

(No Model.)

L. LICHTENSTEIN.
LEATHER STAKING MACHINE.

No. 553,683.

Patented Jan. 28, 1896.

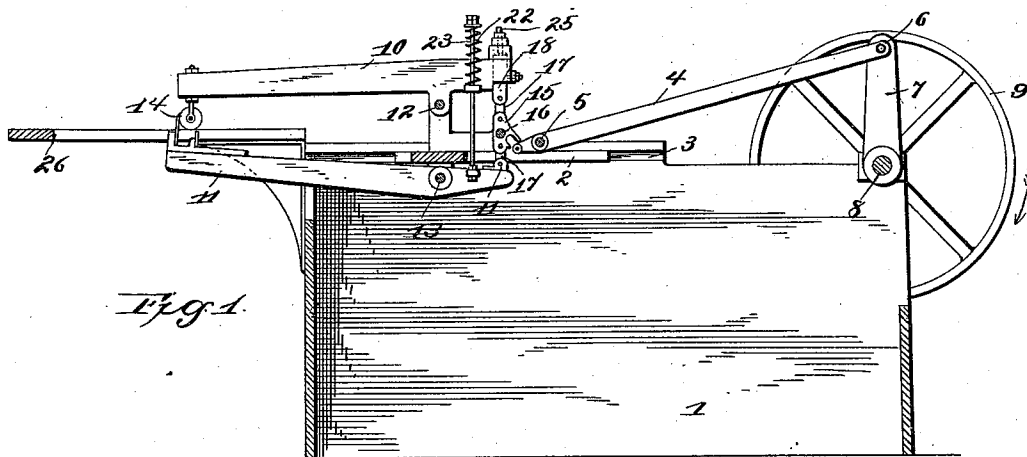


Fig. 1.

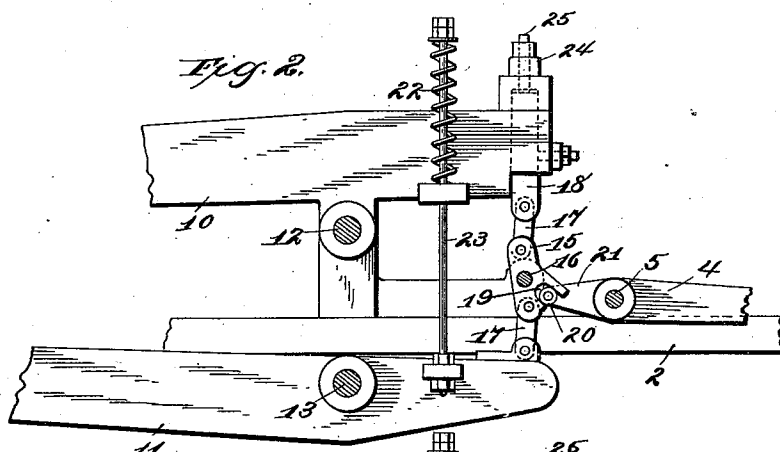


Fig. 2.

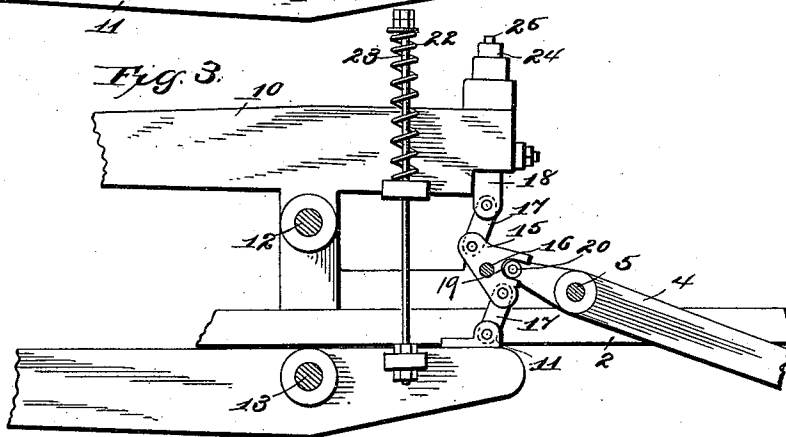


Fig. 3.

