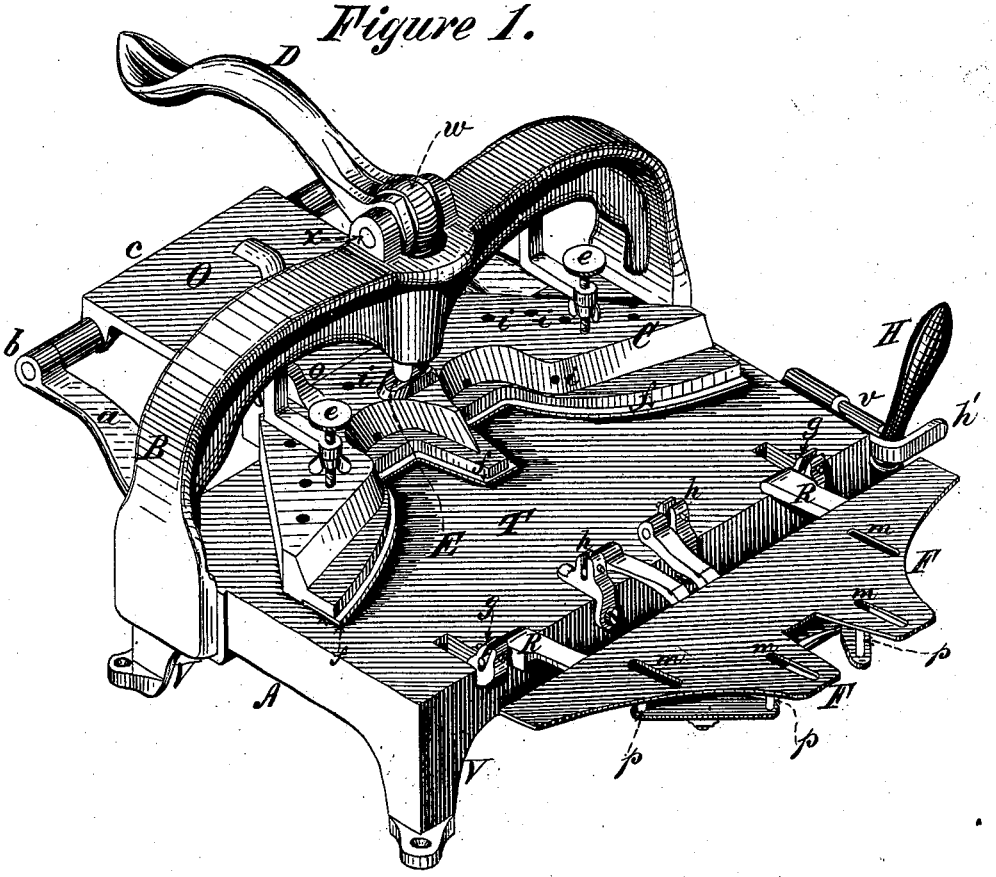
J. WALDEN & G. PLATTS.

Leather-Folding Machine.

No. 209,733. Patented Nov. 5, 1878.

Figure 1.



Witnesses:
Geo. W. Miatt
Wm. J. Sawyer

Inventors:
Joseph Walden
George Platts
By their Attorney
E. N. Dickerson Jr.

