2 Sheets—Sheet 1.

L. GODDU.

MACHINES FOR CHANNELING THE SOLES OF BOOTS AND SHOES.

No. 182,434. Patented Sept. 19, 1876.

Witnesses:

Inventor:

Louis Goddu

By Johnson and Johnson

Attys.

6. The combination, with the standard A, of the eccentric shaft G, the intermittent dog-carriers E E, gear-wheels K L, and balance-wheel M, as described.

10. The combination, with the hollow standard-head B and the presser-foot C, of the extension-guide B^3, as and for the purpose herein set forth.

11. The combination, with the presser-foot C and the channeling-knife D, attached thereto, of the stop k, adapted to protect the channel-knife from contact with the table.

12. The lever S, pivoted to the standard, in combination with vertically-adjustable presser-foot C, its channeling-knife, and the treadle-rod connecting with said lever, as and for the purpose herein set forth.

ACHINES FOR CHANNELING THE
OF BOOTS AND SHOES. Louis Goddu,
Boston, Mass., assignor to the American
Cable Screw Wire Company, same place.
[Filed July 20, 1876.]

1. In a boot and shoe sole channeling ma-
hine, a vertically-intermittent lower feed and
vertically-intermittent channeling-knife, in
ombination with an intervening fixed slotted
able for the feed, for operation substantially
s herein set forth.

2. In a machine for channeling boot and
hoe soles, a fixed slotted table and an up-
wardly-operating under-feed device, in combi-
nation with a presser-foot and a channeling-
nife carried thereby, for joint operation in
eeding the sole, cutting the channel, and de-
ermining its depth, in the manner substan-
ially as herein set forth.

3. The combination, with the dog-carriers E
E, arranged to operate as described, of the
fixed slotted table H, the vertically-intermit-
ent presser-foot, and the double crank-shaft
G, whereby a continuous feed is produced
from beneath the table, as herein set forth.

4. The combination, with the fixed table H
nd a presser-foot, C, of a sole-edge rest, E,
ea ted by said presser-foot, for action as herein set forth.

5. The combination, with the fixed slotted
able H and an intermittently upward-oper-
ating feed device, of a channel-knife, D, and
n dge-rest, R, carried by a vertically-inter-
mittent presser-foot, for operation as described.

6. The mode of determining the depth of the
hannel, consisting in feeding the sole against
he knife while it is intermittently raised from
he table and in contact with the presser-foot,
which serves to gage such depth and render
t uniform.

7. The removable feed-dogs b, in combina-
ion with the fulcrumed carrying-arms E, the
lamp-plates g, and screws h, by which said
ogs are secured at a variable height.

8. The feed-dog carrying-arms E, having the
xtension-bearings f, in combination with the
ulcrum-blocks d, the fulcrum clamp-screw J,
nd the operating-eccentrics F, substantially
s and for the purpose herein set forth.

ASHINGTON, D. C.

2 Sheets—Sheet 2.

L. GODDU.

MACHINES FOR CHANNELING THE SOLES OF BOOTS AND SHOES.

No. 182,434. Patented Sept. 19, 1876.

Fig. 3.

