(No Model.) 2 Sheets—Sheet 1.

H. H. ARNOLD.

CHANNELING MACHINE.

No. 520,132. Patented May 22, 1894.

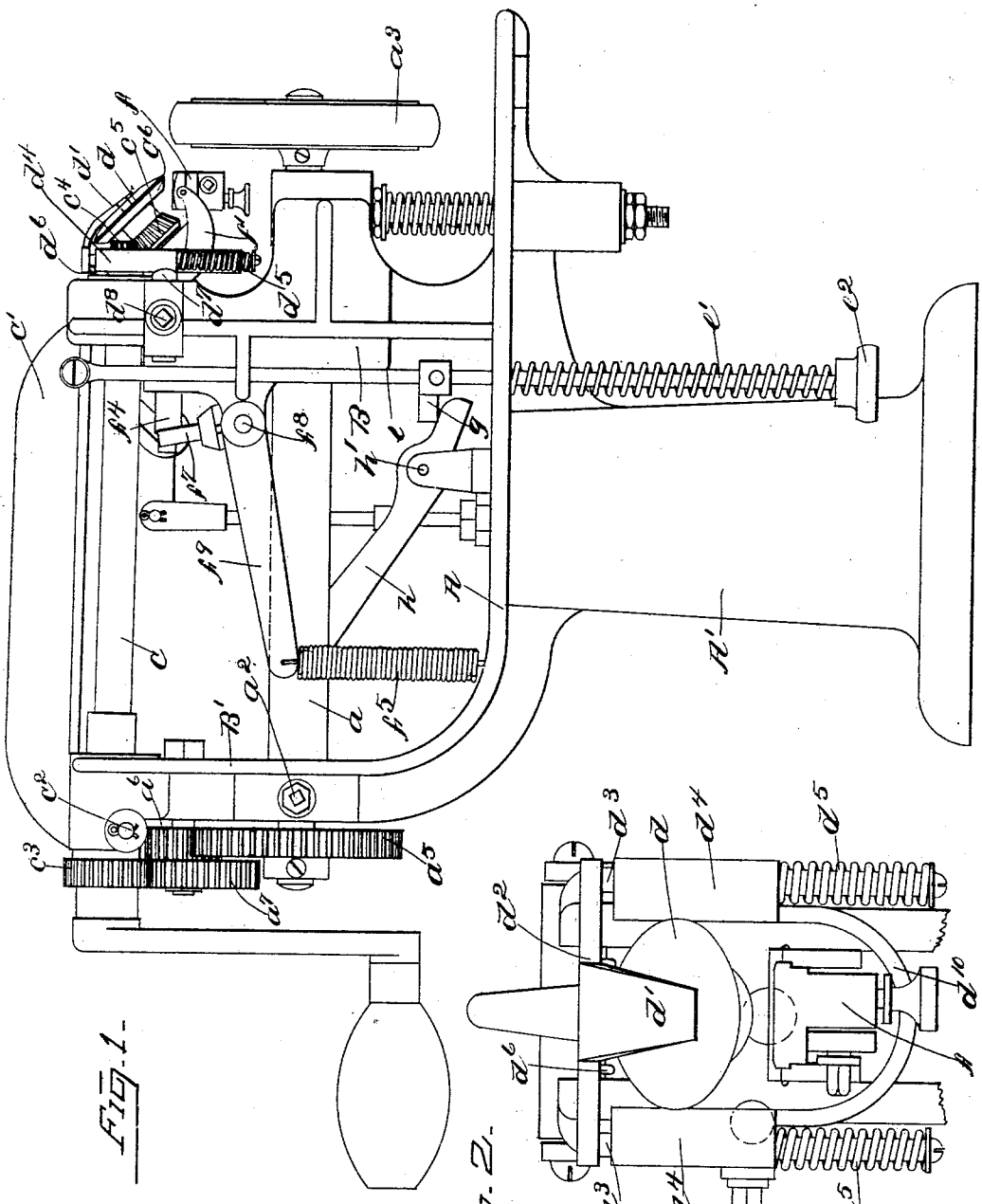

Fig. 1.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

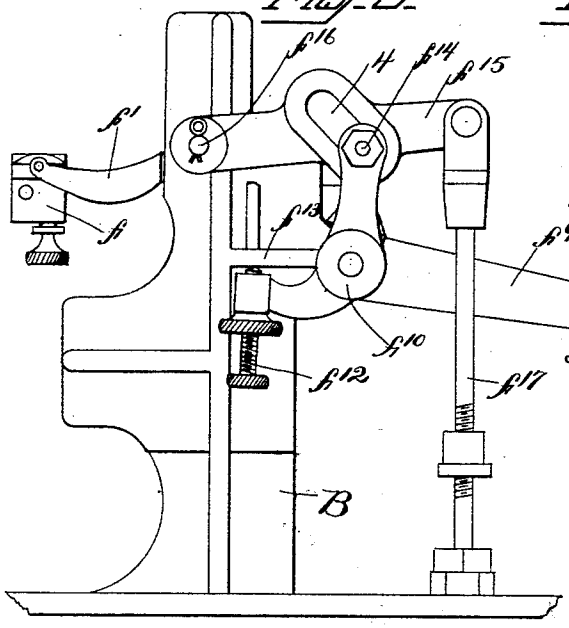


Fig. 4.

