

(No Model.)

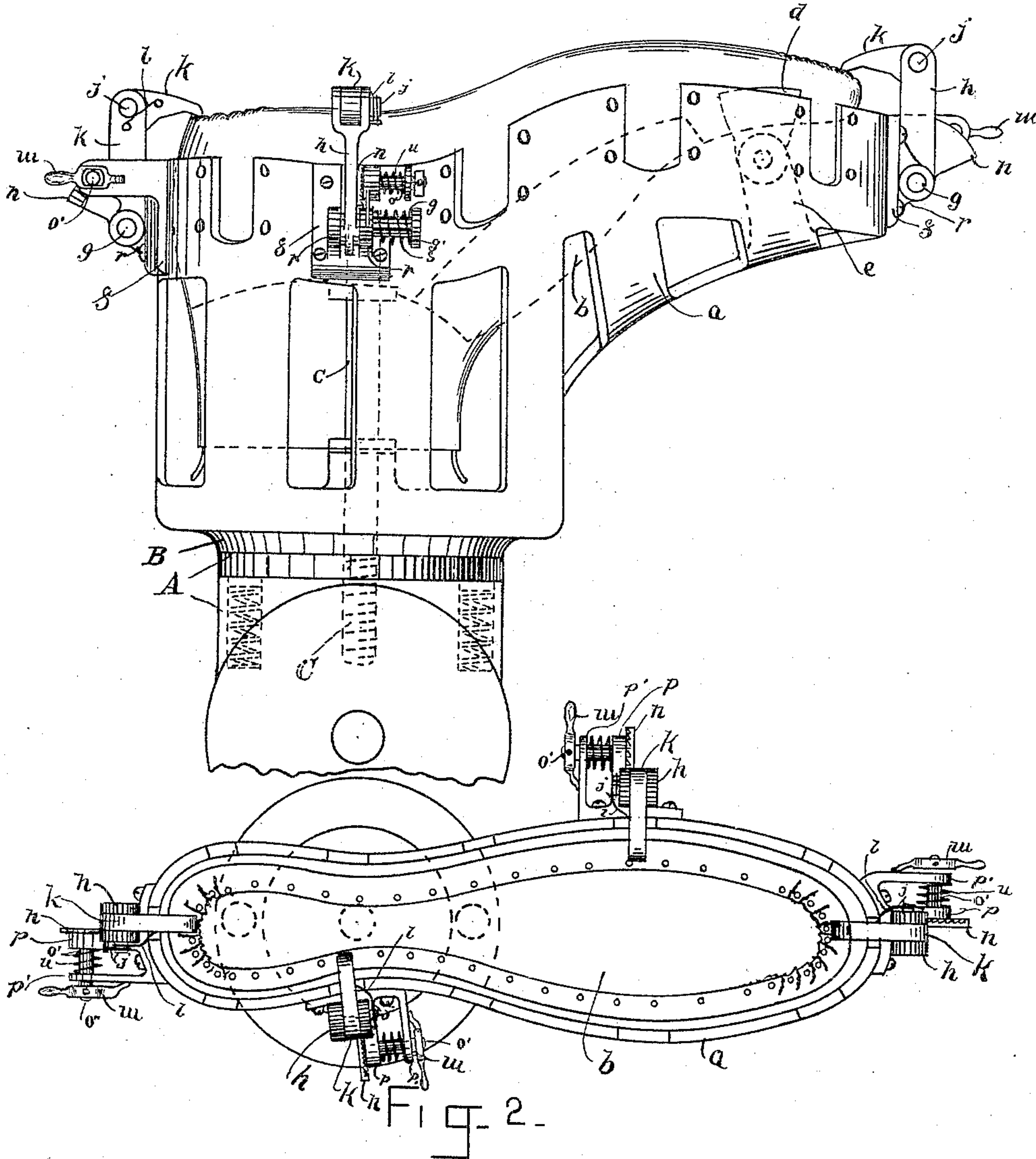
2 Sheets—Sheet 1.

A. SEAVER & W. S. HAMM.  
LASTING MACHINE.

No. 444,858.

Patented Jan. 20, 1891.

