E. W. GERRISH.

THIMBLE REMOVER.

APPLICATION FILED MAR. 13, 1917.

1,246,415. Patented Nov. 13, 1917.

Fig. 1.

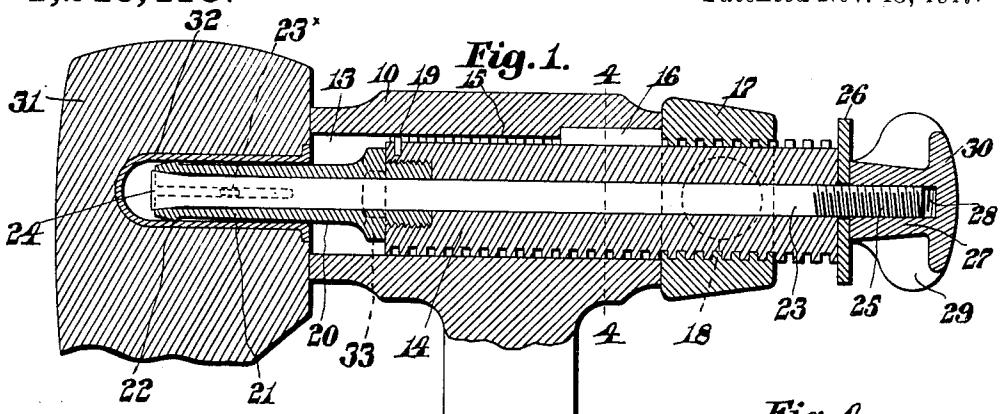


Fig. 4.

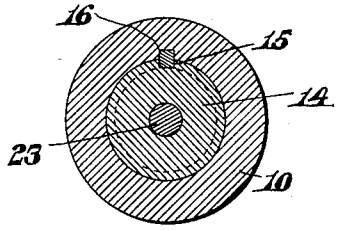


Fig. 3.

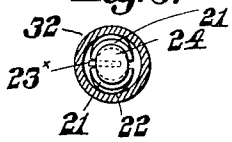
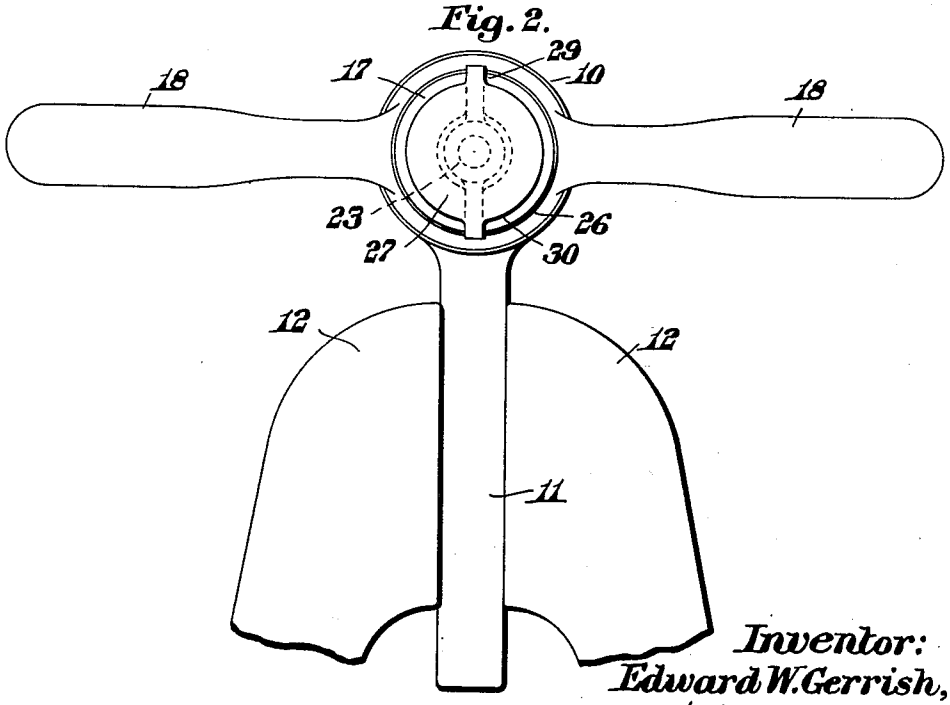


Fig. 2.



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UNITED STATES PATENT OFFICE.

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THIMBLE-REMOVER.

1,246,415. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed March 13, 1917. Serial No. 154,886.

To all whom it may concern:

Be it known that I, EDWARD W. GERRISH, a citizen of the United States of America, and a resident of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Thimble-Removers, of which the following is a specification.

This invention relates to devices for removing thimbles from lasts, and has for its object the production of a device of this character which will be simple in construction and effective in its operation.

Heretofore it has been found to be very difficult to remove the thimbles from broken or discontinued shapes of lasts, and it is obviously very desirable to remove said thimbles uninjured so that they may be used again in the construction of new lasts.

