2 Sheets—Sheet 1.

C. W. GLIDDEN.

Lasting-Machine for Boots and Shoes.

No. 211,147. **Patented Jan. 7, 1879.**

Fig. 1.

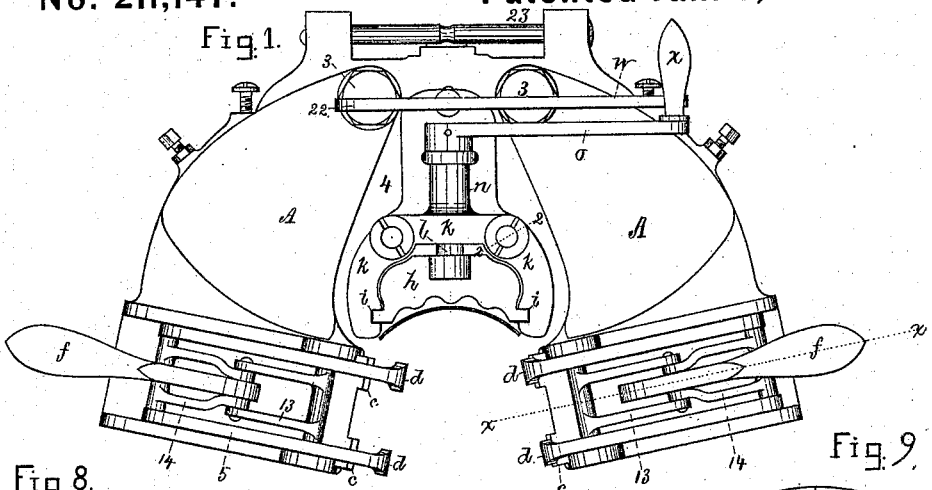


Fig. 8.

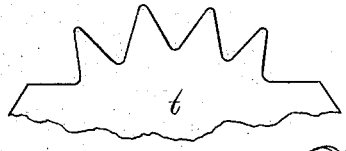


Fig. 2.

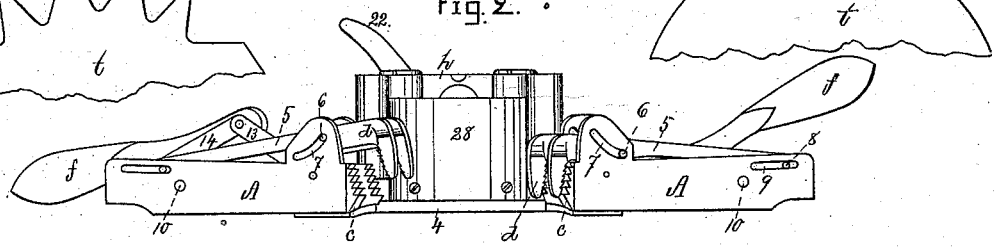


Fig. 9.

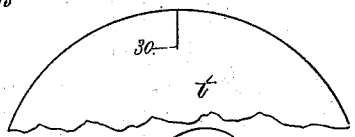


Fig. 3.

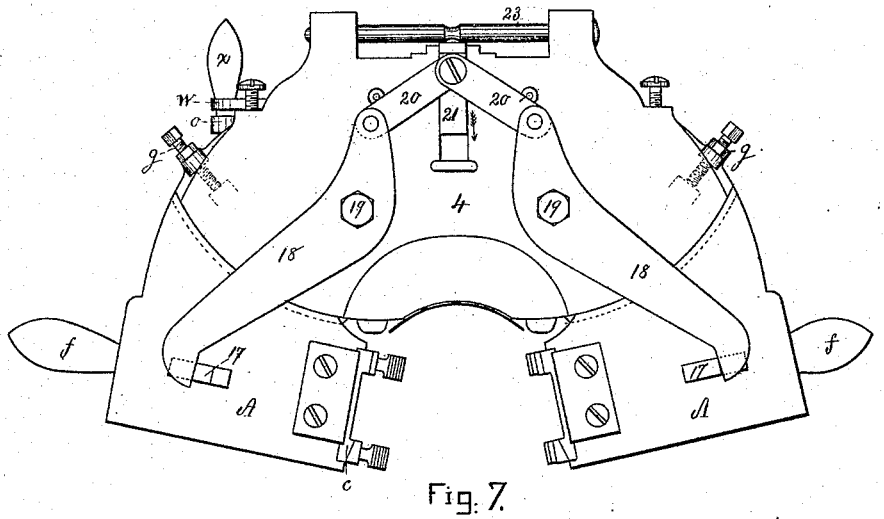
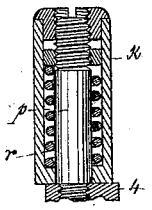