Fig. 1.



WITNESSES:  
A. J. Harrison  
W. C. Ramsay

INVENTOR:  
A. Seaver  
W. S. Hamm  
By *Wm. B. Brown & Co.*  
Attys

(No Model.)

2 Sheets—Sheet 2.

A. SEAVER & W. S. HAMM.  
LASTING MACHINE.

No. 444,858.

Patented Jan. 20, 1891.

Fig-4

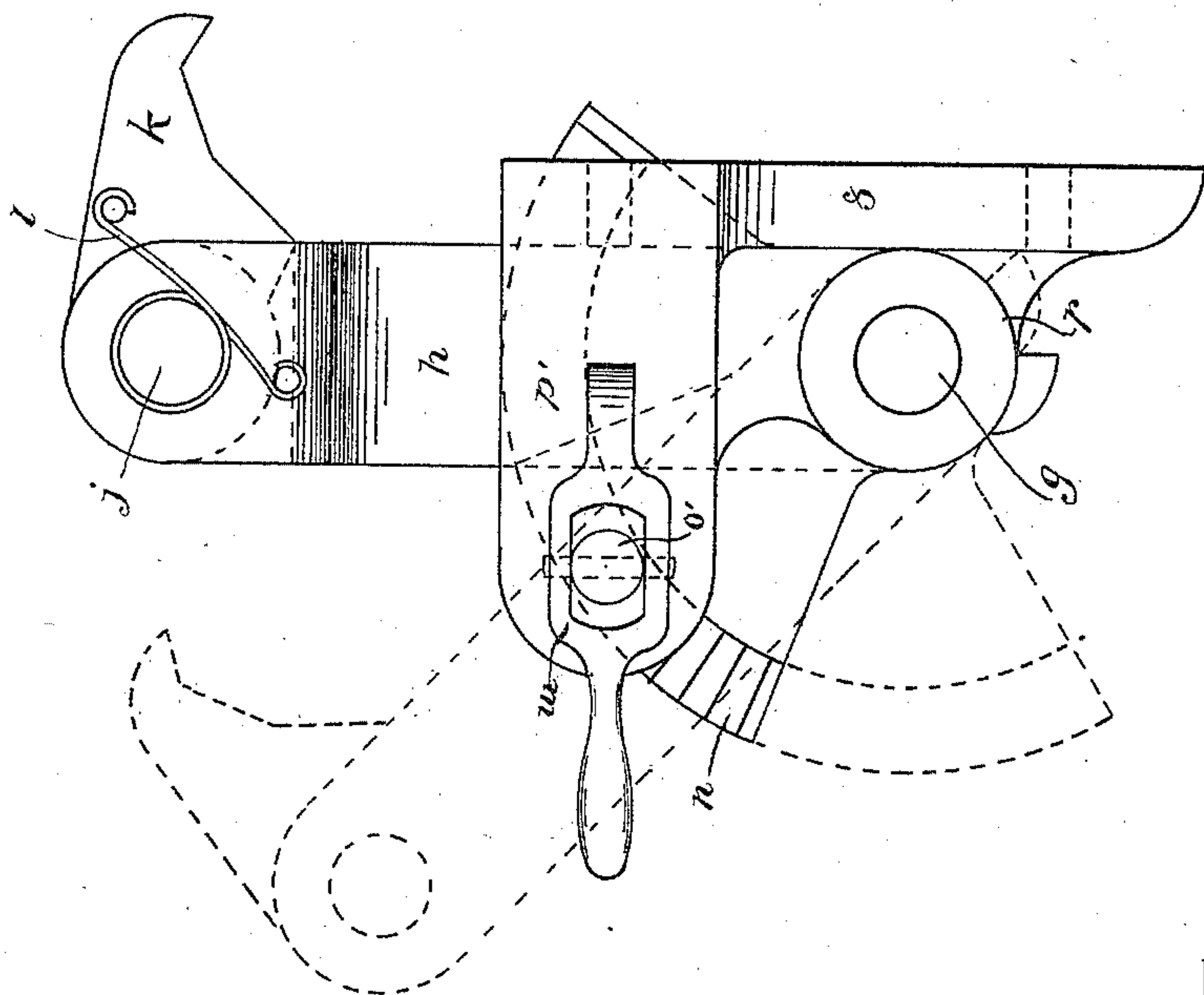


Fig-3-

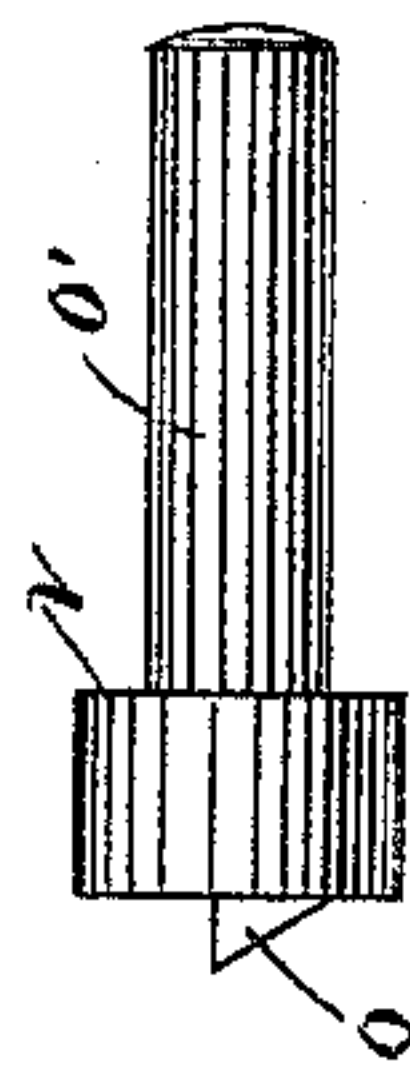
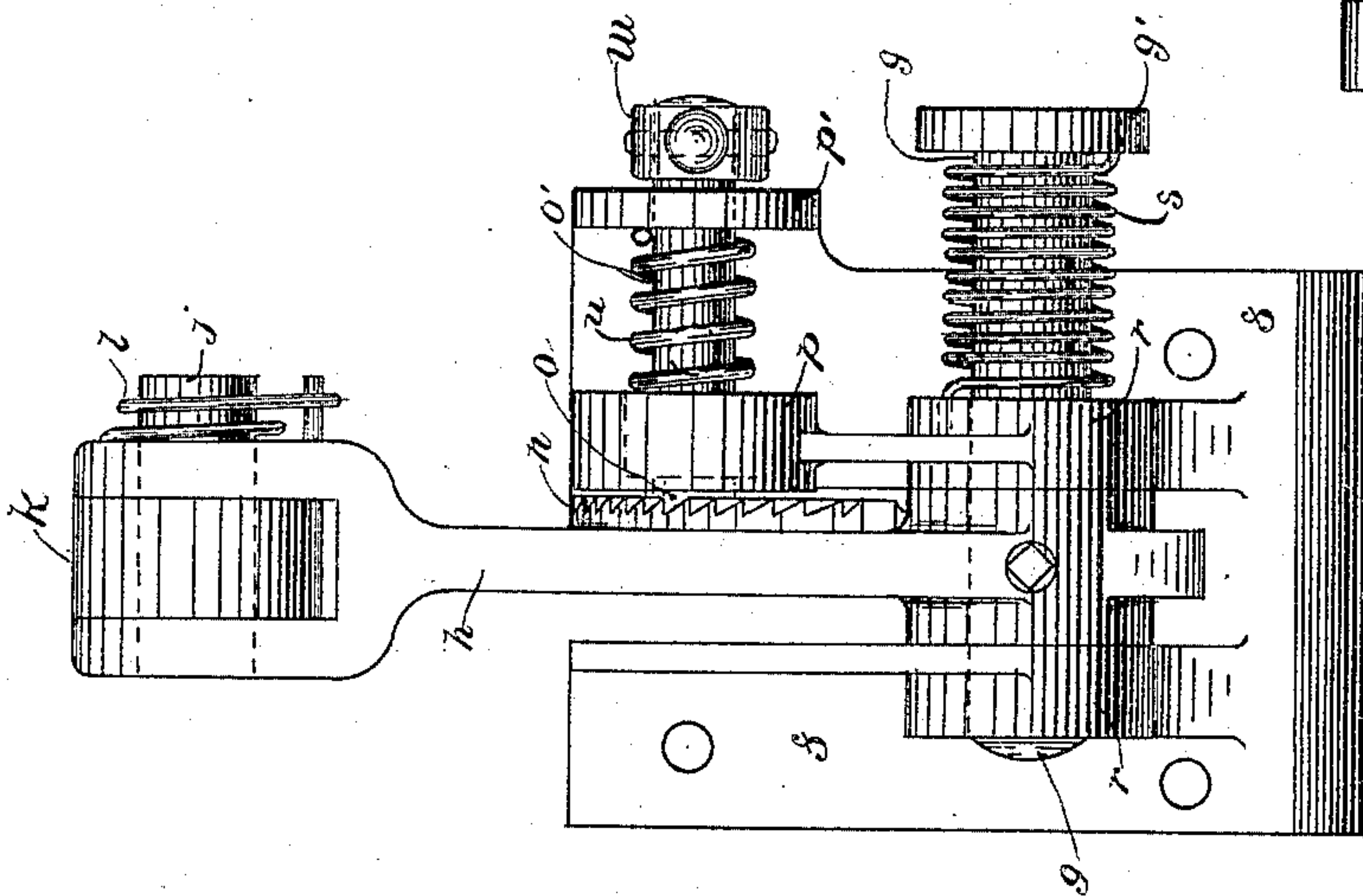


