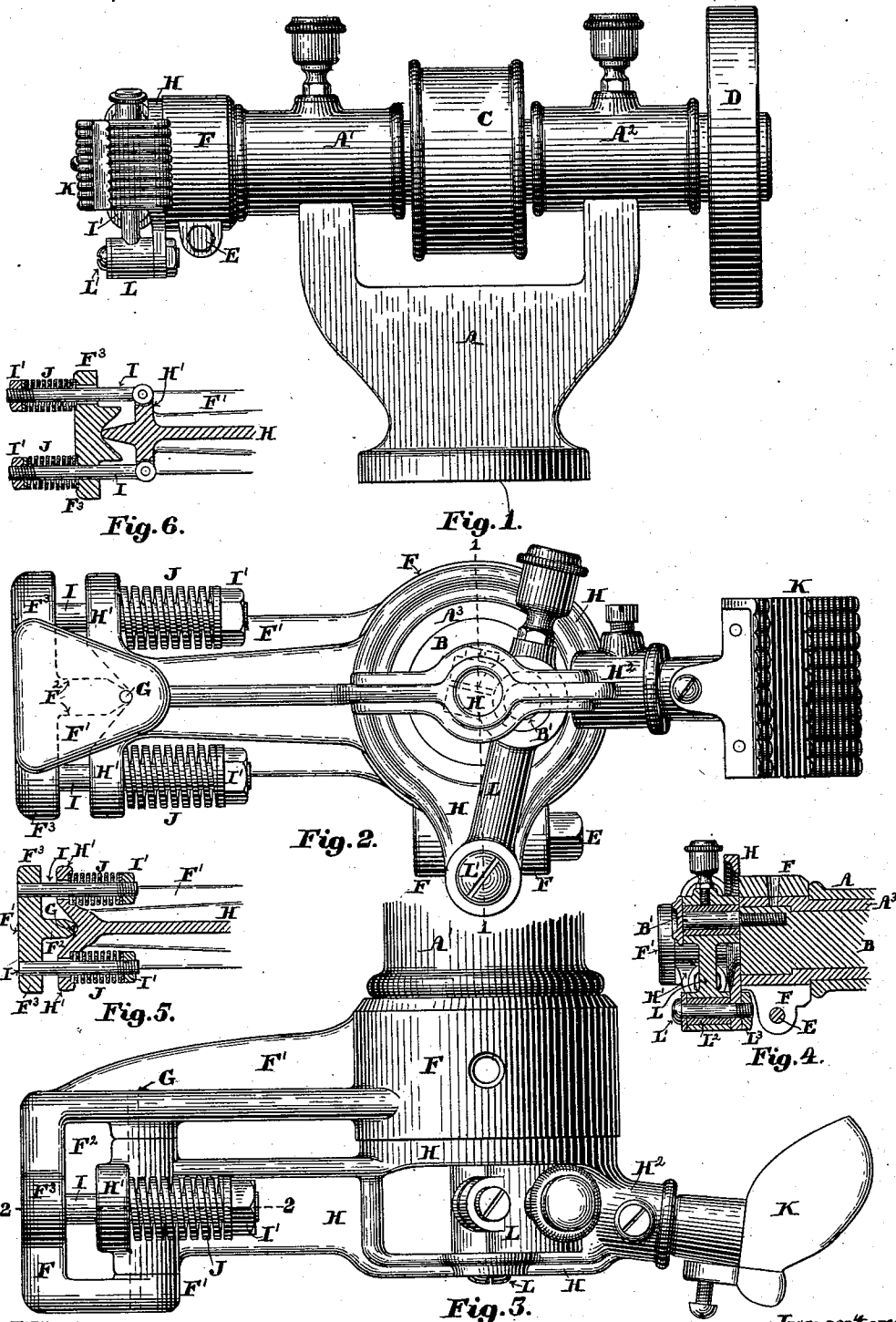


(No Model.)

J. H. BUSELL & E. H. TAYLOR.
BURNISHING MACHINE.

No. 475,032.

Patented May 17, 1892.



Witnesses:
Walter E. Lombard.
James T. Murray.

Inventors:
James H. Busell,
Eugene H. Taylor,
by N. C. Lombard Attorney.

