

No. 695,770.

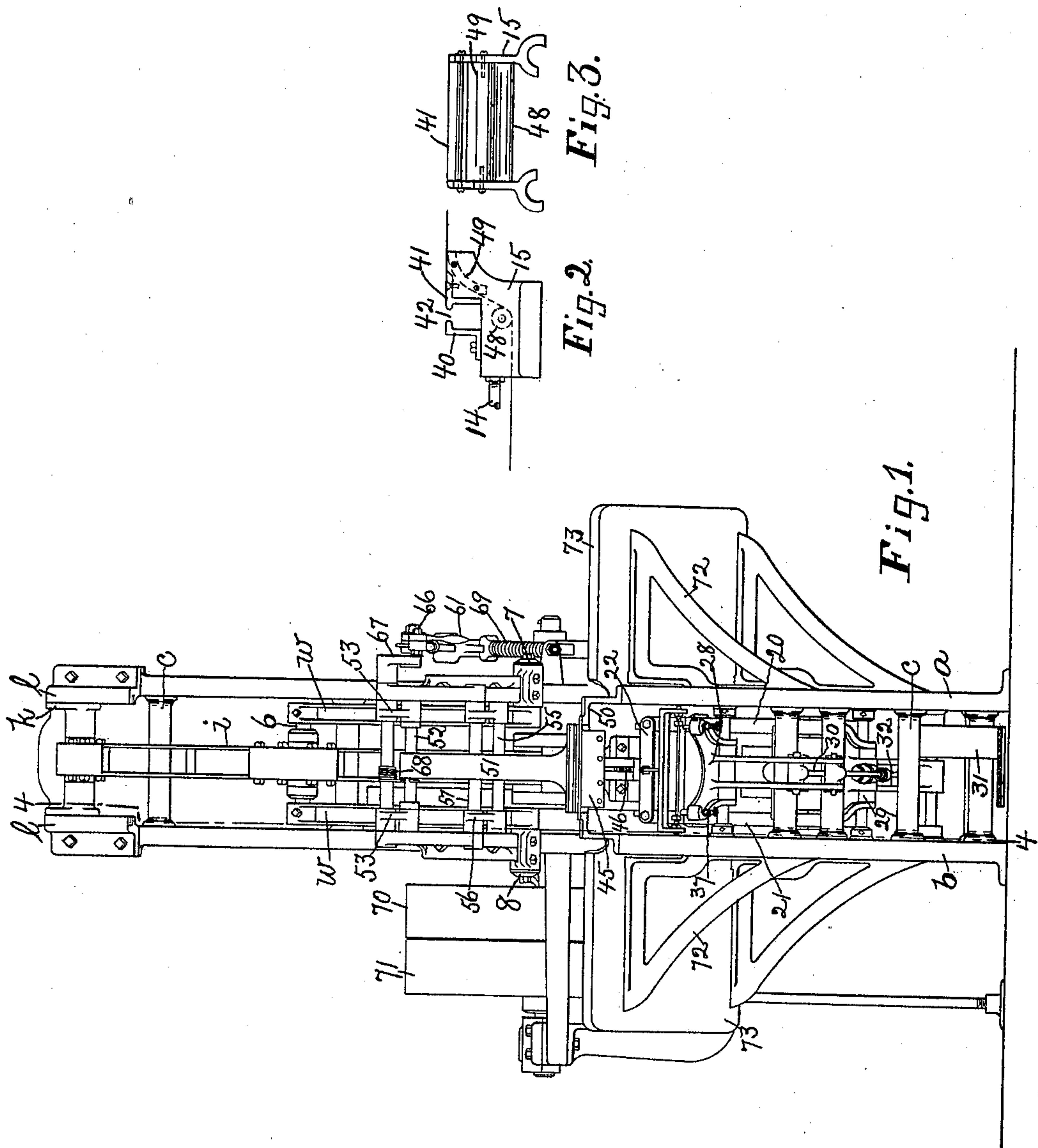
Patented Mar. 18, 1902.

