(No Model.) 2 Sheets—Sheet 1.

E. S. COMBS & H. M. GOODHUE.

LASTING MACHINE.

No. 436,773. Patented Sept. 23, 1890.

Fig. 1.

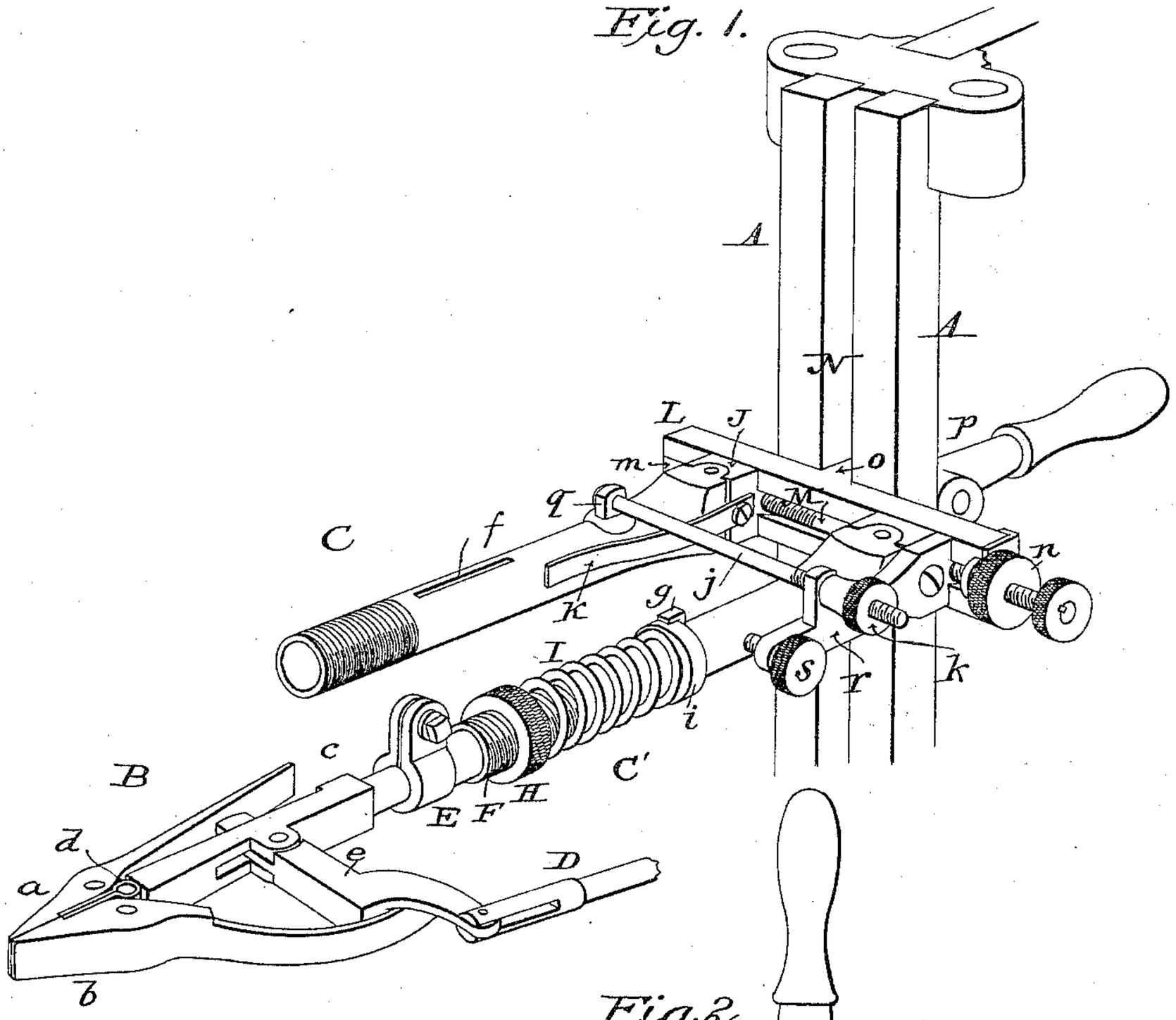
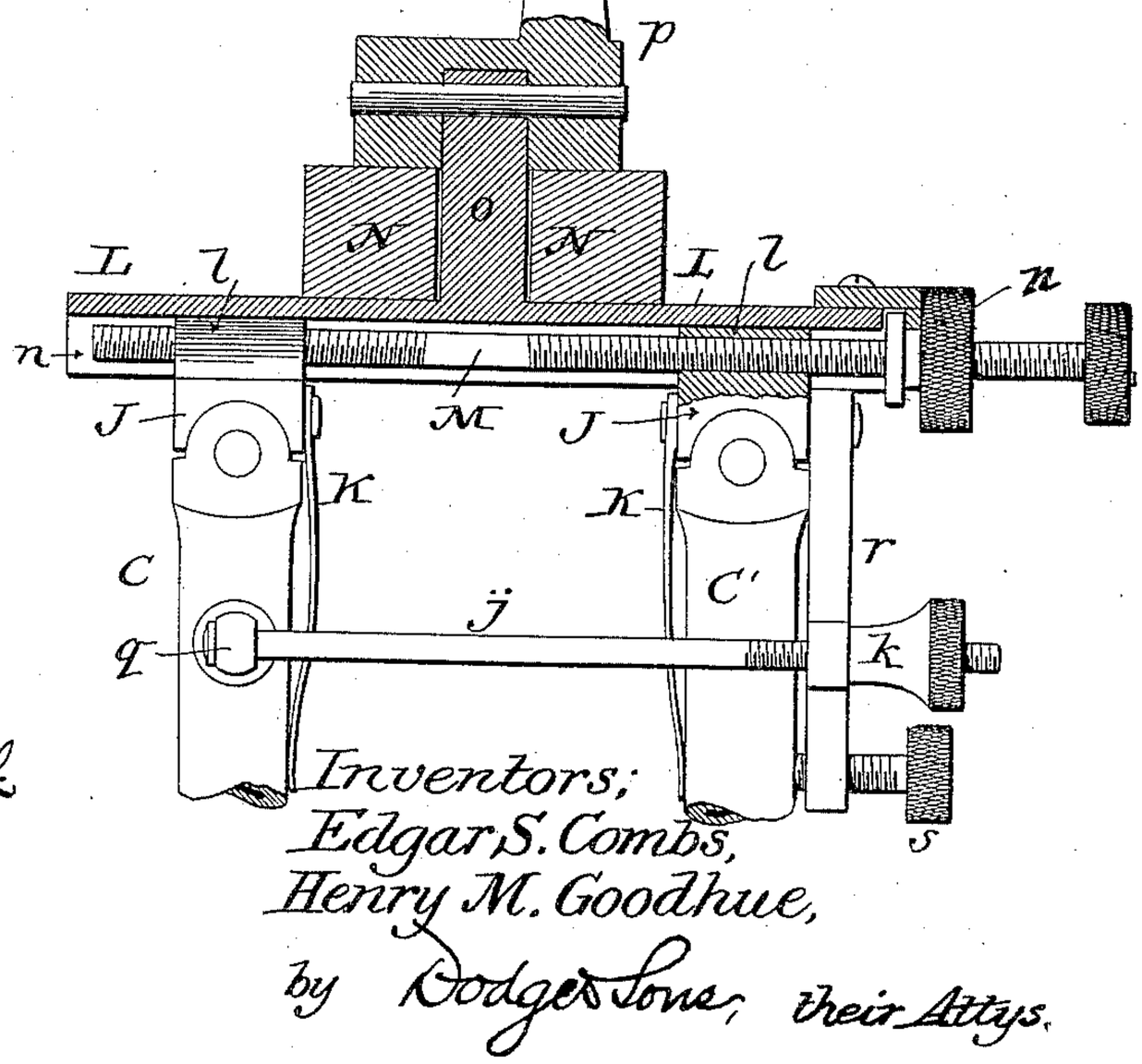