By means of the present invention the thimbles may be quickly removed without injury thereto.

The invention consists primarily of a device adapted to be held in the jaws of a vise and having a pair of jaws adapted to be forced into the inner wall of the thimble near the bottom thereof, and another member movable endwise to withdraw said thimble from the last.

The invention further consists in certain novel features of construction and arrangement of parts which will be fully understood by reference to the description of the drawings and to the claims hereinafter given.

For the purpose of illustrating the invention one preferred form thereof is illustrated in the drawings, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described, except as required by the scope of the appended claims.

Of the drawings:

Figure 1 represents a section of a device embodying the principles of the present invention and showing in section the heel part of a last from which it is desired to remove the thimble.

Fig. 2 represents an end view of the same clamped between the jaws of a vise.

Fig. 3 represents an end view of the gripping jaws applied to a thimble, said thimble being shown in section, and

Fig. 4 represents a transverse section on line 4—4 on Fig. 1.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 is a tubular hub having a flat sided projection 11 extending laterally therefrom, this lateral projection being adapted to be clamped between the jaws 12 of an ordinary vise as shown in Fig. 2.

The bore 13 of the tubular hub 10 is cylindrical and has positioned therein the threaded member 14 provided with a keyway 15 extending longitudinally thereof. The hub 10 is provided with a key 16 which extends into the keyway 15 and prevents the threaded member 14 from rotating in the bore 13 while permitting longitudinal movement therein.

The threaded member 14 is considerably longer than the hub 10 and has threaded thereto the nut 17 provided preferably with a plurality of weighted handles 18 by which said nut may be turned to cause end movement of said threaded member 14 in the bore 13.

At the opposite end of said threaded member 14 is a projection such as the pin 19 which in the end movement of said member will come into contact with the inner end of the key 16 and limit the outward movement of said threaded member. The key 16 is considerably shorter than the hub 10 as shown in Fig. 1.

The member 14 has also secured to its inner end the removable extension 20 provided with oppositely disposed spring jaws 21, each of which has near its outer end an outwardly extending tooth 22 which is of gradually decreasing depth in opposite directions from a medial line extending through said jaws.

The inner faces of said teeth are perpendicular to the axis of said extension 20 which is mounted on the threaded member 14 in axial alinement therewith.

The member 14 and its extension 20 are provided with a central hole in which is positioned a shank 23 of a wedge 24 interposed between the jaws 21. This shank 23 is provided with a lateral projection 23× interposed between the adjacent edges of the

jaws 21, thereby preventing the rotation of said shank 23 and wedge 24 relatively to said jaws 21.

The wedge 24 is elliptical in cross section, thereby insuring the spreading apart of the jaws 21 on a medial line and preventing any side strain thereon which would tend to break the jaws when the wedge 24 is moved endwise relatively to said jaws 21. The outer end of the shank 23 is threaded as at 25 and extends through a washer 26 into the operating nut 27.

The washer 26 has a diameter greater than that of the threaded member 14 thereby providing a stop to limit the outward movement of the nut 17. The bottom of the threaded bore 28 in the nut 27 is spaced from the end of the shank 23 a distance equal to the necessary movement of the wedge 24 to properly spread the jaws 21.

When the nut 27 has been adjusted on the shank 23 until the end of said shank abuts the inner end of the bore 28, further inward movement of the wedge 24 in the extension 20 is prevented and injury to the jaws 21 is thereby prevented.

The nut 27 is provided with wings 29 which provide a means for turning the same and it also has a smooth rounded head 30 which may be hit by the hand to return the wedge 24 to its normal position after each operation.

In the operation of the device the flat-sided projection 11 is clamped between the jaws 12 of a vise and the various operating parts are in the position shown in Fig. 1. A last 31 is then taken and its thimble 32 is placed over the extension 20, as shown in Fig. 1.

The nut 27 is then turned, thereby moving the wedge 24 inwardly between the jaws 21 and forcing the teeth 22 into the inner wall of the thimble 32.

When the jaws 21 have sufficient grip upon the thimble 32 the nut 17 is turned on the threads of the member 14, and as this member is prevented from rotation and the nut 17 is abutting the end of the hub 10 it is obvious that the thimble 32 will be withdrawn from the last 31 which during the operation bears against the opposite end of said hub 10, all as shown in Fig. 1.

The nut 27 is then returned to its normal position as shown in Fig. 1, and the nut 17 is rotated until it brings up against the stop washer 26. The operator then with his hand hits the rounded head 30 of the nut 27 and returns the operating members to their normal positions preparatory to another operation.

The thimble 32 is then turned on the jaws 21 through an arc of 90° and as the wedge 24 has previously been moved free of these jaws 21, the turning of the thimble 32 will force the jaws 21 inwardly until the teeth thereof are free from said thimble so that it may be removed and again used if desired.