Fig-5-

WITNESSES:  
A. J. Harrison.  
W. B. Ramsay.

INVENTOR:  
A. Seaver  
W. S. Hamm  
G. Wright Brown & Co.  
Atty.



# UNITED STATES PATENT OFFICE.

AUGUSTUS SEAVER, OF BOSTON, AND WILLIAM S. HAMM, OF NEWTON,  
ASSIGNORS TO CHARLES F. BROWN, TRUSTEE, OF READING, MASSACHUSETTS.

## LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,858, dated January 20, 1891.

Application filed December 14, 1889. Serial No. 333,796. (No model.)

*To all whom it may concern:*

Be it known that we, AUGUSTUS SEAVER, of Boston, in the county of Suffolk, and WILLIAM S. HAMM, of Newton, in the county of Middlesex, both in the State of Massachusetts, have invented certain new and useful Improvements in Appliances for and Method of Lasting Boot or Shoe Uppers, of which the following is a specification.

10 This invention has for its object to provide means whereby the edges of a boot or shoe upper may be temporarily secured upon the bottom of the last during the operation of drawing the edges of the upper over upon  
15 the bottom of the last by hand-operated lasting nippers or pinchers.

Heretofore in lasting uppers by hand—i. e., by the use of hand-operated pinchers which are applied to different parts of the edge of the  
20 upper in succession—the operator has secured the edges of the upper by lasting-tacks driven through each part of the edge that is grasped by the pinchers when such part is drawn to place, the lasting-tacks usually remaining in  
25 the upper after the completion of the boot or shoe and constituting a source of annoyance and difficulty on account of their liability to work through the inner surface of the inner sole and tear the stockings and injure the  
30 feet of the wearer of the boot or shoe.

Our invention is designed to obviate the use of hand-driven lasting-tacks; and it consists, first, in a portable frame provided with last-holding devices and formed to surround  
35 a last, combined with a series of independent movable fingers, clamps, or dogs formed to penetrate the material of a boot or shoe upper and supported by said frame, each finger projecting inwardly over the bottom of a last  
40 supported by said frame and a series of locking devices for each finger, whereby each may be held independently in a series of positions while engaged with the edge of a boot or shoe upper, and thus caused to exert any desired  
45 strain on the portion of the upper with which it is engaged.

Our invention also consists in certain details and combinations of parts, all of which we will now proceed to describe and claim.

