(No Model.) 2 Sheets—Sheet 1.

G. W. BAKER.

LEATHER WORKING MACHINE.

No 549,422. Patented Nov. 5, 1895.

Fig. 1.

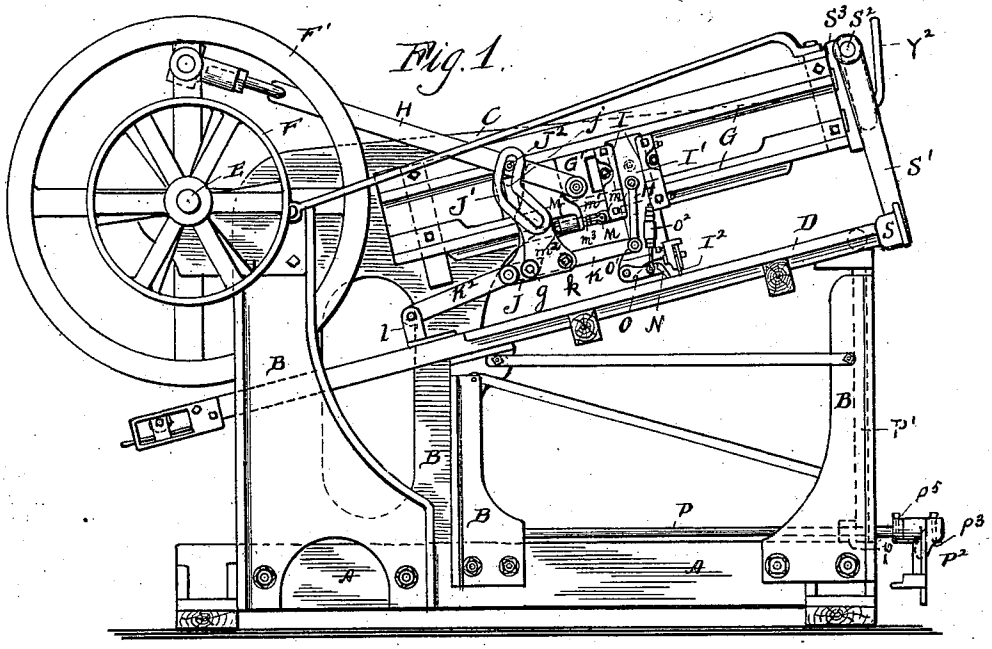


Fig. 4.

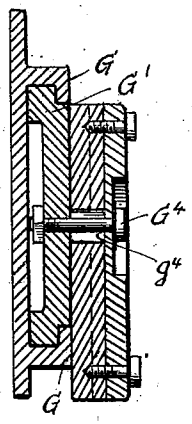
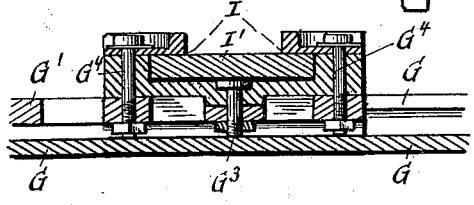


Fig. 3

Fig. 11.

Fig. 5



Witnesses
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Philip C. Mason

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G. W. Baker
by E. W. Anderson
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(No Model.) 2 Sheets—Sheet 2.

G. W. BAKER.

LEATHER WORKING MACHINE.

No. 549,422. Patented Nov. 5, 1895.

Fig. 2.

