

F. H. PERRY.
TRIMMING MACHINE.
APPLICATION FILED APR. 29, 1911.

1,047,982.

Patented Dec. 24, 1912.

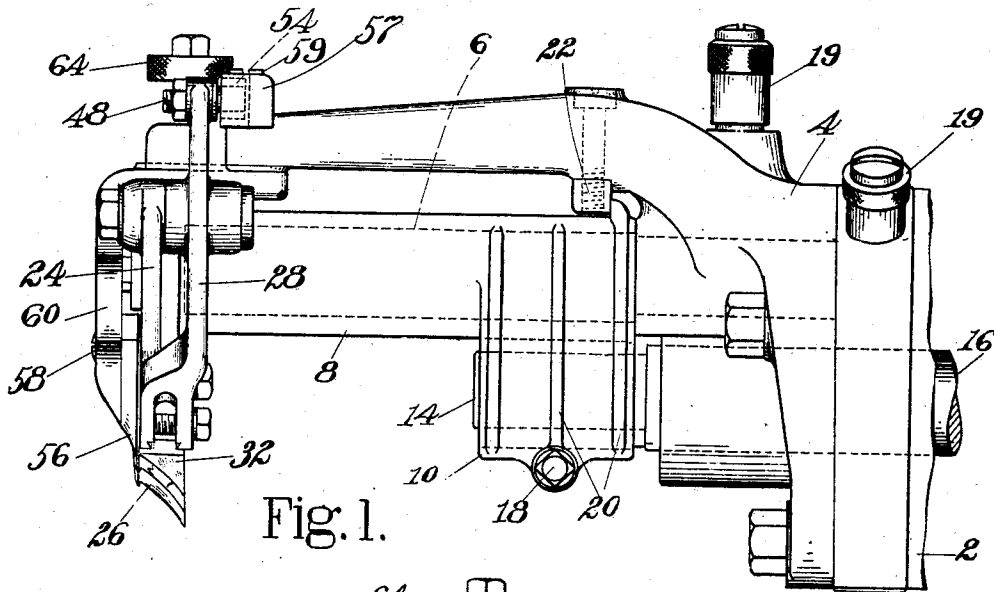


Fig. 1.

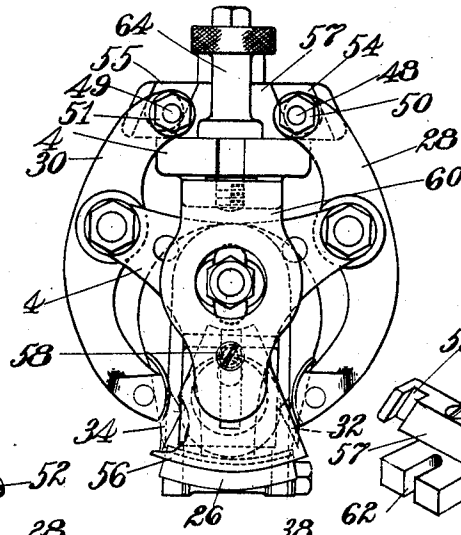


Fig. 2.

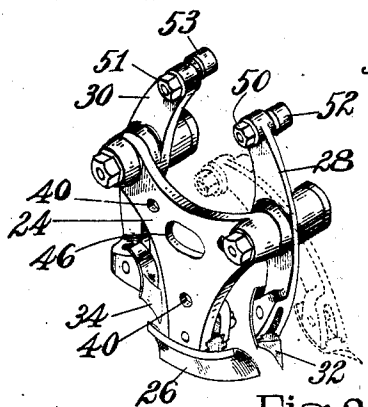


Fig. 3.

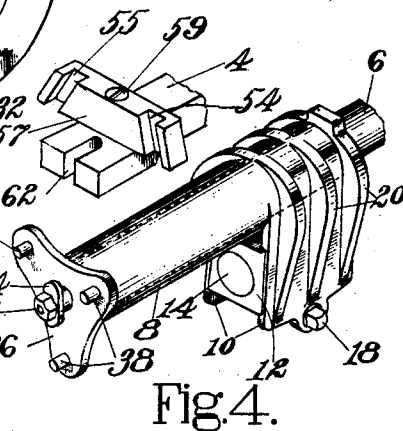


Fig. 4.

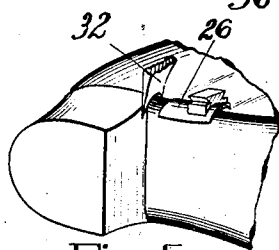


Fig. 5.

WITNESSES.