Fig. 2.



Witnesses:

James F. Duhamel.

Horace A. Dodge.

Inventors;

Edgar S. Combs,

Henry M. Goodhue,

by Dodger & Sons, their Attys.

(No Model.) 2 Sheets—Sheet 2.

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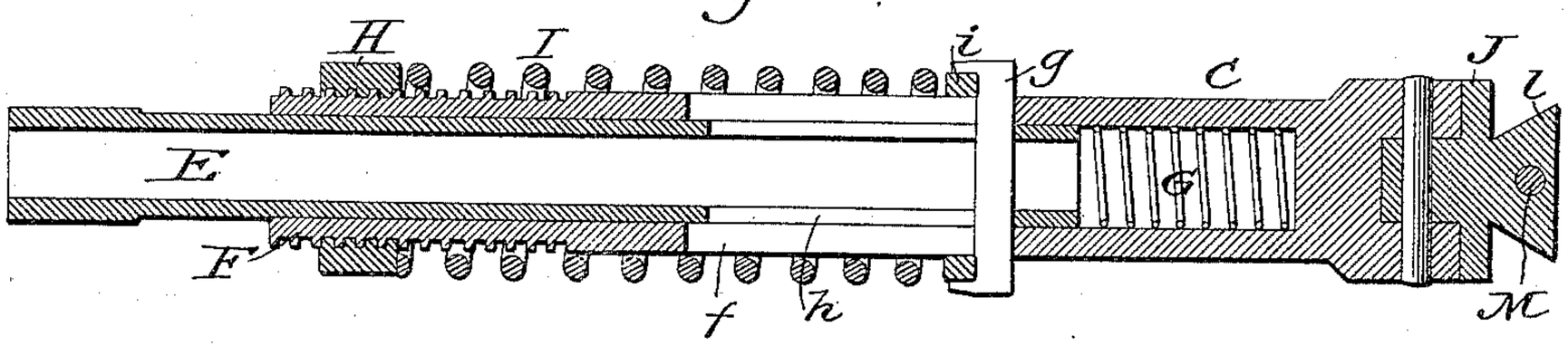
Fig. 3.