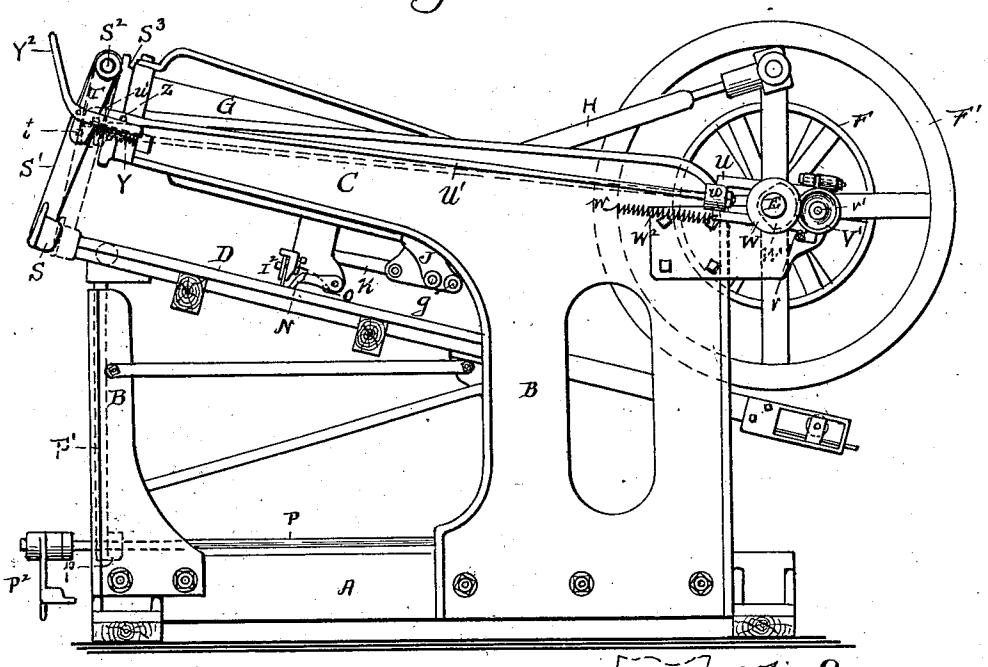


Fig. 9.

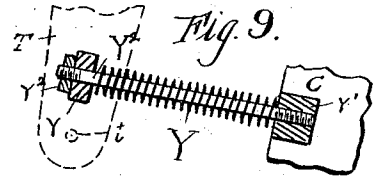


Fig. 6.

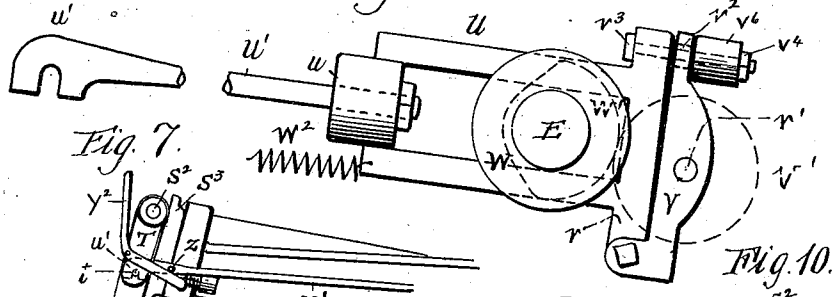


Fig. 7.

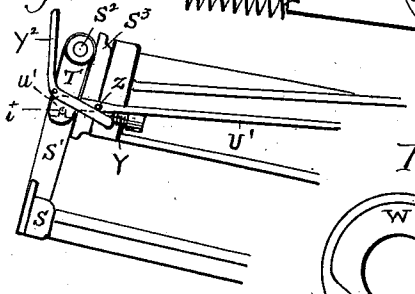


Fig. 10.

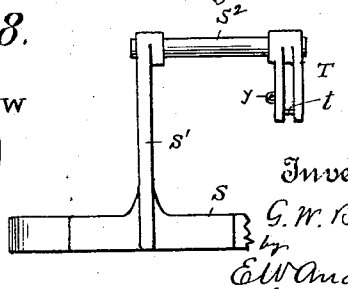
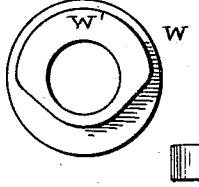


Fig. 8.



Witnesses
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Inventor
G. W. Baker
by
E. W. Anderson
his Attorney

UNITED STATES PATENT OFFICE.

GEORGE W. BAKER, OF WILMINGTON, DELAWARE.

LEATHER-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,422, dated November 5, 1895.

