March 20, 1928. 1,663,084

S. G. LING

PISTON RING COMPRESSOR

Filed June 22, 1927

Fig. 1.

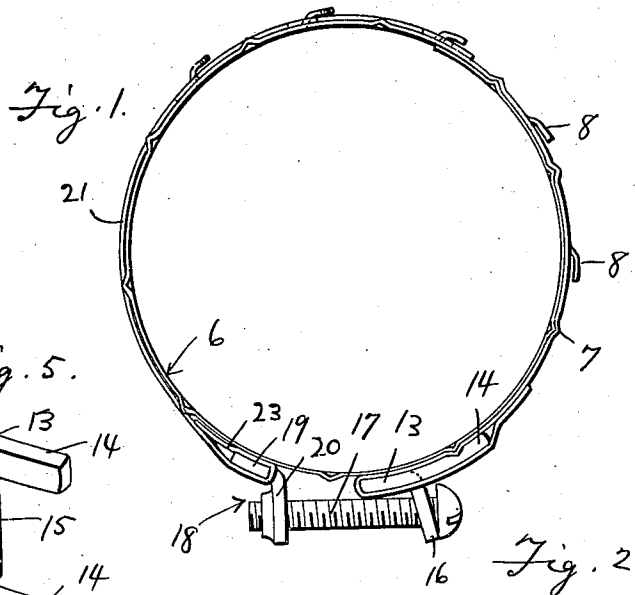


Fig. 5.

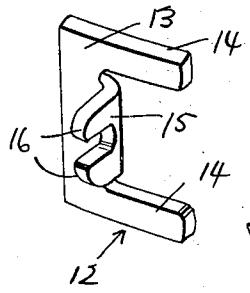


Fig. 2.

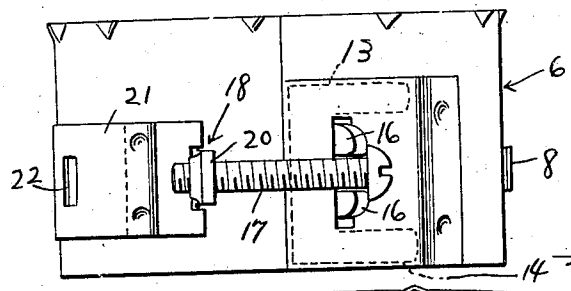


Fig. 3.

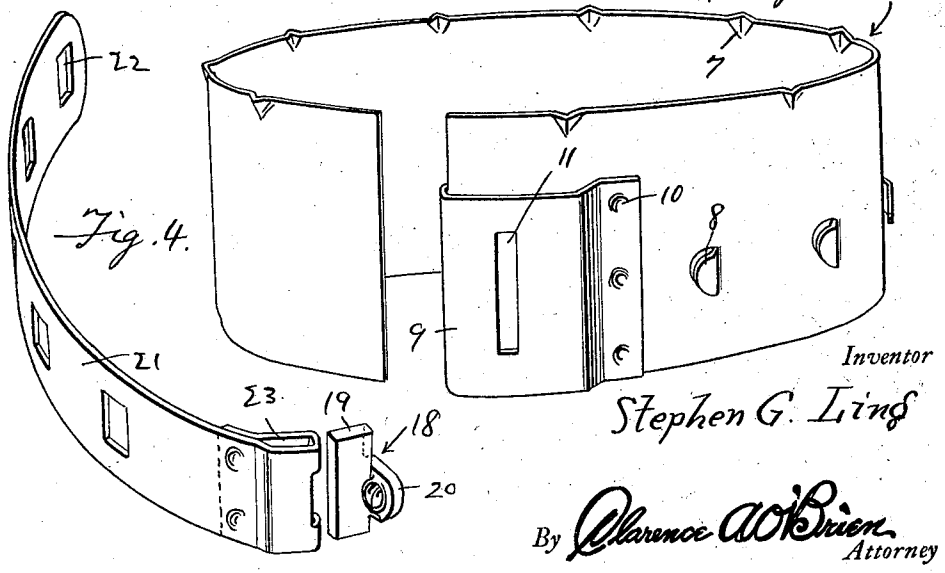


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PISTON-RING COMPRESSOR.

Application filed June 22, 1927. Serial No. 200,857.

The present invention relates to an improved adjustable piston ring compressor of the type employed for holding piston rings upon a piston head during the insertion of the piston head in a cylinder, the clamp being so constructed as to permit it to be mounted upon the piston head in a manner to retain the ring within the groove and yet so fitted as to move downwardly on the piston head as the rings are forced one by one into the cylinder.

My principal aim is to generally improve upon tools of this class by providing one of comparative simplicity and durability which is characterized by the presence of a number of features found in a multiplicity of different marketed devices, having been so combined and related as to provide a compact and convenient arrangement insuring practicability and efficiency in operation.

