To all whom it may concern:

Be it known that I, LOUIS VINCENT CLAIRE, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Piston-Ring Squeezers; 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.

This invention relates to piston ring squeezers and is particularly concerned with improvements in the structure shown in my pending application, Serial No. 316,314, filed August 9, 1919. These improvements are directed to the attachment of the operating handles to the contractable band with which they are associated, whereby not only is the cost of manufacture reduced but the points in the device where the greatest strain comes in operation are strengthened and reinforced so as to make the device much more durable and efficient. My invention is directed to the attainment of these ends as will appear fully as understanding of the invention is had from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a plan view of the piston ring squeezer.

Fig. 2 is a fragmentary perspective view illustrating the permanent attachment of one of the operating handles to one end of the band.

Fig. 3 is a fragmentary elevation of the end of the detachable handle, and

Fig. 4 is an end view thereof.

Like reference characters refer to like parts in the different views of the drawing.

The band 1 is made of thin sheet metal, preferably soft spring steel, and is adapted to take a substantially circular form, one end 2 thereof coming within the other end 3, with the ends overlapping as shown in Fig. 1. From the end 2 of the band for a distance equaling approximately one-half of the length thereof, spaced apart upward and lower hooks 4 are formed integral with the band and bent outwardly as shown and are adapted to come one above and the other below the upper and lower edges of the end 3 of the band as shown.

Operating handles 5 and 6 cross each other and are pivotally connected at the crossing point as shown at 7. The inner extension 5a to the handle 5 is permanently connected to the end 3 of the band. The means of connection comprises a block 8 of metal which seats between the upper and lower flanges of the extension 5a of handle 5, said part 5a of the handle being of channel-like form. The block is permanently secured to the web of a channel, preferably by electrical spot welding, though any other suitable permanent means of connection may be used. Integral with the block and extending beyond the end of the part 5a of handle 5 is a head 9 from each end of which a pintle 10 projects. Tangs 11 integral with the band at the end 3 thereof are turned around said pintles and back upon the band, being permanently attached by rivets 12 as shown.

The extension 6a to the other handle 6 is likewise of channel-like form and a block 12 of metal is seated between the flanges thereof and permanently connected to the web of the same, using the same means used to connect block 8 to the web of the extension 5a. Block 12 is likewise provided with a head 13 which is longer than the head 9 and from which short cylindrical projections 14 extend. The length of the head 13 is slightly less than the distance between the hooks of any pair of hooks 4 and the projections 14 are adapted to come against any of the pairs of hooks whereby on bringing the outer ends of the handles 5 and 6 toward each other the band is contractable as is obvious.

The blocks 8 and 12 with the integral heads 9 and 13 thereon are of great strength and rigidity and when electrically welded to the extensions 5a and 6a of the handles, make a very strong and rigid construction which is fully capable of withstanding any strains which may be placed on the device. As described in my prior application to which reference has been made, this band may be placed around a piston and rings in the grooves thereof and the rings compressed to lie flush with the outer surfaces of the piston whereupon both the piston and rings may be readily entered into a cylinder. The 105 rings exert considerable outward pressure and the pistons, particularly the larger ones, are heavy, while the pressure which is exerted on the ends of handles 5 and 6 and which is multiplied by reason of the longer 110
leverage of those parts of the handle to which the power is applied, all make it necessary that the connection of the inner ends of the handles to the band shall be one capable of sustaining heavy strains. The construction defined is one fully capable of withstanding said strains indefinitely. Moreover, the handles with this construction may be readily and cheaply made entirely of sheet metal in shape for the ready attachment of the blocks 8 and 12. This reduces the cost of manufacture over what would be necessary if the handles with said blocks and attached parts were made integral either from sheet metal or as a malleable casting. The construction described has had extensive practical use and has fully demonstrated its value. The invention is defined in the appended claims and I consider myself entitled to all modifications falling in the scope thereof.

I claim:

1. In a device of the class described, a clamping band adapted to grasp the periphery of a piston or piston ring, said band having ends adapted to overlap and provided with a plurality of pairs of spaced apart hooks located from one end of the band to approximately its middle portion, a pair of handles pivotally connected together, the inner end of each handle having channel-like formation, a block located between the flanges at the inner end of one handle and permanently secured to the web thereof, a head on said block provided with a pintle at each end thereof, tangs formed at one end of the band and turned around said pintles and permanently secured to the band, and a block similarly located between the flanges of the inner end of the opposite handle and attached to the web of said handle, said block being provided with an integral head formed with projections at the ends adapted to engage with a pair of hooks on said band, substantially as and for the purposes described.

2. In a device of the character described, the combination of a pair of pivotally connected levers each at its inner end having channel-like formation, a block located between the flanges and against the web of each of said channel shaped inner ends of the handles, said block being permanently secured in place, a clamping band adapted to take a circular form, one of said blocks being pivotally connected to the outer end of said clamping band, means on the band positioned at a plurality of spaced apart points in the length thereof, and means formed at the outer end of the other of said blocks for detachably engaging with said means on the band to contract the band, substantially as described.

In testimony whereof I affix my signature.

LOUIS VINCENT CLAIRE.