

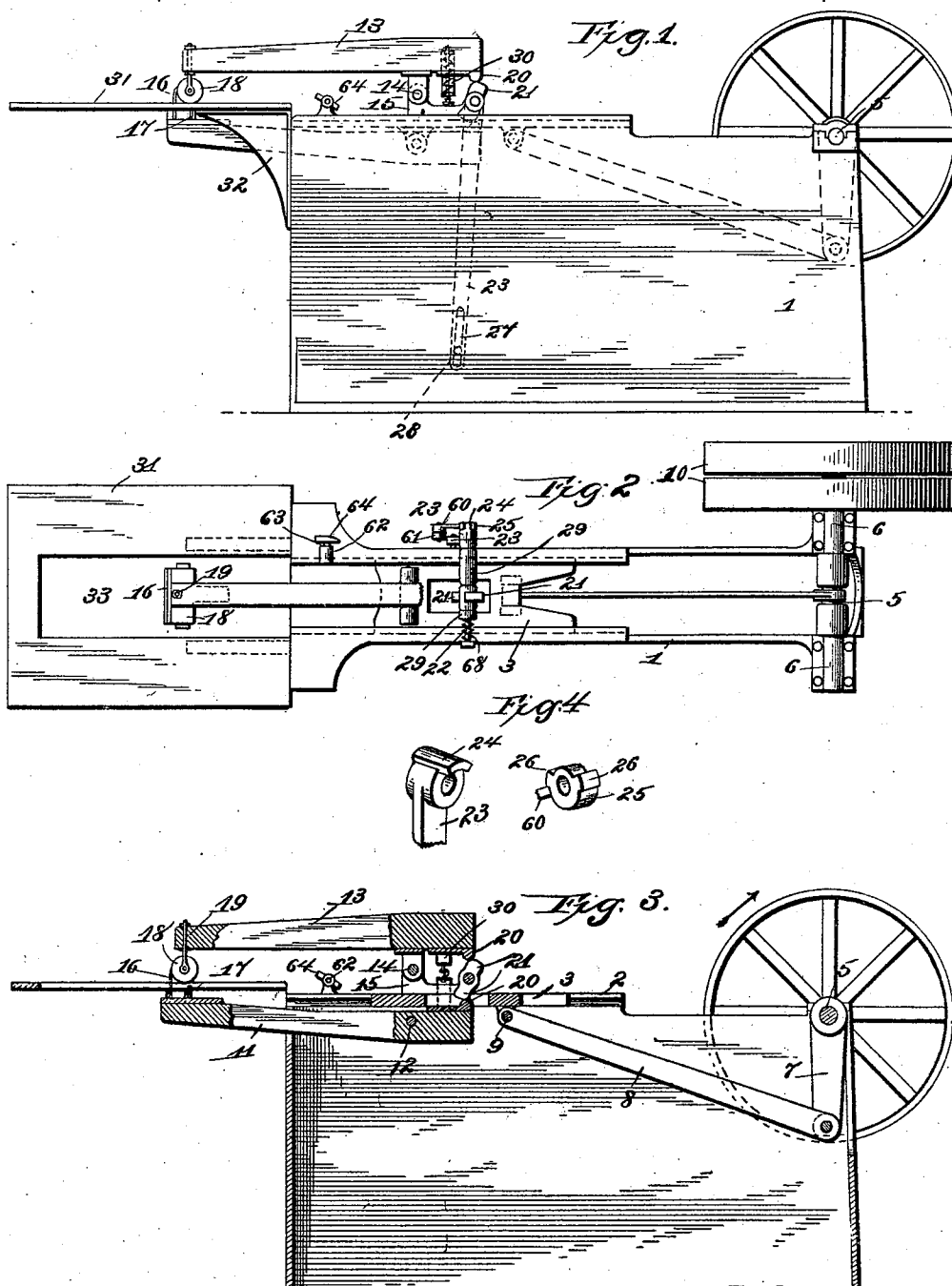
(No Model.)

2 Sheets—Sheet 1.

L. LICHTENSTEIN.
LEATHER STAKING MACHINE.

No. 553,682.

Patented Jan. 28, 1896.



Witnesses.
C. C. Tindeman
H. Williamson

Inventor
Louis Lichtenstein
by Geo. H. Holgate
Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

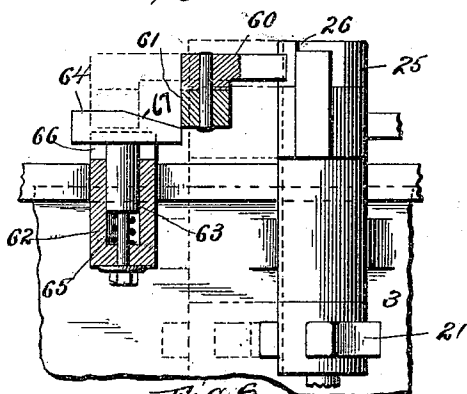
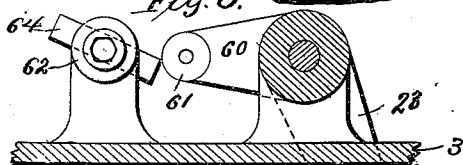


Fig. 6.