UNITED STATES PATENT OFFICE.

JAMES H. BUSELL, OF BOSTON, AND EUGENE H. TAYLOR, OF LYNN, MASSACHUSETTS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE J. H. BUSELL MANUFACTURING COMPANY, OF NASHUA, NEW HAMPSHIRE.

BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 475,032, dated May 17, 1892.

Application filed February 11, 1892. Serial No. 421,151. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. BUSELL, of Boston, in the county of Suffolk, and State of Massachusetts, and EUGENE H. TAYLOR, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heel-Finishing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

Our invention relates to machines for finishing boots or shoe heels and is an improvement upon the invention shown and described in Letters Patent No. 376,066, issued to James H. Busell January 10, 1888; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings, and to the claims to be hereinafter given.

In the drawings, Figure 1 represents a front elevation of a machine embodying our invention. Fig. 2 represents an end view of the upper portion of the same. Fig. 3 represents a plan of the same parts which are shown in Fig. 2. Fig. 4 represents a central vertical section of the same parts, looking toward the rear of the machine, the cutting-plane being on line 1 1 on Fig. 2 with the crank-rod shown in vertical position. Fig. 5 represents a sectional elevation of a portion of the bracket and the pivotal end of the tool-carrier, the cutting-plane being on line 2 2 on Fig. 3; and Fig. 6 represents a sectional elevation of a portion of the bracket and the pivotal end of the tool-carrier, showing a modification of the manner of making the pivotal connection. Figs. 2 and 3 are drawn to an enlarged scale.

In the drawings, A is the head-frame, the upper portion of which is forked and has formed therein the bearings A' and A², in which is mounted the shaft B, having secured thereon the pulley C and hand-wheel D. The bearings A' and A² are lined with composition-bushings fixed therein, the bushing A³ of the bearing A' projecting beyond the outer end of said bearing and having adjustably secured thereon by the clamping-bolt E the hub F, having an outwardly-projecting arm F' formed thereon. The arm F' may be forked

inwardly at its outer end and be provided with a suitable rib F², extending across the opening formed thereby, and said rib F² may be reinforced upon its inner edge by the steel pin G, upon which the forked or notched inner end of the tool-carrier H may be held and about which it may be rocked, as shown in Fig. 5, or the V-shaped bearing-surfaces may be reversed, as shown in Fig. 6. If the male V-surface is formed on the arm F', said arm F' is provided with the ears F³ F³ on either side of said rib F², said ears having secured therein the studs I I, extending inwardly through slots in similar ears H' H', formed upon the tool-carrier H and provided at their free ends with shoulders, heads, or nuts I' I', between which and the ears H' H' are interposed the springs J J, which tend to hold the tool-carrier H firmly against the pivot-pin G, while at the same time they permit a rocking motion thereof and serve to check the momentum of the tool-carrier and assist in reversing its motion, all as shown in Fig. 5; or the whole fulcrum-bearing may be reversed, as shown in Fig. 6. The tool-carrier H extends directly past the end of the shaft B, and is provided at its outer or free end with a socket H², in which is secured a burnishing or finishing tool K of any desired shape. That portion of said tool-carrier H which is directly opposite to the end of the shaft B is made open or in the nature of a ring, in order to permit the free movement of the crank-pin B', which extends through said opening and has a bearing in the free end of the link L, the other end of which is pivoted to the tool-carrier H by means of the stud L', the steel bushing L², and the nut L³, the inner face of the tool-carrier being held in contact with the contiguous face of the arm F', as shown. When the shaft B is revolved by the pulley C, the crank-pin B' will rock the tool-carrier H about its fulcrum thus producing a reciprocating movement of the burnishing or finishing tool K, which is very effective in its work, the springs J J serving as yielding stops or cushions to check the momentum of the vibrating carrier and assist in reversing its motion with the minimum of shock or jar. By this construction the mechanism is greatly simplified, and the

number of wearing parts are so reduced that there is less liability of the machine getting out of order, which has heretofore been the case when the operating-tool has been driven at a high rate of speed.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for finishing boot and shoe heels, the combination of a revolving shaft, an outwardly-extending arm secured to the head, a tool-carrier fulcrumed upon said arm near its outer end, an operating-tool mounted in the outer or free end of said carrier, a crank-pin set in said shaft and connected to said carrier and adapted to produce a vibratory movement of said carrier about its fulcrum, and a pair of springs arranged upon opposite sides of said fulcrum-bearing surfaces and adapted to hold said carrier upon its fulcrum and to serve as cushions to check the motion of said carrier in one direction and to assist in reversing its motion, thereby lessening the shock of the vibrations of the tool-carrier.