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UNITED STATES PATENT OFFICE.

EDGAR S. COMBS AND HENRY M. GOODHUE, OF ROCHESTER, NEW YORK,
ASSIGNORS TO WILLIAM S. KING, OF MINNEAPOLIS, MINNESOTA.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 436,773, dated September 23, 1890.

Application filed November 7, 1889. Serial No. 329,566. (No model.)

To all whom it may concern:

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

Our invention relates to lasting-machines, and has reference more particularly to the construction of the pinchers that take hold of the upper and stretch the same over the last, and also has reference to the construction and arrangement of the stock or support for the pinchers.

The invention herein set forth is designed more particularly for application to the lasting-machine, for which Letters Patent, No. 387,366, were granted to Paine, Gray, and Pettee August 7, 1888, though susceptible of use in a variety of lasting-machines.

In the drawings, Figure 1 is a perspective view of so much of a lasting-machine as is necessary to show the present invention; Fig. 2 a horizontal sectional view, and Fig. 3 a longitudinal sectional view, of one of the pincher-supporting arms.

A indicates a frame, which in the present instance is represented as the swinging head or frame of the patented machine before referred to; B B, the pinchers, and C C′, the supports for the latter, which are secured to the frame A in a manner hereinafter described.

The jaws *a b* of the pinchers are pivoted to the forward end of a stem *c*, and are held normally separated by means of a spring *d*, placed between their working-faces. The stem *c* is slotted to receive a block *e*, which, as shown, is connected at one end with an operating-rod D in such manner that when the rod is reciprocated (by any suitable means) the block will be turned or rocked upon its pivot and acting upon the tails of the jaws *a b* force their working-faces together and cause them to clamp the exposed edges of the upper preparatory to stretching. The rear or inner end of the stem *c* enters and is clamped firmly to a tubular slide E, which in turn works within a tubular shell or casing F, a coiled spring G being interposed between the inner end of the slide and the bottom of the recess or cavity made in the shell. At its outer end the shell or casing F is threaded externally to receive a thumb-nut H, and is slotted, as at *f*, to receive a key *g*, which passes not only through the slot in the shell, but also through a slot *h*, made in the slide E, the key projecting from both sides of the shell or casing and engaging a washer *i* upon or encircling the shell. A coiled spring I encircles the shell and bears at its opposite ends against the thumb-nut and the washer, and it will be seen that by turning the nut the tension of the spring I may be varied and controlled.

As the slide E (with the pinchers attached thereto) is pulled outward, the rear wall of its slot *h* will come in contact with the key *g* and carry the key and washer *i* with it, and as the key moves through the elongated slot *f* in the shell the spring I will be put under compression, thereby allowing or permitting each of the pinchers to yield and accommodate itself to the work to be done, which cannot be accomplished where a rigid and unyielding support is provided for the pinchers. The spring G at the rear end of the slide E urges the latter outward and tends to keep the rear wall of the slot *h* in contact with the key *g*, but at the same time the spring is not so strong as to prevent an inward movement of the slide in case the end of the pinchers should happen to come into contact with the face of the last.

Shell or casing F is hinged or pivoted at its inner end to a block J, so as to permit the pincher-supporting arm to swing inward horizontally in order that the pinchers may be brought into proper position to grasp the upper, the position of the exposed edges of the latter varying according to the width of last used. A spring K, secured to the block J, bears against the side of the shell or casing and tends to keep the latter at right angles to the block, the force of the spring being overcome when it is desired to move the shell, or more properly, the pinchers and its support-

ing-arm, inward upon or relatively to its pivot. In order to thus swing the arm C inward toward arm C′, we employ a rod or stem *j*, which is headed at one end and threaded at the other, the said rod passing through a lug *q*, formed upon the shell or casing of the arm C. Fitting upon the threaded end of the rod *j*, outside of an arm or bracket *r*, secured to block J, is a thumb-nut *k*, by turning which the arm C will be drawn inward toward the arm C′. Arm C′ is moved inward toward arm C by means of a set-screw *s* passing through the arm or bracket and bearing against the arm C′.

