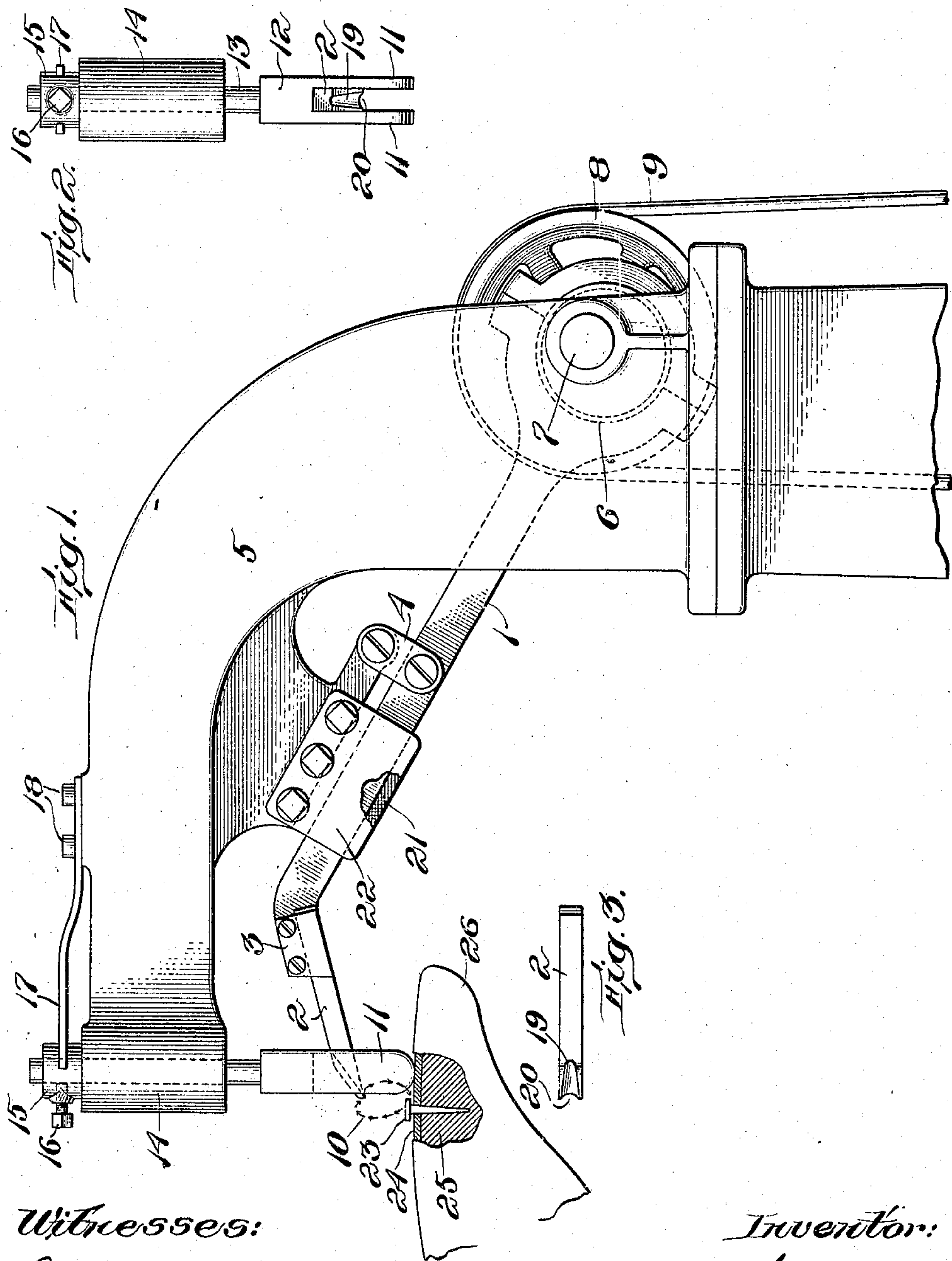


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 INSOLE TACK PULLER.
 APPLICATION FILED DEC. 21, 1907.

923,828.

Patented June 8, 1909.



Witnesses:
 Edward Maxwell.
 David M. Blank

Inventor:
 Louis G. Freeman,
 by Geo. H. Maxwell, Atty.

UNITED STATES PATENT OFFICE.

LOUIS G. FREEMAN, OF CINCINNATI, OHIO.

INSOLE-TACK PULLER.

No. 923,828.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed December 21, 1907. Serial No. 407,517.

To all whom it may concern:

Be it known that I, LOUIS G. FREEMAN, a citizen of the United States, and resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improvement in Insole-Tack Pullers, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The present invention is a machine for pulling welt innersole tacks in the process of lasting, being particularly intended for raising the holding and anchor wire tack.