50 Of the accompanying drawings, forming a

part of this specification, Figure 1 represents a side elevation of a lasting appliance embodying our invention. Fig. 2 represents a top view of the same. Figs. 3 and 4 represent, respectively, a rear and a side elevation  
55 of one of the holding-fingers and the preferred means for connecting it with the frame and for operating it. Fig. 5 represents the holding-dog forming a part of the mechanism shown in Figs. 3 and 4.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a hollow frame formed to surround a last *b*, and provided with suitable means for supporting the last  
60 within it in substantially the position shown in Figs. 1 and 2, the bottom of the last preferably standing above the upper edge of the frame. The last-supporting devices may be of any suitable kind, and are here shown as  
65 a spindle *c*, attached to the base or lower portion of the frame and adapted to enter the spindle-socket in the last, and a toe-rest *d*, pivoted to an ear *e* on the forward portion of the frame and arranged to support the toe  
70 portion of the last.

To the exterior of the frame *a* are securely bolted a series of brackets *f*, and to each bracket is pivoted at *g* an arm or lever *h*, the arrangement being such that each of said  
80 arms can swing toward and from the last supported in the frame *a*. To the upper end of each arm *h* is pivoted at *j* a finger or clamp *k*, to which a yielding downward pressure is imparted by a spring *l*, one end of which is  
85 connected to the arm *h* and the other to the clamp or finger *k*.

On each arm *h* is formed a segmental ratchet *n*, which is arranged to be engaged and held by a spring-pressed dog or bolt *o*, the shank  
90 *o'* of which is fitted to slide in ears *p p'*, formed on the bracket *f*. The teeth of the ratchet *n* are cut, so that when the dog is engaged with them said dog will prevent movement of the ratchet and the arm *h* on which  
95 it is formed away from the frame *a*.

There may be any desired number of the fingers *k* and their supporting devices, and, although I have shown only five in Figs. 1 and 2, it is obvious that in practice the sev-  
100



eral fingers will be employed at each side of the frame besides those shown at the toe and heel portions.

It will be seen that the described devices  
5 for supporting and holding the fingers enable each finger to be brought independently to a bearing on the inwardly-turned edge of the upper, each finger being applied by swinging its supporting-arm *h* inwardly toward the  
10 last until the finger comes to a bearing on the edge of the upper with the desired pressure, said pressure being maintained by the engagement of the bolt or dog *o* with the ratchet *n*. The finger *k* is sufficiently pointed  
15 at its holding end to enable it to engage the edge of the upper and prevent the same from slipping outwardly. The pivotal connection of the finger *k* with its arm *h* and the yielding movement of the arm permitted by said  
20 pivotal connection and by the spring *l* enables the finger to conform to variations in the thickness of the upper.

The pivot *g* of each arm *h* is a stud, which is extended through one of the supporting-  
25 ears *r*, in which it has its bearings, and is provided with a head or enlargement *g*, to which is attached one end of a spiral spring *s*, said spring being coiled upon the stud *g* and attached at its other end to one of the  
30 ears *r*. The spring *s* is arranged to throw the arm *h* and its holding-finger *k* outwardly from the last to the position indicated by dotted lines in Fig. 4, when the dog or bolt *o* is moved to disengage it from the ratchet *n*. The dog  
35 or bolt is normally held in engagement with the ratchet by a spring *u* interposed between a shoulder *v* on the dog and the ear *p'* on the bracket *f*. To the outer end of the dog is pivoted a lever *w*, one end of which bears on  
40 the outer side of the ear *p'*, while the other end projects as a handle to be grasped by the operator and moved laterally to withdraw the dog from engagement with the ratchet.

