

(No Model.)

3 Sheets—Sheet 1.

S. W. LADD,  
LASTING MACHINE.

No. 584,742.

Patented June 15, 1897.

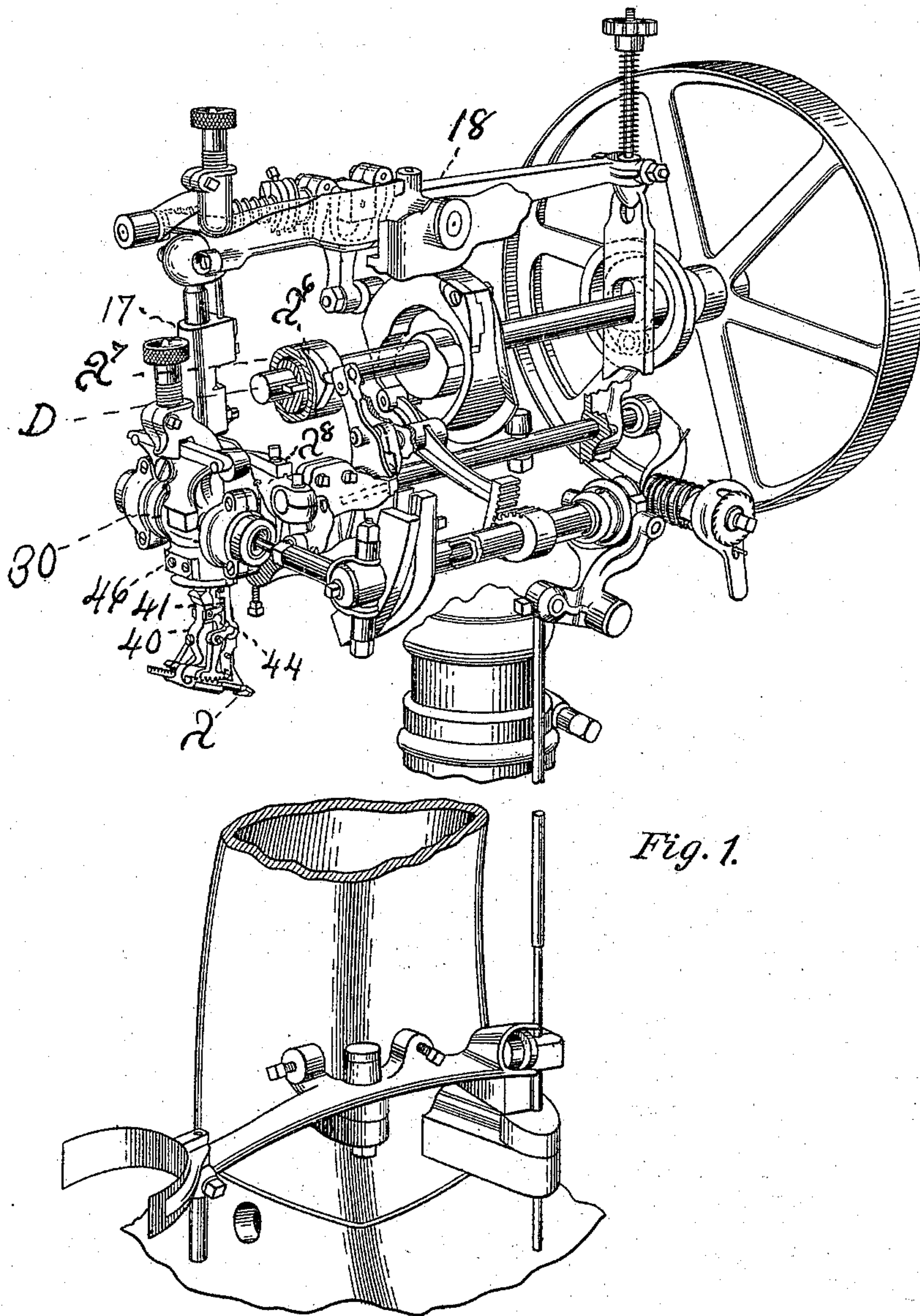


Fig. 1.

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A. M. Tuttle

Inventor,  
S. W. Ladd  
by C. B. Tuttle  
Attorney.