C. P. VAUGHN.
LEATHER WORKING MACHINE.

(Application filed Sept. 7, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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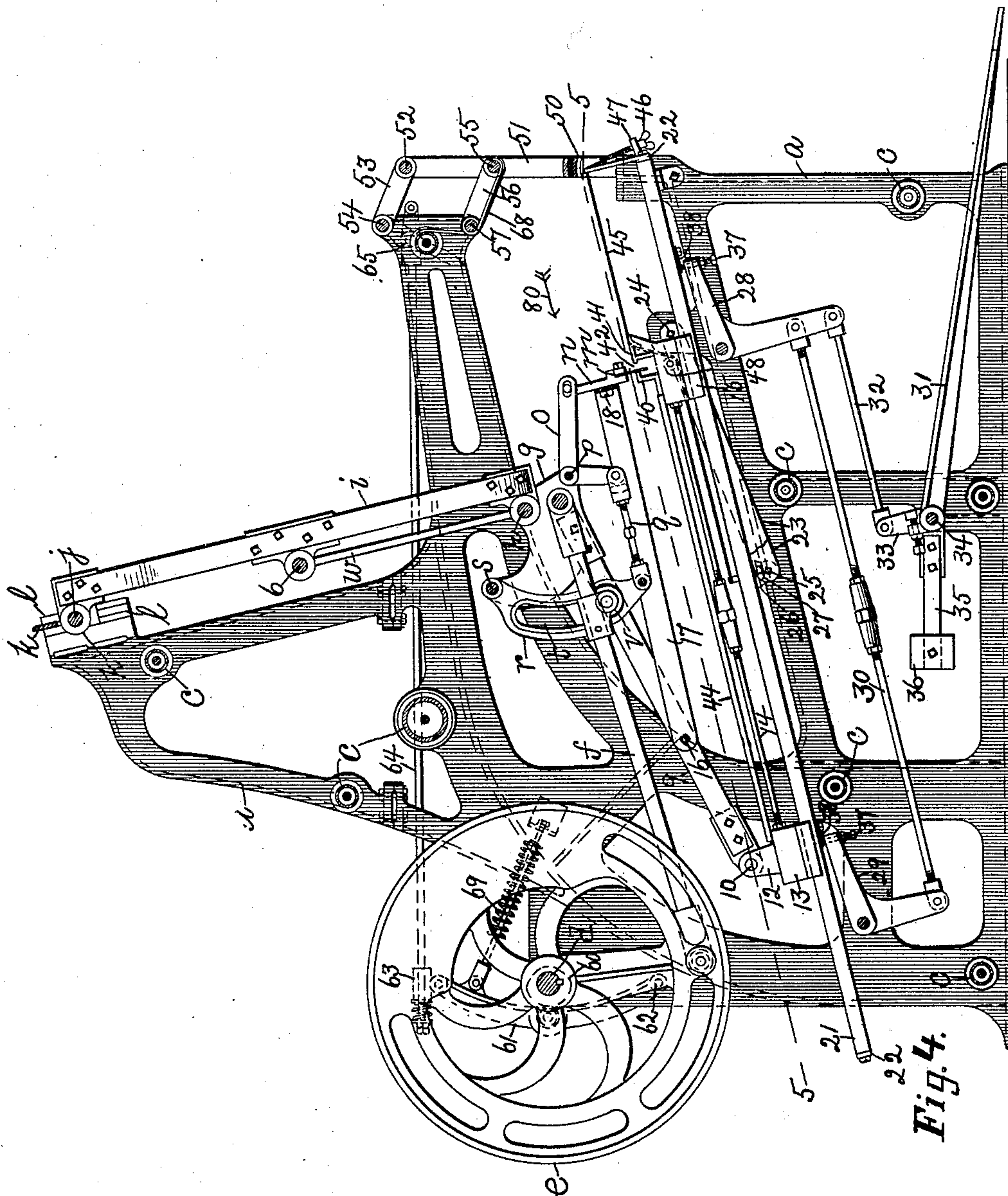


Fig. 4.