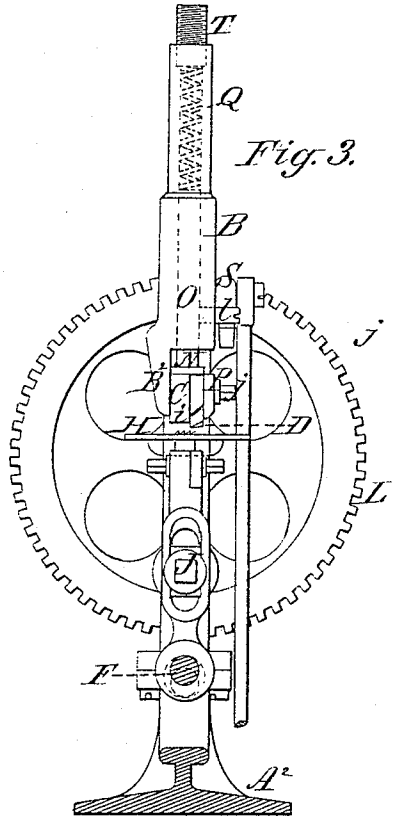
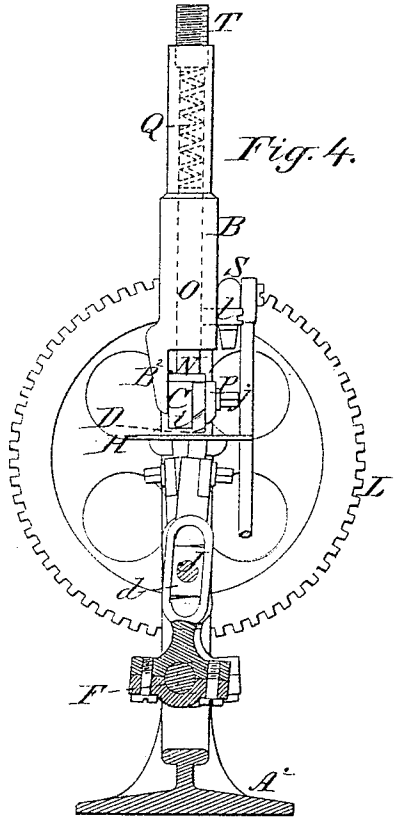
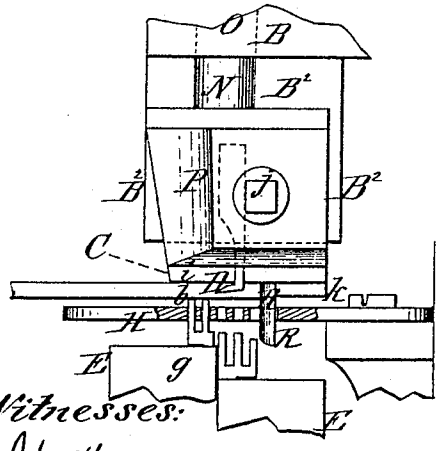
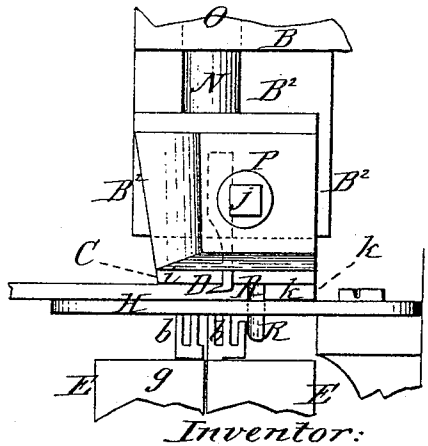


Fig. 4.







Witnesses:
J. Wrst Wagner
J. A. Rutherford

Inventor:
Louis Goddu
By Johnson & Johnson
Att'ys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN CABLE SCREW WIRE COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR CHANNELING THE SOLES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **182,434**, dated September 19, 1876; application filed July 20, 1876.

To all whom it may concern:

Be it known that I, LOUIS GODDU, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Channeling the Soles of Boots and Shoes, of which the following is a specification:

In improving the sole-channeling machine I have designed a simple form of construction, with effective and advantageous results in the co-operation of the several devices. For this purpose the sole is supported upon a fixed table, through slots in which the feed device works intermittently from the under side. The channel-knife is carried by a presser-foot, which rises and falls in unison with the intermittent projection of the feed device above the table, so that the feed of the sole is effected by being raised from and carried forward over the table against a yielding knife-holder, which affords a cushioned resistance to relieve the jar of the intermittent action of the feed upon the sole. The presser-foot constantly rests upon the sole, whether the latter be raised from the table or resting upon it, and when in this position it is released from the feed and can be easily and quickly turned to follow the curves of the sole. I thus combine with a feed device, which raises the sole to feed it over a fixed table, a channel-knife, which is raised and lowered by the action of the feed device upon the sole, and thereby cutting a uniform depth of channel in soles of different and varying thicknesses.

The knife is adjustable independently of the presser-foot, to cut channels of different depths. The presser-foot is carried by a stem in a socketed head of the frame, and stands directly over the feed device, which consists of alternately-operating dogs, the seizing-teeth of which operate with a four-motion feed through slots in the table, which serve to keep the teeth from being clogged with the fleshy part of the sole, the teeth for this purpose being arranged to operate in and out of separate slots and between bars, so as to clear them of any adhering particles and insure their taking hold of the sole and feeding it along.

The edge-rest for determining the line of the channel is combined with and carried by the presser-foot, and, like the channel-knife, rises and falls with said foot, so that the sole, while maintaining its contact with the presser-foot while being fed over the table by the upward pressure of the feed-dogs, also keeps its contact with the edge-rest, and the sole is fed against the knife while it is held against the presser-foot and the edge-rest, and free from pressure upon the table. The combination of the presser-foot, carrying both the channel-knife and the edge-guide, with the fixed table, through slots in which the four-motion dog-feed is arranged for co-operation in making both the feed and the channel when the sole is raised from the table by the feed, constitutes the distinguishing matter of my invention, and enables me to cut a uniform depth of channel, with perfect facility for turning the sole without injury.