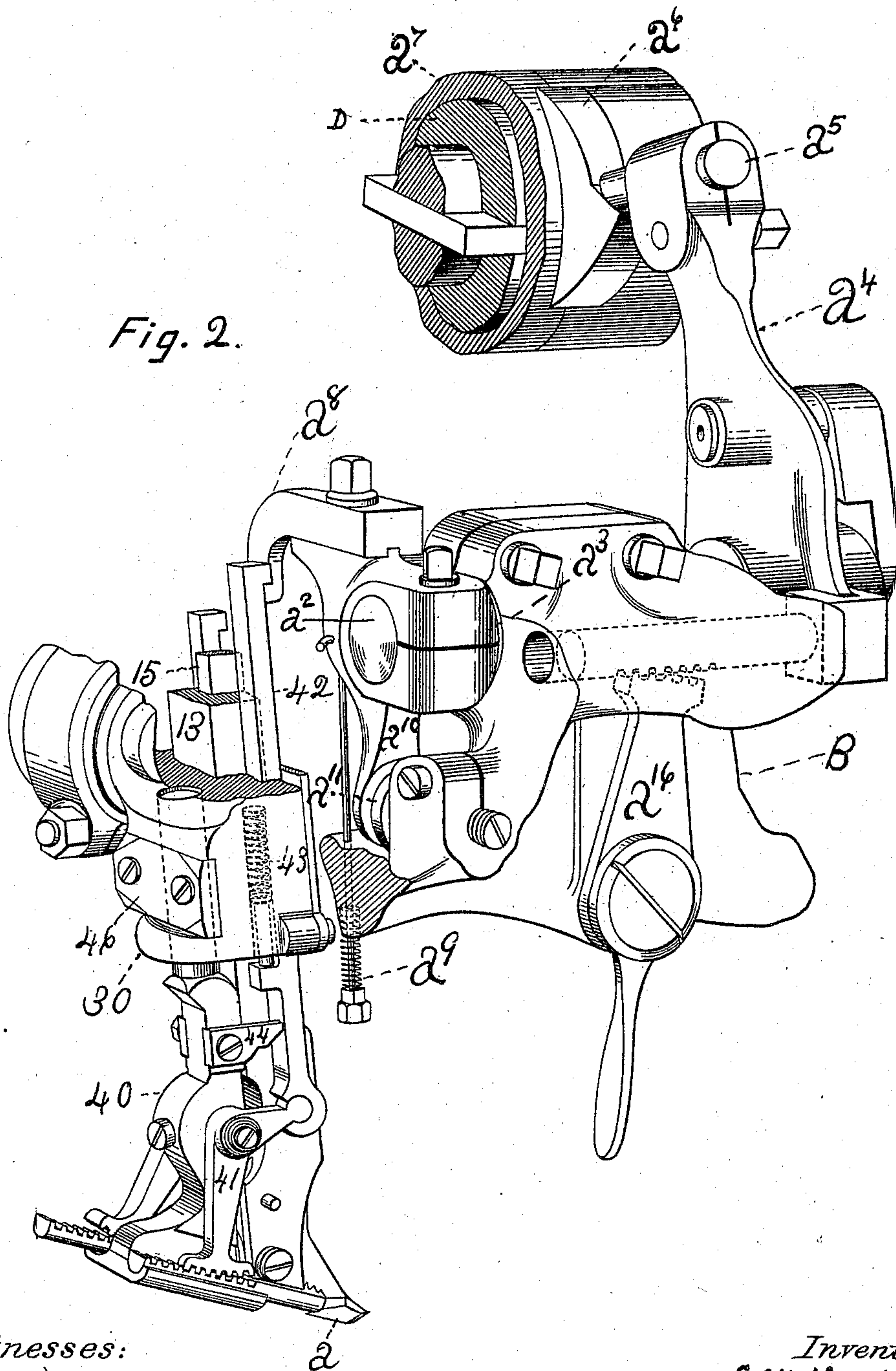
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