

(No Model.)

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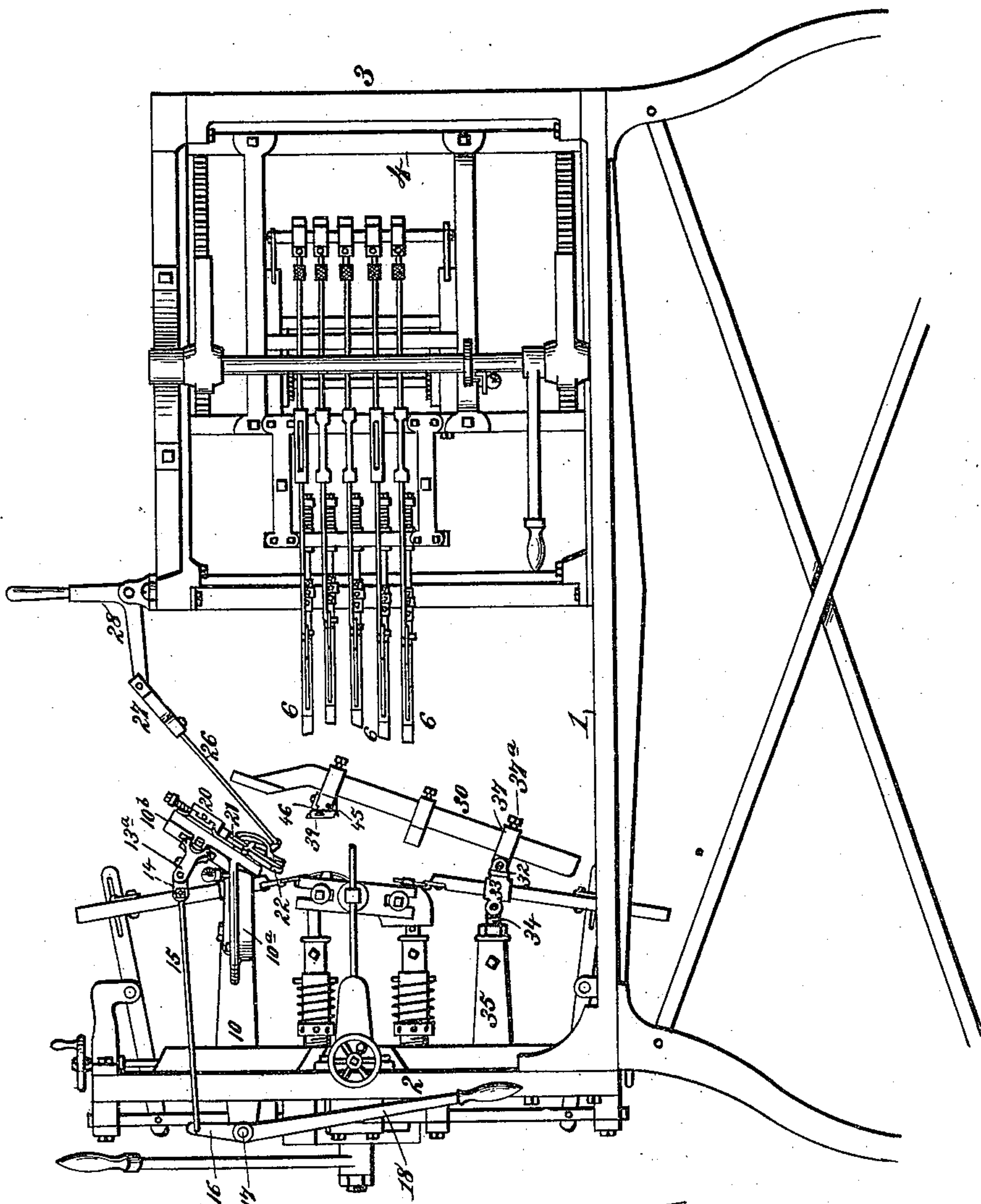
S. W. PAINE & E. S. COMBS.

LASTING MACHINE.

No. 355,784.

Patented Jan. 11, 1887.

Fig. 1.



Witnesses.
Robert Druett.
Percy B. Hills.

Inventors.
S. White Paine
Edgar S. Combs.
By James L. Norris.
Atty.

(No Model.)