Innersoles are usually secured by at least three or more holding tacks located centrally of the innersole and last, said tacks being usually driven down hard into the last and occasionally having their heads more or less embedded in the innersole. Accordingly I have devised the hereinafter described means for digging under the heads of these tacks without giving much shoving movement against the tack, which movement would tend to injure the leather because the tack is down deep in the leather. I employ a cycloidal movement, and yet so arrange the mechanism that the tack lifter or puller is enabled to dig under the head of the tack and lift very nearly straight up.

The main feature of my invention resides in providing gaging means for normally preventing the lifting tool from striking into the leather, yet said gaging means being capable of upward movement whenever required to permit the tool to get more of a digging or striking action with reference to the leather.

In the drawings, in which I have shown a preferred embodiment of my invention, Figure 1 represents in side elevation one form of my innersole tack puller; Fig. 2 is a detail thereof in front elevation; and Fig. 3 is a plan view of the tack lifting, moving, or pulling tool.

In the machine of the drawings, I have shown a tack-moving tool in the form of a reciprocating arm 1 provided at its forward end with an engaging finger or tool proper 2 clamped therein at 3, said arm 1 being suspended by links 4 from an overhanging neck or head 5 of the machine, and operated by an eccentric 6 and main shaft 7 by a belt pulley 8 and belt 9. The path of movement of the tack-engaging point of the tack-lifting tool is indicated by the dotted line 10. Closely

adjacent this path on the opposite sides of the tool 2 is a gage, herein shown as in the form of opposite plates 11 rigidly connected at their upper ends at 12 and carried by a sliding rod or post 13 vertically supported in the forward end 14 of the head 5. The post 13 is provided at its upper end with a stop nut 15 adjustably secured thereon by a set bolt 16 and engaged by a leaf spring 17 fast at 18, whereby the gage 11, 12 is normally maintained downward so that its lowermost rounded edges are very nearly level with the bottom of the path of movement of the tool. The engaging end of the tool is obliquely grooved at 19 and slightly forked at its extreme end 20. Opposite guide plates 21, 22 embrace the bar 1 at its opposite sides to give precision of forward and backward movement to the tack-moving tool and to prevent wobbling or uncertain lateral movement, and thereby enabling the operator to dig out the tacks more easily. An innersole holding tack is indicated at 23 extending through the innersole 24 into the last 25, which is herein shown as having an upper stretched thereover in the process of lasting.

In operation, the shoe is held in the position in the drawings, and if the head of the holding tack 23 projects somewhat above the innersole, the operator simply shoves the shoe containing the last, whose insole is still fastened to said last, forward so as to permit the digging end or front edge of the tool 2 to get under the head of the tack and lift it. If, however, the tack has been driven farther into the last, the operator, at the same time that he shoves the last forward, presses upwardly somewhat on the gage 11 sufficiently to raise the latter so as to permit the digging end 20 of the tack-moving tool to strike close to the leather of the innersole in order to remove the tack with certainty. And even if the head of the lasting tack has been driven down flush or embedded in the innersole, all that the operator has to do is to move the shoe and last forward the same as before but press upward slightly harder on the gage 11 so as to raise the latter sufficiently to permit the tack-engaging tool to strike a blow actually down into the leather just beneath the head of the tack. In each instance the tack is readily removed by a single tack-pulling movement. Of course, it will be understood that tacks should not be driven into the last sufficiently to embed their heads in the leather, but nevertheless, in practice,

they are often so driven. My invention aims to provide a tack-removing machine capable of removing the holding tacks irrespective of whether they are thus improperly embedded or are merely driven properly into the last a slight distance only. The operator quickly gets so that he almost instinctively applies the right pressure of the work to the gages so that the digging tool strikes just under the head of the tack and no deeper, whatever position the tack may be in. The gaging device has considerable resistance, due to the heavy spring 17, so that it serves to all intents and purposes as a workrest and yet is capable of permitting the tack-puller to descend below it if necessary by a simple upward pressure of the work against its lower edges. The rounded lower surface of the gage also facilitates the work, as it permits the operator to swing the work upward slightly in case an unduly obdurate tack is met with which needs a blow from the digging tool at a different angle from that usually applied, and it is obvious that the workman, because of the rounded engaging surface of the gage, can turn the shoe practically at any angle with relation to the direction of movement of the tack-pulling tool, although the normal position of the parts and of the work is as shown in the drawings. By having the eccentric and link arranged angularly as shown, in cooperation with the downwardly bent tool 2, the engaging end of the latter has an exceedingly limited forward movement as it reaches the tack-engaging point, its main movement being thence upward as indicated by the dotted line 10, said upward movement being, however, slightly forward at the same time in order to maintain proper pulling engagement on the tack. As these tacks are apt to be deep down as stated, it will be obvious that if they were removed by being knocked out by a tool moving in a circular or horizontally elongated path, the leather of the innersole would be torn more or less by the tack and occasionally also by the tack-pulling tool, whereas by the particular movement provided by my arrangement all this is obviated.