The presser-foot and channel-knife are raised by a lever and treadle connection to place the sole in position for operation. The four-motion feed-dogs may be operated in any suitable manner, so long as their feed function is in connection with a fixed slotted table and a presser-foot which carries the channel-knife above said table with a vertical movement, regulated and controlled by that of the lower feed device, through the intervention of the sole being channeled.

A projection on the under side of the presser-foot rests upon the table, and serves as a stop to limit the descent of the presser-foot and channel-knife in relation to the surface of the table.

In the accompanying drawings, Figure 1 represents a partial sectional elevation of a sole-channeling machine embracing my invention, the feed device being shown as projected above the table to raise the sole, and with it the channel-knife, in their proper relative and co-operative positions for both feeding and channeling; Fig. 2, a side view, the feed device being retracted beneath the table, and the sole resting thereon, free from the upward pressure of the feed. Figs. 3 and 4 are vertical sectional views taken at right angles to Figs. 1 and 2, and in which the positions of the operating devices correspond thereto; Figs. 5 and 6, enlarged detail views corre-

sponding to Figs. 3 and 4; and Fig. 7, one of the dog-carrying arms, showing the manner of securing the dog-plate thereto.

A standard, A, rising from a bed-plate, A^2, supports the several parts of the machine, and is suitably secured upon a bench. A head, B, from the standard supports and carries a vertically-acting presser-foot, C, to which the channel-knife D is secured, while a four-motion feed device, consisting of vibrating dog-arms E, is mounted upon eccentrics F of a horizontal shaft, G, secured in bearings in the standard near the bed-plate. Between the presser-foot C and its channel-knife D and the four-motion feed device is arranged a fixed slotted table, H, Fig. 8, over and upon which the sole is fed while being channeled, and with respect to which the channel-knife D is made to rise and fall by the direct action of the feed device upon the lower side of the sole to feed the latter forward against the knife and maintain a uniform depth of channel in the sole while being so fed.

The table H is screwed to a projection from the standard, and has a series of parallel slots formed by bars *a* at right angles to the cutting-edge of the channel-knife, and into these slots the dog-teeth *b* are arranged to work with what is known as a four-motion feed upon the under side of the sole. These dog-teeth are formed by slotted plates bolted to the upper ends of stout carrying-arms E E, arranged contiguous to each other upon eccentric bearings F F, the action of which, in connection with a fulcrum-bolt, J, intermediate with respect to the dog-teeth and the eccentrics, give the desired alternate feed to the dog-teeth *b* by reason of the opposite action of the eccentrics, and cause said teeth or dog-plates to rise and move forward in the table-slots and between the bars *a*, with their teeth describing the arc of a circle, and thus carry the sole with them against the channel-knife. The dog-carrying arms E E have slots *c*, into which are fitted fulcrum-blocks *d* to render the action of the carrying-arms E steady and uniform.

The fulcrum-bolt J serves to confine the fulcrum-blocks and the carrying-dog arms in working relation, while their bearing ends are extended to form long boxes *f*, within which the eccentrics F work, and, in connection with the fulcrum-blocks *d*, render the action of the slotted dog-plates *b*, with the slotted table, absolutely true, and without danger of injury to the dog-teeth. The eccentric shaft G carries a pinion, K, into which a large cranked gear, L, meshes at the back of the standard, while a balance-wheel, M, on the other end of the eccentric shaft, serves to render the motion of the feed-dogs uniform.

The slotted dog-plates *b* are secured in recesses in their carrying-arms E by clamp-plates *g* and screws *h*, which gives the advantage of removing and replacing the dog-plates whenever it may be necessary from any cause to do so. In doing this it is only necessary to remove the fulcrum-bolt J, and turn down the dog-carrying arms E from beneath the table.

The presser-foot C, in the example shown, consists of an oblong carrier-block for the channel-knife and the edge-rest. Its lower portion *i* forms a comparatively narrow pressing surface, which is in contact with the sole during the operation of channeling, and against which it is pressed upward and fed by the dog-teeth. It has a vertical movement upon a stem, N, which rises into a socket, O, in the standard-head B—a side extension, B^2, from which serves as a guide to keep the block in position for the proper action of the channel-knife. The shank of this knife is confined against the side of the presser-foot by a clamp-plate, P, and screw *j*, so that its cutting-edge stands slanting to the table, and by which it can be adjusted to cut the channel the proper depth in soles of different thicknesses.