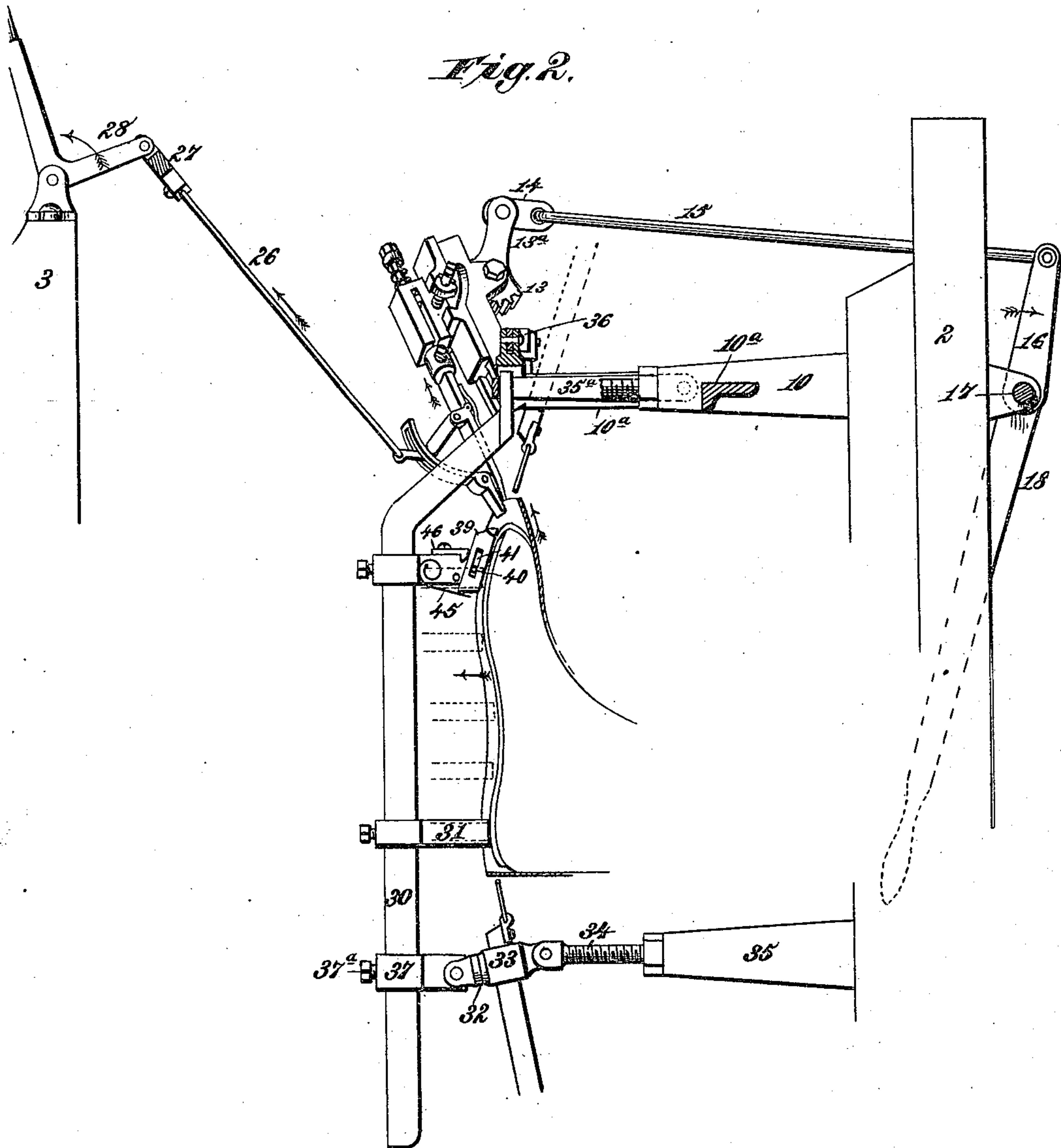
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Witnesses.
Robert Connett.

Percy B. Hills.

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By James L. Norris.
Atty.