The blocks J are provided on their rear faces with a lug *l*, which is adapted to work in a dovetail groove *m*, formed in a cross-bar L, which carries two pincher-supporting arms or stocks C C′. These lugs *l l* are tapped and threaded in reverse directions to receive a right-and-left screw M, as shown in Fig. 2, the said screw being provided with a thumb-nut *n*, which bears against the end of the cross-bar L. By turning the screw M, one of the blocks and the arms carried thereby will be caused to approach or recede according to the direction of rotation, and by turning the thumb-nut both blocks and the arms carried thereby will be caused to move equally and simultaneously in either direction without changing their relative adjustment.

The frame A, to which we have before referred, is provided with an upright slotted bar N, to which all the cross-bars L and attendant parts are secured, and in order to provide for the raising and lowering of the cross-bars upon or relatively to the said slotted bar, each of the cross-bars is provided with a lug *o* to project through the slotted bar to receive an eccentric or equivalent clamp *p*.

Having thus described our invention, what we claim is—

1. In combination with a stem *c*, jaws *a b*, pivoted thereto and provided each with a tail, a block *e*, pivoted to the stem and disconnected from the jaws, and means for operating the block, whereby it is adapted to bear against the tails of the jaws and spread said tails apart, substantially as shown and described.

2. In combination with a stem *c*, jaws *a b*, pivoted thereto and provided each with a tail, a spring *d*, placed between the jaws, a block pivoted to the stem, and means for operating the block.

3. In combination with a slotted stem *c*, jaws *a b*, pivoted thereto and provided each with a tail, a block *e*, pivoted in the slot in the stem and adapted to act upon the tails of the jaws, and means for actuating the block.

4. In combination with a support, a pincher-supporting arm or stock provided with pinchers, and hinged or pivoted to its support so as to permit the pincher-supporting arm to be swung laterally, for the purpose set forth.

5. In a lasting-machine, an extensible pincher-supporting stock, in combination with pinchers carried thereby, all substantially as shown.

6. In a lasting-machine, the combination, with an extensible pincher-supporting stock, of pinchers carried thereby, and a spring governing the extension of the stock.

7. In a lasting-machine, the combination, with a case or shell, of a slide mounted therein and provided with pinchers, and a spring behind the slide adapted to permit the pinchers to move inward, for the purpose set forth.

8. In a lasting-machine, the combination, with a case or shell, of a slide mounted therein and provided with pinchers, a spring adapted to yield to allow the pinchers to adjust themselves to their work, and a second spring adapted to permit the pinchers to be moved inward relatively to the stock.

9. In combination with slotted shell F, slotted slide E, provided with pinchers, a key *g*, passing through the parts E F, and a spring G, bearing at one end against the key and at the other end against a shoulder on the shell.

10. The combination, with a slotted shell F, threaded externally at one end, of a slotted slide E, provided with pinchers, a key *g*, provided with lugs or bent ends and passing through the parts E F, and a nut screwing onto the end of shell F, a washer encircling the shell and in engagement with the key, and a spring encircling the shell and bearing at one end against the washer and at the other end against the nut.

11. In a lasting-machine, the combination, with an upright support, of a cross-bar L carried thereby, and a pair of pincher-supporting arms movable horizontally across the face of the bar and provided with pinchers, and means, substantially such as shown, for moving or adjusting the arms separately or together.

12. In a lasting-machine, the combination, with a bar L, provided with a dovetail groove *m*, of blocks J, provided with tapped lugs *l*, screw M, engaging the lugs, and a thumb-nut *n* bearing against the end of the bar.

13. In a lasting-machine, the combination, with an upright slotted frame, of a cross-bar provided with a lug to project through the slot in the frame, and provided also with pinchers and their supporting devices, and a clamping device adapted to clamp the cross-bar to the slotted frame.

14. In a lasting-machine, the combination, with a support L, common to two or more pinchers, and separate supports for each pincher, of pincher-stocks carrying pinchers and jointed to the separate supports by a hinge or equivalent joint, and means, substantially as described, for separately moving the pincher-stocks inward toward each other.

15. In a lasting-machine, the combination,

with a suitable bar or support having an arm or bracket, of jointed pincher-supports carried by the bar, a rod secured to the farther support and to the bracket and provided with an adjusting-nut, and an adjusting-screw carried by the bracket to adjust the near supporting-arm.

In witness whereof we hereunto set our hands in the presence of two witnesses.

EDGAR S. COMBS.
HENRY M. GOODHUE.

Witnesses:
WALTER S. DODGE,
D. O'CONNELL.