2. In a machine for finishing boot and shoe heels, the combination of a revolving shaft, an outwardly-extending arm secured to the head, a tool-carrier provided at one end with a tool-holding socket and connected at its other end to said arm by V-shaped male and female bearing-surfaces, a pair of springs arranged upon opposite sides of said fulcrum-bearing surfaces and adapted to hold said bearing-surfaces in contact with each other, thereby forming a fulcrum about which said carrier may be vibrated against the tension of said springs, an operating-tool mounted in said socket in said carrier, a crank-pin set in said revolving shaft, and a rod connecting said pin and said carrier, whereby the revolution of said shaft will produce a vibratory movement of said carrier.

3. In a machine for finishing boot and shoe heels, the combination of a revolving shaft, an outwardly-extending arm secured to the head, a tool-carrier provided at one end with a tool-holding socket and connected at its other end to said arm by V-shaped male and female bearing-surfaces, a steel pin reinforcing the bearing-edge of the male bearing-surface, a pair of springs arranged upon opposite sides of said fulcrum-bearing surfaces and adapted to hold said bearing-surfaces in contact with each other, thereby forming a fulcrum about which said carrier may be vibrated against the tension of said springs, an operating-tool mounted in said socket in said carrier, a crank-pin set in said revolving shaft, and a rod or link connecting said pin and said carrier, whereby the revolution of said shaft will produce a vibratory movement of said carrier.

4. In a machine for finishing boot and shoe heels, the combination of a revolving shaft,

an outwardly-extending arm secured to the head, a tool-carrier provided at one end with a suitable tool-holding socket provided with an opening opposite the end of said shaft and connected at its other end to said arm by V-shaped male and female bearing-surfaces, a pair of springs arranged upon opposite sides of said fulcrum-bearing surfaces and adapted to hold said V-shaped bearing-surfaces in contact with each other and to serve as yielding stops or cushions during the vibratory movement of said tool-carrier, a finishing-tool mounted in said socket, a crank-pin set in said revolving shaft and extending through the opening in said tool-carrier, and a rod connecting said pin with said carrier.

5. In a machine for finishing boot and shoe heels, the combination of a revolving shaft mounted in suitably-fixed bearings, a crank-pin set in or carried by said shaft, an outwardly-projecting arm mounted upon and adjustable about one of said bearings, a tool-carrier fulcrumed at one end to the movable end of said arm and provided with a socket at its other end, springs arranged upon opposite sides of said fulcrum and adapted to serve as cushions to relieve the shock of the reversal of the motion, an operating-tool mounted in said socket, and a link connecting said tool-carrier to said crank-pin, whereby the rotation of said shaft will cause a vibratory movement of said carrier-arm and operating-tool vertically, horizontally, or at any desired angle, according to the position to which said carrier-supporting arm is adjusted about the axis of said shaft.

6. In a machine for finishing boot and shoe heels, the combination of a revolving shaft, a crank-pin set therein, an outwardly-extending arm adjustably secured about the bearing for said shaft at any desired angle and provided near its outer end with a V-shaped rib or projection and two inwardly-projecting studs, each having a nut, head, or shoulder at its inner end, a tool-carrier provided with a central opening to permit the free movement of said crank-pin and also provided at one end with a V-shaped bearing-surface and suitable slotted ears surrounding said studs, a spring interposed between the nut or shoulder of each of said studs and one of said ears, an operating-tool secured to the end of said carrier farthest from its pivotal connection, and a rod connecting said crank-pin with said carrier.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 4th day of February, A. D. 1892.

JAMES H. BUSELL.
EUGENE H. TAYLOR.

Witnesses:

N. C. LOMBARD,
GEO. E. GOODING.