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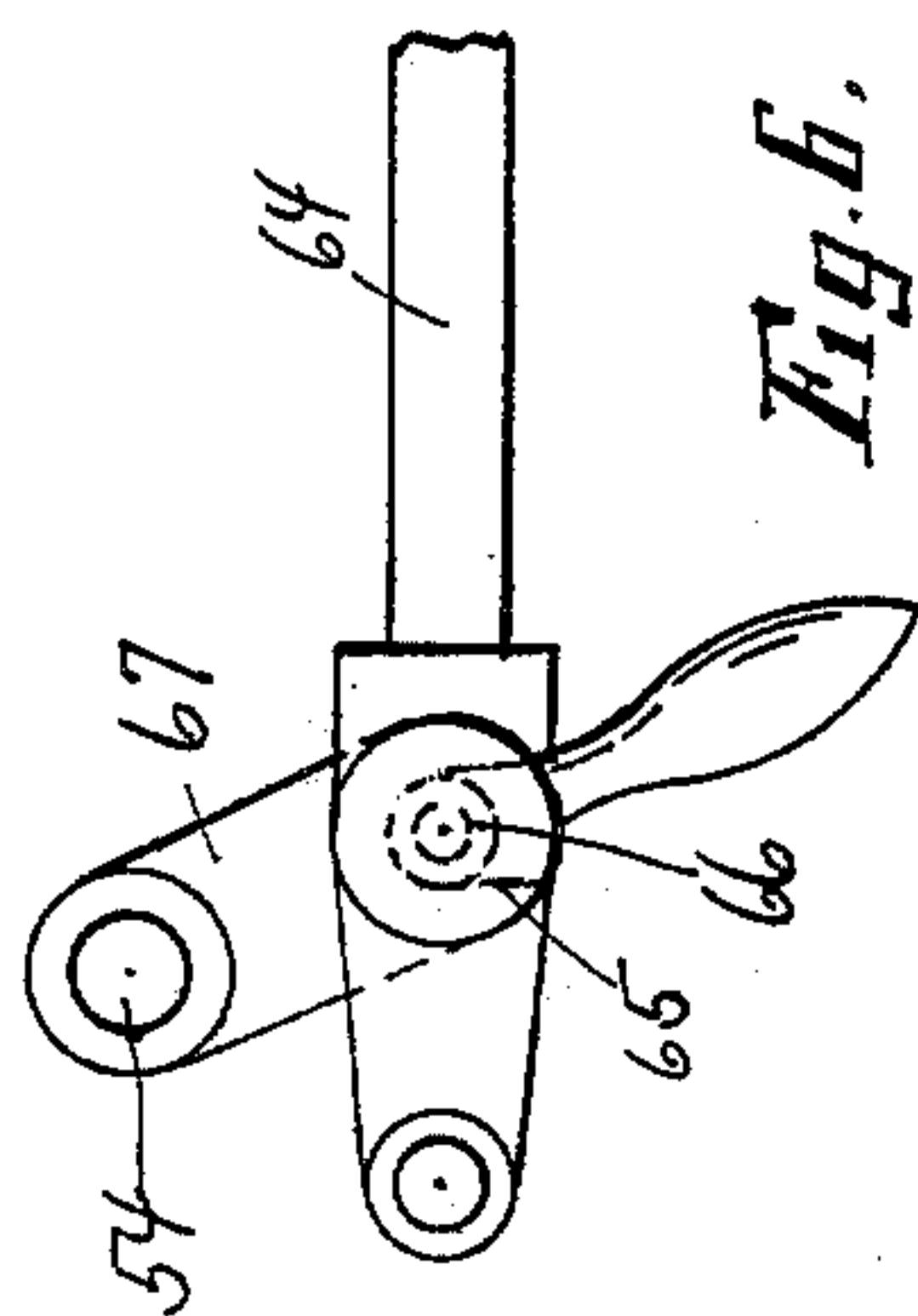


Fig. 6.