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Fig. 7.

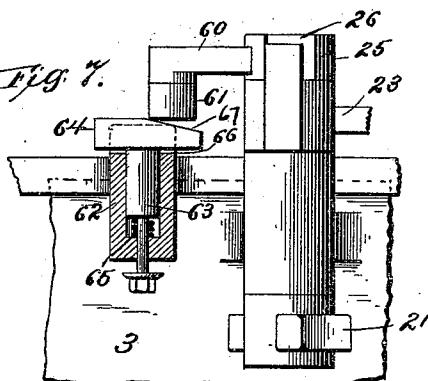
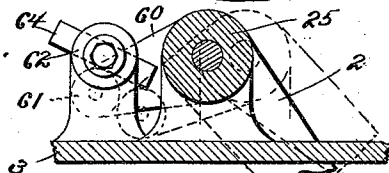


Fig. 8.



Inventor
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UNITED STATES PATENT OFFICE.

LOUIS LICHTENSTEIN, OF WILMINGTON, DELAWARE.

LEATHER-STAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,682, dated January 28, 1896.

Application filed June 25, 1895. Serial No. 554,009. (No model.)

To all whom it may concern:

Be it known that I, LOUIS LICHTENSTEIN, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Leather-Staking Machines, of which the following is a full, clear, and exact specification.

My invention relates to a new and useful improvement in leather-staking, and has for its object to provide a simple and efficient machine for staking or softening and stretching leather prior to the finishing operation.

With these ends in view the invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring by number to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of a machine embodying one form of my improvement; Fig. 2, a plan view of the same, the upper arm being broken away to show more clearly the cam for operating the arms; Fig. 3, a central vertical section; Fig. 4, a detail perspective of the head of the cam-lever and the collar adapted to work in conjunction therewith. Figs. 5, 6, 7, and 8 are diametrical views showing the positions assumed by the collar-operating lever and cam-shaft shown in Figs. 1, 2, 3, and 4.

Referring to Figs. 1, 2, 3, 5, 6, 7, and 8, 1 represents the base or frame of the machine, of such shape as to support the several operating parts thereon, and 2 are parallel ways formed upon the forward upper edge of this base and are adapted to receive the sliding block 3 and permit said block to move back and forth therein, for the purpose hereinafter set forth.

5 is a shaft journaled in the box at 6 at the rear end of the base and provided with the crank 7, by which motion is imparted to the sliding block 3 through the connecting-rod 8, pivoted at 9 to said block, and 10 are tight

and loose pulleys by which power is transmitted to the shaft.

11 is the lower staking-arm, pivoted at 12 to the under side of the block 3, and 13 is the upper arm pivoted at 14 to the lug 15 upon the upper side of said block, and the lower arm is provided with a knife or doctor 16 and a gage 17. The upper arm is provided with a roll 18, journaled in the stem 19, secured to said arm, so that when the outer ends of the arms are brought toward each other the upper edge of the knife will bear against or come in close proximity to the roller, and this movement will be limited by the roll striking against the gage. Secured to the heel end of each of the arms are cam-balls 20, adapted to be actuated upon by the two-faced cam 21, secured upon the shaft 22, which in turn is journaled in suitable boxings 29, carried by the sliding block 3. This shaft extends beyond one side of the frame and has loosely mounted thereon the lever 23, having a toe 24, formed upon its head and projecting over the collar 25, which is keyed to this shaft so as to move therewith, and is provided with ears 26 in the path of oscillation of the toe, so as to be struck and actuated by said toe, as will be presently explained.

30 is a spring attached to the heels of the upper and lower arms and adapted to draw said heels toward each other, so as to effect the opening of the outer ends of the arms, as the cam may permit.

Formed with the collar 25 is a lug 60 carrying a small roll 61 at its outer end, and secured upon the frame of the machine is a housing 62, in which fits the shank 63 of the dog 64, which is actuated by the spring 65, interposed between the end of the shank 63 and the bottom of the housing, so as to retain the block in its normal outward position. This block is prevented from turning upon its axis by the slot 66 in which it fits. Thus it will be seen by reference to Figs. 5, 6, 7 and 8 that as the sliding block is caused to move forward the roll 61 will come in contact with the incline 67 upon the dog 64 and press back said dog against the action of its spring until it reaches the position shown in dotted lines in Fig. 8, when said dog will be released and

spring forward over the upper side of said roll. Now as the sliding block starts upon its return movement the roll will engage the under side of the dog and be caused to swing backward, carrying with it the shaft until it reaches the lower edge of said dog, as shown in dotted lines in Fig. 8, and by this time the cam 21 has been forced between the balls 20, where it will remain until removed by further action of the machine. The remaining backward motion of the sliding block will impart no movement to the cam-shaft, since the toe 24 will have receded from the forward ear 26 and be moving through the space intervening between the two ears; but as the sliding block reaches the end of its backward movement the toe will come in contact with the rear ear 26 and impart sufficient motion to the cam-shaft to withdraw the cam from between the balls 20, thus permitting the spring 30 to open the outer ends of the arms, as will be readily understood.