Application filed April 26, 1895. Serial No. 547,243. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BAKER, a citizen of the United States, and a resident of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Leather-Working Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of machine. Fig. 2 is an elevation upon the opposite side with clamp disengaged. Fig. 3 is an enlarged view of tool-arm, its guide-plates, &c., the knife and presser-foot being shown in engagement with leather and the table in section. Fig. 4 is a section on line $x\,x$, Fig. 3. Fig. 5 is a section on line $y\,y$, Fig. 3. Fig. 6 is a view of the cam and yoke device, roller v' being in dotted lines and rod u' broken away in center. Fig. 7 is a side view showing clamp in engagement and other parts in corresponding positions. Fig. 8 is a rear view of the cam. Fig. 9 is a detail of the spring which throws the clamp open. Fig. 10 is a front view of the clamp, partly broken away. Fig. 11 shows a side and front elevation of the casting P^3.

This invention relates more particularly to leather staking and perching machines of the class described and claimed in Patents Nos. 372,507, 394,750, and 405,653, granted November 1, 1888, December 18, 1888, and June 18, 1889, to George W. Baker.

The object of the present invention is more particularly to provide an improved arrangement and construction of the staking-tool carrier and its adjuncts, together with means for operating the same; also, to provide an improved work-clamp for holding the leather to the table during the operation of the staking-tool.

Other objects and improvements will, however, hereinafter appear.

With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the frame of a machine having the uprights, the overhanging arm C, and the inclined vertically-reciprocating table D. E is the driving-shaft having fast and loose pulleys F and main wheel F'. These parts are all substantially the same as in the patents above referred to.

Bolted to a lateral face of the arm C are longitudinal guides G, which form a way, in which is fitted to move longitudinally a sliding head G', which forms the carrier for the staking-tool and which is reciprocated by means of a connecting-rod H, connected thereto and to a crank-pin of the main wheel F'. Secured to the head G' in such a manner as to permit it a limited lateral pivotal movement for purposes of adjustment, as hereinafter described, is a guide-plate having vertical guides I, between which is fitted to reciprocate a tool-arm I', which carries the staking-tool or knife I^2. Said guide-plate is shown as being secured to the head G' by means of a pivot bolt or stud G^3 and by the bolts G^4, which engage oblong slots g^4 in the said plate for the purpose of limiting the movement of the said pivot. (See Figs. 4 and 5.)

J is a bracket-arm rigidly bolted to a head G', and to the lower portion of this bracket is pivoted at g a slotted cam-arm J', whose slot j is engaged by a roller J^2, journaled on a lateral stud of the connecting-rod H. Said slot j has an upper arm, which is cut to the radius of the movement of the roller J^2, and a lower arm, cut on a different radius, approaching more nearly to the center of the movement of the said roller, whereby as the roller travels down this portion of the slot under the revolution of the main wheel and the movement of the connecting-rod the said cam-arm is rocked backward or toward the main wheel, and upon the return of the roller through this portion of the slot said arm will be moved back to its former position.

K is a bar which is connected at one end to the stud g, upon which the cam-arm is fulcrumed, being made rigid with the said arm by means of a screw k. At its other end said

bar is connected to a link H, which is connected to the tool-arm I'.

K^2 is a link which connects the bracket J with a lug l of a reciprocating slide-plate L, which moves in longitudinal guides on the slotted work-table D. This slide-plate is in general the same as in the patents before referred to, being connected to an apron L', which fills the interval between the guides and supports the skin when the slide has moved backward.

M designates an eyebolt which is secured at one end to a lug m of the rear guide I, and which extends loosely through an opening in a lug m' of the bracket-arm J. To the rear of the lug m' this bolt carries a rubber or other spring M', which is secured by a nut m^2.

m^3 are jam-nuts by means of which the tension of the spring may be adjusted. By means of this connection and the fact that the guide-plate is pivoted to the head G the position of the knife or tool with relation to the throat or slot of the sliding plate may be adjusted according to the thickness or condition of the leather being treated.

