

(No Model.)

2 Sheets—Sheet 1.

S. W. LADD.
LASTING MACHINE.

No. 510,975.

Patented Dec. 19, 1893.

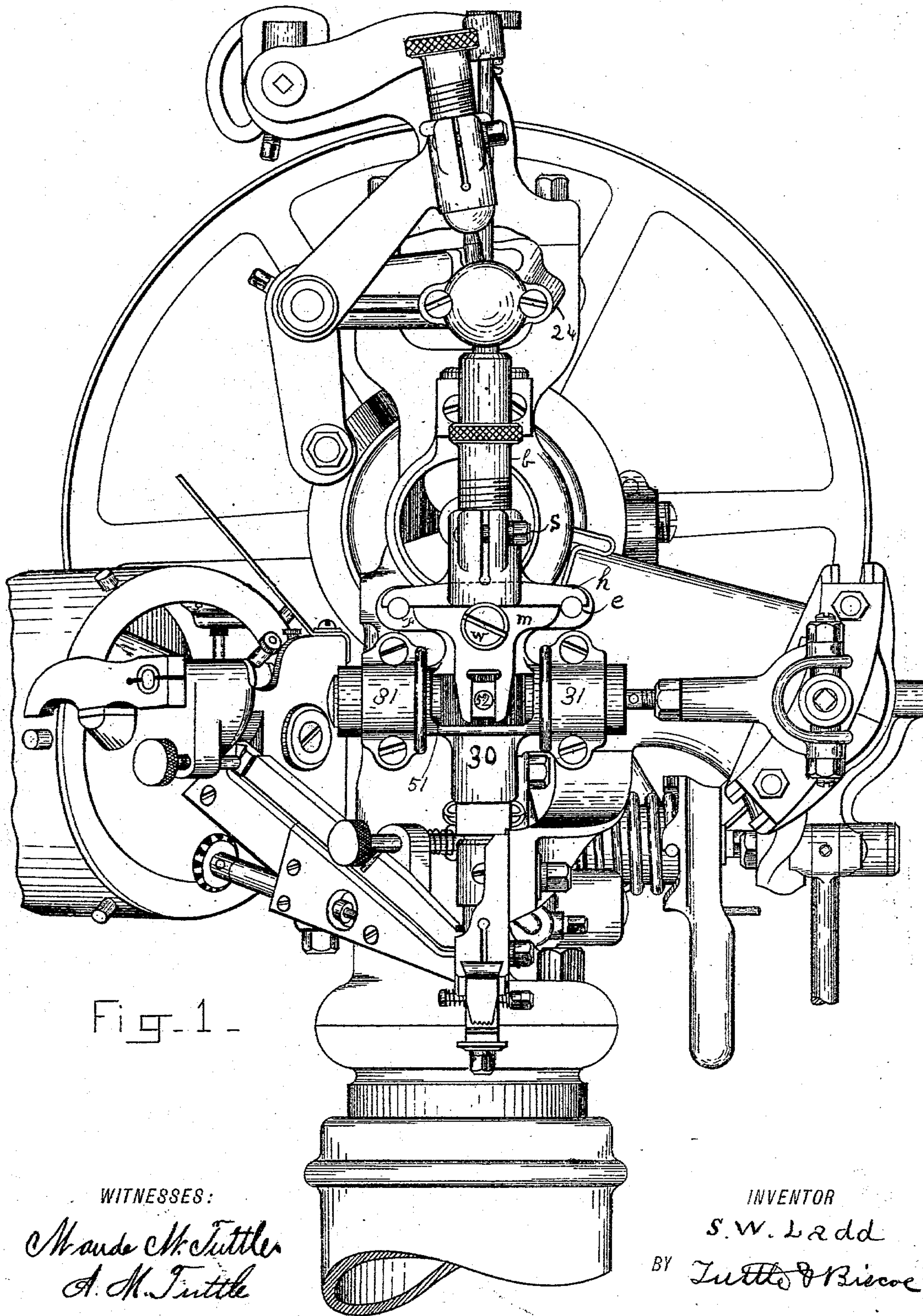


Fig. 1 -

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INVENTOR

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BY

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ATTORNEYS

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2 Sheets—Sheet 2.