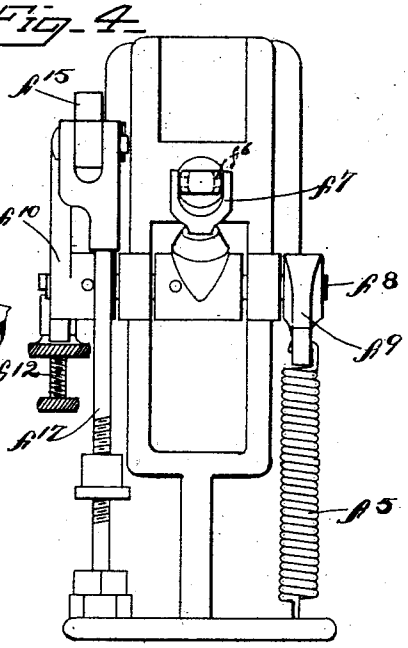


Fig. 5.

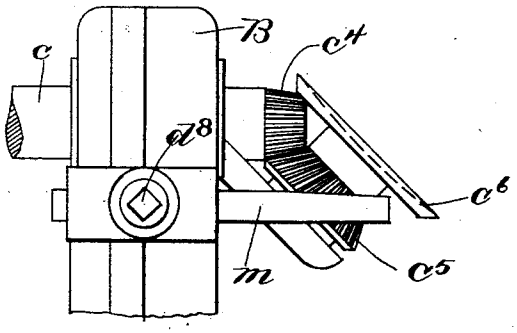
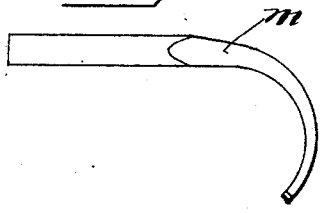


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY H. ARNOLD, OF ROCKLAND, ASSIGNOR TO THE EPPLER WELT MACHINE COMPANY, OF BOSTON, MASSACHUSETTS.

CHANNELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 520,132, dated May 22, 1894.

Application filed August 12, 1893. Serial No. 483,005. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. ARNOLD, of Rockland, county of Plymouth, State of Massachusetts, have invented an Improvement in Channeling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention has for its object to improve the construction of the channeling machine shown in United States Patent No. 458,331, granted to me August 25, 1891, and consists in certain details of construction which will be hereinafter pointed out.

Figure 1, shows a rear elevation of a channeling machine embodying this invention; Fig. 2, a detail showing the gage roll, and supports therefor; Figs. 3 and 4 details showing the adjusting device for the arm which bears the tilting blade holder; Figs. 5 and 6, details showing a modified form of guide.

The base plate A, supported upon the column A′, the vertical stands or supports B, B′, the horizontal shaft a, its bearing pivoted at a^2 to the stand B′, and carrying the lower feeding roll a^3, the gear a^5, secured to said shaft a engaged by a pinion a^6, fixed to a gear a^7, engaged and driven by a pinion c^3 secured to a shaft c, to which a hand crank may be secured, the bearing frame c' for said shaft c, pivoted at c^2 to the stand B′, the bevel gear c^4 at the opposite end of said shaft c engaging the bevel gear c^5 mounted upon a short diagonal shaft or stud, the upper feed roll c^6, which bears upon the welt side of the sole of the boot or shoe, secured to said bevel gear c^5, the yielding support for the outer end of shaft a, the channel cutting blade holder f, pivoted in a yoke f' formed upon one end of the arm f^4, having its bearings in the stand B, yet adjustable longitudinally therein, are all substantially as shown in said patent to which reference may be had.

