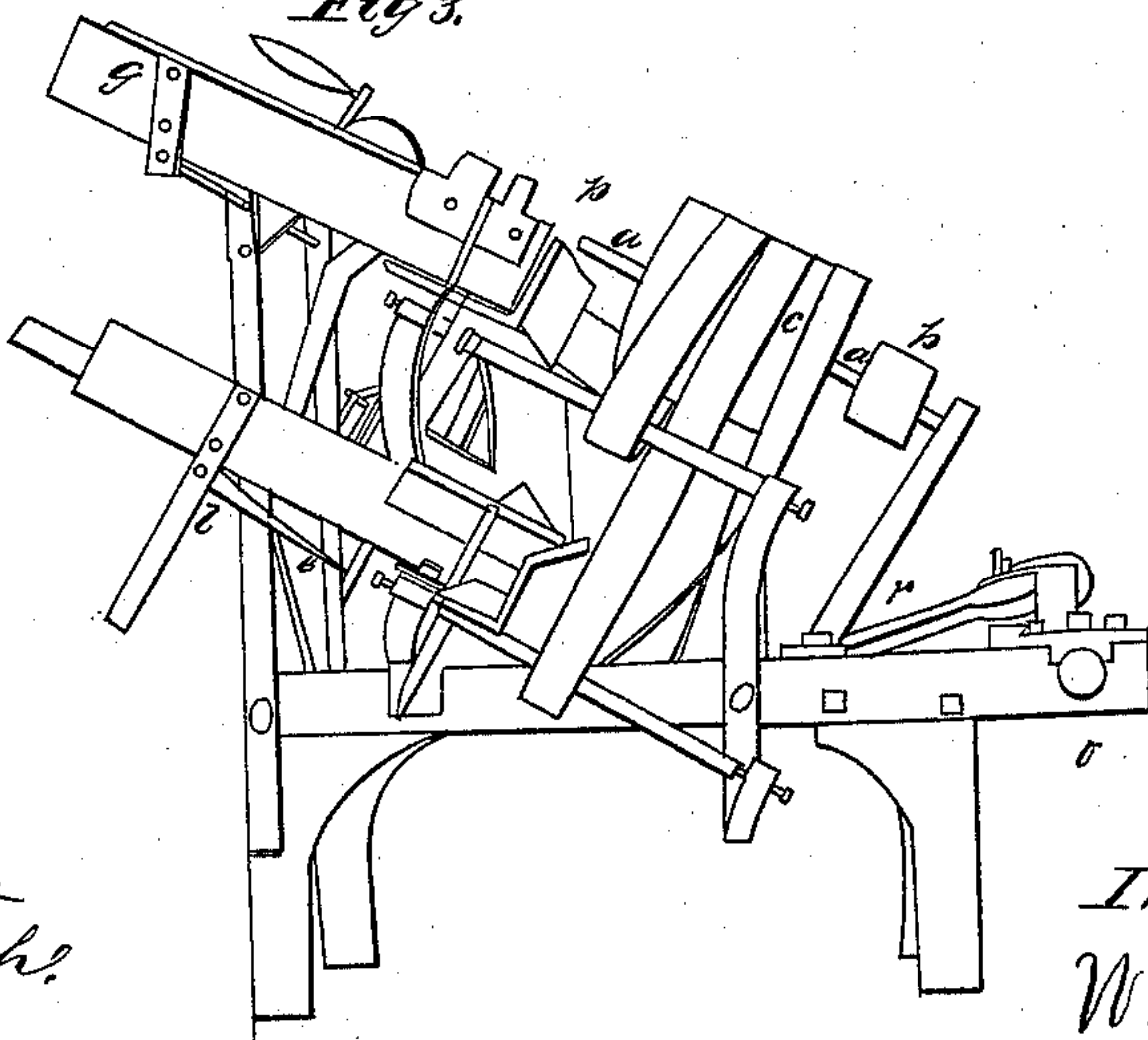
*Fig 1*



*Fig 2*



*Fig 3*



*Witnesses.  
Geo B. Hume  
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# UNITED STATES PATENT OFFICE.

WATERMAN L. ORMSBY, OF JERSEY CITY, NEW JERSEY.