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Fig. 2.

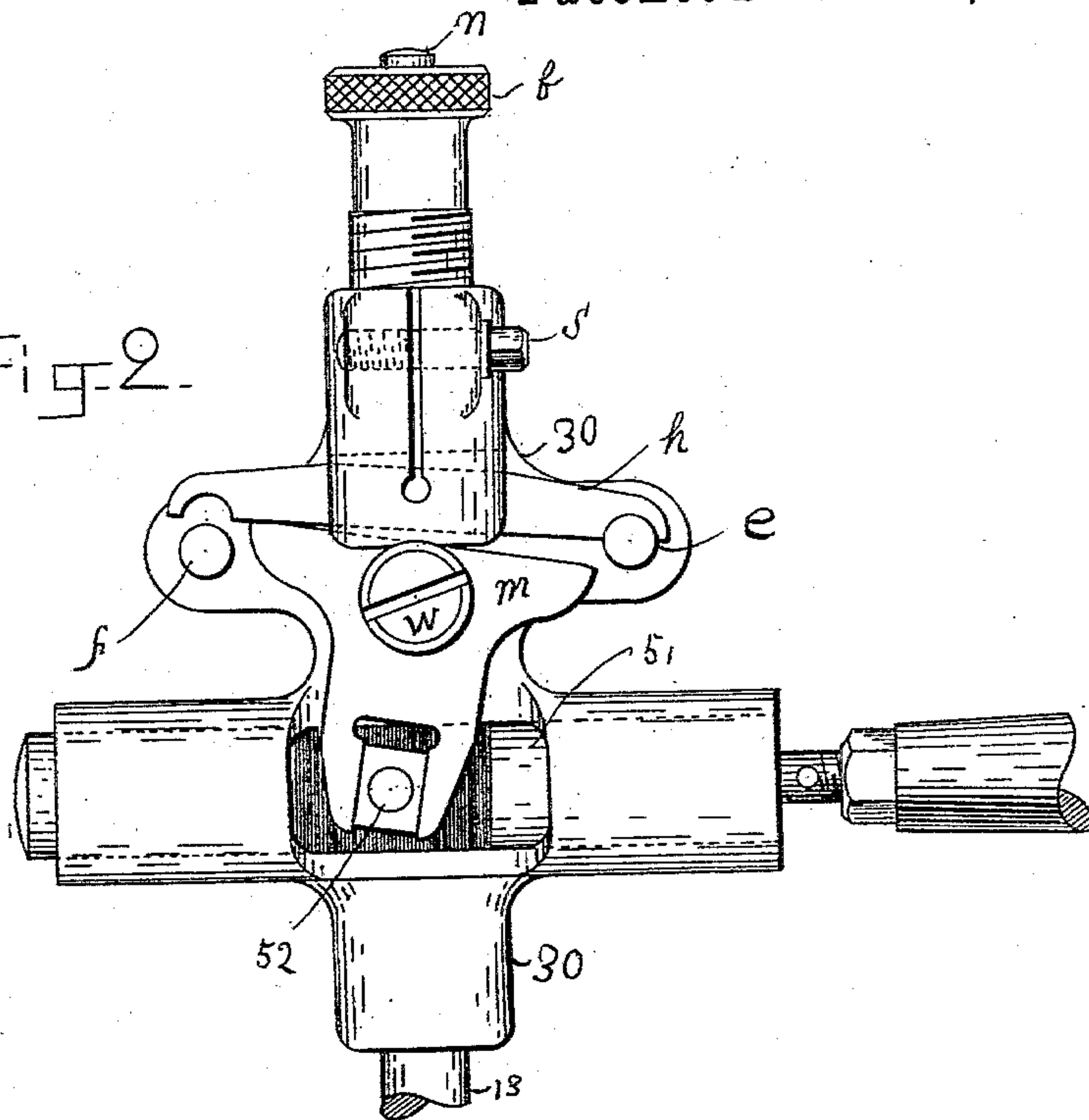
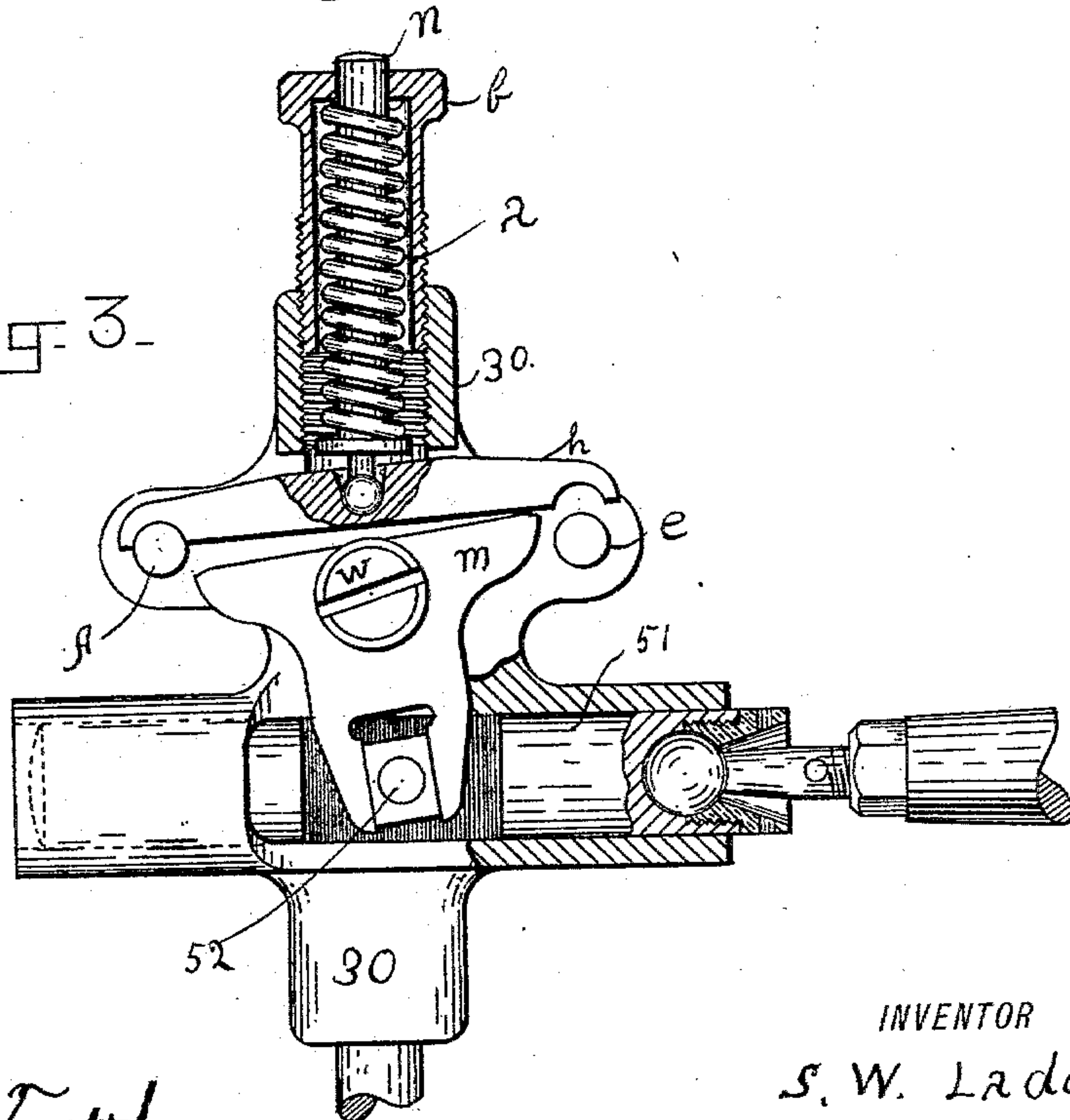


Fig. 3.



