J. M. LAWRENCE.

PISTON RING REMOVER.

APPLICATION FILED FEB. 2, 1921.

1,409,956. Patented Mar. 21, 1922.

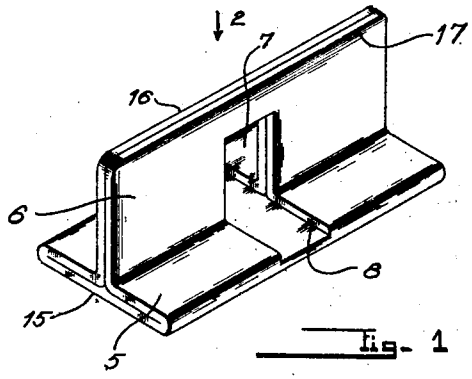


Fig. 1

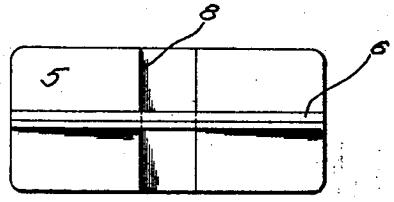


Fig. 2

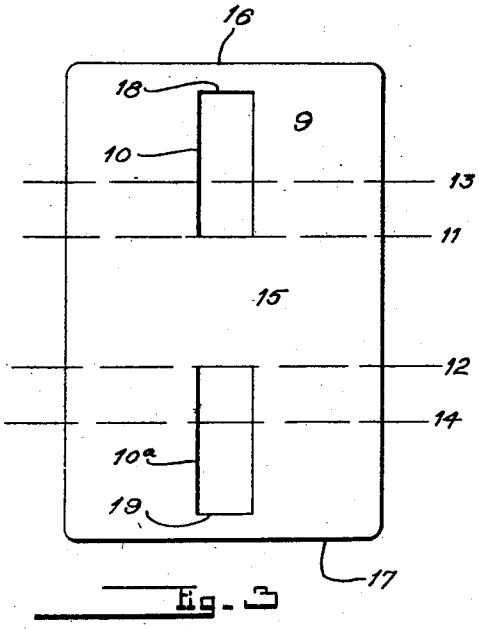


Fig. 3

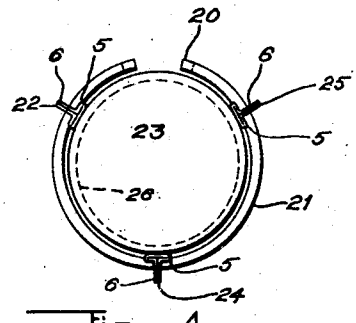


Fig. 4

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PISTON-RING REMOVER.

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To all whom it may concern:

Be it known that I, JOHN M. LAWRENCE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Piston-Ring Removers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a piston ring remover.

Heretofore, piston rings have usually been removed by prying out the ends of the rings sufficiently far from the groove to permit of the insertion of strips of metal between the rings and the body of the piston. These strips, usually three in number, were then slid around the rings so as to hold the piston ring expanded. The ring was then slipped over the piston.

During this operation it was usually difficult to position the strips with reference to the rings and to slide the rings over the strips. I have overcome these difficulties in my improved remover by providing a finger grip and means for insuring against disengagement of the remover from the ring, so that by applying the fingers to the removers the ring is caused to follow their movements and it is thus readily removed from the piston.

In the drawings:—

Figure 1 is a perspective view of my improved remover.

Fig. 2 is a view of my remover looking in the direction of the arrow 2 in Fig. 1.

Fig. 3 shows the blank from which my improved remover is formed.

Fig. 4 is a plan view of a piston showing my removers applied to a ring thereof.

My improved remover has a base 5 and finger grip 6. A hole 7 is provided through the grip 6 and a groove 8 is provided in the base 5.

In the preferred form of my invention I first form a blank 9 having rectangular holes 10 and 10^a. I then, in any suitable manner, bend said blank along the lines 11 and 12 and along the lines 13 and 14 in order to fold the portions between the lines 11 and 13 and between the lines 12 and 14 against the bottom section 15 and to bring the portions between the line 13 and the edge 16 and the portion between the line 14 and the edge 17 in contact, as shown in Figs. 1 and 2.

When the parts are thus folded, the portion of the hole 10 between the lines 11 and 13 forms one-half of the groove 8 and the portion of the hole 10^a between the lines 12 and 14 form the other half of said groove.

The portion of the hole 10 between the line 13 and the edge 18, together with the portion of the hole 10^a between the line 14 and the edge 19, forms the hole 7.

In using my improved remover, the end 20 of the piston ring 21 is to be pried outwardly until the base 5 of one of my removers such as 22 can be introduced between the inner surface of the ring and the outer surface of the piston 23. The remover 22 is then moved slightly in a clockwise direction so that the base 5 of the remover 24 can be inserted between the inner surface of the ring 21 and the piston 23. The removers 22 and 24 are then moved slightly in a clockwise direction in order to provide room for the base 5 of the remover 25 to be inserted between the inner surface of the piston ring 21 and the piston 23.

After the removers 22, 24 and 25 are inserted as just explained, they are to be moved to approximately the positions shown in Fig. 4. During this removal, the ring 21 will be expanded until it clears the piston 23 and the fingers can then be applied to the finger grips 6 of the removers 22, 24 and 25, and by sliding the latter over the surface of the piston, the ring 21 can be removed.

It is to be understood that when the removers are applied to the ring as just explained, the ring is to be inserted in the hole 7 of each remover.

It is evident that the removers will bridge the grooves 26 in the piston and prevent the entrance of the ring 21 therein.

Hence it is evident that I provide a simple, cheap and efficient remover, capable of use on a wide variety of piston rings. It is also evident that my remover may be made in a wide variety of shapes while retaining the essential features of the base 5, the finger grips 6 and the hole 7.

It is also evident that many changes may be made without departing from the spirit of my invention.

I claim:—

1. A piston ring remover comprising a base, a rib joining said base and a hole through said rib.

2. A piston ring remover comprising a base, a rib formed integrally with said base and a hole through said rib.

3. A piston ring remover comprising a base, a rib joining said base, a groove in said base and a hole through said rib.

4. A piston ring remover comprising a base, a finger grip on said base, and holes in said remover for the reception of a piston ring and for insuring engagement of said remover with said ring.

In testimony whereof, I affix my signature.

JOHN M. LAWRENCE.