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# UNITED STATES PATENT OFFICE.

J. ADAMS AND L. ADAMS, OF HADLEY, AND L. H. MOORE, OF LEVERETT, MASSACHUSETTS.

## MACHINE FOR CUTTING OUT FELLIES.

Specification of Letters Patent No. 6,521, dated June 12, 1849.

*To all whom it may concern:*

Be it known that we, JOSEPH ADAMS, LEVI ADAMS, of Hadley, Hampshire county, and State of Massachusetts, and LUTHER H. MOORE, of Leverett, county of Franklin and State of Massachusetts, have invented a new and useful Improvement in Machine for Cutting Fellies for Wheels, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a vertical longitudinal section of the machine at the line  $x x$  of Fig. 2. Fig. 2, is a top or birds-eye view of ditto, with the friction wheels or pulleys removed, their relative positions being represented by dotted lines. Fig. 3, is an elevation of the back part of ditto. Fig. 4, is a side view of the lever or treadle for clamping the timbers from which the fellies are cut.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in securing to the upper end of a vertical shaft turning in boxes in a suitable frame, a horizontal beam having adjustable cutters attached near its extremities at the required relative distance from the center of the shaft to correspond with the inner and outer curvative of the felly to be cut and causing said cutters to revolve over the timber from which the fellies are to be cut, and gradually descend during their revolutions by means of bands, pulleys, friction wheels, screw shaft, levers, &c.; and cut the felly, and by means of the movement of a lever to reverse the movement of the screw shaft, and cause the cutters to ascend to their original positions to allow the operator to bring the timber forward for another cut.

To enable persons skilled in the art to make and use our invention we will proceed to describe its construction and operation.

A is the frame made of suitable size strength and material to contain and support the several parts for which it is designed.

B is an upright shaft, resting in a movable step at its lower end, and having a horizontal circular plate  $a$ , secured to its upper end, immediately below which is formed a hub  $b$  turning in a corresponding sized box, for steadying the upper end of the axle during its revolution.

C is a horizontal beam secured between projections formed on the upper surface of the circular plate.

D are angular metallic boxes having flanges on their sides, and secured to near the extremities of the beam, on opposite sides of the same, by means of oblong iron straps  $c$  passing around the beam and pressed against said flanges by screws  $d$ , passing through female screws in the straps and resting against oblong plates on the sides of the beam, opposite the boxes, in such a manner as to allow of the boxes being moved either farther from or nearer to the upright shaft to accommodate them to the inner and outer peripheries of the felly to be cut.

E are the cutters of any desired form passing through vertical oblong openings in the boxes, and held in their places when adjusted by screws  $e$ .

F is an upright shaft resting in a step in the frame, and turning in a box secured to a vibrating beam or timber at its upper end and provided with a friction wheel or pulley  $f$  at top and a series of unequal sized pulleys  $g$  below around one of which is passed a band  $h$  leading around a pulley  $i$  on the vertical shaft B.

G is a lever having a step on its upper surface in which the shaft B rests, arranged below the frame and secured at one end to the front part of the same by a pin upon which it moves, and resting at its opposite end upon a similar lever  $j$  placed at right angles to the same, moving on a pin at one end, and connected to a cross head  $k$  moving between upright slides or ways at the opposite end by a connecting rod  $l$ , iron straps  $m$ , and oblong plates.

H is a vertical screw shaft passing through a female screw formed in the cross head, being rounded at its lower end, which turns in a corresponding formed opening or step, formed in a permanent iron block  $n$ , secured to the frame and supported near its upper end by a suitable box in the frame, and provided with a friction wheel or pulley  $o$  of smaller diameter than the wheel  $f$ , from which it derives its motion during the ascent of the cross head and parts attached.

I is an upright shaft resting in a step at its lower end, and turning in a box secured to a vibrating timber or beam above, and provided at top with a friction wheel or pulley  $p$  of smaller diameter than the last



mentioned one, and near its lower end with a series of unequal sized pulleys *g*, around one of which is passed a crossed band *r*, also passing around one of the pulleys on the upright shaft.

*J* is a lever moving on a fulcrum near one end and connected at this end by a rod *s*, to the end of the lever *j*, below the frame, and having a weight *t*, suspended on its opposite end of sufficient gravity to counterbalance the weight of the vertical shaft of cutters, and levers *G*, *j*, combined, and thus relieve the screw of part of the pressure bearing on the same, and prevent its too sudden wear.

*K* is the horizontal beam containing the boxes in which the upper ends of the upright shafts *F*, *I*, turn, resting on the upper horizontal timber of the frame and provided with tenons at each end which are inserted loosely into corresponding formed mortises, in the vertical posts of the frame and having cords attached to its ends, one of which *u*, passes over a pulley on one side of the frame, and sustains a weight *v*, while the other passes over a similar pulley on the opposite side, and is attached to a lever *w* arranged on the side of an upright post, and moving on a fulcrum at one end in such a manner that by lowering said lever, the cross head containing the female screw, and the several parts attached to the same will be caused to ascend, and by raising the same, the weight will cause the friction wheels or pulleys to so engage together as to reverse the motion of the screw and force the cross head, &c., down.

Operation: When it is desired to cut a felly with this machine, the timber from which it is to be cut is placed on the table and is firmly secured by placing one end against the dog and clamping the opposite end by pressing it between the clamp *x* and table, and the cutters are adjusted in such relative positions to each other, as to cause one to pass over the timber, in its revolution, outside the curvature of the intended felly, and the other on the inside curve of the same. Motion is then communicated to the machine by any convenient power, and the

lever *w* released by the operator so as to allow the weight *v* to draw the horizontal beam *K* to which the boxes in which the upper ends of the upright shafts *F*, *I*, turn and cause the two smaller friction wheels or pulleys *o*, *p*, to engage in the manner represented in Figs. 2 and 3 and the cross head *k*, and its attachments, and upright shaft *B*, and cutters to gradually descend, until the cutters have passed through the timber, when the operators will lower the lever *w* to below the pin *z*, which will cause the beam *K* and friction pulleys *f*, *p*, to be drawn back to their original positions, and the two larger pulleys *f*, *o*, to engage, and the motion of the screw to be reversed, so as to raise the cross head and its attachments, together with the vertical shaft of cutters, to the point from which they started, when the motion of the machine is stopped, and the timber brought forward for another cut. In this manner the operation is continued.

When it is desired to cut a larger sized felly, the dog and clamp *x* may be placed in the openings in the table corresponding with the size wanted, and the cutters moved on the beam to adapt them to the purpose.

What we claim as our invention and desire to secure by Letters Patent is—

The combination of the cutter-head and beam *C*, with the levers *G*, *j*; cross head *k* moving between upright slides and attached to the lever *j* by the connecting rod *l*; iron straps *m*, and oblong plate; screw shaft *H*, passing through the cross-head, and provided with the friction wheel *o*, which is alternately thrown into gear with the friction wheels *f*, *p*, on the upper ends of the shafts *F*, *I*, by means of the horizontal beam *K*, pulleys and weights *u*, *v*, and lever *w*, for elevating and depressing the cutter beam and cutters, in the manner and for the purpose herein set forth.

JOSEPH ADAMS.

LEVI ADAMS.

LUTHER HENRY MOORE.

Witnesses:

I. F. CONKEY,

H. C. KELLOGG.