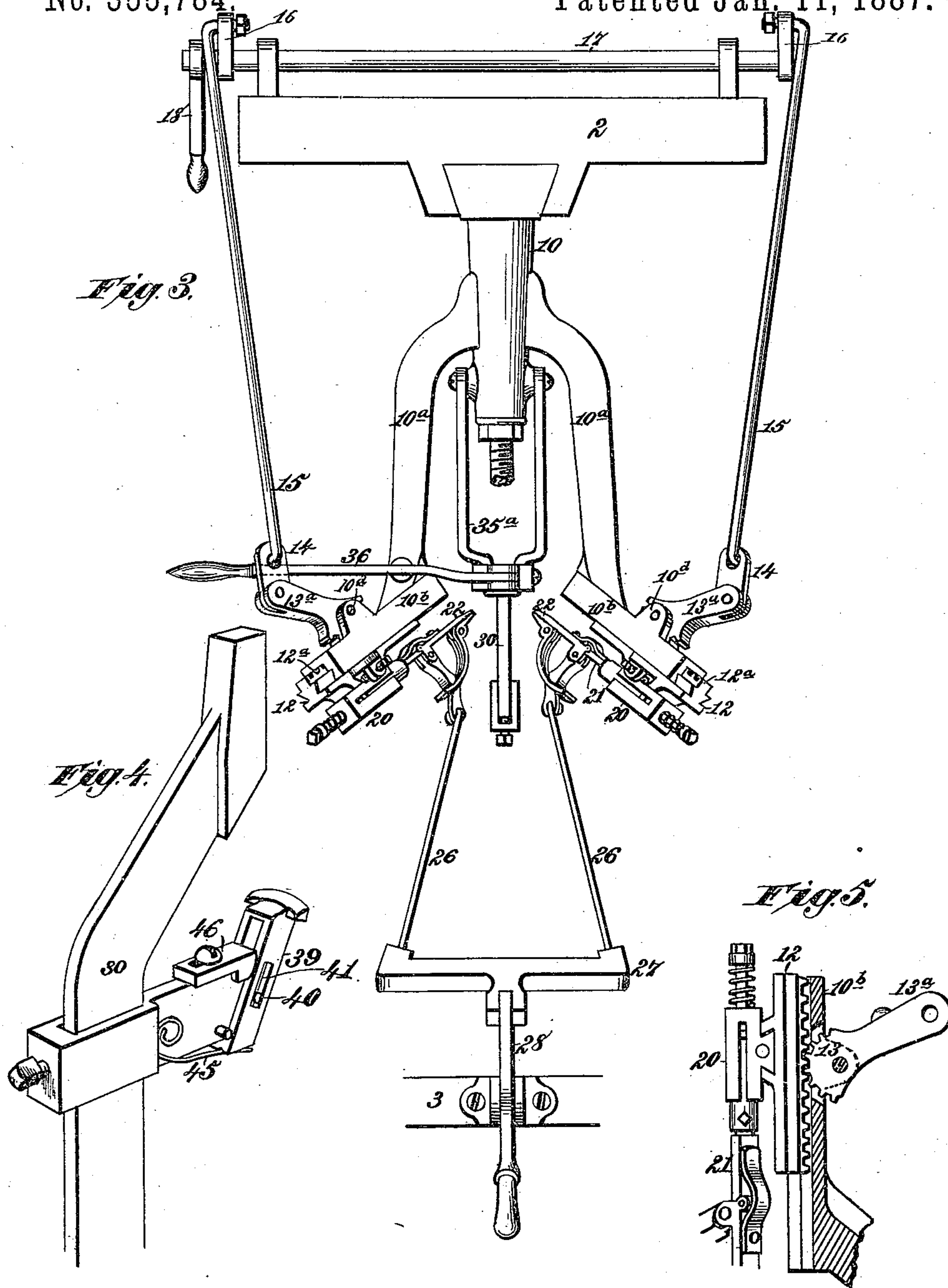
(No Model.)

3 Sheets—Sheet 3.

S. W. PAINE & E. S. COMBS.
LASTING MACHINE.

No. 355,784.

Patented Jan. 11, 1887.



Witnesses.
Robert Smith.
Cory B. Stills.

Inventors.
S. White Paine.
Edgar S. Combs.
By *James L. Norris.*
Atty.

UNITED STATES PATENT OFFICE.

S. WHITE PAINE AND EDGAR S. COMBS, OF ROCHESTER, NEW YORK; SAID COMBS ASSIGNOR TO SAID PAINE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 355,784, dated January 11, 1887.

Application filed April 14, 1886. Serial No. 198,832. (No model.)

To all whom it may concern:

Be it known that we, S. WHITE PAINE and EDGAR S. COMBS, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Lasting-Machines, of which the following is a specification.

The present invention relates to lasting-machines of the type shown in our application for patent filed February 1, 1886, Serial No. 190,551; and the object of the improvements hereinafter set forth is to provide means for stretching the upper upon the last in such a way that the formation of wrinkles is prevented and the edges of the upper are brought into position to be seized by the gripping devices without fail. We resort in the present invention to pinchers arranged at the toe portion of the last and adapted to be operated in advance of and independently of the side pinchers. These toe-pinchers serve to draw the leather obtusely from the last, instead of at right angles thereto, by means of which the upper is relieved of all wrinkles before the toe-lasting jaw or device comes in contact with it, after which the tension of the leather keeps the toe perfectly smooth. Another advantage resulting from the obtuse drawing of the toe portion of the upper is the drawing of the upper in a nearly straight line upon each side of the last from heel to toe, so as to bring the edges of the upper in exact range of the side-gripping devices and rendering unnecessary any other device for such purpose.