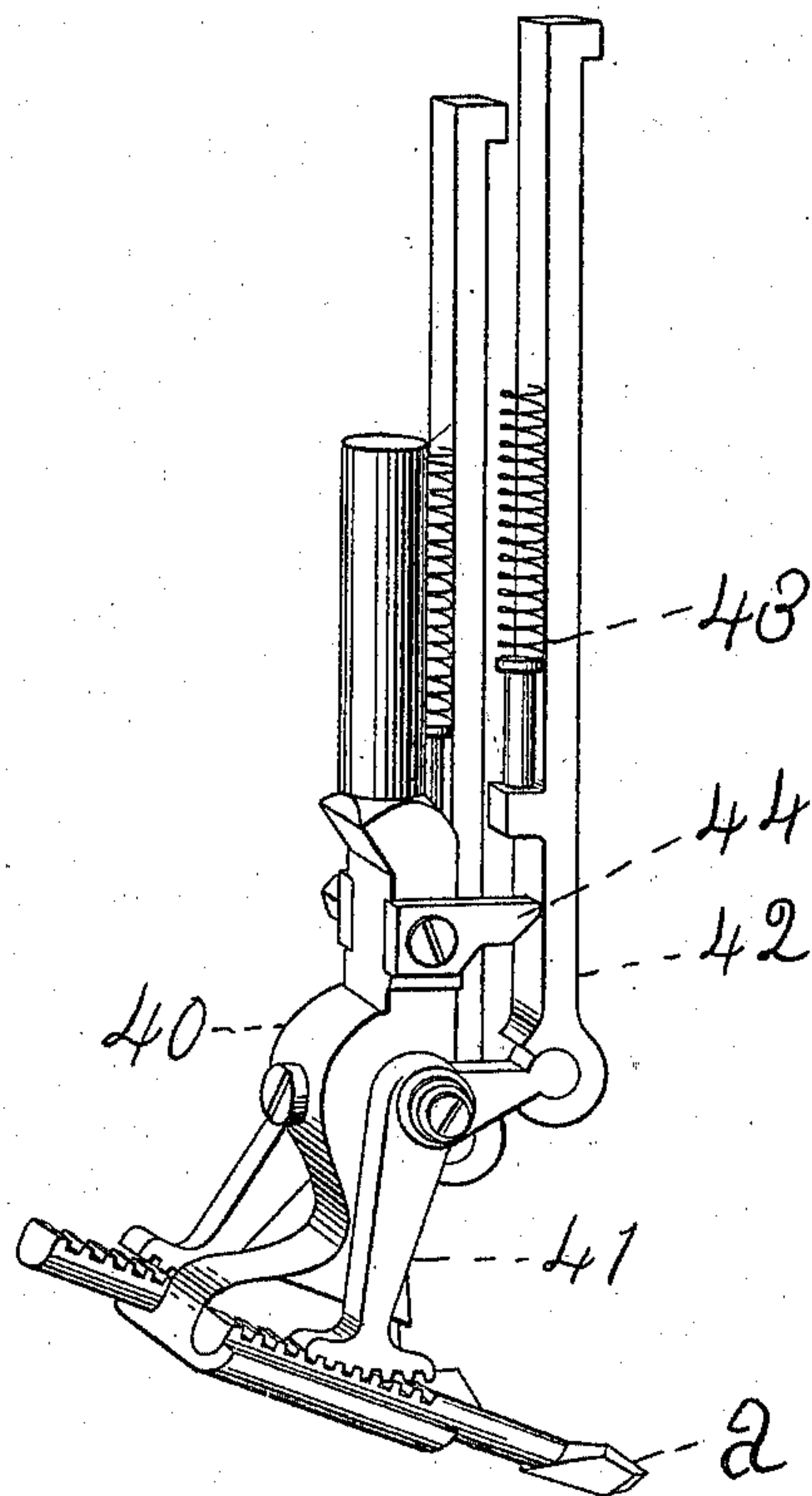


