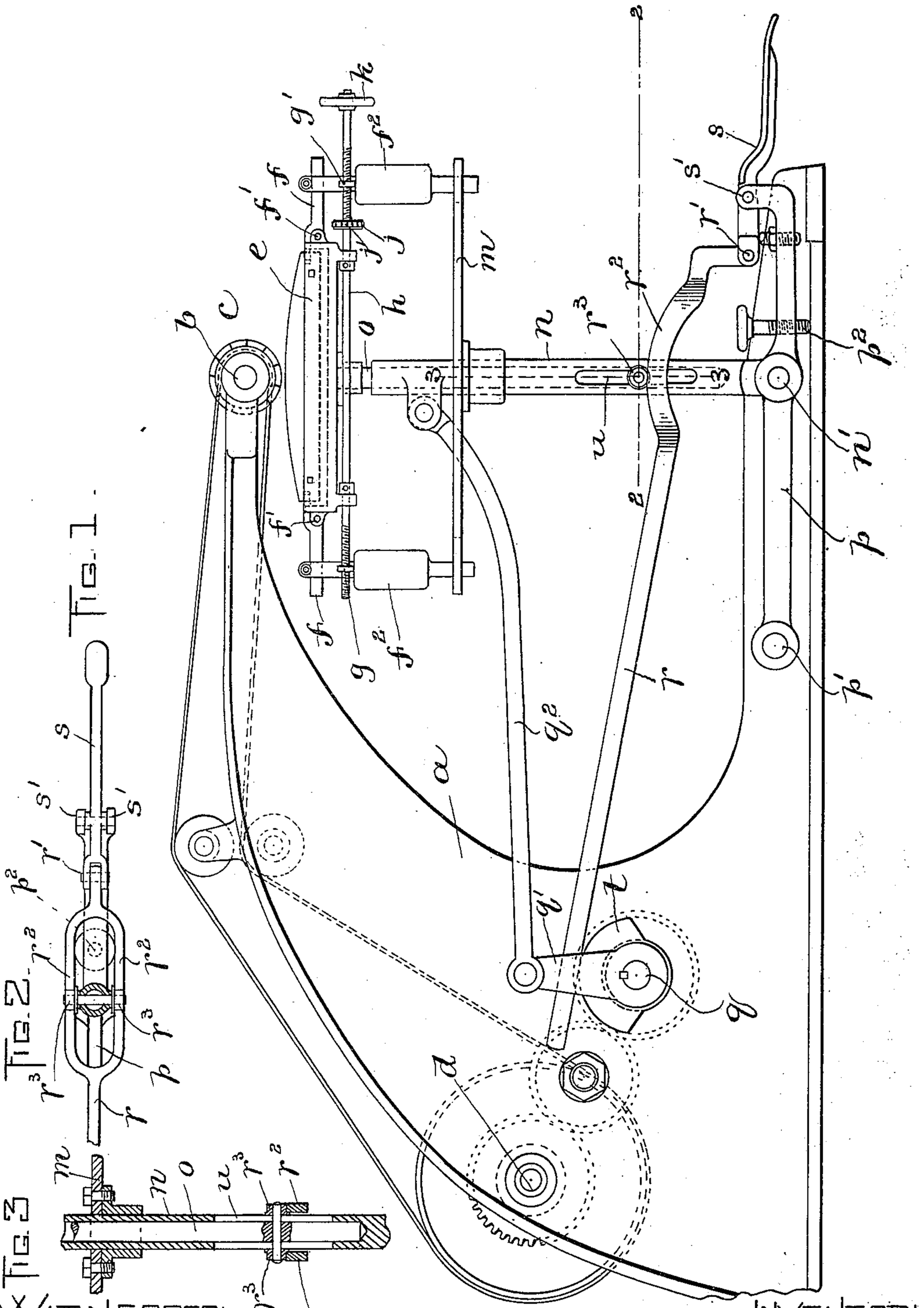
No. 666,461. Patented Jan. 22, 1901.

J. BOYLE.

LEATHER WORKING MACHINE.

(Application filed June 8, 1900.)

(No Model.) 2 Sheets—Sheet 1.