The invention also consists in means for holding the insole upon the last and holding the latter against the stretching operation, as will be hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a lasting-machine embodying our improvements. Fig. 2 is a side view representing the relative arrangement of the toe-pinchers, last-downhold, and toe and heel lasting devices. Fig. 3 is a top view of the toe-pinchers and operating devices. Fig. 4 is a detail view of the downhold-bar and movable holder for the box-toe strip. Fig. 5 is a detail view of the means for moving the toe-pinchers back and forth.

The reference-numeral 1 designates a hori-

zontal frame or table, which is mounted upon suitable legs and carries at one end a vertical plate, 2. At the other end of the table is mounted a fixed frame, 3, consisting of top and bottom and vertical connecting-bars. This frame 3 serves as a support and guide for a movable frame or sash, 4, which carries a group of pinchers adapted to seize and draw upon the sides of the upper. The mechanism for moving the frame 4 to and from the last mounted on the head-plate 2 and the construction and arrangement of the pinchers 6 is the same as in our former application, Serial No. 190,551.

Instead of mounting all the pinchers concerned in the operation of stretching the upper upon the frame 4, as in the former machine, we propose in the present instance to use two independent pinchers, which act upon the toe portion of the upper and are not mounted upon the frame carrying the pinchers which seize the sides of the upper. These toe-pinchers are constructed and mounted as follows: A post, 10, fitted in a way in the head-plate 2, carries two lateral arms, 10^a, which are provided at their outer ends with grooved heads 10^b, extending obliquely in relation to said arms 10^a. These heads each receive a sliding block, 12, constituting means for supporting pinchers and moving the same to and from the last.

The block 12 is made with a dovetail or flaring portion entering a correspondingly-grooved seat in the head 10^b, and the block 12 is furthermore provided with rack-teeth 12^a, and a segmental spur-head, 13, engages with said rack, as is seen in Fig. 5. This spurred segment is pivoted between bars 10^a on the heads 10^b, and it is shaped into a lever-extension, 13^a, as is clearly seen in Fig. 3. The levers 13^a are connected by links 14 with rods 15, and the latter are in turn connected with crank-arms 16 on a rock-shaft, 17, journaled in bearings on the head-plate 2 and having a hand-lever, 18.

The block 12 is provided with a transverse dovetail groove, in which is inserted a correspondingly-shaped tenon on a hollow block, 20, which serves as a holder for the shank or stem 21 of gripping jaws or pinchers 22. These

gripping-jaws are opened and closed by a curved arm and pivoted cam-arm, as in the construction of pinchers indicated in our former application. The pinchers have a yielding movement in the block 20, so as to adapt themselves to the resistance encountered in the lasting operations. By virtue of the oblique heads 10^b and the pinchers' holders fitted therein, the jaws of the pinchers are caused to assume an oblique position in relation to the portion of a last fitted in a vertical position on horizontal supports or jacks extending from the head-plate 2.

Referring to Fig. 3, it is evident that the jaws of the pinchers converge toward the toe of the last, and that both pinchers are connected by rods 26 with a cross-head, 27, which is pivoted to an elbow-lever, 28. The latter is fulcrumed in brackets on the frame 3, and its function is to close and open the jaws of both pinchers simultaneously. The means for turning or folding the edges of the upper upon the insole are the same as in our former application, and the position of these devices relatively to the devices constituting the present improvements are indicated in Fig. 1, and will be understood without further description.

We make use in the present instance of a different holding device for the insole and last. It consists of a vertical bar, 30, adapted to extend above the face or sole portion of the last and provided with presser-feet 31, which rest upon the insole. The arm 30 passes through a clasp or band, 37, which is pivoted to a swivel-pin, 32, fitted into a block, 33, connected with the screw-stem 34 of the horizontal post 35 by a pivot-pin. The arm 30, mounted in the described manner, can be turned to and from the face of the last, and it can also be turned at right angles by the swivel-pin 32, so as to turn it out of the way in the performance of further operations after the completion of the stretching by the pinchers. The arm 30 is bent obliquely at its upper portion, as is shown at 30^a, and at the extremity of this bent portion is a head extending at right angles outwardly therefrom.