The upper or outer face of the roll c^6, is made slightly concave, see dotted lines Fig. 5, and located above yet free from contact therewith is a gage roll d pivoted to the front end of a short overhanging arm d', projecting from a cross piece d^2, see Fig. 2, arranged upon two vertical posts d^3 mounted in or embraced by enlarged ends d^4, of a U-shaped frame d^{10}, the lower ends of said posts projecting below said end portions d^4, and encircled by spiral springs d^5, the lower ends of which bear upon or against collars secured to said posts while the upper ends bear against the lower ends of the portions d^4, the tendency of said springs being to draw the cross piece d^2 downwardly until said piece strikes a pin d^6, projecting from the overhanging arm c'. The U-shaped frame d^{10} is adjustably and detachably supported by the stand B, by an arm d^7, which projects rearwardly from the frame and enters a hole or socket formed in the stand B, being held therein by a set screw d^8. The roll d serves as a gage roll, bearing against the upper drawn over last, while the roll c^6 serves as the upper feed roll. When it is desired to channel soles wherein the edge of the sole is used as the guide, instead of using the last as the guide, the gage roll d and its supporting U-shaped frame d^{10} will be detached from the machine by loosening the set screw d^8, and a stationary guide m, such as represented in Figs. 5 and 6, will be applied and held by said set screw d^8. The pivoted bearing frame or arm c' has connected to it near its forward end, two vertical rods e, which extend down through the bed plate A for a considerable distance, the lower projecting ends of said rods beneath the plate being encircled by spiral springs e', the lower ends of which bear upon adjustable nuts e^2, on the rods e while the upper ends bear against the under side of the bed plate, the tendency of said springs being to draw the bearing frame c' down.

The rear end of the arm f^4, which is forked at its forward end and supports the tilting blade-carrying block f is provided with a circumferential groove which receives projections f^6 of a yoke f^7, secured to a rock shaft f^8, having its bearings in the stand B. To the rear end of said rock shaft f^8, an arm f^9 is secured which is connected by a spring f^5 with the bed plate A, the tendency of said spring being to draw the outer end of the arm f^9, down. To the front end of said rock shaft f^8, a bell crank lever f^{10}, is secured, through the front end of one arm or member of which an adjusting screw f^{12} passes, which

bears upon or against the under side of a projection f^{13}, on the stand B, said screw by its adjustment turning the rock shaft f^8 to thereby longitudinally adjust the blade-carrying arm f^4. A pin f^{14} projects through or rearwardly from the other arm or member of said bell-crank lever f^{10}, which works in a diagonal slot 4 formed in an arm f^{15} pivoted at f^{16} to the stand B, the rear or opposite end of said arm being connected with an adjustable rod f^{17} by means of which the position of said diagonally slotted arm may be determined.

A cross piece g, is rigidly secured to the vertical rods e, e, which is engaged by one end of a hand lever h pivoted at h' to the plate A, said hand lever being operated to manually raise the feed roll c^6 for the introduction of the work.

I claim—

1. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll substantially as described.

2. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis and an independent gage roll, also having a diagonal axis, located adjacent the feed roll and a vertically yielding frame supporting said gage roll, substantially as described.

3. In a channeling machine, a channel cutting blade, and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll and a horizontally adjustable frame supporting said independent gage roll, substantially as described.

4. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll and a detachable supporting frame for said gage roll, substantially as described.

5. In a channeling machine, a channel cutting blade and blade holder and lower feed roll, combined with an upper feed roll having a diagonal axis, a shaft and gearing for positively rotating said feed roll, a pivoted bearing frame supporting said shaft, two vertical rods e, e, connected to said frame and passing down through the bed plate of the machine, spiral springs e', encircling said rods, the upper ends of which bear against fixed points, and the lower ends against adjusting nuts on the rods e, e, a cross piece g rigidly connecting said vertical rods e, e, together, and the pivoted hand lever h which engages said cross piece to raise the upper feed roll for the introduction of the work, substantially as described.

6. In a channeling machine, a channel cutting blade and blade holder, and lower feed roll, combined with an upper feed roll, having a diagonal axis, pivoted bearing frame supporting the operating shaft of said feed roll, an independent gage roll located adjacent the feed roll and supporting frame therefor, and the pin d^6, which limits the downward movement of the supporting frame of the gage roll, substantially as described.

7. In a channeling machine, the upper and under positively driven feed rolls, combined with a channel cutting blade, and longitudinally adjustable oscillating arm supporting it, a spring controlled rock shaft and yoke carried by it engaging said blade supporting arm, an arm projecting from said rock shaft, an adjusting screw passing through the outer end of said arm and a fixed projection against which said adjusting screw bears, substantially as described.

8. In a channeling machine, the upper and under positively driven feed rolls, combined with a channel cutting blade, and longitudinally adjustable oscillating arm supporting it, a spring controlled rock shaft and yoke carried by it engaging said blade supporting arm, a bell-crank lever secured to said rock shaft, and an adjusting screw passing through one arm of said bell crank lever, a fixed bearing point for it, and a pin projecting from the other arm of said bell crank lever, the arm f^{15} pivoted to the frame and having a diagonal slot 4 for said pin, and an adjustable rod f^{17} controlling the position of said arm, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY H. ARNOLD.

Witnesses:

CHARLES B. CROCKER,

C. C. MARKHAM.