Witnesses:

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LOUIS LICHTENSTEIN, OF WILMINGTON, DELAWARE.

LEATHER-STAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,683, dated January 28, 1896.

Application filed October 22, 1895. Serial No. 566,507. (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 machines, and has for its object to provide such a device that will produce a back-and-forth movement to a slide carrying suitable arms and jaws for grasping the leather, and at either end of this back-and-forth movement open or close said jaws, as the case may be, and leave them open or closed until the opposite limit of the said back-and-forth movement has been reached, thus producing a uniform, easy, and noiseless action of the operating parts of said machine; and with these ends in view my invention consists in the detail 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 this 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, in which—

Figure 1 is a sectional elevation of my improved staking-machine, showing the jaws in their closed position and the carriage upon its backward movement; Fig. 2, a detail elevation of the carriage, arms, toggle, and connecting-rod shown in the position assumed upon the commencement of the forward movement of the connecting-rod after the toggle has been operated sufficiently to open the jaws wide enough to clear the leather; and Fig. 3, a similar view to Fig. 2, showing the toggle in position corresponding to the most distended position of the jaws when the carriage is midway on its forward stroke.

Similar numbers denote like parts in the several views of the drawings.

In operating upon leather for the purpose of staking or other treatment which requires

the alternate grasping and pulling of said leather by suitable jaws or clamping device, it is essential that said jaws should take hold upon the leather only upon the beginning of the backward stroke thereof and release their hold upon the said leather before commencing their forward stroke. The reason for this is that should the jaws grasp the leather upon their forward stroke said leather would be buckled and push against the operator, or should said jaws retain their hold upon the leather after beginning the forward stroke a like result would take place. Therefore the main object of my present invention is to facilitate these movements and so construct a machine as to time said movements to the greatest advantage without the use of cams, which of necessity occasion an unsteady and jerky action, accompanied by loss of power through friction, and annoyance from noise.

1 represents a form of the machine cast in such shape as to support the several operating parts thereof, and 2 is a sliding carriage adapted to travel in suitable ways 3, (one of which is shown,) and this carriage is caused to reciprocate by a connecting-rod 4, pivoted at 5 thereto, and connected at 6 to a suitable crank 7, carried upon a shaft 8, which receives its motion from a suitable pulley 9.

10 and 11 are arms pivoted at 12 and 13 to the sliding carriage, and 14 are suitable jaws, carried upon the outer ends of these levers and adapted to grasp and operate upon the leather, as will be hereinafter set forth.

15 is the central member of a compound toggle, which is journaled at 16 upon the sliding carriage, and 17 are links pivoted to the central member and connecting it with the adjusting-bolt 18 of the upper arm 10 and the lower arm 11, so that when the central member is brought to a vertical position, as shown in Fig. 1, the heeled ends of the arms 10 and 11 will be thrown apart, causing their outer ends to approach each other, whereby the jaws 14 will clamp the leather; but when this central member has turned to the position shown in Fig. 3, the arms will be opened at their outer ends and the jaws release their hold upon said leather.

19 is an open-end slot, formed in the cen-

tral member 15, and adapted to be engaged by the roll 20, carried upon the extension 21 of the connecting-rod, and the above-described movements of the central member 15 are operated as follows:

Assuming that the jaws are closed and the parts in position shown in Fig. 1, when the machine is started the pulley will revolve in the direction shown by the arrow, carrying with it the crank and connecting-rod pivoted thereto, and this movement of the connecting-rod will cause the carriage to slide backward, and as the roll 20 has no connection with the central member during this part of its movement the jaws will remain closed and stretch the leather backward against the hold of the operator, as is well understood in this art; but as the connecting-rod nears its rear horizontal position, the roll 20 will pass into the slot 19, and engaging the upper wall thereof will move the central member 15 upon its bearing and thus open the jaws as before described; and, as the carriage has no movement when the connecting-rod reaches its dead-center, I so time the engagement of the roll 20 with the slot as to open the jaws during the passage of the connecting-rod across its dead-center, which will release the leather before the commencement of the forward stroke of the carriage, as clearly illustrated in Fig. 2. The further movement of the connecting-rod will carry the carriage forward and also retain the jaws in their open position by the engagement of the roll 20 with the upper wall of the slot until the pitman nears its forward horizontal position sufficiently to cause the roll 20 to engage the lower wall of the slot, when the central member 15 will be so swung upon its bearing as to again close the jaws, which I prefer to so time as to cause said jaws to grasp the leather upon the commencement of the backward movement of the carriage.

From this description, it will be seen that the connecting-rod and the roll 20, carried thereby, have no permanent or positive connection with the central member which produces the opening and closing movement of the jaws, and this in practice has proved to be very advantageous, in that, when the jaws are closed, the roll passes out of contact with the central member, thus leaving said jaws in their closed position, until the carriage has reached the rear limit of its backward movement, when the pitman, in crossing its dead-center, causes the roll to engage the central member and unlock the jaws, as before described.

I have not found it absolutely necessary to use the spring 22 and rod 23 for opening the jaws when the toggle has been tripped, and I therefore do not wish to confine myself to its use, but in case the joints of the toggle should become worn it might prove advantageous to use said spring to avoid loss of motion in said joints.

The adjusting-bolt 18 is adapted to fit within suitable socket and provided with nuts 24 run upon its threaded shank 25, whereby it may be placed in any desired adjustment to compensate for wear upon the jaws or the toggle and also to give the jaws their primary adjustment.

I am aware that many devices have been used for opening and closing the jaws of staking-machines, the principal of which have used cams of various kinds, but these have not proved entirely satisfactory, and the object of my construction is to overcome the necessity of having to use such cams and provide a positive means by which the jaws may open and close at predetermined times without direct and permanent connection with the connecting-rod, and which shall remain at rest during a portion of the movement of the connecting-rod, whereby much friction and noise are prevented.

26 is an ordinary table, secured to the framework, upon which the leather to be staked is placed in the usual manner.

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

1. In combination with a leather-staking machine, a sliding carriage carrying a pair of pivoted arms to which are attached at their forward ends suitable jaws, a toggle joint connecting their near ends whose central member is journaled upon said carriage and adapted to open and close the outer ends of said arms and means for operating said toggle at predetermined times.

2. In a leather-staking machine the combination of a sliding carriage, a pair of arms pivoted thereto carrying suitable jaws at their outer ends, a compound toggle having its central member journaled upon said carriage, a connecting rod adapted to impart a to-and-fro motion to said carriage and open and close said toggle at predetermined times, substantially as shown and described.

3. In combination with the pivoted arms of a leather-staking machine and the carriage to which said arms are pivoted, a compound toggle at the rear end of the arms having its central member journaled upon said carriage and a slot formed in said member, a connecting rod for imparting a to-and-fro motion to said carriage, a roll carried upon an extension of said connecting rod adapted to engage said slot at predetermined times for opening and closing the outer ends of said arms, substantially as shown and described.

4. A leather-staking machine consisting of the following elements, a carriage adapted to slide in suitable ways, a pair of arms pivoted upon said carriage, suitable jaws carried by said arms, a compound toggle at the rear end of the arms the central member of which is journaled upon said carriage, a slot formed in said central member, a connecting rod pivoted to said carriage, an extension formed with said connecting rod, a roll carried by said

extension adapted to engage said slot, a crank for imparting a forward movement to said connecting rod, whereby the carriage is caused to move back and forth and the toggle is actuated at predetermined times, substantially as shown and for the purposes set forth.

In testimony whereof I have hereunto af-

fixed my signature in the presence of two subscribing witnesses.

LOUIS LICHTENSTEIN.

Witnesses:

S. S. WILLIAMSON,
SAMUEL L. TAYLOR.