The extensions 20 are made of different sizes to fit different thimbles, the thimble for men's lasts being generally larger than that used in women's lasts.

When it is desired to change the extensions 20, the one in use may be quickly removed by use of a wrench on the hexagonal portion 33 and another extension substituted therefor.

It is of considerable importance to have the wedge 24 elliptical in cross section, as by this means the breaking off of the corners of the jaws 21 is prevented.

This makes a very simple device for removing thimbles from lasts and other articles which is inexpensive to construct and very effective in its operation.

It is believed that the operation and many advantages of this invention will be fully understood from the foregoing description.

Having thus described my invention, I claim:

1. In a device of the class described, the combination of a tubular hub; means mounted in and movable endwise of said tubular hub; a member secured in the end of said movable member and provided with oppositely disposed gripping jaws having outwardly projecting teeth gradually decreasing in depth in opposite directions from a medial line; and means carried by said movable member for expanding said jaws.

2. In a device of the class described, the combination of a tubular hub; a member mounted in and movable endwise of said hub and having two oppositely disposed gripping jaws extending from one end thereof; means for moving said member endwise; a wedge between said jaws; and means for moving said wedge endwise to expand said jaws.

3. In a device of the class described, the combination of a tubular hub; a member mounted in and movable endwise of said hub and having two oppositely disposed gripping jaws extending from one end thereof; means for moving said member endwise; a wedge between said jaws and elliptical in cross section; and means for moving said wedge endwise to expand said jaws.

4. In a device of the class described, the combination of a tubular hub; a member mounted in and movable endwise of said hub and having two oppositely disposed gripping jaws extending from one end thereof; means for moving said member endwise; a wedge between said jaws; means for moving said wedge endwise to expand said jaws; and means mounted on said wedge interposed between said jaws to prevent the rotation of said wedge relatively to said jaws.

5. In a device of the class described, the combination of a tubular hub; a member

mounted in and movable endwise of said hub and having two oppositely disposed gripping jaws extending from one end thereof; means for moving said member endwise; a wedge between said jaws; means for moving said wedge endwise to expand said jaws; and a lateral projection on said wedge interposed between said jaws to prevent the rotation of said wedge relatively to said jaws.

6. In a device of the class described, the combination of a tubular hub; a threaded member mounted in said hub and having a keyway extending longitudinally thereof; a key in said hub projecting into said keyway; a nut on said threaded member; a pair of gripping jaws carried by said threaded member; and means for expanding said jaws.

7. In a device of the class described, the combination of a tubular hub; a threaded member mounted in said hub and having a keyway extending longitudinally thereof; a key in said hub projecting into said keyway; a nut on said threaded member provided with laterally extending weighted handles; a pair of gripping jaws carried by said threaded member; and means for expanding said jaws.

8. In a device of the class described, the combination of a tubular hub; a threaded member mounted in said hub and having a keyway extending longitudinally thereof; a key in said hub projecting into said keyway; a nut on said threaded member; a pair of gripping jaws carried by said threaded member; means for expanding said jaws; and means carried by said threaded member for limiting the outward movement of said nut.

9. In a device of the class described, the combination of a tubular hub; a threaded member mounted in said hub and having a keyway extending longitudinally thereof; a key in said hub projecting into said keyway; a nut on said threaded member; a pair of gripping jaws carried by said threaded member; means for expanding said jaws; and means for limiting the outward movement of said threaded member.

10. In a device of the class described, the combination of a tubular hub; a threaded member mounted therein and having an axial hole therein; a pair of gripping jaws extending from one end of said threaded member; a nut on the opposite end of said threaded member; means preventing the rotation of said member in said hub; a wedge between said jaws provided with a shank extending through said axial hole; and an adjusting nut threaded to the outer end of said shank.

11. In a device of the class described, the combination of a tubular hub; a threaded member mounted therein and having an axial hole therein; a pair of gripping jaws extending from one end of said threaded member; a nut on the opposite end of said threaded member; means preventing the rotation of said member in said hub; a wedge between said jaws provided with a shank extending through said axial hole; and an adjusting nut threaded to the outer end of said shank and having a rounded head.

12. In a device of the class described, the combination of a tubular hub; a threaded member mounted therein and having an axial hole therein; a pair of gripping jaws extending from one end of said threaded member; a nut on the opposite end of said threaded member; means preventing the rotation of said member in said hub; a wedge between said jaws provided with a shank extending through said axial hole; and an adjustable nut threaded to the outer end of said shank and having a shoulder adapted to engage the end of said shank and limit the movement of said wedge endwise between said jaws.

Signed by me at 4 Post Office Sq., Boston, Mass., this 10th day of March, 1917.

EDWARD W. GERRISH.

Witnesses:

WALTER E. LOMRARD,

NATHAN C. LOMBARD.