3 Sheets—Sheet 2.

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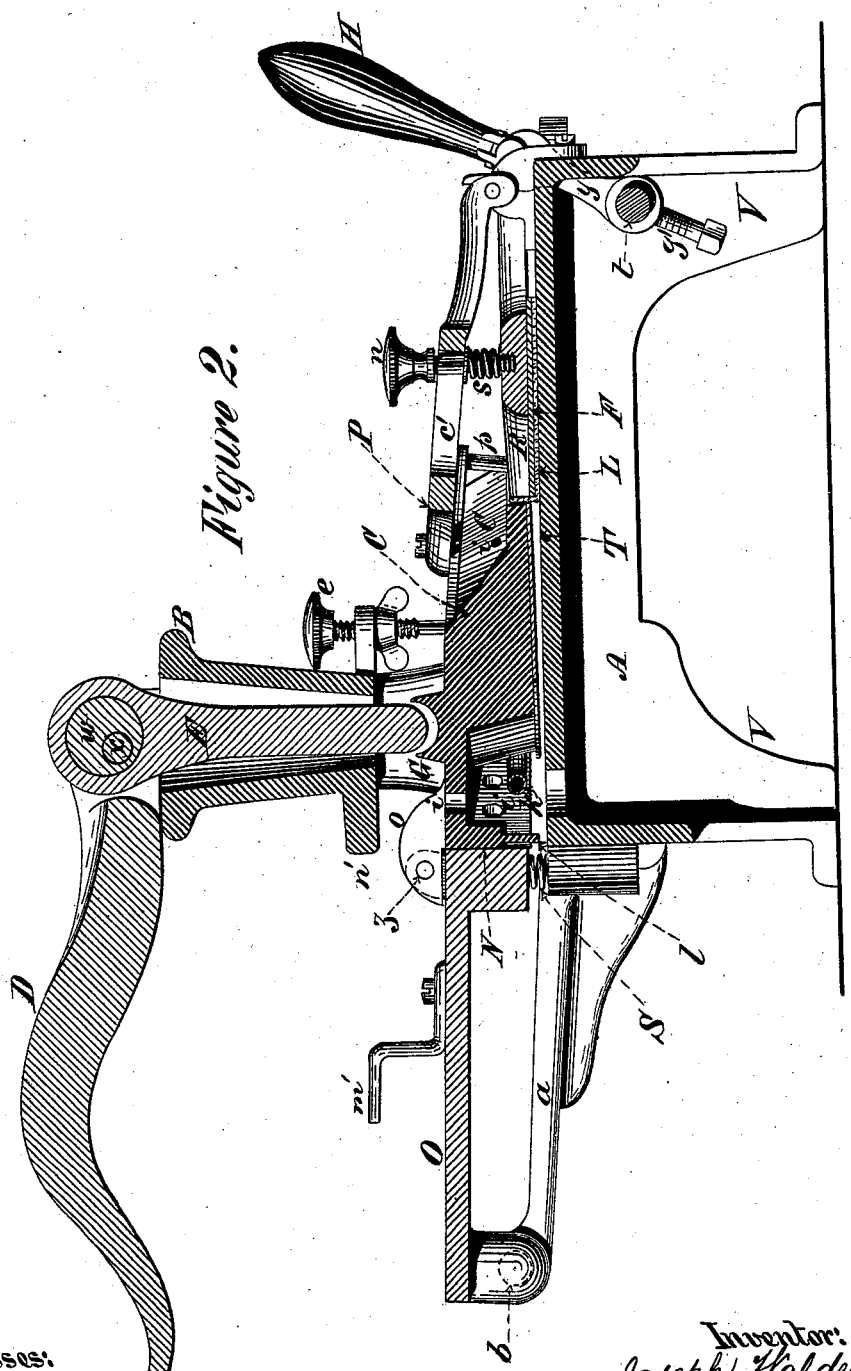
Figure 2.



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Wm. J. Sawyer

Inventor:
Joseph Walden
George Platts
By their attorney
E. N. Dickerson Jr.

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Figure 3.

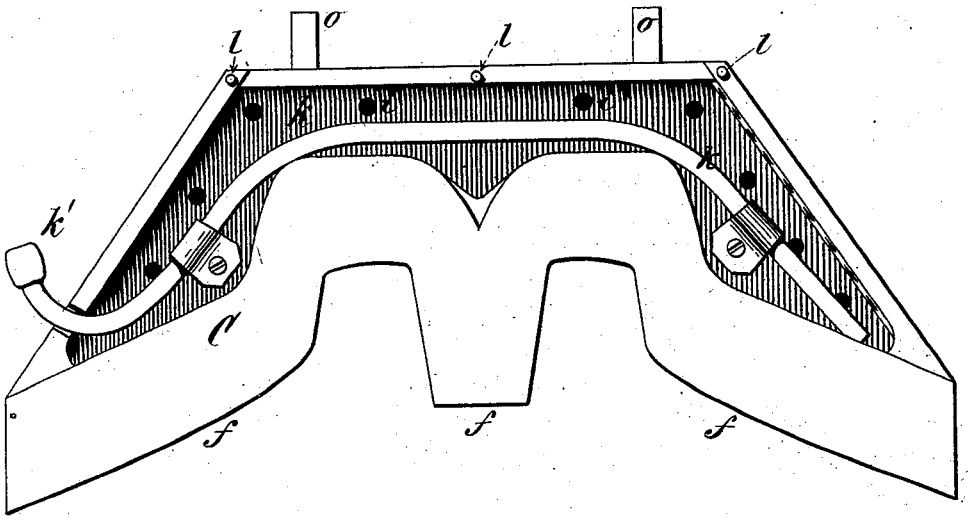
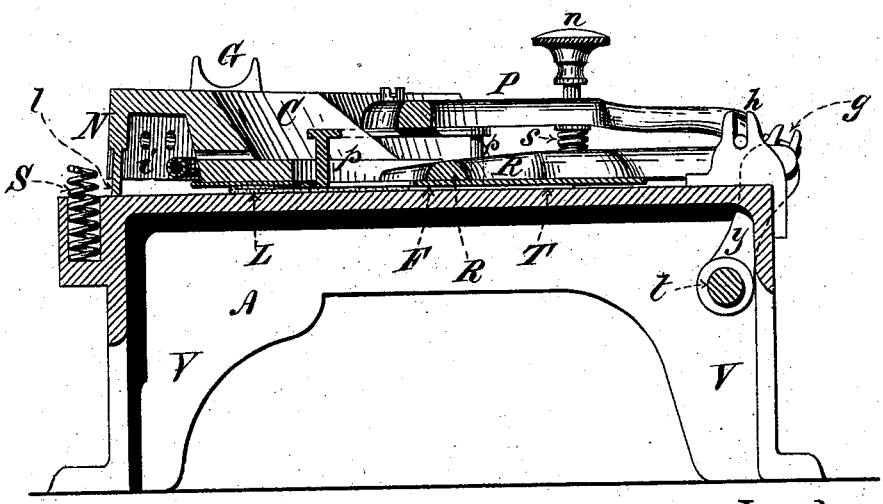