A particular feature of construction is based upon the presence of novel means for contracting the ends of the compressor, the means embodying a pair of special brackets and a clamping and retaining bolt capable of being disconnected from the brackets, and thus adapting the device to be used at the bottom of the cylinder.

The invention is also advantageous in that it embodies an expansible and contractible annular band, formed with circumferentially spaced outstanding hooked lugs for cooperation with a bodily adjustable strap carrying one of the said brackets.

Other structural details as well as the novel arrangement thereof will become more readily apparent from the following description and drawings.

In the drawings:—

Figure 1 is a top plan view of the complete compressor, showing the parts ready for operation.

Fig. 2 is a front elevational view showing the band contracting and retaining means more particularly.

Fig. 3 is a perspective view on an enlarged scale of the main band.

Fig. 4 is a perspective view of the bodily adjustable carrying strap.

Fig. 5 is a perspective view of a complemental bracket.

In carrying out the invention, it will be noticed that I have employed a relatively wide band 6 which possesses inherent resiliency to hold it in shape as represented in Fig. 3. At the top edge and at circumferentially spaced points, this band is formed with outwardly pressed portions 7 forming stop shoulders.

In action, these are supposed to engage the bottom of the cylinder to prevent this band from being forced into the cylinder, as the piston is slipped up. Struck out from the central portion from the band at predetermined points, and spaced circumferentially from each other are tongues 8 which can be more definitely defined as hooked lugs. Also, formed on the right hand end of this band is a relatively narrow extension 9 which is bent against the outside of the band and fastened thereto as at 10. This portion is formed with a vertically elongated slot 11 and it is spaced sufficiently from the band to accommodate the bracket 12 shown in Fig. 5.

Incidentally, this bracket comprises a plate portion 13 having spaced parallel outstanding tongues 14 and provided between these tongues is a right angularly bent portion 15 which is bifurcated, the furcations being represented by the reference characters 16. This portion 15 extends through the slot 11 and is intended to accommodate the head of a retaining bolt 17. The complemental bracket is designated generally by the reference character 18 and this comprises, as shown in Fig. 4, a plate portion 19 having a laterally directed part 20 formed with a screw threaded hole to accommodate the screw threaded end of the bolt. The bracket 18 cooperates with a bodily adjustable strap 21. The strap 21 is of a resilient nature and is considerably smaller than the band 6.

This is provided at longitudinally spaced points with square openings 22 adapted to be selectively engaged with the aforesaid hooked lugs 8. Moreover, one end portion 23 of this band will stand upon itself and fasten as shown in Fig. 4 to form a pocket for accommodating and retaining the bracket 18 in operative position.

Particular attention is invited to the fact that the square holes 22 in the straps 21 are slightly further apart than the lugs 8 on the band 6. The purpose of this is to permit a single one of these holes to be engaged with a single one of the lugs. This distributes the stress exerted by the bolt 17 in a desirable manner, and relieves friction.

In a device on the market with which I am familiar, a similar strap and band are

employed and the openings in the strap and lugs on the band are the same distances apart so that two or more openings and lugs are engaged simultaneously. The single connecting feature just described is believed to be advantageous over this.

In practice, it is obvious that the end portions of the split band 6 are disposed in overlapping relation as shown in Fig. 1, whereupon the strap 20 is placed upon the exterior of the band and the desired opening 22 is engaged with the desired lug 8. Inasmuch as this strap carries the bracket 18 as well as the bolt 17, it renders these three parts bodily adjustable. However by engaging the head of the bolt with the furcations 16 on the bracket 12, a finer adjustment is permitted.

Also when it is desired to disengage the device from the piston head, it is only necessary to place a suitable instrument underneath the bolt 17 and to force the head in between the furcations 16. This facilitates removal of the device especially because of the fact that it is used most of the time from beneath the cylinder, at the bottom of the cylinder.

Unquestionably, persons familiar with tools of this class will be able to obtain a clear understanding of the invention after reading the description in conjunction with the drawings. For these reasons, a more lengthy description is thought unnecessary.

Having thus described my invention, what I claim as new is:—

1. In a piston ring compressing tool, a split band, a bracket carried by one end of the band, lugs provided on said band, a resilient strap provided with openings engageable with said lugs, a second bracket carried by one end of said strap, and a bolt cooperable with said brackets for contracting the ends of said band.

2. In a piston ring contracting tool, a split band adapted to embrace a piston head and ring, said band being provided at one end with an extension bent outwardly and against the exterior surface of the body portion of the band and fastened to said band to provide a bracket receptacle, a bracket in said receptacle having a bifurcated portion extending outwardly through an opening in said extension, a strap, means for separably connecting the strap to the exterior of the opposite end portions of the band, said strap being bent upon itself at one end to provide a similar bracket receptacle, and a second bracket in said last-named receptacle, said second bracket being provided with a screw threaded portion, and a bolt having a screw threaded end located in said screw threaded portion, and having its head arranged between the furcations of the first-named bracket.

In testimony whereof I affix my signature.

STEPHEN G. LING.