

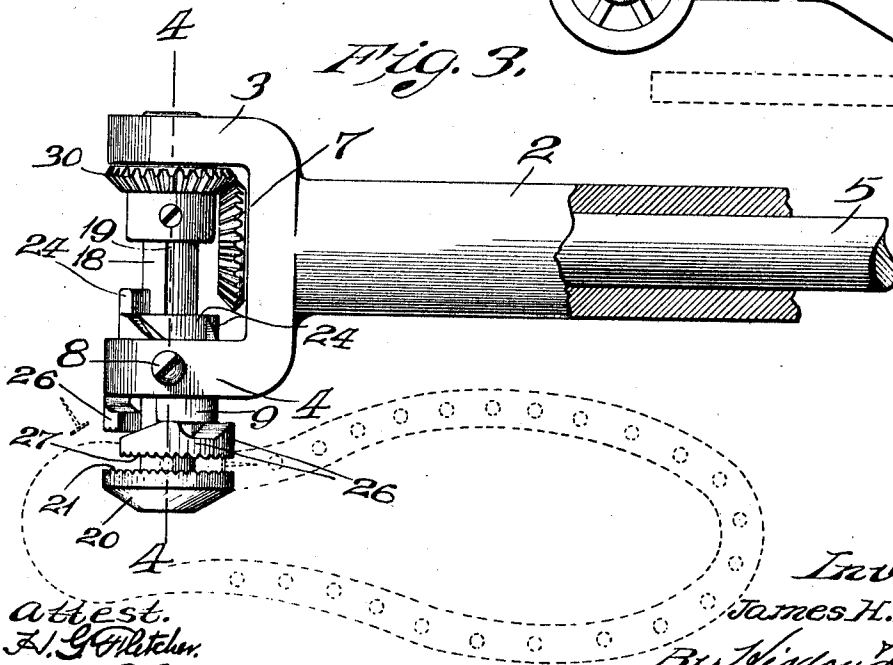
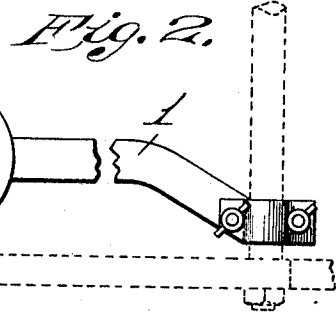
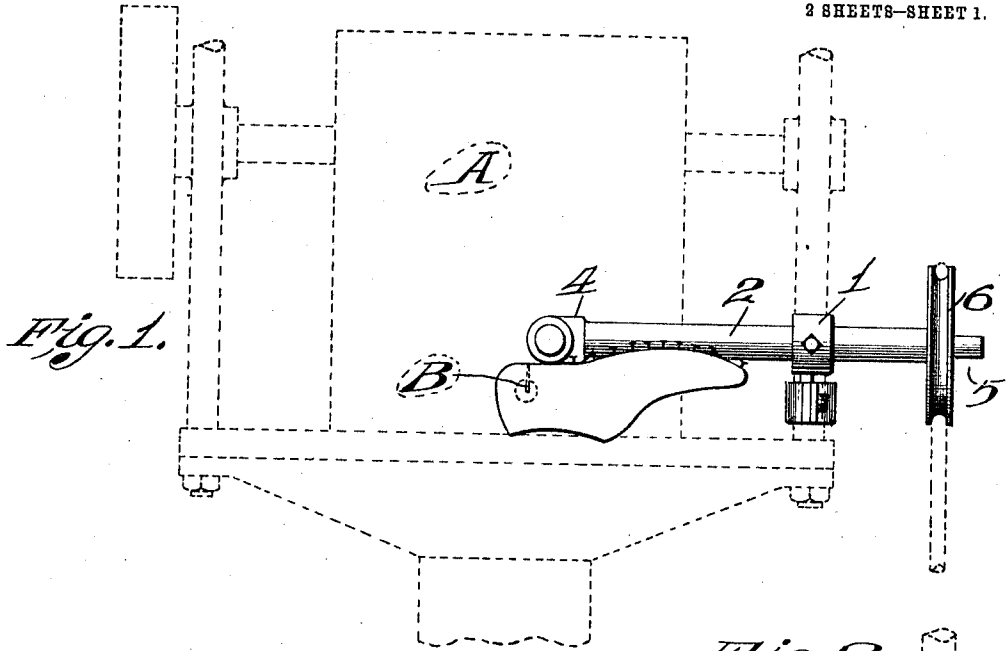
J. H. RICKER.
LASTING TACK PULLER.