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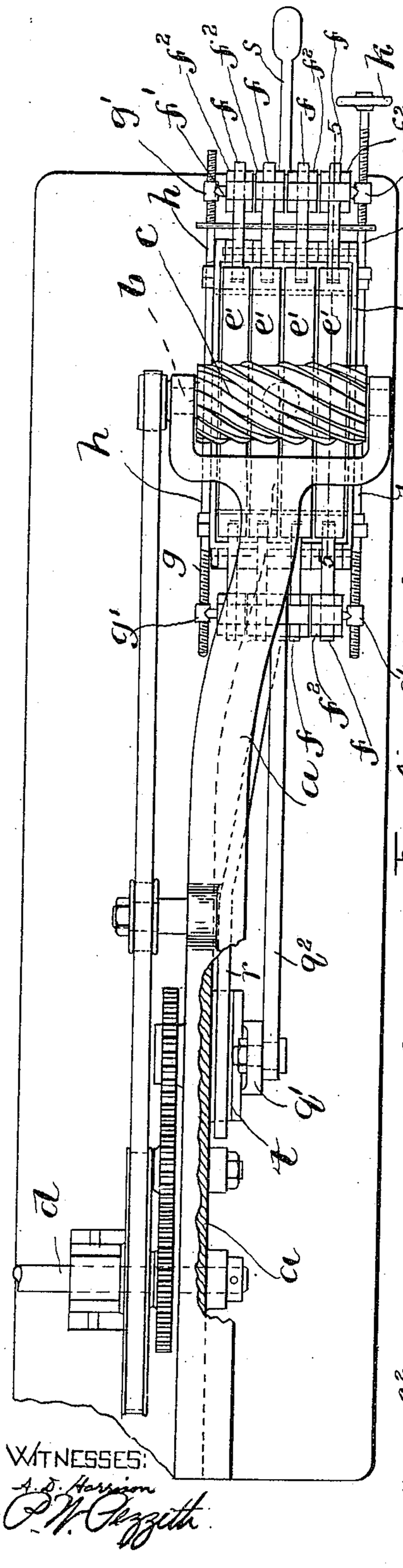

FIG. 4.

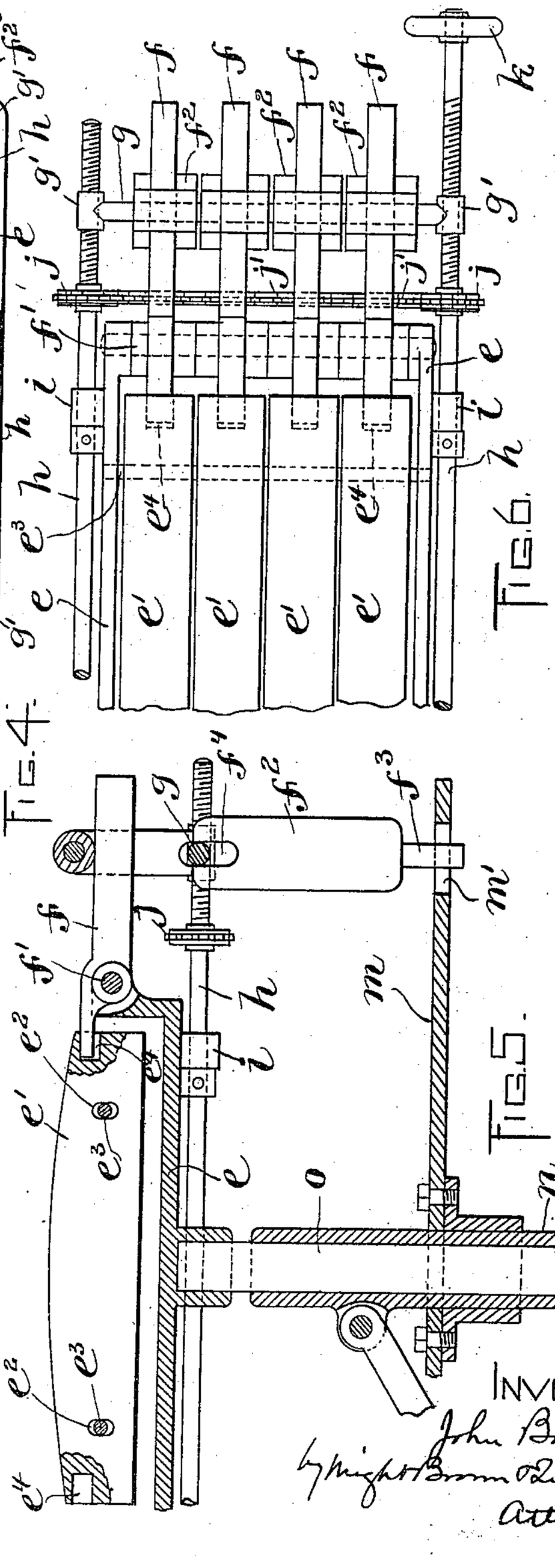

FIG. 6.