## MACHINE FOR SPLITTING WOOD.

Specification of Letters Patent No. 17,169, dated April 28, 1857.

*To all whom it may concern:*

Be it known that I, WATERMAN L. ORMSBY, of Jersey City, in the State of New Jersey, have invented an Improvement on the Machines for Preparing Kindling-Wood; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figures 1, 2, 3 are perspective representations of the complete machine. Figs. 1 and 2 are side views, and 3 an end view.

Motion is communicated to the saws and feeding apparatus by passing a belt from a steam engine or other first mover over the fixed pulley or drum *b*, on the shaft *a*, *a*; and to the splitting apparatus by another belt carrying another drum on the crank shaft *c*, (Figs. 1 and 2.)

The drum *c*, on the shaft *a*, *a*, imparts motion by separate belts to the four saws *d*, *d*, *d*, *d*. As these act in pairs, a description of the working of one pair with its feeding apparatus will be sufficient for both.

A feed-box is provided for each saw. Those for the upper pair of saws are shown at *g*, *g*, Figs. 1 and 2. They are connected together by two rods or bars, one of which is seen at *h*, *h*, supported by the uprights *i*, *i*, so that when a lateral motion is given to one box, it is necessarily imparted to both. Such motion is communicated by the rod *j*, *j*, which is jointed at one end to the bottom of one box and at the other to the face of the revolving disk or pulley *k*. In the same manner the lower feed-boxes are moved to and fro, by a similar rod connected to the disk *k'*. These disk pulleys, it will be perceived, are revolved by cords passing over grooves in drums on the shaft *a*, *a*. The extent of lateral motion given to each pair of feed-boxes is determined by the distance between the center of the disk and the place on its face to which the rod *j* is connected.

Each feed-box is simply a trough, consisting of two sides and a bottom, with open ends. One side is movable, being drawn down inward by a spring hinge, so as to act as a clamp on the sticks of wood while under the action of the saw, and loosening its hold when a stick is required to slide down past the saw, to present another length to be cut off.

The lower ends of the boxes rest against

the side and slide along the bottom of the guide gutter *f*, *f*. The saws revolve at and form portions of the opposite side of this gutter, and the pieces of wood as they are cut off the sticks in the feed-boxes, are pushed along by the lateral movement of the feed boxes toward the center of the gutter, which opens into the hopper at the bottom of which the splitting chisels work.

The feed boxes are inclined at an angle from the horizon sufficient for the sticks put into them to slide down of themselves to the saws, and till they are wholly cut up. The axes of the saws and the saws themselves having of course an equal inclination. As it sometimes happens with very light wood, that pieces do not slide down promptly, I have attached a hook to a cord passing through a hole in the bottom, and up inside of the box, which when caught on the upper end of a stick, is drawn down with the stick, by a wire spring attached to the rod on which the upper end of the box rests, as seen at *l*, *l*. When a stick has been wholly cut up the hook is drawn up, by the cord and ball *n*, and applied to a fresh stick.

The manner in which the movable side acts and ceases to act as a clamp is by simply attaching a cord, chain, or rod, to its upper side and fixing the other end midway between the two saws: the length of the cord being such that it only begins to act against the spring hinge when the box has been drawn back clear of the saw: hence, when a stick has slid down and is being drawn toward the saw the strain on the string ceases, and the side impinges on the stick till the saw has passed through it and the box moved back to its former position, when the string again pulls back the side and allows the stick to slide down and present a fresh length for the saw to cut off.

Instead of a cord or chain, I use at present a rod or wire, see *x* Figs. 1 and 2 which, passing through a fixed ring between the two saws, is made to act on the clamp, by its other extremity being arrested by a hook or other enlargement which cannot be drawn through the ring.

To prevent sticks slipping under the clamp I rib or otherwise rough it.