When the bar 30 is turned as shown in Fig. 2, it is in position for causing the presser-feet to bear upon the insole, and it is firmly held in such position by means of a yoke, 35^a, pivoted to the post 10 and connected with a lever, 36, which is fulcrumed on one of the arms 10^a, as is seen in Fig. 3. By manipulating said lever the yoke is raised or lowered to release or lock the bar 30. In Fig. 2 the yoke is shown lowered, so as to cause it to fit over the upper end of the bar 30 and firmly retain the latter. The bar 30 is adjustably fitted in the clasp 37 by means of a set-screw, 37^a, and it can be moved up or down in the same to suit the length of the last. One of the presser-feet is a simple metal arm having a clasp for adjustably fitting it on the bar. The one located at the toe of the last, however, is provided with an adjustable plate or foot, 39, which can slide back and forth on a guide-pin, 40, passing into

a slot, 41, in said plate 39. The function of the foot 39 is to bear upon and hold the customary box-toe strip in position until such time as the toe-lasting device has turned the upper upon the insole, when the foot is moved back out of the way of the advancing toe-lasting device by contact with said device itself. A spring, 45, connected with the shank of the presser-foot and bearing upon the end of the foot 39, serves to hold the latter in a projected state and allow it to bear upon the box-toe strip when the parts are in the position seen in Fig. 2.

The foot 39 has a slight rocking movement, in order to allow it to adjust itself to the curvature or shape of the last. This rocking movement is permitted by the pin 40 and slot, and the extent of movement can be varied by a front stop, 46, having a slot and set-screw for allowing it to be raised and lowered.

Referring again to the toe-pinchers, it is evident that they can be laterally adjusted by set-screws 50, so as to suit the width of the last, and when the lever 18 is manipulated the pinchers at both sides of the toe of the last are drawn away obtusely from the last, instead of at right angles thereto, by which means it is relieved of all wrinkles before the toe-lasting device comes in contact with it, after which the tension of the leather keeps the toe perfectly smooth. Another advantage resulting from this method of working the toe-pinchers, is the drawing of the upper tight in a nearly straight line upon each side of the last from heel to toe, so as to bring it in exact range of the side pinchers or gripping devices and dispensing with devices heretofore required for presenting the upper to the pinchers.

In operating with toe-pinchers, as above described, it is obvious that they must be operated slightly in advance of the side pinchers, in order that the upper may be in position to be grasped by the latter.

Having thus described our invention, what we claim is—

1. In a lasting-machine, the combination, with the last-holder and the side lasting-pinchers, of the independent toe-pinchers, the supports upon which the latter are mounted being arranged beyond or in front of the toe portion of the last, and the independent toe-pinchers being arranged upon their supports at an obtuse angle in relation to the toe of the last, for the purpose of exerting a lengthwise pull upon the upper in a direction which will draw the toe of the upper beyond the toe of the last, substantially as described.

2. In a lasting-machine, the combination of the post 10, arms 10^a, oblique heads 10^b, the sliding blocks and pinchers mounted thereon, with means for opening and closing the pinchers and drawing the upper away from the toe of the last at an obtuse angle thereto, substantially as described.

3. In a lasting-machine, the combination of the rock-shaft 17, lever 18, rods 15, and toothed levers 13^a, and the sliding toothed blocks with

the toe-pinchers, arms 10^a, and oblique heads 10^b, substantially as described.

4. In a lasting-machine, the combination of the swinging-arm having presser-feet and the yoke and lever for locking said arm, substantially as described.

5. In a lasting-machine, the combination of the swinging bar 30, the presser-feet mounted thereon, the clasp 37, in which one end of said bar is adjustably held, the swivel-block 32, to which said clasp is pivoted, and the pivoted block 33, supporting the swivel-block, and a locking device for the free end of the bar 30, substantially as herein set forth.

6. In a lasting-machine, the combination of the swinging bar and the downhold device consisting of an adjustable arm, a sliding spring-

pressed foot adapted to rock or vibrate, and an adjustable stop for carrying the rocking of said spring-pressed foot, substantially as set forth.

7. In a lasting-machine, the combination of the obliquely-arranged toe-pinchers, the sliding blocks for operating the pinchers to draw upon the upper, and the laterally-adjustable block for shifting the pinchers to suit the size of the toe of the last, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

S. WHITE PAINE.
EDGAR S. COMBS.

Witnesses:

E. S. DARROW,
E. DARROW.