FIG. 5.

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UNITED STATES PATENT OFFICE.

JOHN BOYLE, OF PEABODY, MASSACHUSETTS.

LEATHER-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,461, dated January 22, 1901.

Application filed June 8, 1900. Serial No. 19,550. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOYLE, of Peabody, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Leather-Working Machines, of which the following is a specification.

This invention relates to machines for subjecting leather to the action of a suitable leather-working tool for performing various operations required in the preparation of skins and leather for the market—such as shaving, buffing, whitening, glassing, &c.—the material to be operated upon being held between a bed and a rotary operating-tool, which is caused to act progressively on the piece from end to end thereof, either by a reciprocating motion of the bed, the tool rotating in fixed bearings, or by a reciprocating motion of the tool relatively to the bed, the latter having no reciprocating motion.

The invention has for its object, first, to provide a bed for a machine of this character adapted to conform to variations in the thickness of the piece being operated upon, so that the operating-tool will act uniformly on the upper surface of the piece without regard to variations of its thickness.

The invention also has for its object to provide certain improvements relating to machines of the character above specified, in which the bed has a reciprocating or oscillating motion, the rotary tool rotating in fixed bearings.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1 and a plan view of the parts below said line. Fig. 3 represents a section on line 3 3 of Fig. 1. Fig. 4 represents a top plan view of the machine shown in Fig. 1. Fig. 5 represents a section on line 5 5 of Fig. 4, the rotary tool shown in said figure being omitted. Fig. 6 represents an enlargement of a portion of Fig. 4.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents a supporting-frame, which in this embodiment of my invention includes an overhanging arm or neck having bearings in which is journaled a shaft *b*, to which is affixed a rotary tool *c*. Said tool may be a cutting or shaping tool, or an abrading or rubbing tool, or may be of any of the various constructions required in performing various operations analogous to buffing, whitening, glassing, &c. The tool *c* may be rotated by power communicated from the main driving-shaft *d* through suitable belting, as shown in Figs. 1 and 4.

The work is presented to the roll *c* by means of a supporting-bed, which comprises a frame or holder *e* and a series of independent bent sections *e'*, mounted side by side on the frame and each having a limited independent vertical movement permitted by slots e^2, formed in the sections *e'*, and rods e^3, affixed to the holder *e* and extending through the slots e^2. The sections *e'* are convex on their upper surfaces and are pressed upwardly against or toward the tool *c* with a yielding pressure by means of levers *f*, fulcrumed at f^6 to the holder *e*, and weights f^2, adjustably mounted on the longer arms of said levers, the shorter arms of the levers projecting into sockets e^4, formed for their reception in the ends of the sections *e'*. The weighted levers yieldingly hold the sections *e'* with their upper surfaces as far above the holder *e* as the rods *e'* and slots e^2 will permit. Each section is therefore adapted to yield independently of the others, so that the bed is adapted to yield locally at various points, as required by inequalities in the thickness of the skin being acted upon. The upward pressure imparted to the sections *e'* may be varied by adjusting the weights f^2 toward and from the fulcrums *f'* of the levers *f*. I have provided means for adjusting the weights simultaneously, said means having provisions for moving the series of weights at one end of the bed simultaneously in the opposite direction from the series of weights at the opposite end of the bed and comprising transverse rods *g*, extending loosely through the slots f^4 in the weights f^2 and having nuts *g' g'* at their ends and screw-shafts *h h* journaled in bearings *i* on the holder *e*, each shaft having a right-hand screw-thread at one end and a left-hand screw-thread at the opposite end. The threads of the shfts *h h* engage

the nuts g' g', which are correspondingly threaded. The shafts h h have sprocket-wheels j j, which are connected by a sprocket-chain j'. One of the shafts has a hand-wheel k, and when said wheel is rotated the two shafts are rotated simultaneously and adjust the two series of weights f^2 simultaneously in opposite directions. The weights f^2 are prevented from oscillating laterally by means of a guide-plate m, supported by the standard n, hereinafter referred to, said plate having slots m', Fig. 5, into which project lugs f^3, formed on the weights f^2.

