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J. MATECHIK

PISTON RING TOOL

Filed May 5, 1927

Fig. 1.

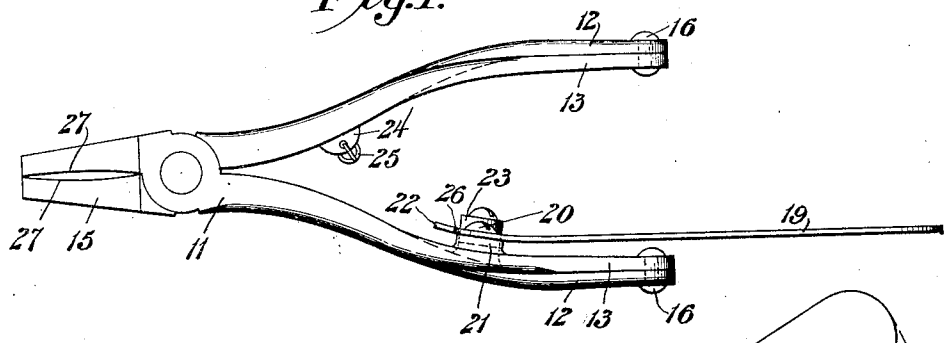


Fig. 2.

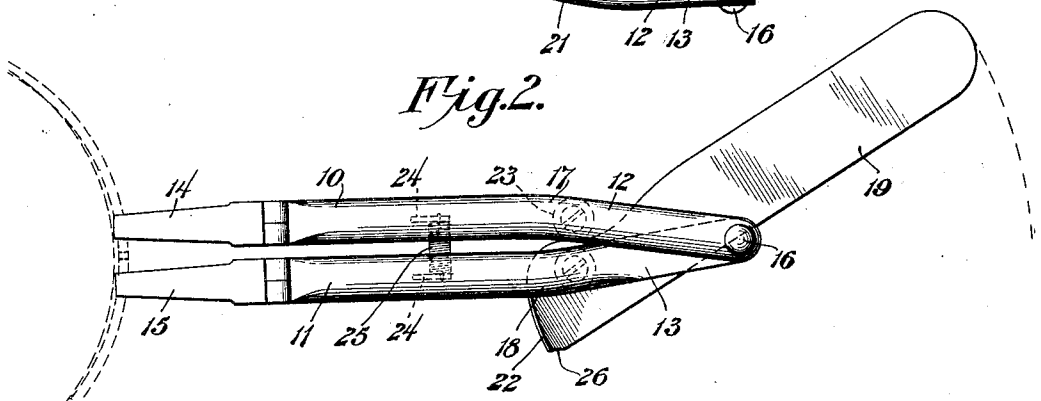
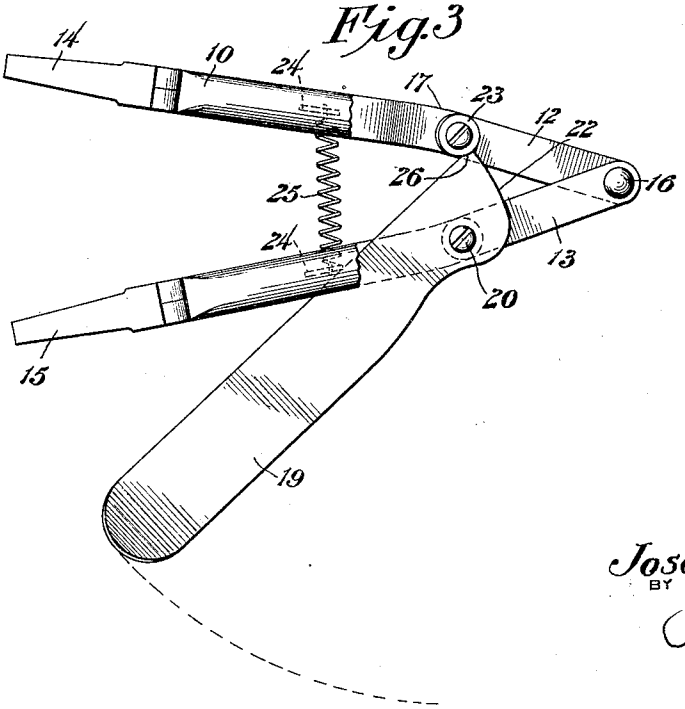


Fig. 3



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PISTON-RING TOOL.