The operation is as follows: The upper is  
45 placed on the last and the last placed on its supports in the frame, the arms *h* and their fingers being all thrown outwardly to the position indicated by dotted lines in Fig. 4, so that the fingers are out of the way. The operator then by the use of ordinary hand-operated lasting-pinchers draws the edge of the  
50 upper at one point over upon the bottom of the last, and before removing his pinchers from the part thus drawn over swings an arm *h* inwardly until the holding-finger *k* thereon comes to a bearing on and holds the inwardly-turned portion of the upper. The operator then draws another portion of the edge over the bottom of the last and secures it by another finger *k*, and so on until all parts of the  
60 edge are secured. If the upper has not been sufficiently stretched by the pinchers, the fingers *k* may be forced inwardly over the bottom of the last as far as may be desired, each  
65 finger being moved independently and held at any position to which it may be adjusted by the locking devices. The frame is then

moved to present the inwardly-turned edge of the upper to the throat or nose of a machine organized to drive metallic fasten- 70 ings through the edge of the upper and to clinch the same firmly in the inner sole, so that their points cannot work through the inner sole and injure the feet of the wearer. Said machine is provided with a suitable jack 75 or movable support adapted to sustain the frame *a* and to be moved as may be required to present the last to the driving mechanism. The upper portion A of said jack is shown in Fig. 1, the same being provided with a seat 80 A' to support the base B of the frame *a*. Said frame has a downwardly-projecting pin C, which enters a socket in the jack A, and engages the frame *a* with the jack in such manner that the frame can be turned horizontally 85 on the pin, the latter acting as a pivot. There is no positive connection between the frame and jack, so that the frame may be removed from the jack by raising the frame until the pin C is withdrawn from the socket in the jack. A 90 suitable machine for this purpose has been constructed by us, said machine being organized to make staples from a continuous wire and drive the same through the edge of the upper and turn or clinch their points be- 95 tween the surfaces of the inner sole, so that said points do not project through the inner surface of the inner sole. The frame is moved after each fastening is driven, to present another portion of the edge of the upper to the 100 fastening-machine, and so on until all parts of the edge are secured, after which the dogs *o* of all the arms *h* are withdrawn by the levers *w*, and the arms *h* and fingers *k* are thrown outwardly away from the last by the 105 springs *s*, so that the last and the lasted upper thereon may be readily removed from the frame.

Our invention is not limited to the details of construction here shown and described, 110 and the same may be variously modified without departing from the spirit of the invention.

It is obvious that the arrangement of the dog *o* and ratchet *n* may be reversed, the ratchet being attached to the bracket *f* and 115 the dog mounted to slide in guides on the arm *h*.

We claim—

1. A portable frame provided with last-holding devices and formed to surround a 120 last, combined with a series of independently-movable fingers, clamps, or dogs formed to penetrate the material of a boot or shoe upper and supported by said frame, each finger projecting inwardly over the bottom of a last 125 supported by said frame, and a series of locking devices for each finger, whereby each may be held independently in a series of positions while engaged with the edge of a boot or shoe upper, and thus caused to exert any desired 130 strain on the portion of the upper with which it is engaged, as set forth.

2. The combination of a last-holding frame, a series of arms pivotally connected with said



frame, upper holding fingers or clamps supported by said arms and arranged to project inwardly over the bottom of a last on said frame, automatic means for independently locking said arms to the frame, and springs arranged to throw the holding-arms outwardly from the upper when said arms are unlocked or released, as set forth.

3. The combination of the last - holding frame, an arm *h*, pivoted thereto, a holding finger or clamp *k*, secured to one end of said arm, and a dog and ratchet whereby the arm may be locked to the frame to hold the finger in engagement with an upper, as set forth.

4. The combination of the last - holding frame, an arm *h*, pivoted thereto and provided with a ratchet, an upper holding finger or clamp secured to one end of said arm, and a dog or bolt fitted to slide in fixed guides on the frame and adapted to engage said ratchet and thereby lock the arm and its finger, as set forth.

5. The combination of the last - holding

frame, an arm *h*, pivoted at its lower end to said frame, a finger or clamp *k*, pivoted to the upper end of the arm, the ratchet and dog whereby the arm may be locked to the frame, and the spring *s*, arranged to throw the arm *k* outwardly from the frame, as set forth.

6. The combination of the last - holding frame, an arm *h*, pivoted thereto at its lower end, the upper holding finger or clamp *k*, pivoted to the upper end of the arm, a spring *l*, whereby said finger is held in yielding contact with the upper, and means for locking the arm *h* to the frame, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 30th day of November, A. D. 1889.

AUGUSTUS SEAVER.  
WILLIAM S. HAMM.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.