Fig. 8.

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# UNITED STATES PATENT OFFICE.

SHERMAN W. LADD, OF SOMERVILLE, MASSACHUSETTS.

## LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,742, dated June 15, 1897.

Application filed April 9, 1896. Serial No. 586,789. (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 relates to improvements in a cutter mechanism employed in lasting-machines for slitting the marginal edge of the upper material preparatory for plaiting the same, said plaits being formed by superimposing the marginal edges of the slitted parts one upon the other, whereby the material is laid more closely to the inner sole and a better surface prepared for the outer sole.

In the accompanying drawings, Figure 1 is a perspective view showing the mechanism comprising this invention and a portion of the machine to which it has been applied, as hereinafter described. Fig. 2 is also a perspective view, on an enlarged scale, showing the cutter mechanism and its actuating connections. Fig. 3 is a perspective showing the cutter mechanism detached.

As represented in the present instance, my invention is designed with regard to its application to that class of machines wherein a single pair of upper-gripping devices is employed for working the upper over the last and completing the lasting process by a plurality of operations of the lasting devices applied to different parts of the upper at different times.

In the present instance only such parts of the machine proper are represented as seem necessary to an understanding of this present invention and its application to cooperating parts. For a description of the machine and parts thereof not shown and described herein reference may be had to United States Letters Patent No. 243,922, and, further, to United States Letters Patent Nos. 510,977, 510,973, 510,975, and 500,141, wherein are shown and described modifications and improvements thereof.

It may be here stated that the shoe is prepared for lasting by first putting the upper onto the last, drawing it over at the toe and preferably at the sides also, and securing it in each of said places with tacks or other

suitable fastening devices. The last, with the upper and inner sole thereupon, is then taken in hand by the workman, held up to the machine in position for the gripper-jaws to seize upon the upper, and moved about as occasion requires for presenting different parts of the upper to the gripper devices at different times.

The machine, it will be understood, comprises a single pair of pincers or upper-gripping devices, supporting and actuating connections therefor, whereby said devices are caused to open and close upon the upper material, and additional mechanisms whereby they are moved for stretching and straining the upper over the last and laying it upon the inner sole in position for receiving the fastening-tack or other suitable fastening device. Mechanism for causing said movements of the pincer devices is shown in Fig. 1 of this application. For a description thereof, however, reference is had to the Letters Patent above referred to, particularly to United States Letters Patent No. 523,939, wherein is also described and claimed a cutter mechanism for cutting or slitting the edge of the upper, comprising a single cutter-blade of a character somewhat akin to this my present invention.

In Patent No. 564,931 is represented a cutter mechanism comprising two cutter-blades of a character still more closely resembling this my present invention. Reference thereto may be had if desired. In said patent and the said Letters Patent No. 523,939 a cutter mechanism is supported by the upper-working devices to be moved about thereby. In practice it has been found desirable to have the cutter devices supported for cutting the upper by a mechanism which may be unaffected by the seizing and stretching movements of the upper-working devices. To provide such a mechanism and arrangement thereof in connection with the upper working devices constitutes the main object of this my present invention.

As shown in the present instance, a distinct part 40 is employed to support the cutter-blades, Fig. 3. To that end it is recessed for receiving the cutter-blade shanks and permit longitudinal movements thereof for the cutting operations. In its most retracted



position the cutter-blade  $a$  is supported to begin its operation at the marginal edge of the upper material. This forward movement operates to cut the material from said marginal edge inwardly to the union or terminal end of the slit. Pivotally connected with the part 40 is a bell-crank lever 41, having at one end a toothed engagement with the cutter-blade  $a$ , its opposite-end being in connection with a rod 42, as shown in Fig. 3. A vertical movement of the rod 42 operates a forward movement of the blade  $a$  for cutting the upper. Said vertical movement of the rod 42 is effected against the action of spring 43, whereby the rod is given a return movement for carrying back to its starting-point the blade  $a$ . Said return movement of the rod 42 is limited by a stop 44. At the opposite side of the part 40 is similarly arranged a second cutter-blade, which is a duplicate of the blade  $a$ , and connected therewith is arranged an actuating mechanism comprising duplicates of the parts 41, 42, 43, and 44.

The upper-working devices comprise two jaws or gripper members, which are supported at the bottom ends of the bars or shanks 13 15, Fig. 2. The shanks 13 15, being arranged together, as shown in Fig. 2, are held in sliding contact by a collar 17, Fig. 1, and permit longitudinal reciprocating movements of the shank 13 for separating and closing together the gripper members. In addition to the opening and closing movements of the gripper members they are reciprocated vertically as a whole for stretching and straining the upper. To this end they are connected by the shank 13 with a vertically-tilted lever 18, wherewith they are lifted and depressed and opened and closed by mechanisms shown in Fig. 1, and described fully in the Letters Patent above referred to. The gripper members are further caused to move forwardly and backwardly and sometimes laterally over the bottom of the last for placing the strained section of upper in position upon the inner sole. To this end the gripper-shanks are connected with a carrier 30, whereby to be moved forwardly, backwardly, and laterally by suitable forward, backward, and lateral movements of the carrier. The desired forward, backward, and lateral movements of the carrier are imparted thereto by mechanisms shown in Fig. 1, and fully described in the Letters Patent referred to above.