Fig. 7.



Witnesses.

L. F. Connor.

N. E. Whitney.

Inventor.

Charles W. Glidden

by Crosby & Gregory Attys.

C. W. GLIDDEN.

Lasting-Machine for Boots and Shoes.

No. 211,147. Patented Jan. 7, 1879.

Fig. 4.

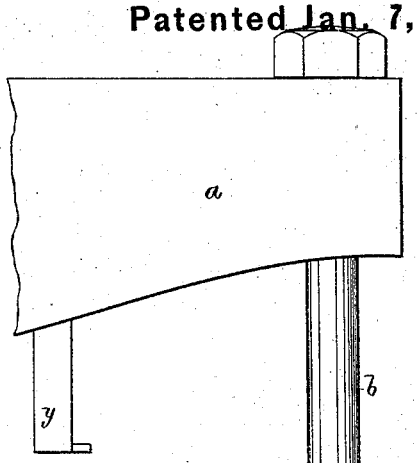


Fig. 5.

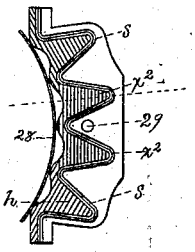
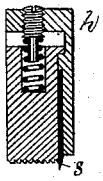


Fig. 10.



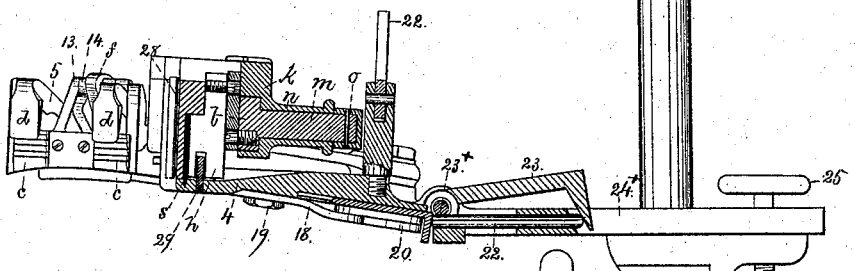
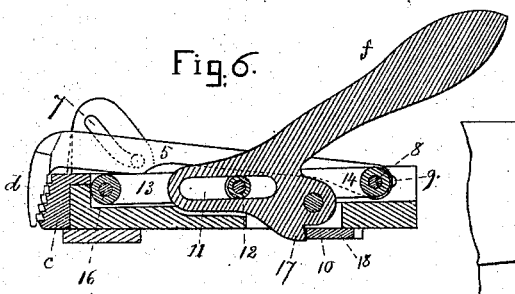
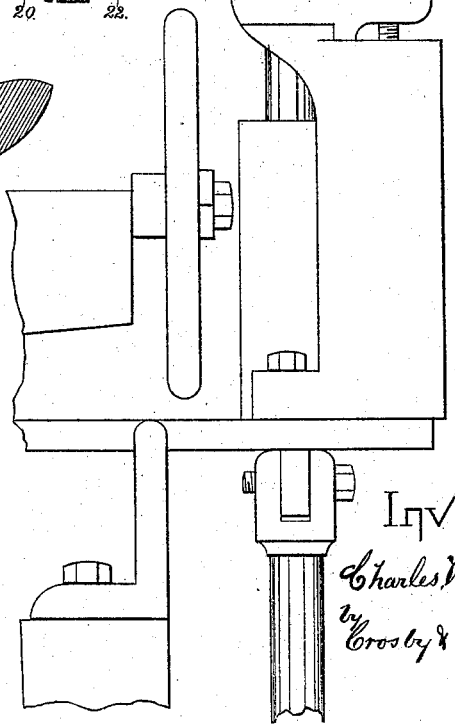


Fig. 6.