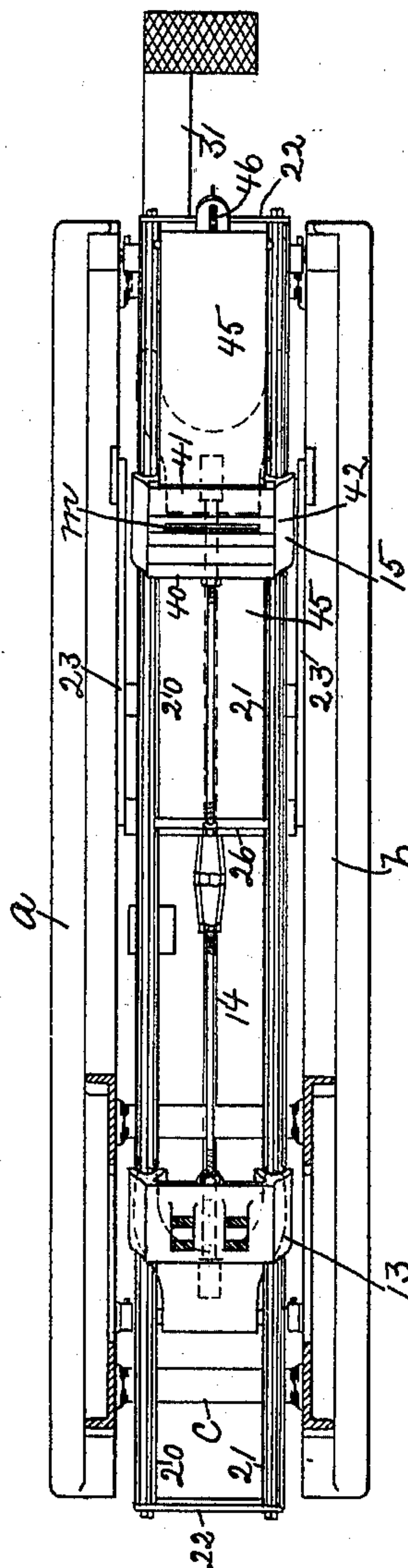


Fig. 5.

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UNITED STATES PATENT OFFICE.

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LEATHER-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 695,770, dated March 18, 1902.

Application filed September 7, 1901. Serial No. 74,634. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. VAUGHN, a citizen of the United States, residing in Peabody, in the county of Essex and State of Massachusetts, have invented an Improvement in Leather-Working Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to a leather-working machine and is herein shown as embodied in a machine of that class employed for staking or stretching leather.

The invention has for its object to provide a machine of the class referred to which is especially adapted for heavy work and which is simple in construction, comparatively inexpensive, light running, and efficient in operation. For this purpose I employ a suitable bed or table for supporting the leather, which table reciprocates on a supporting-frame and with which coöperates an auxiliary flexible support for the leather, having a fixed position but coöperating with the said bed in such manner that the leather is supported above the supporting-frame for the reciprocating bed or table when the latter is moved backward, as will be described. The bed or table is provided with a suitable jaw or jaws with which coöperates a suitable tool or upper jaw which is moved substantially parallel with the bed by a pendulum or lever connected to the bed to move in unison therewith, the said tool or upper jaw being moved with relation to the lower jaw or jaws of the bed by a cam movable with said pendulum and operated as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a front elevation of a leather-working machine embodying this invention; Figs. 2 and 3, details to be referred to; Fig. 4, a longitudinal section on the line 4 4, Fig. 1, looking toward the right; Fig. 5, a section on the line 5 5, Fig. 4, looking down; and Fig. 6, a detail to be referred to.