Elizabeth C. Coups
J. Blanche Hargraves.

INVENTOR.

Fredrick H. Perry
By his Attorney,
Nelson H. Kottand

UNITED STATES PATENT OFFICE.

FREDERICK H. PERRY, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TRIMMING-MACHINE.

1,047,982.

Specification of Letters Patent.

Patented Dec. 24, 1912.

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To all whom it may concern:

Be it known that I, FREDERICK H. PERRY, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Trimming-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to trimming machines and particularly to machines of the type disclosed in my prior applications assigned to the assignee of the present invention, Ser. Nos. 395,194, filed Sept. 30, 1907, and 543,071, filed Feb. 10, 1910. The machines shown in these applications are designed particularly for trimming that portion of the edge of a shoe sole between the line of the heel breast and the point in the shank at which the usual machine trimming operation is stopped. These machines each include a knife arranged to trim along the edge of the shoe sole and a second knife arranged to cut transversely into the edge of the sole to detach the shaving formed by the edge trimming knife.

The present invention is directed particularly to the provision of a construction for facilitating the sharpening or changing of the knives, to novel means for controlling the relative movements of the knives, and to the general improvement of the machine.

To these ends an important feature of the invention consists in a construction in which one or more of the knife holders may be removed readily from the machine with its knife secured in operative position in the holder. The knife may then be sharpened without removing it from the holder and may be replaced in the machine. This construction is of advantage not only in saving the time that the workman would spend in adjusting the knife in its holder to bring it into proper relationship to the other parts of the machine such, for instance, as the guards or cooperating knife or knives, but also is of advantage in affording the workman an article of sufficient size to handle conveniently in whetting or grinding the knife.

In the illustrated embodiment of the invention the holder for the transversely cut-

ting knife or chopping knife, is pivoted to and derives its motion from the holder for the edge trimming knife. These holders preferably are so moved and the knives are so adjusted that the cutting edges move to the line of intersection of their paths. The chopping knife, therefore, severs cleanly the shaving formed by the edge trimming knife without cutting into or marring the trimmed surface of the sole edge. The means for retaining the holders in operative relationship to the driving mechanism preferably is so arranged that it may be manipulated readily to release the holders and permit them to be removed from the machine while still connected. No change of adjustment of the knives in their holders or of the holders relative to each other, therefore, is necessary, and if the sharpening required is only slight, as usually is the case, the knives will be in proper adjustment when the holders are again placed in operative position in the machine. After the knives have once been adjusted in their holders, further adjustment is unnecessary until they have become so worn that they fail to cut substantially to the line of intersection of their paths.

A further feature of the invention consists in a novel mechanism for controlling the movements of the transversely cutting knife. This mechanism preferably is arranged to permit the removal of the holder from the machine whenever the holder is released from its cooperating parts. In the illustrated construction, the holder is pivoted intermediate its ends to the holder for the edge trimming knife and at the end opposite that in which the knife is mounted it carries an adjustable eccentric stud. A roll is mounted on the stud and runs in a stationary guideway thereby causing the knife to travel in a path controlled by the form of the guideway. The adjustability of the stud affords means for varying the path of travel of the transversely cutting knife relative to the path of the edge trimming knife, as may be found necessary, for instance, to compensate for changes in the stroke of the trimming knife due to wear of the latter knife.

The invention is directed also to a novel guard for the knives and to other features that will later be described and claimed.

In the accompanying drawings, Figure.

1 is a view in side elevation of a machine embodying this invention; Fig. 2 is a front elevation of the machine shown in Fig. 1; Fig. 3 is a perspective view of the knives and their holders removed from the machine; Fig. 4 is a perspective view showing the parts of the machine to which the holders and the guard are attached; and Fig. 5 is a perspective view showing the knives in operation on the sole edge.

The machine shown agrees in the general arrangement of its knives, holders, guard, and driving mechanism with that shown in the later application above referred to.

A part of the main frame of the machine is indicated in the drawings at 2. Bolted to the side of this frame is a bracket arm 4 carrying a stationary horizontal spindle 6 on which a rocker frame 8 is mounted. At its rear end this frame is provided with two parallel depending arms 10 which are machined on their inner faces to form a slide-way for a block 12. This block is mounted on a stud 14 that projects eccentrically from a rotary shaft 16 supported in suitable bearings in the frame. A spacing stud is held between the ends of the arms 10 by a bolt 18 and serves to stiffen the arms. It will be evident that motion of the shaft 16 will be transmitted through the block 12 to the arms 10 causing the rocker frame 8 to oscillate on the spindle 6. Ducts, not shown, connect the various friction surfaces with oil cups 19 and convey lubricating material to said surfaces.