A coil-spring, Q, is fitted in the hollow standard-head B, so as to bear upon the stem N, and give the proper pressure upon the presser-foot. A stop, *k*, on its under side—in this instance formed by the shank of the edge-rest—limits the descent of the presser-foot, and prevents the knife from striking the table.

The edge-rest R for the sole is adjustably secured to the under side of the presser-foot C, just back of the knife-shank, and rises and falls with the foot in an opening in the table. This construction gives the advantage of having the edge-rest move vertically with the sole as it is raised from the table against the pressure of the presser-foot, and fed in contact with it and the edge-rest by the four-motion feed-dogs striking the under side of the sole and raising it from the table, lifting also the presser-foot with its channel-knife and edge-rest nearly the same distance above the table as the projection of the feed-dogs, and cutting the channel in the sole, while the latter is pressed forward against the knife, and in which the presser-foot controls the depth of the cut, and the edge-rest the line of the channel, which advantage is gained by the combination of the channel-knife with the presser-foot and the lifting-feed.

In placing the sole in position for work, the presser-foot and its channel-knife are raised by means of a treadle-lever, S, pivoted to the standard, and extending beneath a pin, *l*, projecting from the presser-foot stem N through an oblong opening, *m*, in the standard-head, while its rear end is connected to the treadle by a connecting-rod.

The pressure of the presser-foot is regulated to produce the best effect in connection with the feed-dogs by a screw, T, which bears upon the coil-spring Q, at the top of the hollow head.

It will be observed that the feed-dog plates move in and out between the table-bars—that is, they rise above and descend below the table—and are thereby kept free from being clogged; and while only one of the dog-plates rises above the table at a time, yet they both

descend below the surface of the table at a time, and thus give a free surface on which to turn the sole. This is very important, not only in rendering the operation of turning the sole easy, but in preventing all injury to the surface.

The feed-dogs are shouldered and fitted in their seats, as shown in Fig. 7, so that they cannot move down below a feeding-point; and they are secured in their seats, so that they may be adjusted above such point, as may be required to increase the feed.

I claim—

1. In a boot and shoe sole channeling machine, a vertically-intermittent lower feed and a vertically-intermittent channeling-knife, in combination with an intervening fixed slotted table for the feed, for operation substantially as herein set forth.

2. In a machine for channeling boot and shoe soles, a fixed slotted table and an upwardly-operating under-feed device, in combination with a presser-foot and a channeling-knife carried thereby, for joint operation in feeding the sole, cutting the channel, and determining its depth, in the manner substantially as herein set forth.

3. The combination, with the dog-carriers E E, arranged to operate as described, of the fixed slotted table H, the vertically-intermittent presser-foot, and the double crank-shaft G, whereby a continuous feed is produced from beneath the table, as herein set forth.

4. The combination, with the fixed table H and a presser-foot, C, of a sole-edge rest, R, carried by said presser foot, for action as herein set forth.

5. The combination, with the fixed slotted table H and an intermittently upward-operating feed device, of a channel-knife, D, and an edge-rest, R, carried by a vertically-intermittent presser-foot, for operation as described.

6. The mode of determining the depth of the channel, consisting in feeding the sole against the knife while it is intermittently raised from the table and in contact with the presser-foot, which serves to gage such depth and render it uniform.

7. The removable feed-dogs *b*, in combination with the fulcrumed carrying-arms E, the clamp-plates *g*, and screws *h*, by which said dogs are secured at a variable height.

8. The feed-dog carrying-arms E, having the extension-bearings *f*, in combination with the fulcrum-blocks *d*, the fulcrum clamp-screw J, and the operating-eccentrics F, substantially as and for the purpose herein set forth.

9. The combination, with the standard A, of the eccentric shaft G, the intermittent dog-carriers E E, gear-wheels K L, and balance-wheel M, as described.

10. The combination, with the hollow standard-head B and the presser-foot C, of the extension-guide B^2, as and for the purpose herein set forth.

11. The combination, with the presser-foot C and the channeling-knife D, attached thereto, of the stop *k*, adapted to protect the channel-knife from contact with the table.

12. The lever S, pivoted to the standard, in combination with vertically-adjustable presser-foot C, its channeling-knife, and the treadle-rod connecting with said lever, as and for the purpose herein set forth.

In testimony whereof I have affixed my signature in the presence of two witnesses.

LOUIS GODDU.

Witnesses:

JAS. B. BELL,

N. S. HOTCHKISS.