

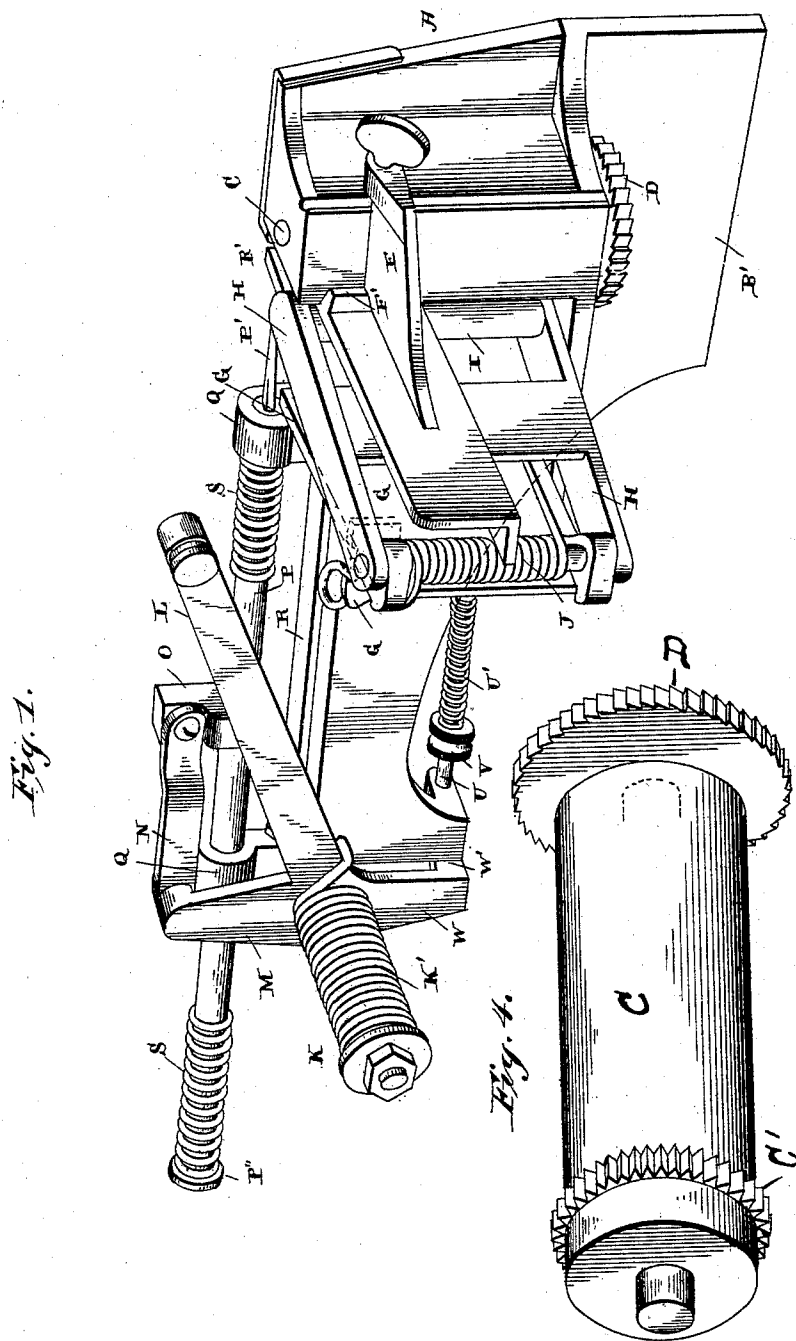
(No Model.)

2 Sheets—Sheet 1.

G. STEINBACH & H. SHAFER.
HARNESS MACHINE.

No. 485,065.

Patented Oct. 25, 1892.



WITNESSES.