APPLICATION FILED JULY 13, 1908. RENEWED JAN. 14, 1911.

1,004,081.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.



attest.
J. G. Gilcher.
M. R. Smith

Inventor.
James H. Ricker
By Wigdon Fougan.
Attys.

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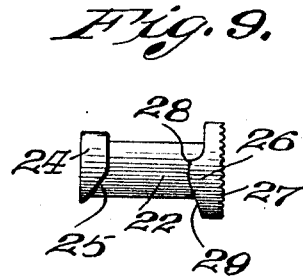
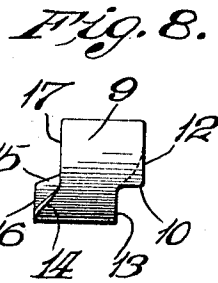
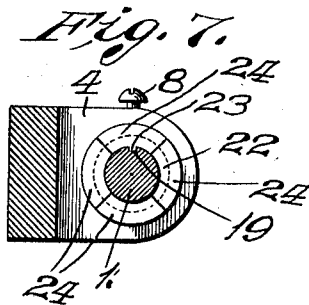
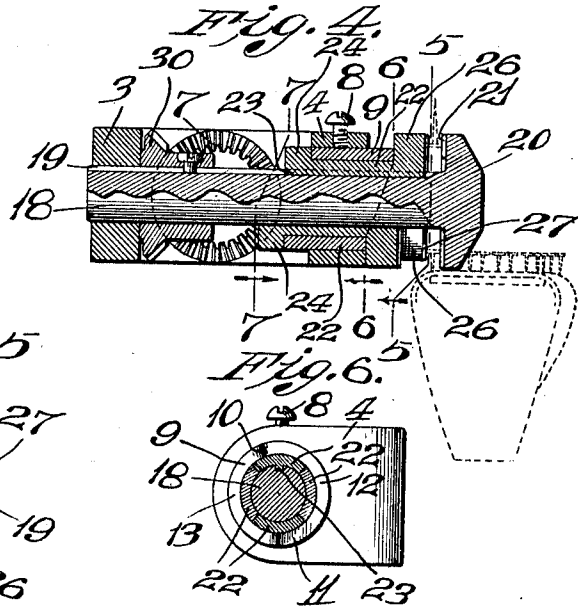
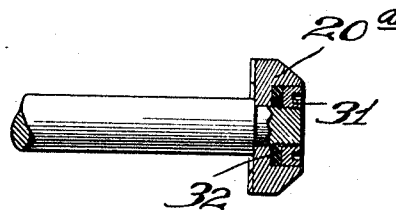


Fig. 10.



Attest.
H. G. Fletcher.
M. O. Smith

Inventor,
James H. Ricker.
By Higdon & Langdon,
Attys.

UNITED STATES PATENT OFFICE.

JAMES H. RICKER, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO GERTRUDE N. AUDE, OF ST. LOUIS, MISSOURI.

LASTING-TACK PULLER.

1,004,081.

Specification of Letters Patent.

Patented Sept. 26, 1911.

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To all whom it may concern:

Be it known that I, JAMES H. RICKER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Lasting-Tack Pullers, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a lasting-tack puller, or a machine to be used in combination with an in-seam sewing machine for the purpose of removing the lasting tacks which temporarily hold the welt shoe upper and insole on the last, and the object of my invention is to provide simple means which operates immediately in advance of the needle of the in-seam sewing machine, and which positively and accurately engages and pulls all of the tacks, and thus leaves the work free to be engaged by the needle of the in-seamer.

My invention consists of a rotating head constructed in two parts, and one of which parts is made in sections, which sections are in the form of jaws, and which jaws engage the heads of the lasting tacks and pull same as the entire head rotates, and which jaws finally release and discharge the tack.