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This invention relates to piston ring tools and aims, among other objects, to provide a tool, through the use of which, a piston ring may be firmly gripped adjacent to its ends and readily expanded to be put either in place upon a piston or removed therefrom.

In the drawings illustrating a preferred embodiment of the invention:

Figure 1 is a side elevation of the improved tool;

Figure 2 is a top plan thereof; and

Figure 3 is a view similar to Figure 2, but with parts of the upper handles broken away, and showing the tool in expanded position.

In carrying out the invention, two pairs of pliers 10 and 11 are provided having handles 12 and 13 and jaws 14 and 15, respectively. The handles 12 are spaced further from each other than are the handles 13, so that they may overlap the handles 13 and be pivotally connected thereto at their terminals by rivets 16. By this arrangement it will be seen that the jaws 14 and 15 will open and close in unison when the handles are actuated. In order that the jaws 14 and 15 may be brought into relatively close proximity to each other, the handles are bent laterally toward each other, as at 17 and 18, as shown in Figure 2.

Mounted for rocking movement on one of the handles 13 of the pliers 11, is shown a lever 19, which is suitably apertured near one end to receive a pivot screw 20 about which the lever rotates. A suitable lug 21, which is internally screw-threaded to receive the pivot screw 20, also serves to space the lever from the handle, so that the lever may be freely rotated. The end of the lever 19, nearest the pivot 20 is provided with a cam surface 22, which co-acts with a roller 23 mounted for rotation on the corresponding handle 12 of the other pair of pliers 10. By rocking the lever about its pivot, it will be seen from the drawings that the pliers will swing about their pivots 16 and be separated from or allowed to approach each other.

The handles 12 and 13, opposite to the ones on which the lever 19 and rollers 23 are mounted, are each provided with a lug 24 to which the opposite ends of a contractile coil spring 25 are connected, which tends to hold the pliers in their normal position, as shown in Figure 2.

To remove a ring from a piston, the ring is first moved laterally in the groove to expose the free ends of the ring beyond the piston, and the jaws 14 and 15 are opened and placed over the ring in the position shown in Figure 2. The handles of the pliers are then actuated to close the jaws, which, due to the connection between the pliers, will grip the ring on each side of the joint with equal pressure. Retaining the grip on the handles with one hand, the lever 19 is then rocked about its pivot 20 with the other hand, and by the action of the cam 22 against the roller 23, will move the pliers about their pivots 16, and force the ends of the ring apart when it can then be raised over the top of the piston. In order that the ring may be held in expanded position with one hand, a seat 26 is formed on the lever 19 adjacent the end of the cam portion 22, so that when the lever has been swung until it strikes one of the handles 13, the roller will engage the seat 26, and hold the pliers in the position shown in Figure 3.

In applying a ring to a piston, the ring is gripped and expanded in the same way as to remove it, when it is then placed over the piston and the lever rocked to the position shown in Figure 2. The work-engaging faces of the jaws of each pair of pliers are oppositely concaved, as shown at 27, so that when the ring is gripped between them, the pressure will be applied near the inner edges thereof, and thereby prevent the outer edges from chipping or being marred in any way.

From the foregoing description it can readily be seen that a piston ring tool has been provided which is inexpensive to manufacture, easy to operate, and effective in its use.

Obviously the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover, it is not indispensable that all the features of the invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

What is claimed is:

1. A tool of the character described, comprising, in combination, two pairs of pliers connected together, and means for forcing and holding the active ends of the pairs apart, including a roller on one pair and a pivoted lever on the other pair engageable with said roller.

2. A tool of the character described comprising, in combination, two pairs of pliers connected together and having the abutting faces of each pair of jaws concaved.

3. A piston ring tool comprising, in combination, twin pliers pivotally connected together at the extremities of their handles to force the jaws of the pliers into simultaneous gripping engagement with the ends of a piston ring, a lever pivotally mounted on one of the handles of one of the pliers, a roller mounted on the connected handle of the other pliers, and a cam formed on said lever to co-act with said roller to force the jaw ends of the pairs of pliers apart to expand the ring.

4. A tool of the character described, comprising, in combination, two pairs of pliers connected together to simultaneously grip the ends of a split ring, a lever on one of the pliers, a roller on the other pair, a cam on said lever to engage said roller to expand the ring, and means on the lever to engage the roller to hold the ring in said expanded position.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

JOSEPH MATECHIK.