

G. W. COLBER.
SHOE SOLE FINISHING MACHINE.
APPLICATION FILED NOV. 11, 1907.

1,003,432.

Patented Sept. 19, 1911.

3 SHEETS-SHEET 1.

Fig. 3.

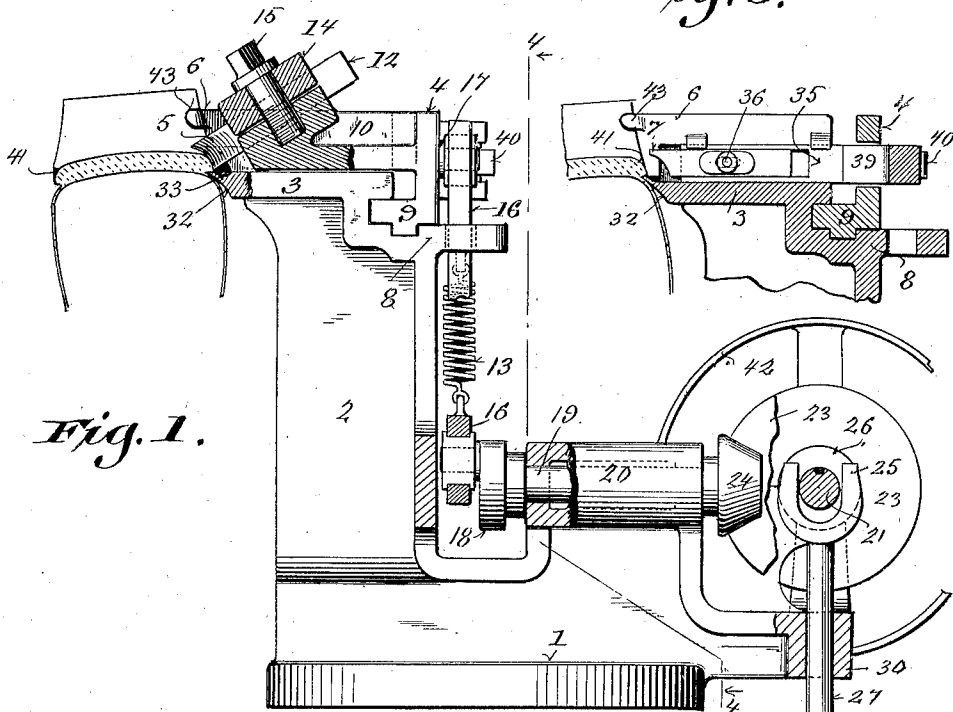
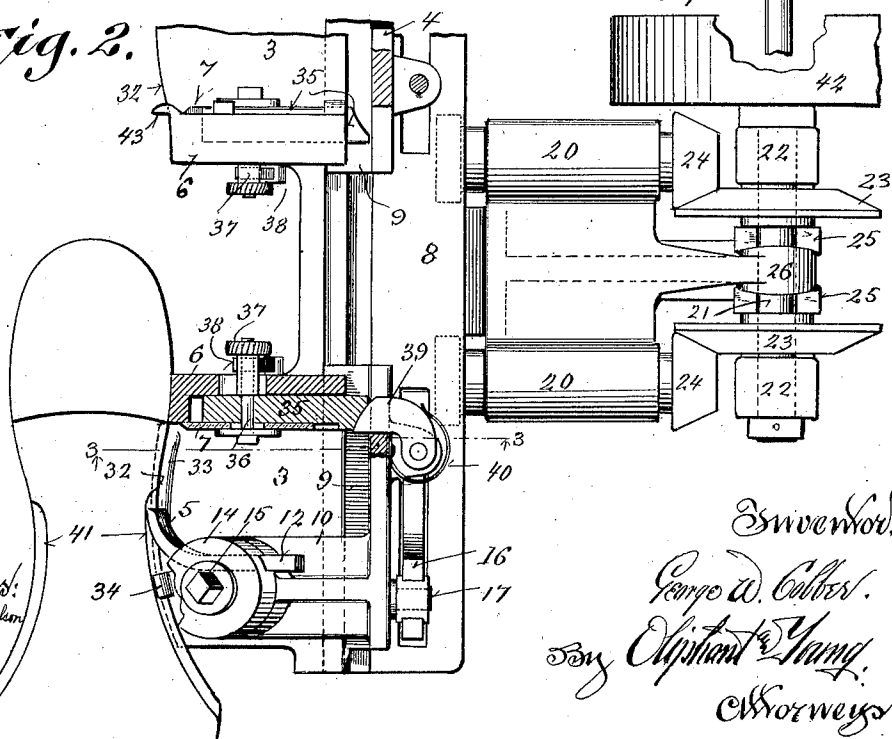