My invention further consists in certain features of novelty and arrangement of parts hereinafter more fully described, claimed and shown in the accompanying drawings, in which:

Figure 1 is a front elevation of a lasting-tack puller of my improved construction, the same being shown in connection with an in-seam sewing machine, and a last being shown in connection with the tack puller; Fig. 2 is an elevation of a bracket or arm which supports the tack puller; Fig. 3 is a plan view of my improved tack puller, and the last in which the tacks are seated being shown in dotted lines; Fig. 4 is a section taken approximately on the line 4—4 of Fig. 3; Fig. 5 is a cross section taken on the line 5—5 of Fig. 4; Fig. 6 is a cross section taken on the line 6—6 of Fig. 4; Fig. 7 is a cross section taken on the line 7—7 of Fig. 4; Fig. 8 is an elevation of a cam collar utilized for imparting a reciprocating movement to the tack engaging jaws; Fig. 9 is an elevation of one of the tack engaging jaws;

and Fig. 10 is a vertical section taken through the center of a modified form of the fixed portion of the head of the tack puller.

In the drawings: A designates the in-seam sewing machine and B the needle thereof, and adjustably clamped to one of the rigid parts of the frame of said machine is an arm 1, in the outer end of which is adjustably held a sleeve 2, the left hand end of which is bifurcated to form a pair of horizontally disposed bearings 3 and 4, which occupy a position immediately in front of the needle of the sewing machine, and journaled for rotation in the sleeve 2 is a shaft 5, on the left hand end of which is fixed a belt driven pulley 6, and rigidly fixed on the right hand end of said shaft between the bearings 3 and 4 is a beveled pinion 7.

Rigidly held in the bearing 4 by means of a set screw 8 is a cam collar 9, on the front face of which is formed an abrupt shoulder 10, and directly opposite said shoulder is an inclined shoulder or offset 11. The cam 9 is so held in the bearing 4 as that the abrupt shoulder 10 is at the top of said bearing, and thus the two shoulders are in approximate vertical alinement, and between said shoulders are formed an outer or high cam surface 12 and an inner or low cam surface 13. Formed on the rear end of the collar 9 directly opposite the abrupt shoulder 10 is an inclined offset or shoulder 14, and directly opposite the inclined offset or shoulder 11 is an abrupt shoulder 15, this dividing the inner end of said collar into an outer or high cam surface 16, and an inner or lower cam surface 17.

Journaled for rotation in the bearing 13 and extending through the cam collar 9 is a shaft 18, in which is formed a longitudinally extending groove 19, and formed on or fixed to the forward end of this shaft a short distance in front of the cam collar 9 is a disk 20, the inner or rear face of which is radially corrugated, as designated by 21, said disk forming the rigid member of the tack pulling head. Arranged to slide freely upon the shaft 18 within the cam collar 9 are four plates 22, which combined, form a sectional sleeve operating within the cam collar 9, and formed integral with the inner face of one of these plates 22 is a rib or feather 23, which slides in the groove 19, and thus all

of said plates rotate with the shaft 18 and are held to slide longitudinally thereon through the cam collar. Formed integral with the rear end of each plate 22 is a lug 24, one end of which is beveled, as designated by 25, and formed integral with the forward end of each plate is a jaw 26, the front face of which is radially corrugated, as designated by 27, and formed on the rear side of each jaw is a lug 28, provided with a beveled face 29. The four jaws 26 are positioned directly opposite the corrugated face of the disk 20, and said jaws form the moving portion of the tack pulling head. Rigidly fixed on the shaft 18 adjacent the bearing 3 is a beveled pinion 30, which meshes with the beveled pinion 7.