68 is a spring coiled about one end of the shaft 22, having one of its ends attached to said shaft and the other to the journal 29, so as to keep the toe 24 in contact with the rear lug 26 at the time when the cam is being withdrawn from between the balls, in order that the pressure of the spring 30 will not move the cam ahead of the toe and thus cause the arms to spring open violently. Thus it will be seen that as the crank revolves to move the arms back and forth the cam 21 will be caused to oscillate intermittently to open or close the outer ends of said arm, and this intermittent actuation of the cam may be timed by the relative position of the toe 24 and the ears 26, so as to bring the outer ends of the arms into their closed position at the beginning of the backward movement thereof and move their outer ends apart upon the completion of their backward movement.

31 is a table supported upon the brackets 32, secured to the base and having the central portion cut away to form an elongated opening 33, through which the doctor 16 projects.

From this description the operation of my improvement as embodied in the figures will be obviously as follows:

The leather in its hard state, ready for staking, is placed upon the table 31, and the weight of the operator brought against that portion of it which hangs over the outer edge of said table, when the machine is put in operation by the shifting of a suitable belt from the loose to the tight pulley, when the sliding block will be caused to move back and forth, as before described, and the outer ends of the arms will be opened upon the beginning of their forward movement, so that the roll and doctor will not come in contact with the lever during this movement, and upon reaching the outer limit of their travel the ends of the arms will be brought together by the ac-

tion of the cam, as before described, which will cause the roll and doctor to take a firm hold upon the leather and pull it against the hold of the operator during the return movement of the arms. As the ends of the arms again open, the leather will be free to be moved so as to bring a new surface in position to be operated upon by the next backward stroke of the arm. Thus it will be seen that when the machine has been put in operation the operator has no care or need of skill beyond that required to move the leather step by step during each forward stroke of the arms to present new surfaces for treatment, and as the operation of the machine is automatic the only limit of its speed will be the time consumed by the operator in the shifting of the leather, and in practice it has been demonstrated that this may be done at a very high rate of speed, and therefore but little time is consumed in the proper manipulation of a piece of leather.

From the foregoing description it will be seen that the object aimed at in the constructions shown is to close the gripping devices during the first part of their backward movement and to open said devices during the finishing of this backward movement, in order that the leather may be taken hold of only as the arms move backward and released before starting forward, so that it may be always acted upon in one direction against the hold of the operator.

Heretofore the opening and closing of the arms of leather-staking machines have been brought about by causing the pitman to operate directly upon said arms; but this has been found to be very disadvantageous, in that the opening and closing movement of said arms was brought about slowly and consumed a considerable portion of the forward and backward stroke thereof, which not only consumed valuable time but shortened the distance through which the rolls or other gripping devices operated upon the leather; but by the use of my improved constructions the full stroke of the arms is utilized in operating upon leather, since the gripping devices are closed only at the end of the forward stroke and immediately open upon reaching the end of the backward stroke, the object of which will be apparent to those skilled in the art.

I am aware that slight modifications might be made in the constructions shown and described without departing from the spirit of my invention, which rests in the broad idea of providing intermediate mechanism for opening and closing the gripping devices of a staking-machine, which are operated upon in such manner as to open and close said gripping devices at the ends of the backward and forward movements of the arms.

Having thus fully described my invention, what I claim as new and useful is—

1. In a machine of the character described,

the combination of a sliding block carrying arms, and a cam, a collar on the cam shaft having a lug and a dog for actuating the lug to turn the cams into engagement with the
5 arms, as and for the purpose described.

2. In a machine of the character described, the combination of a sliding block carrying arms and a cam, a collar on an extension of the cam shaft, a roller mounted on a lug of
10 the collar, a dog having an inclined surface over which the roller rides to throw the cams into engagement with the staking arms, as and for the purpose described.

3. In a machine of the character described
15 the combination of a sliding block carrying arms and a cam, a collar on an extension of the cam shaft, a roller mounted on a lug of the collar, a dog having an inclined surface over which the roller rides to throw the cams
20 into engagement with the staking arms and

a lever mounted on the shaft, as and for the purpose described.

4. In a machine of the character described, the combination of a sliding block carrying arms and a cam, a collar on an extension of
25 the cam shaft, a roller mounted on a lug of the collar, a dog having an inclined surface over which the roller rides to throw the cams into engagement with the staking arms, a lever loosely mounted on the shaft and having
30 a toe to engage the ears of the collar, as and for the purpose described.

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

LOUIS LICHTENSTEIN.

Witnesses:

S. S. WILLIAMSON,
SAMUEL L. TAYLOR.