Fig. 1.

Fig. 2.



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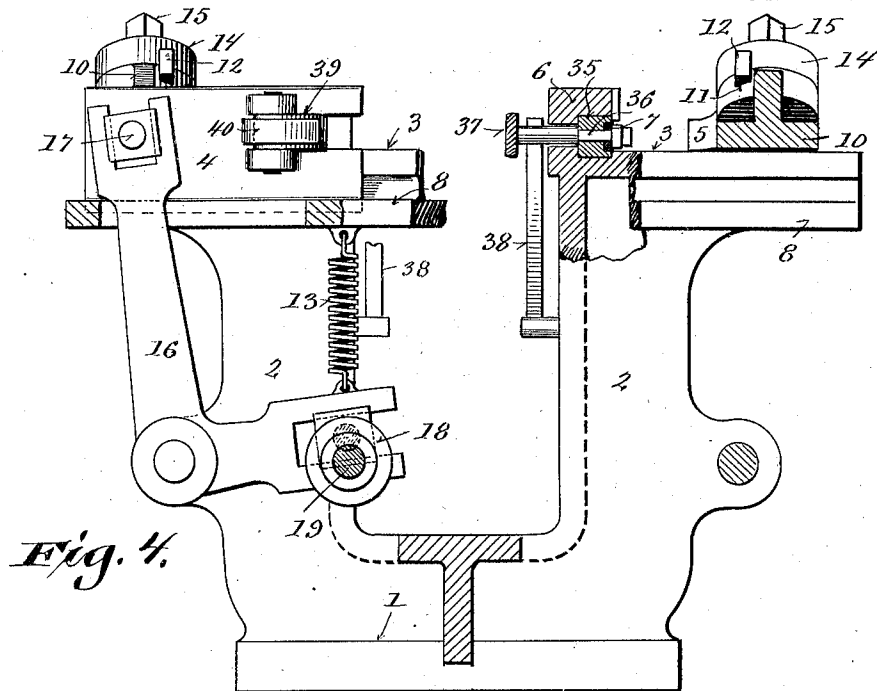


Fig. 4.

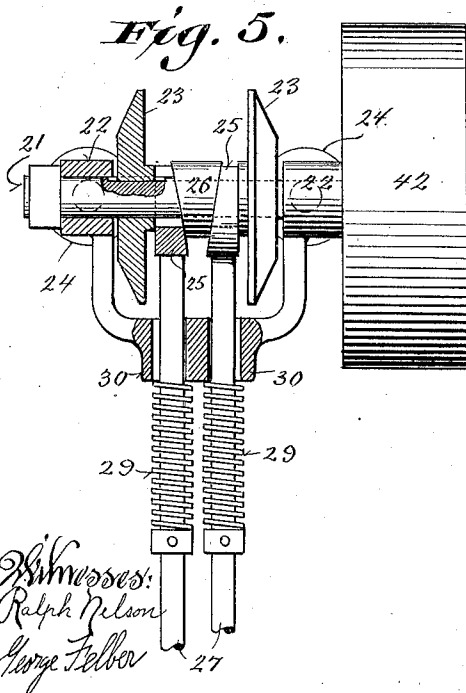


Fig. 5.