While my improved tack puller is in operation, the shaft 5 is rotated within the sleeve 2 by means of a belt traveling around the pulley 6, and the shaft 18 is correspondingly rotated by the engagement of the pinions 7 and 30. The plates 22, carrying the jaws 26, rotate with the shaft 18 by reason of the feather 23, which is positioned in the slot 19, and during rotation said plates 22 reciprocate in such a manner as that the jaws 26 are moved to and from the disk 20, which action is brought about by the engagement of the beveled faces 29 of the lugs 28 against the beveled shoulder 11 and the engagement of the beveled ends 25 of the lugs 24 against the beveled shoulder 14, and the beveled shoulders 11 and 14 are so disposed as that when one of the jaws 26 moves into position opposite the lowermost portion of the disk 20, the beveled face 29 will engage against the shoulder 11 to force this particular jaw toward the lowermost portion of the disk 20, and this action clamps or engages the head of a lasting tack which is seated in the last to hold certain parts of the shoe thereon, and which last is held in position immediately beneath the pulling machine, or in such position as that the parts of the shoe are readily engaged by the needle of the inseamer. The tacks, after being pulled, are clamped between the corrugated faces of the jaws 26 and the disk 20, and the jaws which engage said tacks are held in this position by reason of the engagement of the lug 28 against the higher surface 12 of the cam collar, and said tacks are carried around until the lugs 28 pass the abrupt shoulder 10, and at this point the inclined faces 25 on the lugs 24 bear against the inclined shoulder 24 on the cam collar, and as a result the plates and jaws are caused to slide rearward, which action releases the tacks which have been pulled. Following this action, the lugs 24 ride around the high or outer edge 14 of the cam collar 9 until the ends of said lugs pass the abrupt shoulder 15, and the plates and jaws will again be moved forward to engage the head

of a tack in the manner hereinbefore described.

The operations just described take place very rapidly, and occur immediately preceding the sewing of the in seam between the shoe upper and insole, or between the upper, insole and welt. This operation very positively and quickly removes the lasting tacks, and as all of said tacks are removed there is no danger of breakage of the needle due to the engagement of the same with a tack. The needle of the in seam sewing machine feeds the work along, and the tacks are pulled immediately in front of the point where the needle engages the work, and thus as all the tacks are removed the work is left in perfect condition to be engaged by the needle, and the sewing operation is readily accomplished around the toe of the last without leaving any fullness of the upper at this particular point.

In the modified form of the device shown in Fig. 10, the disk 20^a is arranged to slide longitudinally on the end of the shaft 18, and a nut 31 is located on the end of said shaft 18, there being a washer 32, of rubber, interposed between said nut and the disk, thus providing means whereby the disk may give slightly when a tack is engaged, and thus making said disk self-adjusting to the varied sizes of the heads of the lasting tacks.

In some instances an expansive coil spring can be utilized in place of an elastic washer between the nut 31 and disk 20^a.

A tack puller of my improved construction is very simple, requires but very little power for operation, very positively removes the tacks from the last immediately in front of the needle of the in seam sewing machine, and by its use much time and labor are saved in the manufacture of shoes.

I claim:

1. A lasting-tack puller, comprising a rotary head and a segmental sectional head arranged to rotate with the rotary head and to move to and from said rotary head, and which sectional head grips the heads of the lasting tacks against the side of the rotary head.

2. In a lasting-tack puller, a rotary head, a series of jaws arranged opposite said head and adapted to rotate therewith, and to move to and from said rotary head, and which jaws grip the heads of the lasting tacks against the side of the rotary head.

3. A lasting-tack puller, comprising a solid rotary head, a segmental sectional rotary head, means whereby said heads are simultaneously rotated, and means whereby the sectional head is arranged to move to and from the solid head during the rotation of both heads, to engage and grip the heads of the lasting tacks against the side of the rotary head.

4. In a lasting-tack puller, a solid rotary

head, a series of jaws forming a sectional head, which rotates with the solid head, means whereby said jaws are successively moved toward the solid head during rotation to engage and grip the heads of the lasting tacks against the solid head, and means whereby said jaws are withdrawn from the solid head during rotation.

5. In a lasting-tack puller, a solid rotary head, a segmental sectional rotary head arranged directly opposite the solid head, means whereby the sectional head is moved to and from the rotary head, and the adjacent faces of which head and sectional heads are corrugated.

6. In a lasting-tack puller, a solid rotary head, a sectional rotary head arranged directly opposite the solid head, the adjacent faces of which head and sectional heads are corrugated, and means whereby the mem-

bers of the sectional head are moved to and from the solid head.

7. In a lasting-tack puller, a self adjusting rotary head, a sectional head arranged to rotate with the first mentioned head, and adapted to move to and from said first mentioned head.

8. A lasting tack puller, comprising a solid rotary head and a rotary head constructed of a series of segments, and which segments move to and from the solid head during the rotation thereof.

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

JAMES H. RICKER.

Witnesses:

M. P. SMITH,
E. L. WALLACE.

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