Witnesses:

E. F. Connor.

N. E. Whitney.

Inventor

Charles W. Glidden

by Crosby & Gregory

Attys

UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN LASTING-MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **211,147**, dated January 7, 1879; application filed November 23, 1878.

To all whom it may concern:

Be it known that I, CHARLES W. GLIDDEN, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Lasting-Machines for Boots and Shoes, of which the following description, in connection with the accompanying drawings, forming a part thereof, is a specification.

This invention relates to lasting-machines for boots and shoes, and is an improvement upon the machine described in an application for patent filed by me in the United States Patent Office, April 30, 1877, to which reference may be had.

In the machine described in that application, upper-holding devices are made to grasp and hold the edges of the upper while the last is being crowded into the upper by fore and rear part down-holds or pressers attached to a rising and falling beam or cross-head; but in that application the upper-holding devices were mounted upon one rather than upon different plates, and they were made to release the upper by overcoming the resistance of a suitable holding-spring.

In this my present invention the upper-holding devices are carried by separate pivoted plates, the grasping portions of the upper-holding devices are held locked against, or so as to conform to and hold, the upper firmly by means of certain levers and links, which act as locking devices for the said grasping portions, and at the proper time these locking devices are operated by releasing devices to release the grasp of the upper-holding devices upon the edge of the upper.

In the manufacture of brogans, plow-shoes, and other boots and shoes where the leather is heavy, the plaited or crimped portion of the upper about the toe is, in hand-work, cut away by a hand-knife to make a smooth surface for the outer sole.

In machine-work it is usual to partially crimp the toe by means of jaws or slides, and then, by a hand chisel or tool having a notched or serrated edge, it is customary to cut away a portion of the said turned-over edge where the crimps are most elevated or prominent.

It is essential in the manufacture of heavy work that the edges of the upper laid over the toe of the inner sole have few or no upwardly-wrinkled portions; and to obviate such wrinkles and bunches I have provided means to cut away or notch out a certain portion of the upper at its toe before the edge of the upper at the toe is turned over upon the inner sole.

In connection with cutters for that purpose, I employ a clamping device to hold the toe portion of the upper after it is so cut, and until the upper and last are fitted in close contact, as herein provided for, by forcing the last down into the upper while it is held by the said clamp and upper-holding device, after which the usual toe-crimping plates and side-lasting devices, such as described in my said application, or of other well-known form, are moved forward below the devices which engage the edges of the upper at the toe and about the ball of the foot, and force or lay the said edges over upon the inner sole upon the last, the upper-holding devices not being released until after the laying-over devices at the toe and ball of the foot have been moved somewhat over upon the inner sole.

Figure 1 is a top view of the carrying-plates for the upper-holding devices; Fig. 2, a front-end view thereof; Fig. 3, an under-side view of Fig. 1; Fig. 4, a side elevation, showing part of the machine to which the devices shown in Fig. 1 are to be attached, the said devices being shown in section; Fig. 5, an under-side view of the clamp and cutter for the extreme end of the toe; Fig. 6, a section on the line *x x*, Fig. 1; Fig. 7, a section on the line 2 2, Fig. 1; Fig. 8, a view of the toe of an upper as it will appear when cut out by the cutting mechanism hereinafter described, and before the edge of the upper at the toe is laid over upon the inner sole; and Figs. 9 and 10, details to be referred to.