The framework of the machine herein shown comprises, essentially, two side frames

a b, connected together by suitable tie-rods *c*. The side frames *a b* support in suitable bearings a main shaft *d*, having mounted thereon a crank wheel or disk *e*, which is joined by a connecting-rod *f* to a movable head or piece *g*, pivoted at *h* to the lower end of a pendulum or lever *i*, mounted on a shaft or pivot *j*, having bearings in boxes or supports *k*, (see Fig. 1,) which are adapted to slide upon suitable guides *l*, attached to the upper part of the framework. The pivoted head or piece *g* constitutes a support for the means employed to operate the upper jaw or tool *m*, which latter in the present instance is shown as a substantially thin piece of metal or other suitable material fastened to an arm *n*, having a pivotal yet loose connection with one arm of a bell-crank *o*, constituting a carrier for said tool. The lever *o* is pivoted, as at *p*, to the head *g* and has its other arm connected by an adjustable link *q* with the lower end of a cam-lever *r*, which is pivoted, as at *s*, to the head *g* and is provided with a slot *t*, with which coöperates a stud or roller *v* on the connecting-rod *f*. The slot *t* is so shaped as to raise or open the upper jaw, hold it open for a predetermined length of time, then close it and hold it closed for a predetermined length of time.

The head or piece *g* is carried by the swinging lever or pendulum *i* and is caused to move in a substantially straight path by means of compensating links or levers *w*, which are fastened to a shaft or pivot *6*, carried by the pendulum *i*, and are pivoted at their opposite end to the side frames *a b* at 7 8. (See Fig. 1.) The links *w* are made of a length equal to the distance from the pivot *6* to the pivot *h*, so that in the oscillation of the pendulum the fulcrum of the latter is raised and lowered sufficient to insure the pivot-point *h* traveling in a straight but inclined path or line. As the tool-carrying head or piece *g* is reciprocated in a substantially straight but inclined path, as described, an inclined table or bed of novel construction is simultaneously moved with it, and for this purpose the head *g* has fastened to its opposite sides one end of links *9*, having their opposite ends mounted on a pivot pin or shaft *10*, having bearings

in a lug or upright 12 on a cross head or bar 13, connected by an adjustable rod 14 to a like cross head or bar 15. The links 9 have pivoted to them, as at 16, a link or links 17, which is fastened, as by bolt or screw 18, to the tool-carrying arm *n*. The cross heads or bars 13 15 are grooved on their under side to engage and slide upon a supporting-frame, shown as rods 20 21, which are joined together by tie-plates 22. The bed-supporting rods 20 21 are secured against longitudinal movement, but are free to be moved vertically, which is effected, as herein shown, by means of links 23, (see Figs. 4 and 5,) having their upper ends pivoted at 24 to the side frames *a b* and having their lower ends pivoted at 25 to an intermediate tie-bar 26, the tie-bar 26 being fastened to the rods 20 21, as by screws 27, only one of which is shown in Fig. 4.

The bed-supporting rods 20 21 are supported by bell-crank levers 28 29, pivoted to the side frames and connected together by an adjustable rod 30, the lever 28 being operatively connected to a foot-treadle 31 by a rod or link 32 and bell-crank 33 on the pivot 34 of said treadle. The treadle 31 is provided with an arm 35, having thereon a counterweight 36. The bell-crank levers 28 29 may and preferably will be provided with adjustable screws 37, which bear against plates or bars 38, attached to the under side of the rods 20 21, and by means of said screws the bed or table may be properly adjusted with relation to the upper jaw or staking-tool *m*.