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UNITED STATES PATENT OFFICE.

SHERMAN W. LADD, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO
THE CONSOLIDATED HAND METHOD LASTING MACHINE COMPANY,
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LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,975, dated December 19, 1893.

Application filed April 21, 1893. Serial No. 471,365. (No model.)

To all whom it may concern:

Be it known that I, SHERMAN W. LADD, of Somerville, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Lasting-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention is represented and described as applied to that class of machines described in Letters Patent of the United States No. 423,922. In the present instance only such parts of the mechanism are represented as constitute the present invention and illustrate its combination with other co-operative parts and for a more full understanding of the machine and its operation reference is had to said Letters Patent No. 423,922.

In the drawings, Figure 1 is a front elevation of the machine, having embodied therein the parts which constitute this invention. Figs. 2 and 3 are also front elevations on an enlarged scale and represent parts composing this invention.

It may be here stated that the machine comprises a pincher or gripping mechanism and operating devices therefor, by means of which, in the operation of the machine, the pinchers are made to seize the upper, draw it upward and over the bottom of the last and down in position to receive the fastening tack and by which the pinchers are further made to have a lateral movement to either side of the center or draft line in order to form a plaiting of the upper at the heel, toe and occasionally at other points. The shoe, with the edge of its upper turned upward, is supported and turned by the hands of the workman against a suitable last rest and in position to have the pinchers grasp, pull and plait the upper. The pinchers are supported by a lever, 24, being connected therewith, as shown in the present instance, by a ball and socket joint, so as to permit the bottom or gripping end of the pinchers a freely swinging movement. The lever, 24, being reciprocated vertically by a suitable operating mechanism, effects the necessary uplifting and depressing movements of the pinchers. Below the pivotal point, the pinchers-shank is passed loosely through the

vertical, hollow arm of a carrier, 30, which carrier, 30, is reciprocated, in one direction to effect the necessary front-to-rear movements of the pinchers and in a transverse direction in order to effect the necessary lateral or plaiting movements of the pinchers. To permit said lateral movements, the carrier, 30, is supported in a forked end of a horizontally reciprocating shaft, which fork, 31, 31, (Fig. 1,) embraces loosely the horizontal sleeve of said carrier and permitting a slight rocking movement of the sleeve in its supporting bearing, which allows a swinging movement of the pinchers, in one direction, while the forked shaft itself permits a rocking movement in its bearing which allows a swinging movement of the pinchers in a transverse direction. By these lateral movements of the pincher mechanism the pincher jaws, while holding the leather tightly drawn, are carried laterally away from the draft line to either side thereof, as occasion requires, for plaiting the upper. Supported movably in the carrier, 30, is a rod, 51, having connection, at one end, with a suitable operating mechanism whereby it is reciprocated endwise in the supporting carrier and having connection with the carrier, 30, whereby the reciprocations of said rod, 51, are imparted to the carrier, in order to effect the necessary lateral or plaiting movements of the pinchers.

It is necessary that the lateral movements of the pinchers should be adapted to yield, when required, in order to prevent tearing the upper and to that end a yielding, power-transmitting mechanism is interposed between the rod, 51, and pinchers, through which power is transmitted to move the pinchers laterally.

In Letters Patent No. 423,922, two springs were employed, which springs are supported in fixed connection with the carrier, 30, and each bearing one end on opposite sides of a pin, 52, projecting from the movable rod, 51, in alignment with the pinchers-shank, so that a movement of the pin, 52, to either side of the normal position of alignment, must take place against the tension of one of said springs, while a movement of the rod, 51, in the opposite direction to move the carrier and consequently

the pinchers, to the other side, must take place against the tension of the other of said springs.