The cutting operation is preferably made to take place while a section of the upper is engaged and held by the gripper members partly overturned upon the inner sole. To this end the cutter-blade is supported in connection with the carrier 30 to accompany therewith the forward, backward, and lateral movements of the gripper members. The cutter-blade supporting part 40 is combined with the carrier 30, its shank being to that end inserted in a socket suitably formed in the carrier and fixed therein by clamp connection

46. The cutter-blade is preferably located to cut the upper at a slight distance from the side of the gripper members. Preferably two cutter-blades are employed for cutting the upper at opposite sides of the gripper members. To that end the gripper members are located between the cutter-blades, as represented in Fig. 2.

The shanks 13 15 of the gripper members, it will be understood, are embraced by the carrier 30 (see Fig. 2) in a manner to permit vertical movements thereof through the carrier 30 for opening and closing, lifting and depressing the gripper members. The cutter-actuating members 42, being arranged in sliding contact with the gripper-shank 13, are also embraced by the carrier 30 and likewise permit vertical reciprocations through the carrier for moving the cutter-blades in the cutting operation. Movements of the cutter-blades for cutting the upper are made to take place automatically by suitable driver connections comprising in the present instance as follows: A rocking shaft  $a^2$  is supported to turn in the sleeve  $a^3$  and carries at one end an arm  $a^4$ , in the top end of which is a pin  $a^5$ , located to bear upon the cam enlargement  $a^6$ , which cam is fixed upon a collar  $a^7$  and thereby supported to turn with the machine driving-shaft D. The shaft  $a^2$  carries at its opposite end an arm  $a^8$ , wherewith is connected a spring  $a^9$  through the medium of an interposed rod, all arranged as shown in Fig. 2. Said mechanism is operated by the cam  $a^6$  to lift the arm  $a^8$ , and is returned to place, when released, by the spring  $a^9$ . A buffer  $a^{11}$  operates in connection with an arm  $a^{10}$ , carried by the shaft  $a^2$ , for stopping the mechanism against action of the spring  $a^9$ .

The arm  $a^8$ , it will be understood, is located so that its engaging end stands between the bars 42, and remains in this position so long as the upper-holding devices move forwardly and backwardly in a straight line over the last. A movement of the upper-holding devices to one side carries the mechanism into position for the arm  $a^8$  to engage the bar 42 on one side thereof, while a movement in the opposite direction suitably places the mechanisms for the arm  $a^8$  to engage the bar 42 at the opposite side thereof, whereby it will be understood the cutting operations are made to take place at a time suitable for permitting the slitted parts to be superimposed upon the inner sole. Said movements of the holding devices are effected by a mechanism preferably arranged to be under the control of the workman, as described in the United States Letters Patent above referred to.

The sleeve  $a^3$ , it will be understood, is supported to turn in a branch of the machine-frame B, and pivotally connected with the frame B is a handle-lever  $a^{16}$ , the top end whereof engages a slide, Fig. 2, suitably connected with the sleeve, whereby the operator is enabled to effect a movement of the sleeve in one direction longitudinally for putting



the mechanism thereby supported into operation with the cam  $a^6$  when cutting of the upper is to be desired and in the opposite direction longitudinally for placing said mechanism out of operative relation with the cam  $a^6$  when the cutting operations are to be discontinued for a time during which lateral movements of the upper-holding devices may be desired without cutting the upper. The cutter-blade is preferably located to cut the upper at a slight distance from the side of the gripper members. It is inclined relatively to the gripper members to cross-cut the upper obliquely, whereby in the cutting operation the contiguous edge faces of the slitted part are beveled, preferably with the beveled edge face of the part held by the gripper members overlapping the other part to facilitate the superimposing of the parts by a lateral movement thereof, one with relation to the other.

I claim—

In a lasting-machine of the character indi-

cated, in combination, the gripper members and appliances for actuating said members to seize upon the upper, and move for straining it to the last, a carrier supported in the machine-frame independently of the gripper members, and means for moving it forward and backward horizontally, said carrier being connected loosely with the gripper members for moving them to overdraw the upper upon the inner sole, a cutter-blade holder supported in said carrier independently of the gripper members, a cutter-blade in said holder adapted for slitting the edge of the upper adjacent to the gripper members, and driver connections for actuating the cutter-blade in the cutting operation, substantially as described.

Signed at Lynn, Massachusetts, this 10th day of December, A. D. 1895.

SHERMAN W. LADD.

Witnesses:

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