The arms 10 are provided with several stiffening ribs 20, as best shown in Fig. 4, and the rearmost of these ribs extends above the upper surface of the rocker frame 8 and bears against the rear face of a block 22 that is fastened on to the lower side of the bracket 4. This rib and the block 22 cooperate to hold the rocker frame from sliding off the spindle 6.

The holder 24 for the edge trimming knife preferably comprises a plate having a depending arm slotted and grooved to receive a dove-tailed rib on the edge trimming knife 26, and two oppositely extending arms to which the holders 28 and 30 for the transversely cutting knives are pivoted. The edge trimming knife 26 has right and left cutting edges formed at its opposite ends and the holders 28 and 30 carry right and left chopping knives 32 and 34 respectively. Each holder is split and has a dove-tailed groove formed between the split sections to receive a clamping rib with which each knife is provided. A screw threaded through the split sections of the holder serves to clamp them on to the rib and secure the knife firmly in the holder.

The trimming knife should be shaped to trim the sole edge to a transverse contour agreeing with that given to the previously

trimmed portion of the sole edge by the usual rotary cutter. Since the sole edge usually is beveled or rounded off in the shank, the edge trimming knife shown is shaped to trim the edge to a rounded or beveled contour. The chopping knives shown have their edges curved in their paths of travel to conform to the curved edges of the trimming knife and these knives preferably are adjusted to cut exactly to the trimmed surface formed by the edge trimming knife and to the end of the cut made by the trimming knife.

The rocker frame 8 and the parts above described that drive it constitute the driving mechanism for the knives; and in order to retain the knife holders in operative relationship to said mechanism the rocker frame is provided at its forward end with radial flanges forming a head having a plane end surface. This head carries three positioning pins 38, designed to enter holes 40 drilled through the holder 24, and also a short stud threaded at its end to receive a clamping nut 42. An oblong turn button 44 is positioned loosely on the threaded portion of the stud and the holder 24 has an opening 46 shaped like the turn button 44 but large enough to enable the holder to pass on over the button with the pins 38 entering the holes 40. The button may then be turned with its longest dimension across the slot 46 and then clamped against the face of the holder by the bolt 42. In this position of the parts the holder 24 will be rigidly secured to rocker frame 8.

For the purpose of controlling the movements of the chopping knives and adjusting their paths of travel, the holders 28 and 30 are drilled at their upper ends to receive studs 48 and 49 respectively which may be clamped thereon in any angular position by means of nuts 50 and 51. At the back sides of the holders the studs each have eccentric portions on which are mounted rolls 52 and 53. These rolls run in inclined slots or guideways 54 and 55 formed in a hardened block 57 that is fastened onto the bracket arm 4 by a screw 59.

It will be evident that as the rocker frame 8 oscillates about its axis, the holder 24 will be rocked with it, causing the knife 26 to make short rapid strokes. At the same time, the knives 32 and 34, because of the connections of their holders 28 and 30 with the holder 24, will be moved in paths transverse to the path of the knife 26. The several knives 26, 32, 34 should be so adjusted in their holders and the studs 48 and 49 should be so adjusted that each pair of right and left cutting edges will cut exactly to the line of intersection of their paths. As the knife 26 becomes shortened by repeated grinding its operative stroke also will be shortened and it will then become necessary

to change the adjustment of the studs 48 and 49 to swing the knives 32 and 34 closer to the knife 26, in order still to cause the knives 32 and 34 to cut into the sole edge at the ends of the cuts made by the edge trimming knife 26.

For the purpose of protecting the upper of the shoe from contact with the knives, a guard 56 is positioned in front of the knives and is shaped to enter the crease between the welt and upper of the shoe. This guard consists of a thin edged plate fastened adjustably by a screw 58 to the vertical portion of an L-shaped support 60. By this adjustment the workman may cause the guard to project more or less beyond the work engaging face of the knife 26 to accommodate sole edges that project more or less beyond the upper. The horizontal portion of said support has a rib designed to enter a groove extending parallel with the axis of the spindle 6 formed in the lower face of the bracket arm 4. This arm also is slotted vertically from its end inwardly, as shown at 62, to receive the stem of a thumb screw 64 that is threaded into the support 60. The screw 64 is provided with a shoulder to bear upon the upper face of the arm at opposite sides of the slot 62 and thereby to clamp the supporting member 60 firmly on to said arm.