Figure 4.



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Inventor:
Joseph Walden
George Platts
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UNITED STATES PATENT OFFICE.

JOSEPH WALDEN AND GEORGE PLATTS, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN LEATHER-FOLDING MACHINES.

Specification forming part of Letters Patent No. **209,733**, dated November 5, 1878; application filed December 7, 1877.

To all whom it may concern:

Be it known that we, JOSEPH WALDEN and GEORGE PLATTS, of the city of Newark, State of New Jersey, have invented a new and useful Improvement in Leather-Folding Machines, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

Our invention relates to an improvement in machines for folding and printing leather or similar material, and is especially useful in turning the edges of the uppers of shoes. It may be used for any purpose in which it is desired to make a fold of leather.

We have heretofore patented an invention for accomplishing a similar result, which Letters Patent bear date October 21, 1873, No. 143,783, and our present machine is an improvement upon that apparatus; and it consists, generally, in an apparatus by which a flat sheet of the material to be folded is acted upon by a folding-blade, which folding-blade presses the material into a crevice or bight, where it is subsequently acted upon by a pressure-plate, and thereby the requisite form is communicated to it by means of the pressure applied by said pressure-plate. Our apparatus also contains a contrivance for preventing the withdrawal of the material to be folded on the withdrawal of the folding-blade. Heat also may be employed to give the leather a set.

Our invention will be clearly understood from the accompanying drawings, in which—

Figure 1 represents a perspective view of our apparatus, with the folding-blade removed from the folding platform; Fig. 2, a central vertical cross-section of the same; Fig. 3, a bottom view of the pressure-plate; Fig. 4, a cross-section, showing the leather folded and compressed.

Our invention is arranged upon a main folding bed or platform, T, provided with legs *b*, by which the same may attached to a table, and also provided with the bridge-piece B, which supports the handle D and the plunger E, by means of which pressure is applied to the pressure-plate C. It is also provided with the arms *a*, supporting the shaft *c* upon the pivots *b*. To this shaft is attached the plate O, to which plate the pressure-plate C is attached by means of the lugs *o*. The plate C is not firmly attached to the supporting-plate O, but can vibrate through a small arc around the pivot *z*, and rests, when elevated, against the plate O by means of the shoulder *n*. The plate O is raised by means of springs S, set in sockets in the main frame A of the machine, and bearing against the vibrating piece *o*, so that the upward movement of O likewise raises the pressure-plate C, which is attached to it by means of the pivots *z*. The upward movement of the pressure-plate C is limited by means of the set-screws *e* and *e*, whereby an exactly horizontal position is given to it. Pivoted to the bridge-piece B, by means of the pivot *x*, is the handle D, having the eccentric *w*, which revolves within a circular hole in the upper end of the plunger E, so that the elevation of the handle D by means of the eccentric *w* causes the plunger E to descend. The lower end of the plunger E enters the socket G, attached to the pressure-plate C, so that by means of the lever D the pressure-plate C can be thrown down against the folding bed T; but it is obvious, as it comes in contact with the bed T, or with the leather surface, in case there was such surface interposed between the plate C and the bed T, that it will receive a slightly-forward movement, owing to the fact that the connection between the plate O and the pressure-plate C is of the nature of a toggle-joint; and by the descent of the pivot *z* the pressure-plate C will be thrown forward slightly, which is an advantage in this machine. Attached to the plate O is a revolving locking-piece, *m'*, which bears against the shoulder *n'*, attached to the bridge-piece B, for a purpose hereinafter to be described.