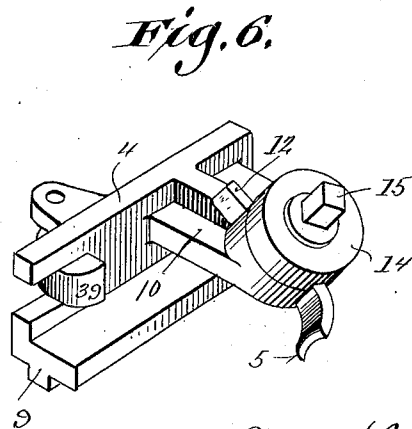


Fig. 6.

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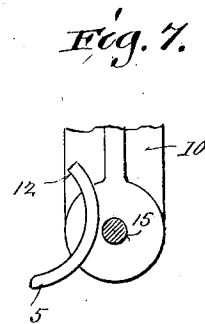
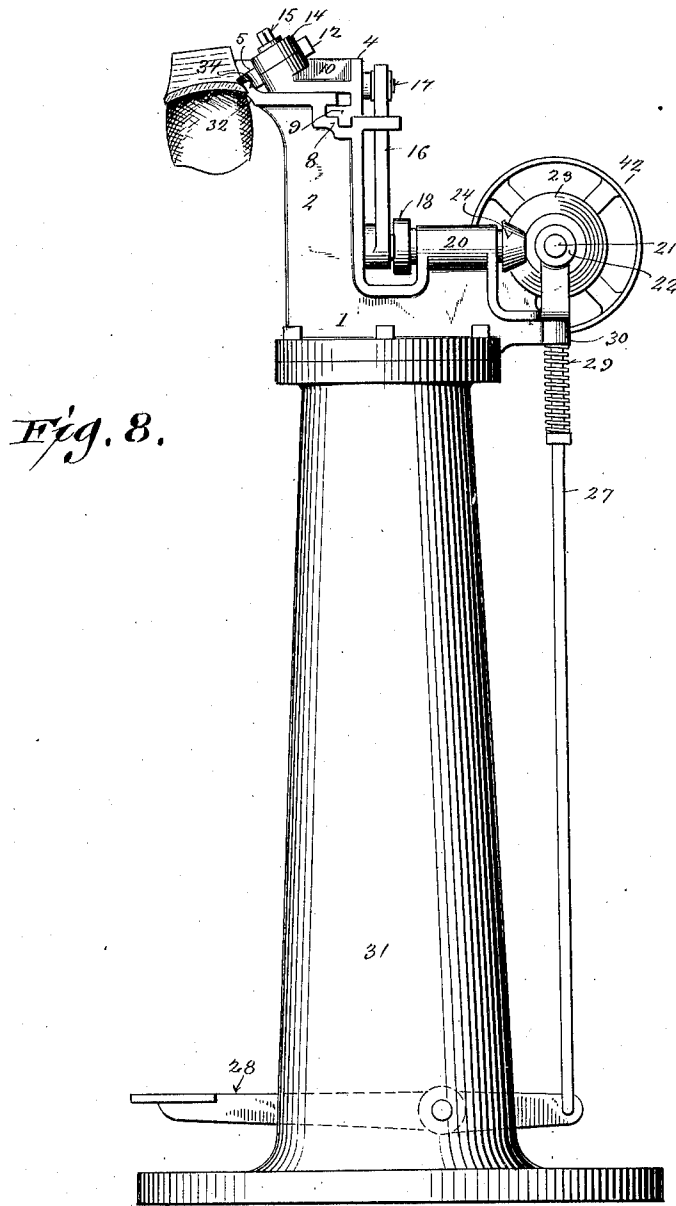
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

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SHOE-SOLE-FINISHING MACHINE.

1,003,432.

Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed November 11, 1907. Serial No. 401,629.

To all whom it may concern:

Be it known that I, GEORGE W. COLBER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Shoe-Sole-Finishing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide a simple, economical and effective machine for completing the operation of edge-trimming in finishing the shanks of shoes, said edge-trimming being heretofore completed by a hand-tool, owing to the fact that the rotary cutting-tool or trimmer now in common use can only partially trim the shoe-shank, it being necessary to stop the same at a slight distance from the breast of the heel in order to prevent said heel from being marred.