In using the machine the workman presents the right hand edge of a shoe sole to the action of the knives 32 and 26 with the guard 56 positioned in the crease between the welt and upper. He starts the trimming operation at the point where the machine trimming operation stopped and then moves the shoe past the knives from right to left causing them to trim toward the heel of the shoe. When the heel strikes the chopping knife 32 it will stop this movement of the shoe since the operative stroke of this knife is made such that its point does not rise above the edge of the heel. Fig. 5 shows the knives and shoe substantially in the positions that they occupy at this stage of the trimming operation. In this position the chopping knife will cut into the sole edge in line with the heel breast and since both knives cut to the same line the trimming knife also will cut to the line of the heel breast. The chopping knife thus acts as a guard for the heel to prevent movement of the heel breast into contact with the edge trimming knife. The trimming of the right hand edge being completed, the left hand edge of the shoe is next presented to the operation of the knives 34 and 26 with the guard 56 positioned in the rand crease as before. This trimming operation is like that just described in connection with the right hand edge.

When it is desired to sharpen one or more of the knives the thumb screw 64 is loos-

ened slightly and this screw with the support 60 for the guard 56 is slid off the arm 4. The nut 42 is then loosened and the turn button 44 is moved into a horizontal position allowing the holder 24 to slide thereover carrying with it the holders 28 and 30. Fig. 3 shows the holders substantially as they appear when removed from the machine. Any one or all of the knives may then be sharpened, the holder may be replaced and clamped in position by the turn button 44, the guard again slid into operative position, and the machine will then be ready for operation.

The substitution of one set of knives for another to accommodate different shapes or thicknesses of sole edges may be effected very conveniently by having each set of knives secured in adjusted position in its own set of holders. It is then necessary merely to remove one set of holders from the machine and substitute another set having knives of the required shape and size.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A machine of the class described comprising, in combination, a knife, a holder therefor, driving mechanism for giving said holder rapid to and fro movements and a fastening device carried by said mechanism for securing said holder in operative relationship to said mechanism, said holder and fastening device being shaped to permit the holder to pass freely over the device in a certain relationship of said parts, but to fasten the holder securely in operative position in another relationship of said parts.

2. A machine of the class described comprising, in combination, a knife, a holder therefor, driving mechanism for said holder, a plurality of positioning pins and a fastening button carried by said mechanism, said holder being apertured to receive said pins and button, and means for clamping said button against said holder.

3. A machine of the class described comprising, in combination, a knife, a holder therefor, mechanism for driving said holder, guiding means cooperating with said holder to cause said mechanism to move the knife in a predetermined path, and means for normally retaining said holder in operative relationship to said mechanism, said guiding means being arranged to permit the holder to be removed from the machine when it is released from said driving mechanism.

4. A machine of the class described comprising, in combination, a knife, a holder therefor, mechanism for driving said holder, adjustable guiding means cooperating with said holder to cause the driving mechanism to move said knife in a predetermined path, means for retaining said holder in operative relationship to said mechanism and said

means, said retaining means and said guiding means being constructed to permit the removal of the holder from the driving mechanism while maintaining the adjustment of the guiding means unchanged.

5 5. A machine of the class described comprising, in combination, a knife, a holder for said knife, driving mechanism for said holder, means for removably fastening said
10 holder in operative relation to said driving mechanism, a second knife and a holder for said second knife having connection with the first holder to retain it in operative position in the machine.

15 6. A machine of the class described comprising, in combination, a plurality of knives, connected holders for said knives, mechanism for driving said holders and means for retaining said holders in opera-
20 tive relationship to said driving mechanism constructed to permit the holders to be removed readily from the driving mechanism while retaining their connection with each other undisturbed.

25 7. A machine of the class described comprising, in combination, a plurality of knives, independent holders for said knives connected for movement relative to each other, driving mechanism for said knives,
30 guiding means cooperating with at least one of said holders to cause said driving mechanism to move said knives in a predetermined relationship to each other, and means for retaining said holders in operative rela-
35 tionship to said driving mechanism, said guiding means being constructed to permit the removal of the holders from the machine in their connected relationship when they are released from the driving mechanism by
40 said retaining means.

8. A machine of the class described comprising, in combination, a plurality of knives, independent connected holders for said knives, driving mechanism for said
45 holders, adjustable guiding means carried by one of said holders and cooperating with a part of the machine to cause said knives to move in a predetermined relationship to each other, and means for retaining said
50 holders in operative relationship to said driving mechanism, said retaining means and said guiding means being arranged to permit the removal of the holders from the driving mechanism in their connected condi-
55 tion while maintaining the adjustment of said guiding means undisturbed.