The cross-head *a* and its operating-rod *b* are or may be as in my application before referred to. The upper-holding devices, which engage the edges of the upper at the sides or about the ball of the foot, are composed of fixed or serrated jaws *c*, attached to the plates A, pivoted at 3 upon the main plate 4, and of movable serrated or notched jaws *d* at the ends of arms 5, provided at their sides with pins 6, which enter slots 7 in ears forming part of or fixed to the plates A, and at their ends with a cross-rod, 8, the ends of which enter slots 9 in ears

of the said plates. (See Figs. 2 and 6.) These slots are long enough to permit the jaws *d* to be moved horizontally toward and from the fixed jaws *c*, and the slot 7, being curved, causes the said jaws *d* to rise and fall as they are moved longitudinally forward and backward. The jaws *d* are moved to engage the upper by means of hand-levers *f*, pivoted at 10 and slotted at 11, the said slots receiving within them a pin, 12, or a roller thereon, which connects the two ends of two links, 13 14. The outer ends of links 14 are connected with the pin or rod 8, before described, and the outer ends of links 13 with a fixed rod or bolt, 16, so that movement of the levers *f* actuate the jaws *d*, to grasp and release the edges of the upper.

Hooks 17 (see Fig. 6) extend downward below plates A, which, in practice, when it is desired to move the arms 18 to turn the levers *f*, so as to release the upper, will be moved in the direction of the arrow by a rod, 22, set in motion by a finger-piece, 23, which, at each descent of the beam *a*, is acted upon by a stud, 24.

The jaws are released only after the down-holds (not shown) have operated to press the last down firmly into the upper, and the usual side and toe lasting devices have commenced their closing-in movement, and have engaged the upper at its outer sides and partially laid it upon the inner sole. The extent of vibration of the plates A may be adjusted by means of the adjusting devices *g*, (shown as set-screws.)

The less the plates A are permitted to approach each other the sooner will the arms 18 act upon the projections 17 of levers *f* and release the hold of the jaws upon the edges of the upper, and consequently the less the strain upon the upper, for it is held for a less time than if the plates A were permitted to come close together.

The clamping device for holding the upper at its toe portion is composed of a sliding block, *h*, partially serrated or toothed at its lower end, as at Fig. 5. This block *h* is made to rise and fall in guideways *i* of a bracket, *k*, by a link, *l*, connected with it, and a shaft, *m*, held in the sleeve-bearing *n*, (see Fig. 1,) forming part of the bracket *k*, a hand-lever, *o*, being connected with one end of the said shaft *m*.

The bracket *k* is held upon plate 4 by means of bolts or rods *p*, provided with springs *r*, so that should the leather be thicker than provided for when adjusting the machine, the bracket *k* may rise and the block *h* will descend the entire distance due to the shaft and link *m l*, thereby obviating breaking the machine.

The block *h* has attached to it a cutting-blade, *s*, having a number of substantially V-shaped portions, so as to cut out or notch the toe of the upper *t*, as at Fig. 8, each time that the clamp or block *h* is thrown down to hold the toe of the upper, it being so operated or depressed as to act upon the edge of the upper while the jaws *c d* hold the said edges about the ball of the foot.

When the clamp *h* is depressed, the long end of the lever *w* is just below the handle *x* of the arm *o*, and the short end 22 is elevated, so that just as the jaws *c d* release the side edges of the upper the leg *y*, attached to beam *a*, strikes the end 22 of lever *w*, and immediately elevates the end of arm *o*, thereby lifting the block *h* and simultaneously releasing the toe-holding device.

The plate 4 will be pivoted at $23^{\times}$ upon a bed-plate, $24^{\times}$, adjustably attached to the main frame-work of the machine by a screw, 25, so that the plates 4 and 2 and their attached parts may be moved about 23, as may be necessary when lasting a boot or shoe.

The curved and preferably somewhat inclined plate 28 guides the toe of the last as it is being pressed or crowded down into the upper, the inner sole lying upon the last under the down-holds or pressers.