N designates a pressure foot or pad of metal, hard rubber, or other suitable material, which is directly in rear of the staking-tool, and its purposes embrace several uses. In the first place, it is intended to give a yielding pressure on the leather in front of the knife or staking-tool. As this pressure is increased the leather is staked harder in proportion. Without its use the leather would simply pull through the opening without any stretching whatever. Another use that it has, being made with a smooth surface, as is always the case, is that it helps to smooth or "pad" the leather, as known by the trade, reducing the amount of ironing for that purpose. In the third place, its use is apparent in keeping the leather even ahead of the knife or staking-tool. This pressure device is carried by an arm O, which is pivoted to the lug or heel o of the tool-arm, and is held under proper tension by means of the bolt O' and spring O^2, which is usually of rubber. Said bolt engages a bearing o^2 on the tool-arm and carries jam-nuts o^3, by means of which the spring may be compressed to a greater or less extent.

P designates a treadle-shaft journaled in the base of the frame and provided with toes p, which are arranged to engage the depending legs or castings P' of the work-table and raise said table into operative relation when the shaft is rocked by means of the treadle-lever P^2. The treadle-lever P^2 is loosely sleeved on the shaft P, and its engagement with the same shaft is effected by means of a casting P^3, which is fixed to the shaft and which has an adjustable screw P^4, with which the treadle-lever engages.

P^5 is a collar which prevents lateral movement of the treadle-lever on the shaft. By adjusting the screw P^4 the throw of the treadle-lever is regulated to suit desired height of bed; also the pressure against the leather in the slot of the slide is regulated to the desired degree independently of the operator.

The forward end portion of the table D has therein a transverse slot R, into which the staking-tool descends when in operative position. At the edges of said slot are transverse throat-plates r r', which assist the operation of the staking-tool or knife, or a roller may be employed in lieu of the plate r, as in the Patent No. 405,653, before referred to.

S designates the improved automatic work-clamp, which is arranged to hold the work against the front edge of the table D during the operation of staking. Said clamp is carried by an arm S', which is keyed to a rock-shaft S^2, journaled in a bearing-plate S^3, which is bolted to the forward end of the overhanging arm C of the frame. Keyed to the opposite end portion of said shaft is a slotted or bifurcated arm T, which has a transverse pin t, extending through the lower end portion thereof. On the driving-shaft E is hung a yoke U, having at its forward end portion a threaded bearing u, into which is screwed a rod U', which extends to the forward end of the machine and has at its forward end a hook or open bearing u', which engages the pin t. Pivoted to a lug v at the lower rear portion of the yoke U is an arm V, which carries a lateral stud v', upon which is journaled a roller V'. At the upper end portion of said arm is an oblong aperture v^2, which is engaged by a bolt or stud v^3 of the yoke. The arm is held at the proper adjustment on this bolt or stud by means of a nut v^4 and rubber spring v^5. Keyed to the shaft E is a disk W, having a cam W', which travels in contact with the roller V'.

W^2 is a spring which is connected to the yoke U and to the frame w. This spring is for the purpose of keeping the yoke in its forward position when the cam is not acting on the roller V'. The action of the cam W' against the roller V' causes the said yoke to slide backward on the shaft E, thereby pulling on the rod U' and closing the clamp upon the work. This action is so timed that the clamp closes upon the work at the time or a little before the staking-tool descends to its working position.

Y is a spring which is seated on a bolt or stud Y', which has a loose bearing in a lateral lug y of the slotted arm T at one end portion and which is threaded into a lug y' on the arm C at its opposite end portion. y^2 is a nut which secures said bolt or stud and by means of which the tension of the spring Y may be adjusted. This spring assists the spring W^2 in opening the clamp to release the work when the cam ceases to act. It also holds the clamp open when the latter is thrown out of operation. This is effected by means of a lever Y^2, which is pivoted in the arm T and whose shorter arm is arranged to

engage a stud z of the rod U′ and lift the hook u' off from the pin t.