The cross-head 15 may and preferably will be provided with two stationary jaws 40 41, (see Figs. 2 and 3,) which are separated from each other to form an opening 42, into which the leather is adapted to be forced by the upper jaw or tool *m*. The cross-heads 13 15 support the bed or table proper, which may and preferably will be a removable board 44, upon which the leather rests during the staking operation, and in order to support the leather above the portion of the open bed-supporting frame when said bed is moved backward I have provided an auxiliary flexible table or support 45, which does not move with the bed, but has a fixed or stationary position with relation to said bed and is fastened at one end to the tie-bar 26 above the supporting-rods 20 21, and after passing through the cross-head 15 and over the front tie-plate 22 is fastened to an adjusting-screw 46, carried by a lug 47 on the said tie-plate. The flexible table or support 45 may be made of a strip or piece of canvas, leather, or other suitable material, and to reduce friction it is passed under a roller 48 and over a curved bar or support 49, both of which are carried by the cross-head 15. (See Figs. 2, 3, and 4.) It will thus be seen that as the bed or table 44 is reciprocated the cross-head 15 practically runs back and forth on the stationary flexi-

ble auxiliary support 45 and has practically a sliding engagement therewith.

The machine is provided with a clamp for holding the leather while it is being staked. The clamp referred to comprises a fixed yoke-shaped jaw 50, (see Fig. 1,) which is suitably attached to the side frames *a b*, and a movable jaw comprising a depending arm 51, mounted on a pivot-pin 52, supported in cranks or arms 53 on a rock-shaft 54, having bearings in the side frames *a b*. The arm 51 is also connected by a second pin or rod 55 with cranks 56 on a shaft 57, supported by the side frames. The rock-shaft 54 is adapted to be rocked by a cam 60 on the main shaft *d*, (see dotted lines, Fig. 4,) which engages a lever 61, pivoted to the frame *a* at 62 and having pivoted to its upper end a hub 63, through which is extended a link or rod 64, provided at its front end with a notch or fork 65, (indicated by dotted lines in Figs. 4 and 6,) which is adapted to straddle a pin 66 (see Figs. 1 and 6) on a crank 67 of the rock-shaft 54. By disengaging the notched link 64 from the crank-pin 66 the clamping-bar 51 is no longer operated by the cam 60 and is raised into its open position by a spring 68. The cam-lever 61 is held in engagement with the cam 60 by a spring 69. The main shaft *d* is provided, as shown, with a fast pulley 70 and with a loose pulley 71, (see Fig. 1,) and the side frames *a b* may be provided with side brackets 72, which support stationary side tables 73.

In operation with the machine herein shown the staking-tool *m* is in its raised position when its carrier and the bed are near the front of the machine and the clamping-bar 51 is also raised. The operator lays the leather on the table or bed 44 and the machine is set in motion in any suitable manner. The clamping-bar 51 descends and grips the leather and the staking-tool *m* closes upon the leather, forcing the latter into the opening 42. On the backward movement of the pendulum *i* and the bed in the direction indicated by the arrow 80, Fig. 4, the leather is staked, and at or about the time the said pendulum and bed have reached the limit of their movement in the direction indicated by the arrow 80 the staking-tool is raised by the cam-lever and the clamping-bar 51 is also raised and the pendulum and bed are moved in the opposite direction. At or about the time the pendulum and bed have reached the end of their movement toward the front of the machine the clamping-jaw 51 is closed and the staking-tool is again brought down into engagement with the leather. On the return stroke, with the staking-tool and the clamp raised, the operator shifts the leather on the bed. During the reciprocation of the bed the cross-head 15 slides back and forth in engagement with the stationary flexible auxiliary support or strip 45 of canvas. As represented in Fig. 4, the treadle 31 is shown in its lowered posi-

tion and the bed in its elevated position, and when the pressure is removed from the treadle the latter is elevated and the bed lowered by the counterweight 36.

5 I claim—

1. In a machine of the class described, the combination with a pendulum, a head pivoted thereto, a bell-crank pivoted to said head, a tool connected with said bell-crank, a cam-lever pivoted to said head and connected to said bell-crank to operate said tool, of a reciprocating bed, a connecting rod or bar pivoted to said bed and attached to said head, a rod or bar pivoted to the rod connecting said bed and head and connected with said tool, a supporting-frame upon which said bed reciprocates, a tool carried by said bed and cooperating with the tool movable with said pendulum, bell-crank levers supporting said bed-frame, and means to effect reciprocation of said bed and oscillation of said pendulum, and means for operating said cam-lever, substantially as described.