The invention therefore consists in various details of construction and combination of parts as hereinafter fully set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents a side elevation of a machine-head embodying the features of my invention, with parts broken away and parts in section to better illustrate the details; Fig. 2, a plan view of same, parts being broken away and in section to illustrate certain novel features; Fig. 3, a detail sectional view, as indicated by line 3—3 of Fig. 2; Fig. 4, a rear view of the head, with parts broken away and parts in section, as indicated by line 4—4 of Fig. 1; Fig. 5, a detail sectional elevation of the driving-gear and clutch-mechanism; Fig. 6, a perspective view of a reciprocative knife-carrying block with a knife in position thereon; Fig. 7, a plan view of a portion of the reciprocative block showing another form of knife, and Fig. 8, a side elevation of the complete machine upon a reduced scale.

Referring by numerals to the drawings, 1 indicates a head having upwardly projecting standards 2 which terminate in tables 3 for the support of reciprocative blocks 4 that carry planing-knives 5, the tables being also provided with guide-ways 6 into which are reciprocatively mounted knives 7 arranged to operate at right-angles to the planing-knives. The rear edges of the

tables are connected by an integral web 8 that is longitudinally grooved to form a seat for a tongued rail-portion 9 of each of the blocks 4, and projecting at right-angles to each of said rail-portions are arms 10, that terminate in oblique faced disks having seats 11, into which seats are adjustably fitted the shanks 12 of the knives 5. Each knife is held in its adjusted position by a collar 14, that is also formed with a seat for the knife-shank, the collar being clamped to the oblique-faced disk by a set-screw 15, which set-screw passes through an aperture in said collar and is in screw-threaded engagement with the disk. It is obvious by the knife clamping arrangement just described, said knives may be ground indefinitely and as wear takes place the shanks can be adjusted to bring the cutting edges of the aforesaid knives in the proper relation with respect to work.

As shown in Fig. 7 of the drawings, the knife-shanks and their seats may be circular in formation; by this construction when the knives are moved out their cutting edges will always retain their same relative position in all directions, being advanced as they are rotated in their seats.

The mechanism of the machine is in duplicate in order that both edges of a shoe-sole may be operated upon, the shoe-sole being adjusted to one cutting apparatus and thereafter reversed for trimming its opposite edge to the duplicate cutting apparatus, in view of which one side only of said machine will be described in detail.

Reciprocative motion is imparted to the block 4 by means of a bell-crank 16 that is pivotally mounted upon the standard 2, one arm of the bell-crank being connected to a pin 17 which projects from the block, while the other arm is in wrist-pin connection with a crank-disk 18 fast on a shaft 19, the shaft being mounted in a bearing-sleeve 20 forming part of the head. The bell-crank arm which connects the block 4 passes through a slot in the table-web 8, while the opposite arm of said bell-crank is provided with a coil-spring 13 having one end connected to said web. This spring serves to insure a return of the block to its position of rest should the crank-disk 18 fail to make a complete revolution through power applied thereto.