In operation, the plaiting is performed in a fairly even manner by this construction, so long as the tension of said springs remains equal, one to the other, but when the tension becomes disturbed, the pinchers are held normally out of alignment with the pin, 52, the calculation of the operator is disturbed, and the plaiting is performed unevenly, until the machine has been adjusted to again equalize the tension of said springs, which operation of adjustment becomes more difficult and more frequently necessary, as the springs become worn.

It is the object of this present invention to provide a yielding, power-transmitting connection between the rod, 51, and pinchers which shall hold the pinchers with a yielding tension normally in the desired position of alignment with the pin, 52, which shall be disturbed equally by equal movements of the pinchers to either side of the normal position of alignment, and further to provide adjustable mechanism whereby the tension of the holding force may be varied adjustably to suit the requirements of different classes of work.

This present invention includes a single spring, *a*, and suitable connections, interposed between the pinchers and the lateral reciprocating rod, 51, the whole being arranged so that a movement of the pinchers to either side of the central position is made to take place against the tension of said spring.

In carrying out this invention, I construct the carrier, 30, with a screw-threaded opening or socket at its upper end, to receive the correspondingly screw-threaded hollow nut, *b*. Fixed in the carrier and projecting therefrom are studs, *e, f*, on which is supported a horizontal lever bar, *h*. Said bar, *h*, is provided with a socket midway between its bearing contacts with the supporting studs, *e, f*, (see Fig. 3,) in which socket is stepped one end of the spindle rod, *n*, the top end whereof is projected through an opening in the hollow nut, *b*. The spring, *a*, is made to surround the spindle, *n*, with one end bearing against the inner top face of nut, *b*, and its other end bearing against a shoulder near the bottom end of the spindle, so that the tension of said spring operates downwardly on the spindle, *n*, and holds the lever arm, *h*, pressed yieldingly down upon the supporting studs, *e, f*. A suitable turn of the nut, *b*, operates to expand or contract and consequently vary, adjustably, the tension of said spring, *a*. To maintain such adjustment the carrier is suitably slotted and provided with a clamp screw, *s*, whereby to clamp and firmly hold the nut, *b*, as shown. Beneath the lever, *h*, and in alignment with the spindle, *n*, is a stud, *w*, which is also fixed in and projects from the carrier, 30. Said stud, *w*, supports a triangular lever, *m*, which extends equilaterally from the stud and permits being rocked on the stud in

either direction, so as to lift the lever, *h*, upwardly on one side of the spindle, *n*, as shown in Fig. 2, or on the opposite side thereof, as shown in Fig. 3, against the tension of spring, *a*. The bottom end of lever, *m*, is made to embrace, as shown, a pin, 52, that projects from the rod, 51, the arrangement being such that the lever, *m*, bears normally in contact with the bottom face of lever, *h*, and is thereby positioned under the tension of spring, *a*, so as to hold the rod, 51, in position with the pin, 52, in alignment with the pinchers-shank, as shown in Fig. 1. This, it will be understood, is the position of parts named, from which the lateral or plaiting movements of the pinchers are made to take place.

To effect the lateral or plaiting movements of the pinchers, the rod, 51, is reciprocated endwise by a suitable operating mechanism, for a description of which see said Letters Patent No. 423,922.

It will be observed that a movement of the rod, 51, carrying pin, 52, out of alignment with the pinchers-shank, in one direction, rocks the lever, *m*, thereby lifts one end of lever, *h*, and directs the tension of spring, *a*, so as to operate through the bearing end of lever, *h*, and move the pinchers-carrier, 30, and consequently the pinchers, with a yielding tension to one side of the normal or draft line for laying the plait in one direction; a contrary movement of rod, 51, carrying pin, 52, out of alignment with the pinchers-shank, to the opposite side thereof, effects a counter rocking-movement of lever, *m*, lifts the opposite end of lever, *h*, and thereby directs the tension of the spring, *a*, so as to operate now through the other end of lever, *h*, and enforce a movement of the pinchers to the other side of their normal line for laying the plait in that direction. Said opposite movements are made to take place sequentially, as the intended plaiting of the leather requires it.