The operation of the machine is as follows: During the forward movement of the sliding head G′, the tool-arm and tool, and the sliding plate L, which all move in unison, the roller J^2 is traveling in the lower arm of the slot j, and the cam-arm J′ during the first half of the movement is rocked backward, thereby, through the bar K and link K′, raising the tool-arm and tool. The work is now placed in position on the table. During the last half of the return mevement, as the roller J^2 approaches the center of the cam-slot, the tool and tool-arm gradually descend until at the time the stroke is reversed the tool has come into working relation to the leather, which is thereby pressed into the slot R. At the same time the clamp closes. The operator, through the treadle, controls the pressure of the work against the tool. During the entire backward stroke the cam-roller J^2 is traveling in the upper arm of the slot j and the tool is held stationary, so that the leather is staked and perched throughout this entire movement. As the stroke is again reversed the tool and tool-arm commence to rise, the clamp opens automatically, and the operator shifts the skin of leather to obtain a fresh purchase for the next stroke.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a leather working machine, the combination with a longitudinally reciprocating tool carrier head, a stationary slideway in which said head reciprocates, a vertically reciprocating tool arm moving in guides of said head, and a connecting rod for imparting movement to said head, of a slotted cam arm having its slot engaged by a roller journaled to said connecting rod, and a connection between said cam arm and the sliding tool arm whereby the latter is reciprocated, substantially as specified.

2. In a leather working machine, the combination of the sliding tool carrier head, a stationary slideway in which said head reciprocates, the slide plate moving in unison therewith, a connecting rod for moving said head and thereby the slide plate, a vertically sliding tool arm working in guides of said head, and a slotted cam arm operated by said connecting rod to reciprocate said tool arm, substantially as specified.

3. In a leather working machine, the combination with the frame having the overhanging arm, and the vertically movable, longitudinally slotted work table, of a sliding tool carrier head working in longitudinal guides of the said arm, a vertically reciprocating tool arm moving in guides carried by the said head, a staking tool carried by said tool arm, a reciprocating slide plate working in guides of the said slotted table and moved in unison with the said head, an apron connected to said slide plate, and a cam device for reciprocating the tool arm, substantially as specified.

4. In a leather working machine, the combination with stationary guideways, of a head longitudinally reciprocating therein, a guide plate mounted thereon and having pivotal adjustment relative thereto, with means to secure it in its adjusted position, a tool arm fitted to reciprocate vertically on the said guide plate and operating mechanism therefor, substantially as specified.

5. In a leather working machine, the combination with a stationary slideway, the head arranged to reciprocate therein the vertically reciprocating tool arm, and tool carried thereby, of the arm O pivoted to a lug or heel of the said tool arm, the pressure foot or heel carried by the pivoted arm in the rear of the tool, and a tension bolt and spring connecting the tool arm with the pivoted arm, substantially as specified.

6. In a leather working machine, the combination with the frame having the overhanging arm C, the vertically movable, longitudinally slotted work table, the driving shaft and the main wheel carried by said shaft, of the longitudinally reciprocating head G′ moving in lateral guides of the said arm C, the connecting rod from the main wheel for imparting movement to said head, a slide plate working in guides of the said table, a link connecting the sliding head with the said slide plate, a slotted cam arm pivoted to an arm of the said head and having its cam slot engaged by a roller journaled to said connecting rod, a vertically reciprocating tool arm moving in guides of the said head, and a link connected to said cam arm and to the tool arm, substantially as specified.

7. In a leather working machine, a clamp, an arm which carries said clamp, a rock shaft to which said arm is secured and which is journaled in bearings of the frame, a sliding yoke on the driving shaft, a rod connecting said yoke with an arm of the said rock shaft, an arm having a pivotal and an adjustable connection with the said yoke, a roller journaled to said arm, and a cam on the driving shaft arranged to act upon the said yoke to close the said clamp upon the work, together with a spring or springs for releasing said clamp, substantially as specified.

8. In a leather working machine, the clamp arm and clamp, the rock shaft to which said arm is secured, the sliding yoke on the main shaft, a rod connecting said yoke with an arm of said rock shaft, an arm having a pivotal and an adjustable connection with the said yoke, a roller journaled to said arm, a cam on the main shaft traveling in contact with the said roller, a spring connected to said yoke and to the frame, a spring for holding the clamp open, and means for disconnecting the clamp from said rod, substantially as specified.

9. In a leather working machine, the com-

bination of the longitudinally reciprocating tool carrier head, its vertical guide plate pivotally secured to the said head, the tool arm arranged to reciprocate in said guide-plate, and a tension device connecting said guide-plate with an arm of the said head, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. BAKER.

Witnesses:
MAURICE P. SATTERTHWAITE,
WILLIAM L. MARTIN.