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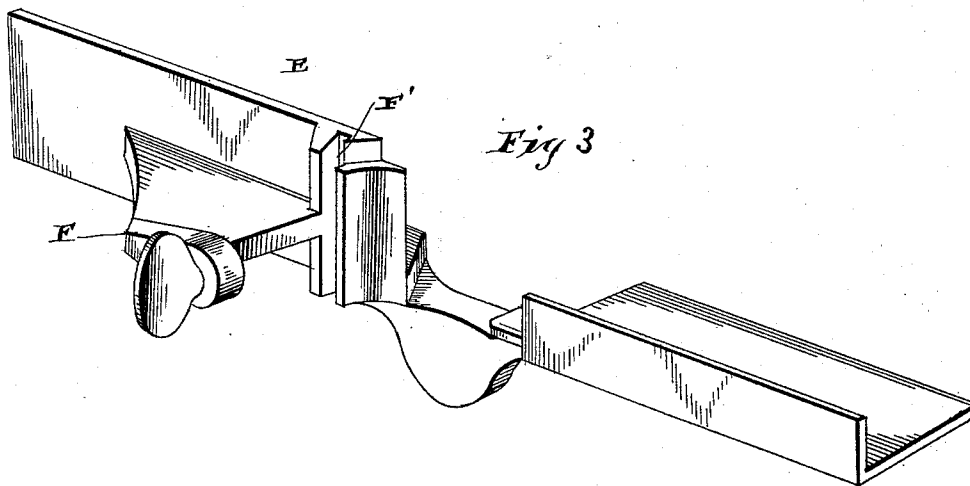
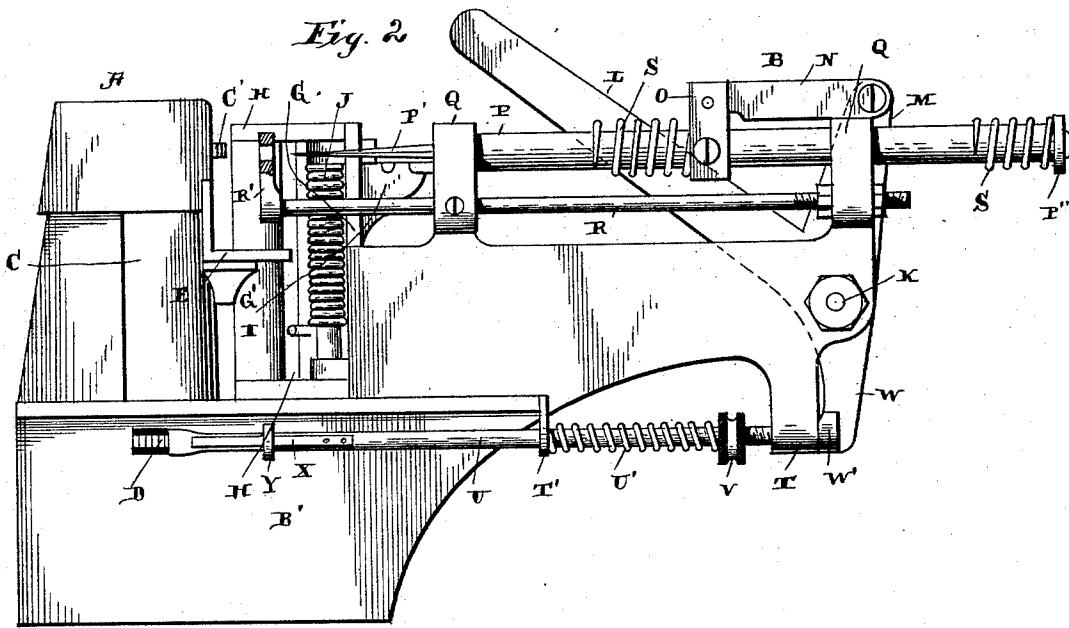
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UNITED STATES PATENT OFFICE.

GEORGE STEINBACH AND HENRY SHAFER, OF BETHEL, MISSOURI.

HARNESS-MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,065, dated October 25, 1892.

Application filed June 8, 1892. Serial No. 435,996. (No model.)

To all whom it may concern:

Be it known that we, GEORGE STEINBACH and HENRY SHAFER, of Bethel, in the county of Shelby and State of Missouri, have invented certain new and useful Improvements in Harness-Machines; and we do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement in harness-machines; and it consists in the novel features of construction and in the combination and arrangement of parts, which will be fully described hereinafter, and more particularly referred to in the claims.

The object of our invention is to provide an improved machine for punching straps and other portions of harness previous to stitching the same, whereby the work is accomplished with rapidity and accuracy.