The centering device 29 is supposed to be located just at the center of the clamp or holder-block *h*, and the toe of each upper is slotted, as at 30, Fig. 9, to receive the centering device before the upper is clamped and held by the jaws, it insuring the placing of the upper in correct central position.

Viewing Fig. 5, I desire it to be understood that the grooved or serrated portions x^2 of the clamp which come in contact with the upper to hold it, instead of being in one piece, may be separated through the thin connecting portion, as shown in dotted lines, and each of the said triangular pieces may be made as separate pieces connected with rods fitted in holes in the main body of the block *h*, said separate pieces being each held down by a suitable spiral or other spring about the rods, the separate blocks acting as presser-feet. One of these feet is shown at Fig. 10.

I have herein represented a shoe-upper cut away or notched at its toe end preparatory to crimping it over upon the inner sole; but I desire it understood that I do not herein claim said improvement, as it is made the subject-matter of another application filed by me.

I claim—

1. In a lasting-machine provided with side and toe lasting devices to crowd or press the edges of the upper over upon the inner sole, a cutting mechanism to notch or cut away a portion of the edge of the upper at the toe before laying or pressing the edge of the upper over upon the inner sole, substantially as described.

2. In a lasting-machine, upper-holding devices to grasp the edges of the upper at or near the ball of the foot, and hold said edges while the upper is strained about the last, combined with links and a lever or equivalent to close the said upper-holding devices upon the edges of the upper and hold them closed, substantially as described.

3. In a lasting-machine, upper-holding devices and mechanism to close their jaw portions upon the upper, and movable or swinging plates A, to carry the said devices, combined with a plate, 4, substantially as described.

4. In a lasting-machine, upper-holding devices and mechanism to close and hold them closed upon the upper, combined with devices to automatically release the upper-holding devices, substantially as and for the purpose described.

5. In a lasting-machine, upper-holding devices and mechanism to close and hold them closed upon the upper, and movable carrying-plates for the said devices, combined with adjusting devices to determine the time at which the upper-holding devices shall be automatically released, and consequently the amount of strain borne by the upper, substantially as described.

6. The levers *f*, connected with and adapted to operate the upper-holding devices, as described, combined with arms 18, to turn the levers to release the upper-holding devices, as set forth.

7. The jaw *d* and arms, combined with the links 13 14, and levers *f*, adapted to lift and depress the links and move the jaw, as and for the purpose set forth.

8. Upper-holding devices to grasp the edges of the upper opposite the ball of the foot, combined with a cutter to notch or cut out the toe of the upper at its end before turning the edge of the upper at the toe over upon the inner sole, substantially as described.

9. In a lasting-machine, a clamping or holding device for the edge of the upper at the toe, combined with a cutter to cut out or notch the edge of the upper at the toe while it is held by the said clamp, substantially as described.

10. In a lasting-machine, devices to hold the edges of the upper while the last and upper are being fitted in close contact, combined with a centering device to enter a slit or opening at the edge of the upper, to place the upper in correct position, substantially as described.

11. The slide *h* and its operating-shaft, combined with the bracket *k*, provided with the bearing-sleeve for the said shaft, to permit the clamp to yield to material of different thickness, substantially as described.

12. The clamp to hold the toe of the upper by its edge, and its operating shaft and handle *o x*, combined with a lever to turn the handle and shaft at the proper time to release the toe of the upper during the closing-in movement of the devices which lay the edge of the upper over upon the toe of the inner sole.

13. In a lasting-machine, devices to hold the edge of the upper at or about its toe while the upper is being strained and fitted closely to the last, combined with a guide to direct the toe of an inner sole down upon the last placed within the upper held at its edge, substantially as and for the purpose described.

14. That improvement in the art or method of lasting boots and shoes which consists in cutting a slot at the edge of the toe of the upper to co-operate with a centering device, to place the upper in proper central position with relation to the upper-holding devices, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES W. GLIDDEN.

Witnesses:
G. W. GREGORY,
L. F. CONNOR.