9. A machine of the class described comprising, in combination, a knife for trim-
60 ming along the edge of a shoe sole, a knife arranged to cut transversely into the edge of the sole at the end of the cut made by the edge trimming knife, connected holders for said knives, a common driving mechanism for said holders and a single fastening
65 means for retaining said holders in opera-

tive relationship to said driving mechanism constructed to permit the removal of the holders, while connected, from the machine.

10. A machine of the class described comprising, in combination, a double edged
70 trimming knife, a holder for said knife, a pair of transversely cutting knives cooperating respectively with the edges of said trimming knife, holders for said transversely cut-
75 ting knives, driving means for said trimming knife holder, the other holders being connected to said trimming knife holder to be driven thereby, and means for retaining said trimming knife holder in operative rela-
80 tionship to its driving mechanism whereby the release of said retaining means permits the removal of said holders together from the machine.

11. A machine of the class described comprising, in combination, a knife holder, a
85 knife secured in said holder, means for rocking said holder, a second knife holder pivoted to the first holder, a knife carried by said second holder, a stationary member having a guideway formed therein, a device
90 carried by said second holder operating in said guideway to guide said second knife in its movements and fastening means for removably securing the first holder in operative relationship to said driving mech-
95 anism.

12. A machine of the class described comprising, in combination, a knife holder, a
100 knife secured in said holder, means for rocking said holder, a second knife holder pivoted to the first holder, a knife carried by said second holder, a stationary member having a guideway formed therein, an adjustable device carried by said second holder and operating in said guideway to control
105 the movements of said second knife, fastening means for removably securing the first holder to said driving mechanism and a detachable guard for said knives.

13. A machine of the class described comprising, in combination, a knife holder, a
110 knife secured in said holder, means for rocking said holder, a second knife holder connected to the first holder for movement thereby, a knife carried by said second
115 holder, a stationary member having a guideway formed therein and a device carried by said second holder and positioned in said guideway to guide said second knife in its movements.
120

14. A machine of the class described comprising, in combination, a knife holder, a
125 knife secured in said holder, means for rocking said holder, a second knife holder pivoted to the first holder, a knife carried by said second holder, a stationary member having a guideway formed therein and a device carried by said second holder and positioned in said guideway to control the
130 movements of said second knife, said device

and said member being constructed for relative adjustment to vary the path of travel of the second knife.

15. A machine of the class described comprising, in combination, a knife holder, a knife secured in said holder, means for rocking said holder, a second knife holder pivoted to the first holder, a knife carried by said second holder, a stationary member having a guideway formed therein, an adjustable eccentric stud carried by said second holder, a roll mounted on said stud and positioned in said guideway and means for holding said stud in an adjusted position on said holder.

16. A machine of the class described comprising, in combination, a rocker frame, means for rocking said frame, a plate removably secured to said frame having a depending arm shaped to form a knife holder, a double edged knife secured in said holder, a pair of transversely cutting knives, independent holders for said knives pivoted to opposite sides of said plate, a stationary member having two guideways and a device carried by each of said pivoted holders to run in said guideways and cause the knives last-mentioned to move in paths transverse to the path of the double-edged knife.

17. A machine of the class described comprising, in combination, a rocker frame, means for rocking said frame, a plate removably secured to said frame having a depending arm and two lateral arms, an edge trimming knife having cutting edges formed at opposite ends removably secured to said depending arm, a pair of knife holders pivoted respectively to said lateral arms, knives carried by said holders, an adjustable eccentric stud carried by each of said knife hold-

ers, means for securing said studs in adjusted positions, a roll carried by each stud, a stationary member having two inclined guideways formed to receive said rolls, and a detachable guard positioned in front of said knives.

18. A machine of the class described comprising, in combination, an edge trimming knife, driving mechanism for giving said knife rapid to and fro movements, a holder for said knife removably secured in operative relation to said mechanism, a guard for said knife mounted in position to prevent the removal of said knife holder from the machine but movable out of said position to permit such removal of the holder, and means for holding said guard in operative position.

19. A machine of the class described comprising, in combination, an edge trimming knife, a holder for said knife, driving mechanism for giving said holder rapid to and fro movements, means for removably securing said holder to said mechanism, a guard positioned in front of said knife, a support for said guard, a slotted frame piece on which said support is slidable into or out of operative position, and a thumb screw carried by said support arranged to project through said slot and bear upon said frame piece to clamp said support thereto.

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

FREDERICK H. PERRY.

Witnesses:

JOHN H. MCCREADY,
JAMES R. HODDER.