Referring to the accompanying drawings, Figure 1 is a perspective view of our improved machine. Fig. 2 is a side elevation of the same. Fig. 3 is a detached view of the vertically-adjustable gage-table. Fig. 4 is a detached view of the feed-roll.

A represents the front and B the rear portion of the frame, both being formed of a single casting. Journaled in suitable bearings in the front portion A is the vertical feed-roll C, carrying the toothed wheel C' near its upper end for engaging the surface of the leather which is being operated upon. Upon the lower end of the said roll is secured the peripherally-serrated wheel D, which projects at one side through a slot in the downwardly-extending flange B' for the purpose presently to be explained.

E represents the feed-table, which is recessed between its ends, as shown, so as to fit over the roll C. Projecting from the front side of this table is the clamp F, which engages the side of the base A, moving vertically thereon, and by means of the set-screw of the said clamp the table may be secured at any desired distance from the horizontally-moving punch, and by this means the stitching may be placed at the proper distance inward from the edge of the leather. The side of the

feed-table is formed with the parallel projecting ribs F', which fit over the edge of the base portion A, and thus the table is always square with the feed-roll.

G represents a horizontal extension projecting from the side of the portion B, and journaled to the outer end of the said extension is the frame H, which projects inward over the feed-roll C. Journaled in the outer end of the said frame adjacent the said roll is the roller I. The outer end of this frame and the roller I, carried thereby, are held normally inward against the recessed side of the table E by the coiled spring J, which encircles the pivotal point of the said frame H, one of the springs bearing, as shown, against the table and the other adjustably secured to the side of the extension G by the rack G'. By means of the latter the tension of the spring on the frame H may be regulated. The object of this spring-actuated frame is to keep the leather pressed tightly against the feed-roller and in a positive position all the time in relation thereto, so that the work may be accurately done.

Projecting laterally from the outer end of the portion B is the long hub K, and mounted thereon adjacent the said portion is the operating-lever L, which is held normally projecting upward at its lower end by the spring K', which is coiled around the hub K. Projecting upward from the rear end of this lever is the arm M, and pivoted thereto is the forwardly-projecting link N, which is connected at its outer end to the clamp O, in which is secured the horizontally-moving rod or bar P, carrying the punch P' at its outer end. This bar P is held in its horizontal position by the projecting guides Q, extending from the edge of the portion B of the frame.

R represents a rod, which is adjustable longitudinally in the projections Q, and to the forward end of this rod is secured the foot R', through which the punch is projected in piercing the leather. This foot serves as a guide for the punch and leather, and also holds the latter when the former is being withdrawn therefrom in its outward movement.

By means of the clamp O the hold on the rod P may be adjusted to any desired point and the length of the stroke of the punch

thus regulated. The outer end of the lever L may be drawn downward by any desired form of treadle, thus projecting the punch into the leather, and for withdrawing the same the spring K' is relied upon, the tendency of which, as above stated, being to push the said lever upward.

In order to assist the backward or retracting movement of the rod P, cushion-springs S are provided at its opposite ends, which bear against the guides Q at their respective ends and against the clamp O and stop P'', respectively, at their opposite ends. The two latter points are also by this construction prevented from coming in violent contact with the said guides in the forward movement of the punch-carrying rod.

Extending downward from the rearwardly-extending portion B are the perforated guides T T', and adapted to move horizontally there-through is the rod U. Coiled around the said rod and adapted to rest on the guide T' is the spring U', which bears at its opposite end against the screw-nut V, which is adjustable on the upper screw-threaded end of the rod U. The upper end of the said rod projects through the upper guide T, and it will be seen that the distance which it projects will be regulated by the adjustment of the nut V. Projecting downward from the lever L is the arm W, having the flattened projection W' on its lower end, which normally rests on the guide T, being held in contact therewith by the tension of the spring K'. When the lever L is pushed rearward, the said arm W will be raised and the rod U, by means of the spring U', will be forced upward through the said guide to the extent of the length of the end of the rod projecting from the nut V. Thus, it will be seen, by adjusting the said nut longitudinally the length of the stroke of the rod U may be regulated. One end of the rod U is formed into a dog, which engages the serrated edge of the wheel D on the lower end of the feed-roll C, and rotary movement of this roll is accomplished by the longitudinal movement of the said rod. The said dog is held in engagement with the wheel D by the flat spring X, which is secured at its outer end to the side of the rod U. The spring and rod at this point extend through the loop Y, projecting from the portion B' of the frame. The pressure of the spring is against this loop, thus holding the dog pushed inward and in engagement with the wheel D. A complete automatic feed mechanism is thus provided, which moves the work the desired distance at the completion of each forward stroke of the punch, placing it in position to receive the next perforation.