A cross shaft 21 is supported in bearings

22 that form part of the head 1, and splined in this shaft is a bevel-faced friction disk 23, which disk is arranged to transmit motion to the crank-disk shaft 19 through a conical hub 24 fast thereon. Continuous motion is imparted to the cross-shaft 21 from a drive-pulley 42 secured thereto, it being understood that an annular friction-drive mechanism is employed in connection with said shaft for transmitting motion to the duplicate set of knives heretofore mentioned. Each friction-disk 23 is forced against its corresponding conical hub by a wedge-faced collar 25 which straddles the cross-shaft 21, having one face thereof in contact with the face of the disk hub, an opposite oblique face of the collar opposed by a corresponding face of an ear 26, the ear constituting an extension of the head, as best shown in Fig. 2. The collar 25 forms part of a rod 27, which rod is actuated by a foot-treadle 28 in opposition to a spring 29 that is interposed between an upper rod-guide 30 and a set-collar carried by the rod, the rod-guide aforesaid constituting a portion of the head 4. The foot-treadle to which the rod is attached, as shown in Fig. 8, is pivotally mounted in a column 31, which column forms a support for the head. The front edge 32 of each table conforms in outline to that portion of the shoe-sole to be operated upon, and serves as a gage against which the sole abuts when positioned for the work, the edge being beveled and adapted to fit between the shoe-upper and projecting sole. The shoe-sole slightly overlaps the top-face of the front edge 32 and is acted upon by the reciprocative planing-knife 5 to complete the trimming operations, said top-face being provided with a gutter 33 to permit sufficient depression of the knife in order that the same may make a clear cut in its operation. A lug 34 also projects from the table to the rear of the knife and serves as a stop against which the shoe-sole abuts when in position, the front edge of the guide-way 6, previously mentioned, serving as a rest for the heel, as illustrated in Figs. 1 and 2. Each reciprocative knife 7 has a forward concave cutting-edge and is adjustably secured to a plunger-block 35, by means of a bolt 36 and set-nut 37 in threaded engagement therewith, the set-nut passing through an aperture in the back-wall of the guide-way 6, into which the plunger-block is fitted. A leaf-spring 38 is secured to the standard 2, the free-end of which spring opposes the set-nut and exerts a pressure to normally force a rear beveled face of the plunger-block against a similar beveled face nose of a trip-cam 39. This trip-cam is pivotally mounted between ears of the block 4, its nose-portion projecting through a slot in said block, the rear wall of which slot

forms a stop for the trip-cam against which the latter is held by a spring 40 secured to said block, as best shown in Fig. 2.

Fig. 2 of the drawings illustrates a portion of a shoe in position to be finished, the bevel 41 of the sole, which has previously been cut by a rotary trimmer being stopped short of the breast of the heel. In order to complete the trimming or jointing, the operator presses down the foot-lever connected to the mechanism at this side of the machine, causing the friction-drive to be put in motion, which in turn imparts a forward motion to the block 4. The trip-cam immediately acts upon the knife 7, which knife enters the sole at the breast of the heel making a slight cross-cut or incision and thereafter is retracted by the spring 38. The planer-knife 5 in the meantime starts forward and shaves off the sole-edge to a bevel corresponding to that which had been partially completed, said knife reaching the limit of its forward stroke at the cross-cut just mentioned and thereby severing the strip, after which the aforesaid knife and its connected parts are returned to their normal position, the trip-cam having snapped over the end-face of the plunger-block 35 without disturbing the cross-knife. By reason of the spring connection of the bell-crank, the operator may remove his foot from the treadle after the crank-disk has passed the point of a half revolution, said spring being of sufficient power to insure the movable parts being brought back to their normal position. The shoe is then reversed and placed in position adjacent the knives of the duplicate mechanism at the opposite side of the machine and the operation is repeated, thus by two motions of the operator a shoe is "jointed" or finished in the trimming process with speed and accuracy heretofore impossible, the work being accomplished by unskilled labor.

As shown in Figs. 1, 2, and 3, of the drawings, the guideways 6 are provided with stop-lugs 43 against which the heel-breast is fitted when positioned to the machine, the stop-lugs serving to limit the positioning of the heel accurately with relation to the knives.

I claim:

1. A shoe-sole finishing machine comprising a table having an edge against which the shoe-sole is fitted, a reciprocative cross-cut knife carried by the table and adapted to enter said sole at the heel-breast, a reciprocative block mounted upon said table, a planer-knife carried by the block, means in connection with said block for actuating the cross-cut knife, a driving mechanism for the aforesaid block, and controlling means for the driving mechanism.

2. A shoe-sole finishing machine comprising a table having an edge against

which the shoe-sole is fitted, a reciprocative cross-cut knife carried by the table and adapted to enter said sole at the heel-breast, a reciprocative block mounted upon said
5 table, a planer-knife carried by the block, means in connection with said block for actuating the cross-cut knife, an intermittently actuated crank-disk, and a bell-crank connecting the crank-disk and block.

In testimony that I claim the foregoing I 10
have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

GEORGE W. COLBER.

Witnesses:

GEO. W. YOUNG,

GEORGE FELBER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