The action of the machine will now be understood by supposing a stick taken from a pile, to be cut up, and placed in the open box of Fig. 2. It slides down against



*f*, and as it is drawn toward the saw the rod *o* of the clamp slackens, the stick is held down and presses gradually against the saw; and that the latter may cut clear through it, a wide slit is made on the fixed side of the box to receive a portion of the saw, a feature shown at Fig. 3. By the revolution of the disk *h*, the motion of the box is next reversed, the clamp slackens its hold, and by the time the stick has dropped down again to *f*, preparatory for another cut, it is again moving to the saws. It will be perceived that while one feed box is conveying its charge to the saw, the opposite box is receding from it to receive a fresh stick, or allow the remainder of one to drop down against *f*. By thus keeping one saw or the other of a pair always at work, I avoid intermissions that waste the motive force.

The pieces, as they are cut off, are pushed along by feed-boxes toward the center of the gutter, which opens over the hopper, across the bottom of which the splitting chisels work, and into which they pass with the grain presented to the chisels. The lower pair of boxes push their charge directly into the hopper.

The splitting part of the machine with its stout iron frame is partially represented in Figs. 1, 2, 3. The crank shaft *p*, *p* turned by a drum on the end of *o*, as already stated, gives a reciprocating rectilinear motion to a strong metallic plate, on which the splitting chisels are secured. The plan of this plate is shown in Figs. 4, 5 and 6, in which the projecting pieces *q*, *q*, are the ears through which the rod *r*, Figs. 2 and 3 that connects it with the crank, is bolted. The chisels are solid steel bars whose cross sections are right angled triangles. One end of each bar is formed into two blades at right angles to each other, and the other left square to butt against a part of the plate in which they are embedded.

Fig. 8 shows the flat bottom or underside of a bar (the base of the triangular section) with an oblong opening to receive the screw that holds it on its bed. The edge of the double blade is figured at *b*, and the opposite end at *c*.

In Fig. 5, the chisels are figured in their places on the plate with their apices *a*, *a*, *a*, *b*, *b*, *b*, upward and the cutting edges facing each other. The apices of the two rows it will be seen do not coincide but alternate with each other, an arrangement by which the chisels cross as it were each other in their action on the sticks, as represented at Fig. 9, and instead of splitting off slabs equal to the width of each stick, divide it into pieces whose sections are represented by the small squares *a*, *a*, *a*, Fig. 9.

A portion of the apex of each bar near

the screw is flattened. The blunt ends terminate at the lines *g*, *g*, *g*. The plate *A* acts as a movable bottom to the hopper and it prevents any pieces from being drawn in again should any adhere to the chisels.

Fig. 6 represents the underside of Fig. 5.

Fig. 4 shows a disposition of the chisels by which their cutting edges do not form a continuous but a broken line—an arrangement which I find advantageous in splitting hard and knotty woods, besides avoiding the jar consequent on bringing all the blades violently at once on a charge of sticks. This jar is so injurious that in all splitting machines with which I am acquainted, including Conover's the knots are cut out and sold without being split. With the same view I also arrange the edges in a diagonal line as represented by the dotted line *h*, *h*, in Fig. 4. Between the blunt end of each protruded chisel and its abutment I introduce a block of metal whose length determines the amount of protrusion.

Fig. 10 is a plan of the underside, and Fig. 11, an end view of the hopper. The angular recesses fit over the chisels (see Fig. 1,) and serve to keep them in their places and to strengthen them.

The action of the chisels is obvious. As soon as a stick enters the hopper it drops on the plate *A*, (Figs. 4 and 5) and the chisels as they move to and fro keep cutting off, and splitting, portions whose thickness is determined by the distance the plate *A* is sunk below the chisels; the stick meanwhile being held fast endwise by the sides of the hopper.

What I claim as my invention and desire to secure by Letters Patent are—

1. The arrangement of the chisels in broken or serrated, and in diagonal lines, according to the nature of the wood to be split.

2. The arrangement by which the apices of one row do not coincide but alternate with those of an opposite row.

3. The feeding apparatus and clamp, inclined as represented by which sticks put into the feeding boxes require no further attention or handling till they drop as kindling-wood from the splitting chisels.

4. The combination of the feeding, sawing and splitting apparatus substantially as described, by which greater economy of time and power in preparing kindling-wood is achieved than has been hitherto attained.

5. I also claim the combination of the guide grooves in the flanch of the hopper, thereby avoiding the introduction of separate guide plates for the chisels.

W. L. ORMSBY.

Witnesses:

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C. M. TROSSBACH.