Attached to the front end of the machine is the folding-blade F, which corresponds in shape with the edge *f* of the pressure-plate C. This folding-blade F is supported on the arms R, which arms rest, by means of pivots in sockets *g*, in the upper ends of the rocker-arms *y*, which rocker-arms are pivoted on the reciprocating shafting *t*. Attached to this same shaft *t* is the handle H.

A spring acting against the piston *v* throws back the handle H after it has been advanced and released; or this spring might be attached to other parts of the apparatus.

Pivoted upon the stationary bed T of the machine, and resting in the sockets *h*, is the vibrating frame P, carrying pins *p*, which pins act through slots *m*, cut in the folding-blade F. Cut through this frame P is the slot *c'*, through which passes the screw *u*, screwed into the blade F. Surrounding this screw is the spring *s*, which bears against the frame P and the folding-blade F, and thereby raises the frame P, except when depressed by the hand. So that it will be seen that the vibrating frame P is stationary in the machine, except that it can vibrate around the pivot *h*, while the folding-blade F can both vibrate around its pivots *g*, and can also be thrown forward and backward by means of the handle H, and both the frame P and the folding-blade F can be raised together and thrown over into the position shown in Fig. 1.

Beneath the pressure-plate C is the gas-pipe *k*, having the nozzle *k'*. By means of this pipe gas can be burned within this pressure-plate, thereby heating the same, while the products of combustion are allowed to escape through the holes *i*.

I have shown in this invention the use of gas for heating the pressure-plate; but it is obvious that other heating agents could be used.

I find it desirable in factories supplied with steam and not with gas to use the steam as a heating agent; and I allow the steam to enter into a steam-space contained within the pressure-plate, or within the main bed-plate of the machine, or both, whereby sufficient heat is communicated to the surface acting against the leather to give the leather a permanent set.

The operation of the machine can now be readily understood, the machine being in the position shown in Fig. 1. The shoe-upper L is laid upon the surface of the bed T. Then the folding-blade F is thrown upon it and the edges are thereby turned, as is shown in Fig. 2. Then the folding-blade F is thrown forward by the handle H, thereby creasing the cloth, and forcing it into the crevice between the pressure-plate C and the bed T. Then the frame P is depressed by the handle H. The pins *p*, attached thereto, pass through the slots *m* through the blade F, as is shown in Fig. 4, and thereby the leather is held in its former position, having the crease turned under the edge *f*. Then the folding-blade F is withdrawn by means of the spring and the handle H, while the leather is held in its forward position by means of the clamping-pins *p*. Then the handle D is thrown forward, and the pressure-plate C is depressed into the position shown in Fig. 4. Thereby great pressure is applied to the fold of the leather L; and if the pressure-plate be heated a set is given to the leather at the same time. When thrown down, the plate C rests upon the leather and upon the foot *l*, and, as has been previously described, as the pressure of the plunger E is applied to it, it is thrown down and slid forward upon the leather, thereby giving it a better crease. The backward movement H is limited by the stop *h'*, which might be made adjustable; or the handle itself might be made adjustable upon the shaft *t* by means of the set-screw *q'*.

It is obvious that various-shaped folding plates and blades could be employed, and this machine is contrived for the ready substitution of one for the other. By throwing the locking-piece *m'* beneath the shoulder *n* the plate O is held down, with the spring S compressed. Then the screws *z* are loosened and the pressure-plate C is withdrawn. One folding-blade can be readily substituted for another by withdrawing the pins locking such plate within the sockets *q*.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a leather-folding machine adapted to fold the edge of leather or similar material, in combination with a presser-plate, the means herein described for adjusting the width of the crevice independently of the means for compressing the leather in said crevice, so that different thicknesses of leather may be operated upon and a perfect crease made, substantially as described.

2. In a leather-folding machine in which a folding-blade enters a crevice which is subsequently closed, in combination with the folding-blade, the means substantially as herein shown and described, for preventing the withdrawal of the leather upon the withdrawal of the folding-blade, substantially as set forth.

3. In a machine adapted to fold the edge of leather or similar material, the pressure-plate having two movements, as described, one down to compress the fold, the other forward over the fold, to more perfectly fold the leather, substantially as described.

4. In a leather-folding machine, a folding-blade provided with slots or holes, through which the leather-clamping apparatus passes, which apparatus is used to prevent the withdrawal of the leather on the withdrawal of the folding-blade, substantially as described.

JOSEPH WALDEN.
GEORGE PLATTS.

Witnesses:
GEO. H. EVANS,
S. F. SULLIVAN.