From the foregoing it will be understood that the movements of the pinchers laterally away from the normal or draft line in either direction, are enforced against the tensional strain of spring, *a*, whereby is allowed the necessary yielding quality, so as to prevent the pinchers from tearing the leather.

In this construction, all movements of the pinchers, laterally, away from their normal or draft line, to either side thereof, are enforced by the rod, 51, acting through a power-transmitting mechanism, suitably interposed in the line of connection between said rod and pinchers and including a single yielding member, and connection by which the enforced movements of the pinchers laterally, in both of said directions, are allowed the yielding quality desired, in order to prevent tearing or unduly straining the upper held by the pinchers.

What I claim, and desire by Letters Patent to secure, is—

1. The combination of the pincher mechanism, actuating mechanism for imparting

thereto lateral movements in order to plait the upper and a single spring device interposed between the said pincher mechanism and its actuating mechanism and constituting a spring bearing for the actuating mechanism in either direction from the central position, substantially as set forth.

2. In a lasting machine the combination of the pinchers, the actuating mechanism for imparting thereto lateral movements for causing the upper to be plaited, and a single spring device arranged between the pinchers and the said actuating mechanism, and including a rocking connection between the spring member of the said device and the said actuating mechanism, arranged to transmit the movements of the actuating mechanism in either direction to the said spring member, substantially as set forth.

3. In a lasting machine the combination of the pinchers supported to permit movements in opposite directions for plaiting the upper, the reciprocating actuating mechanism therefor, a single yielding device interposed between the actuating mechanism and the pinchers, including a spring which is put under tension by the said mechanism as it operates to move the pinchers in either direction and means for varying the tension of the spring, substantially as set forth.

4. In a lasting machine, the combination of the pinchers the carrier in which the pinchers are mounted, a driver supported movably in the carrier and arranged to impart lateral movement to the pinchers in order to plait the upper, a spring carried by the pinchers, and power transmitting mechanism interposed between the spring and the driver and arranged to bear equally upon the said spring, whether the driver be moved in one direction or the other, substantially as set forth.

5. In a lasting machine, the combination with the pinchers, of the reciprocating rod 51

adapted to impart lateral movement thereto, the rocking lever *m* to which the rod is connected and having the arms of equal length, the single spring connected with the pinchers, and the bearing carried by the said spring and with which the arms of the said rocking lever are made to bear in whichever direction the rod 51 is moved, substantially as set forth. 45 50

6. In a lasting machine, the combination of a pinchers mechanism and a pivotally connected supporting carrier therefor, a rod, 51, supported movably in the carrier and a yielding power-transmitting mechanism interposed between the rod and carrier, composed of spring *a*, levers *h*, *m*, and supporting studs *e*, *f*, and *w*, substantially as described. 55

7. In a lasting machine, the combination of a pinchers mechanism and a pivotally connected supporting-carrier therefor, a rod, 51, supported movably in the carrier and a yielding power-transmitting mechanism interposed between the rod and carrier, composed of spring, *a*, levers, *h*, *m*, and supporting studs, *e*, *f*, and *w*, substantially as described. 60 65

8. In a lasting machine, in combination, the lasting pinchers supported to permit movements in opposite directions for plaiting the upper as described; the reciprocatingly movable rod, 51, and a yielding power-transmitting mechanism interposed between the rod and pinchers, including the spring, *a*, against which the pinchers are moved in opposite directions for plaiting the upper and adjustable means to vary adjustably the tensional strain of said spring, *a*, substantially as described. 70 75

Signed at Boston this 27th day of June, A. D. 1892. 80

SHERMAN W. LADD.

Witnesses:

J. FOSTER BISCOE,
E. E. HAMILL.