2. In a machine of the class described, in combination, a pendulum pivoted at its upper end to swing in a substantially vertical plane, a tool-carrier connected to the lower end of said pendulum to be supported thereby and move therewith, a reciprocating bed, means located above said bed for connecting it to said pendulum, and means to effect reciprocation of said bed and oscillation of said pendulum, substantially as described.

3. In a machine of the class described, the combination with a pendulum pivoted at its upper end to swing in a substantially vertical plane, a head or piece pivoted to the lower end of said pendulum, a cam-lever pivoted to said head or piece, a tool-carrier connected to said head or piece to move therewith, means for connecting said tool-carrier with said cam-lever, means to oscillate said pendulum, and means for operating said cam-lever, substantially as described.

4. In a machine of the class described, the combination with a reciprocating bed provided with a table to support the leather, of a flexible support cooperating with said bed and table, and means for holding said flexible support from movement with said bed when the latter is reciprocated, substantially as described.

5. In a machine of the class described, the combination with a reciprocating bed provided with a table to support the leather, a supporting-frame upon which said bed reciprocates, and a flexible support attached to said supporting-frame and cooperating with said reciprocating bed and table to form an extension thereof when said bed is moved in one direction, and means for holding said flexible support from movement with said bed when the latter is reciprocated, substantially as described.

6. In a machine of the class described, the

combination with a reciprocating bed provided with a table to support the leather, of a flexible support cooperating with said bed to form an extension thereof when said bed is moved in one direction means for holding said flexible support from movement with said bed when the latter is reciprocated, and means to take up the slack in said flexible support, substantially as described.

7. In a machine of the class described, the combination with a framework comprising side frames, of a reciprocating bed located between said side frames, an inclined supporting-frame for said reciprocating bed, and means pivotally connected with said supporting-frame and with said framework to secure the said inclined supporting-frame from longitudinal movement while permitting said frame to be moved in a direction substantially at right angles to the path of movement of the bed, substantially as described.

8. In a machine of the class described, the combination with a reciprocating bed comprising cross-heads, an adjustable link or rod connecting said cross-heads, a supporting-frame upon which said cross-heads move, a flexible support secured against movement with said bed but in sliding engagement with one of said cross-heads, substantially as described.

9. In a machine of the class described, the combination with a framework, a reciprocating bed, an inclined supporting-frame upon which said bed reciprocates, and means pivotally connected with said framework and with said supporting-frame to restrain said inclined frame from longitudinal movement while permitting it to be moved in a vertical direction, substantially as and for the purpose specified.

10. The combination with a reciprocating bed, of an oscillating lever or pendulum arranged substantially at right angles to the said bed and pivoted at its upper end to swing in a substantially vertical plane, and means located above said bed for connecting it with said lever, substantially as described.

11. In a machine of the class described, the combination with a pendulum, a head pivoted thereto, a tool, a carrier for said tool pivoted to said head, a cam-lever pivoted to said head, means to connect said cam-lever with said tool-carrier, and means to operate said cam-lever, substantially as described.

12. In an apparatus of the class described, the combination with a reciprocating bed or table, of an auxiliary table or support restrained from movement with said bed but in sliding engagement therewith, substantially as described.

13. In an apparatus of the class described, the combination with a reciprocating bed provided with a cross-head having curved surfaces, of a flexible support extended through said cross-head with its upper surface in en-

gagement with one of said curved surfaces, and with its lower surface in engagement with the other of said curved surfaces, substantially as described.

- 5 14. The combination with a lever or pendulum having an oscillating and a longitudinal movement, a reciprocating bed movable in a path substantially at right angles to the longitudinal movement of said pendulum, and

means for connecting said bed with said pendulum, substantially as described. 10

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES P. VAUGHN.

Witnesses:

W. M. GALLAGHER,
ROGER A. POOR.