It will be readily understood that the distance between the stitches in the leather may be regulated by adjusting the nut V so as to give the rod U a long or short movement.

The treadle being operated by the foot, both hands of the operator are free to sew,

and thus the work may be very rapidly accomplished.

Having thus described our invention, we claim—

1. The combination, with a frame and a lever journaled thereto, of a punch-carrying bar mounted in the frame, an arm projecting from said lever, a link secured to the arm, and an adjustable connection between the link and the said bar, substantially as shown and described.

2. The combination, with a frame and an elongated hub projecting therefrom, of a lever mounted on the said hub, a spring coiled around the hub and secured at one end to the lever, a punch-carrying bar in the frame, and a suitable connection between the said lever and bar, substantially as shown and described.

3. The combination, with a frame, a feed-roll, and a punch-carrying bar, of a lever journaled to the frame, oppositely-extending arms projecting laterally from the said lever, a suitable connection between one of the said arms and the said bar, and a mechanism whereby the said roll is operated by the other arm, substantially as shown and described.

4. The combination, with a frame, a feed-roll journaled therein, and a punch-carrying bar, of a spring-actuated lever journaled to the rear end of the frame, oppositely-extending arms projecting laterally from the fulcrum-point of said lever, a suitable connection between one of the said arms and the punch-bar, and a longitudinally-movable bar which is operated by the other arm for rotating the feed-roll, substantially as shown and described.

5. The combination, with a frame and a feed-roller journaled in said frame, of perforated guides projecting from the frame, a longitudinally-movable rod which engages the roll, a spring, and a screw-nut adjustably secured to said rod between the guides, a lever, and an arm projecting therefrom which engages the end of said rod, substantially as shown and described.

6. The combination of a frame, a feed-roll journaled therein, a punch-carrying bar, perforated guides projecting from the frame, a rod adapted to move longitudinally in said guides and which engages the roll at its inner end, a spring, and a screw-nut adjustably secured to said rod between the guides, a lever journaled to the frame, arms projecting laterally from opposite sides of the lever, and a suitable connection between one of the arms and the punch-carrying bar, the other arm being adapted to engage the outer end of the said rod, substantially as shown and described.

7. The combination of a frame, a feed-roll journaled therein, a peripherally-serrated wheel secured to the said roll, guides projecting from the frame, a punch-carrying rod adapted to move longitudinally in said guides,

a dog on one end of the rod, which engages the said wheel, a means for holding the same in contact with the wheel, a spring, and a nut adjustably secured to the rod between the
5 said guides, a lever journaled to the frame, and an arm projecting therefrom which is adapted to move longitudinally the said rod, substantially as shown and described.

8. The combination of a frame, a punch,
10 a feed-roll, a serrated wheel on the end thereof, a rod carrying a dog at its inner end, which engages the said wheel, a spring secured to the outer side of the rod, loop Y, surrounding the spring and rod, and a means for moving
15 longitudinally the said rod, substantially as shown and described.

9. The combination, with a frame, a table thereon, a horizontally-moving punch-carrying bar, and a means for operating the same, of
20 a laterally-extending projection on the frame, an inwardly-extending frame pivoted to the

outer end of the said extension, and a spring journaled around the axial point of said frame, one end of said spring adapted to bear on said frame and the opposite end being secured ad- 25 justably to the said lateral extension, substantially as shown and described.

10. The combination of a frame, a punch, a means for operating the same, a work-support, a lateral extension on the frame, a spring- 30 actuated frame pivotally supported on said extension, the free end of which projects normally toward the work-support, substantially as shown and described.

In testimony whereof we affix our signatures 35 in presence of two witnesses.

GEORGE STEINBACH.
HENRY SHAFER.

Witnesses:

A. K. MUSGROVE,
W. E. MILLER.