I believe myself to be the first inventor of a tack-puller specially adapted to remove innersole holding tacks by having an adjustable normally down-pressing gage to enable the operator automatically to vary by the pressure of the work the relative distance apart of the tool and work as the former moves rapidly to engage the tack, and accordingly I wish it understood that my invention is capable of a wide variety of embodiments, and I am not limited to the particular mechanism herein set forth.

While I prefer the form of reciprocating tool moving in an orbital path as herein shown, it will be obvious that the gage feature of my invention may be used in connection with any of the well known types of tack-pullers.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is,

1. A machine of the kind described, comprising a tack-moving tool, operating means therefor, and a yielding gage for varying the effective tack-engaging position of the tool with relation to the work, said gage normally resisting upward pressure of the work toward said tool and being at all times independent of said tool and the operation thereof, said gage being freely movable, without influence on said tool, by the upward pressure of the work against the gage to determine the depth and extent of the digging action of the tool with relation to the work.

2. The combination with a yielding gage to engage the shoe, having a free yielding upward movement away from the shoe after a tack has been engaged and while said tack is being moved, of means movable beneath said gage to dig up the head of a tack and move said tack.

3. The combination with means to dig under the head of a tack and move the tack, of a spring-controlled gage normally pressing downward and movable independently of and without influence on the operation of said digging means, said gage being arranged to guard the work and vary the effective digging movement of said digging means with relation to the work.

4. A machine for pulling insole tacks from a lasted shoe, having, in combination, a tack-pulling tool provided with a working end shaped to dig into the sole of a shoe and pass beneath the head of a tack, a spring-actuated gage arranged to engage the surface of the sole close to the tack which is to be pulled and determine the correct position of the shoe with relation to said tool, said gage moving with the shoe under the pressure of the latter against the resistance of said spring when the tack is projected into the path of movement of the tool, and mechanism operating independently of the movement of said gage for continuously actuating said tool to dig into the sole of a shoe and engage and pull the tack from said shoe whenever the latter is presented in proper position therefor.

5. The combination with a tack puller, and means to move said tack puller into engagement beneath the head of the tack and thence upwardly to pull the tack, of gaging means including a plate at one side of the path of movement of the engaging portion of the tack puller in position to rest on the work when the tack is being lifted, and means permitting said gaging means to yield to the pressure of the work so as to afford the tack puller a greater extent of effective work-engaging movement.

6. The combination with a tack puller

having its tack-engaging portion movable in a downward and upward path for engaging the tack and then moving it upward and power operating means to give said tack-engaging portion a rapid series of tack pulling movements, of a vertically movable, but normally stationary gage comprising a spring-held carrying portion and opposite depending work-engaging portions between which the tack puller is arranged to move, said engaging portions having curved work-engaging lower edges to permit the work to be rocked at varying angles with relation to the tack puller.

7. The combination with a tack puller having its tack-engaging portion movable in a downward and upward path for engaging the tack and then moving it upward, of a vertically movable, but normally stationary gage, located back of the work-engaging position of said tack-engaging portion, to engage the shoe between the tack and the back edge of the shoe when the shoe is held in normal position to be operated upon by the machine, and power operating means to give said tack-engaging portion a rapid series of tack-pulling movements whose downward path terminates forward of the lower end of said gage.

8. In a machine of the kind described, tack-pulling mechanism including a pointed digging tool deflected obliquely downward and forward toward the work, an operating

arm carrying said tool at its forward end extending obliquely downward and rearward, and cam mechanism at the lower end of said arm arranged to give the same a longitudinal reciprocating and swinging movement.

9. In a machine of the kind described, tack-pulling mechanism including a continuously operating digging tool adapted to dig under the head of a tack when embedded in an innersole, and a spring-held gage normally pressing downwardly but capable of yielding upwardly under the pressure of the work under the control of the operator whereby the effective engagement of said tool with relation to the work may be varied at the will of the operator.

10. A machine of the kind described, comprising a tack-moving tool, operating means therefor, and an adjustable, normally downpressing gage under the control of the operator for automatically varying by the upward pressure of the work against said gage the relative distance apart of the tool and work as the tool is moving forward to engage the tack.

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

LOUIS G. FREEMAN.

Witnesses:

P. B. BRODFUEHREN,
WM. HENKE.