The holder e of the bed is attached to the upper end of a stud o, which is movable vertically in the standard n, the latter being tubular. The standard n is fulcrumed at n' in an adjustable support p, which is pivoted at p' to the supporting-frame and has an adjustable bearing-screw p^2, resting on the base of the frame and adjustable vertically to vary the height of the fulcrum n'. The standard n is oscillated by means of a shaft q, geared to the driving-shaft d, a crank-arm q', affixed to the shaft q, and a rod q^2, connecting the arm q' with an ear on the standard n. This motion of the standard n carries the bed back and forth in a curved path under the tool c.

Means are provided for raising and lowering the bed, so that during one stroke it may hold the work operatively against the tool c and during the return stroke it may be depressed to separate the work from the tool. The means here shown for accomplishing this result are as follows: r represents a rod or lever which is pivoted at one end at r' to a treadle s, which is pivoted at s' to an ear on the adjustable support p. The other end of the rod r bears on the perimeter of a cam t, which is formed to hold the rod r in the raised position (shown in Fig. 1) during one-half of the rotation of the shaft q and during the forward movement of the bed and to permit the depression of the rod r during the remaining half of the rotation of the cam and during the return movement of the bed. The rod r has a curved portion r^2, which is preferably made in two parallel parts, as shown in Fig. 2, said parts supporting two trundle-rolls r^3, mounted on trunnions affixed to the stud o. The curved portions r^2 of the rod r are preferably substantially concentric with the center n', on which the standard n oscillates. It will be seen that when the rod r is raised and lowered by the cam t, as above described, the stud o and the bed are correspondingly raised and lowered, the bed being thus raised during its movement in one direction and depressed during its movement in the opposite direction. These movements are permitted by slots u in the standard n, the trunnions supporting the trundle-rolls r^3 passing through said slots. By this arrangement the bed is automatically raised and lowered.

If desired, the up-and-down movements of the bed may be effected by means of the treadle s, the rod r resting on a fixed support instead of on the cam t. When both the cam and treadle are employed, as here shown, the operator may use the treadle to increase the upward pressure of the bed against the material interposed between it and the tool when the nature of the work requires such increase.

The sectional bed, the sections whereof are pressed upward yieldingly independently of each other, may be supported by a non-reciprocating holder, the tool c being supported in bearings which are reciprocated to carry the tool back and forth over the bed.

My invention is not limited to the details of mechanism here shown, and these may be variously modified without departing from the spirit of my invention.

The stud o and tubular standard n constitute a telescopic standard which is alternately extended and contracted to vary the height of the bed.

I claim—

1. In a machine of the character specified, a work-supporting bed comprising a frame or holder, a series of bed-sections supported by the holder and each having a limited independent movement, and weighted levers fulcrumed on the holder and engaged with said sections to exert upward yielding pressure thereon.

2. In a machine of the character specified, a work-supporting bed comprising a frame or holder, a series of bed-sections supported by the holder and each having a limited independent movement, weighted levers fulcrumed on the holder and engaged with said sections, and means for simultaneously adjusting the weights on said levers.

3. In a machine of the character specified, a work-supporting bed comprising a frame or holder, a series of bed-sections supported by the holder and each having a limited independent movement, weighted levers fulcrumed on the holder and engaged with said sections, each section being engaged with two levers, the weight-supporting arms of which project in opposite directions from the ends of the section, and mechanism for simultaneously adjusting the weights on the levers, said mechanism having provisions for moving the weights at one end of the bed in the opposite direction from those at the other end of the bed.

4. In a machine of the character specified, a work-supporting bed comprising a frame or holder, a series of bed-sections supported by the holder and each having a limited independent movement, levers fulcrumed to the holder at opposite ends of the sections, and having shorter arms engaged with the ends of the sections and longer arms projecting therefrom, weights movable on said arms, said weights being arranged in two series, rods extending loosely through the weights of each series and having nuts at their ends, adjusting-shafts journaled in bearings on the holder and having right and left screw-threads en-

gaged with said nuts, and means for simultaneously rotating said shafts.

5. In a machine of the character specified, the combination with a working tool, of a work-supporting bed, a telescopic standard supporting the bed, means for alternately extending and contracting said standard, and means for oscillating the standard to give the bed a back-and-forth motion.

6. In a machine of the character specified, the combination with a working tool, of a work-supporting bed, a telescopic standard supporting the bed, means for alternately extending and contracting said standard, means for oscillating the standard to give the bed a back-and-forth motion, and means for automatically extending the standard during the forward movement of the bed and contracting the standard during the backward movement.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN BOYLE.

Witnesses:
C. F. BROWN,
A. D. HARRISON.