Feb. 18, 1941. H. C. LAUB 2,232,247

TOOL FOR COMPRESSING OR SPREADING SPLIT RINGS

Filed April 8, 1940

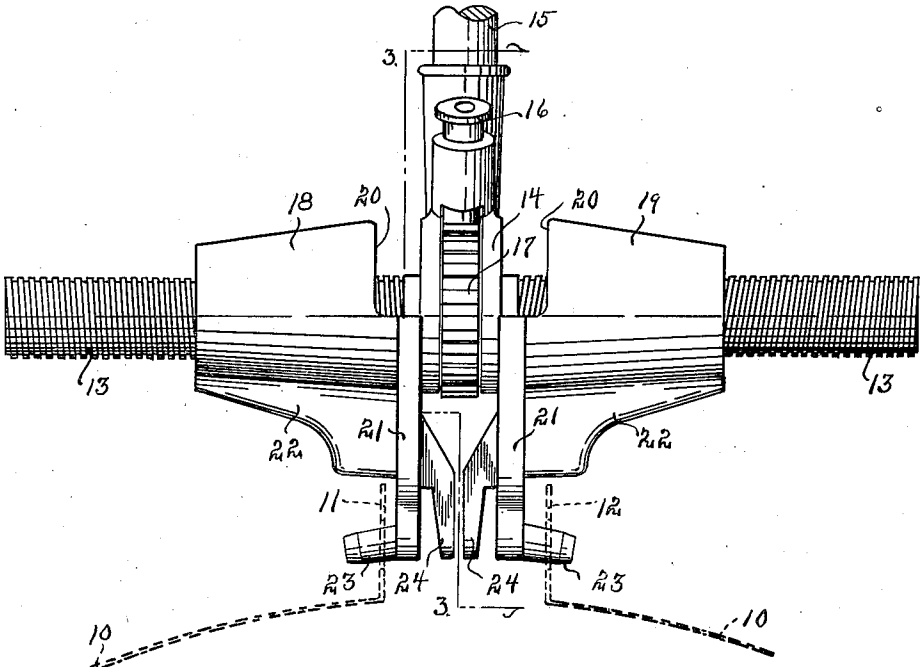


Fig. 1.

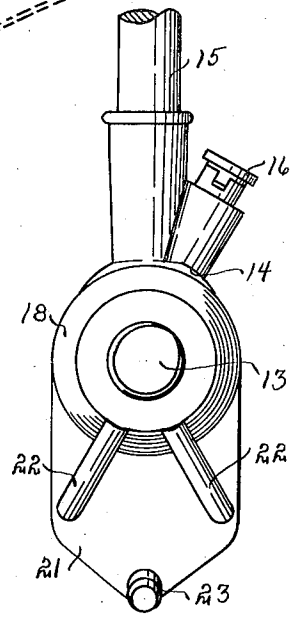


Fig. 2.

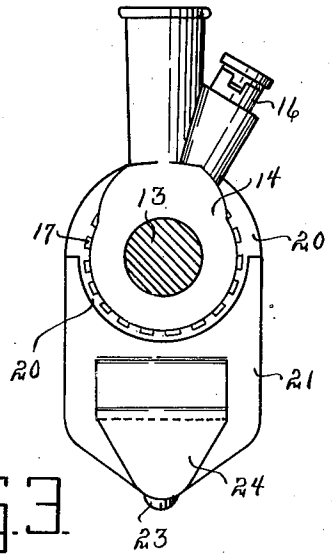


Fig. 3.

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TOOL FOR COMPRESSING OR SPREADING SPLIT RINGS

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Application April 8, 1940, Serial No. 328,510

1 Claim. (Cl. 254—100)

The principal object of this invention is to provide a manually operated tool for spreading or contracting split ring pipe bands.

A further object of this invention is to provide an easily operated device for spreading and contracting split ring collars and the like that is compact and easily portable.

A still further object of this invention is to provide a split ring band spreader and contractor that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in my claim and illustrated in the accompanying drawing, in which:

Fig. 1 is a side view of my tool ready for use and showing in dotted lines, a portion of a split ring collar in one of its positions thereon.

Fig. 2 is an end view of my device.

Fig. 3 is a cross sectional view of my tool taken on line 3—3 of Fig. 1 and more fully illustrates its construction.

It is common practice to use split bands or collars around various types of pipes. In many instances, it is most difficult to bring the two ends of the bands together for the purpose of securing them together with bolts. This is especially true in the case of large metallic corrugated conduits wherein the bands are placed around the adjacent ends of the pipe sections. The most common method of bringing the ends of these bands together is to place an elongated bolt through the holes in the split end portions of the collar and tighten the bolt with a wrench. After the ends have been pulled together by the elongated bolt, the same is removed and a shorter permanent bolt placed therein for permanently holding the two ends of the collar together. In some instances, progressively shorter bolts are used during the procedure until the final desired result is obtained. Obviously such a procedure is very tedious and much time and money is lost in the tightening of these collar bands. I have overcome such objections by providing a strong compact tool that is capable of either spreading the bands or bringing the bands in tight condition around the pipes.

Referring to the drawing, I have used the numeral 10 to designate an ordinary split ring band or collar having its two ends bent outwardly to form the usual hold ears 11 and 12. As is well known, the two ears 11 and 12 are held together by a bolt or the like passing through the holes in these ears. It is on such split bands that I use my tool and which I will now explain. The numeral 13 designates an elongated rod secured to the center of which is an ordinary ratchet wrench 14 having the usual handle 15 and the reversible pawl catch 16. Such wrenches are old in the art and have a tooth gear 17 rigidly secured to the member 13 with the wrench proper, rotatably embracing the member 13 at each side of the gear 17. As is well known, when the pawl catch 16 is rotated to one direction for engagement with the teeth of the gear the manual reciprocation of the handle 15 will cause the member 13 to rotate in one direction, and when the pawl catch 16 is rotated to its other position, the reciprocation of the handle 15 will cause the member 13 to rotate in the opposite direction. The member 13 is threaded as shown in Fig. 1 with the threads at one side of the ratchet wrench being right hand threaded and the threads on the other side of the wrench being left hand threads. The numeral 18 designates a base member threaded on the member 13 and the numeral 19 designates a second base member threaded on the member 13 and positioned at the other side of the ratchet wrench as shown in Fig. 1. These two members 18 and 19 are duplicates and are of substantial strength and weight. Each of the members 18 and 19 has a cut away portion 20 on their inner ends to accommodate the ratchet wrench and its movement when these two members are close to each other on the member 13. By this arrangement when the rod 13 is rotated in one direction, the members 18 and 19 will move away from each other and when the member 13 is rotated in the opposite direction, the members 18 and 19 will move toward each other. Each of the members 18 and 19 has a downwardly extending plate member 21 on their inner ends. The lower outer ends of these plates 21 extend a substantial distance from the members of which they are a part and are tapered or V-shaped as shown in Fig. 2. The numeral 22 designates integrally formed reinforcing ribs on the sides of each of the members 18 and the plate members 21 as shown in Fig. 1 and Fig. 2. The numeral 23 designates a tapered lug on the outer free end of each of the members 21. These lugs 23 extend outwardly and slightly downwardly as shown in Fig. 1 and are designed to enter and engage the usual holes found in the end portions of split ring bands. The numeral 24 designates a finger plate on the inner face of each of the plates 21

as shown in Fig. 3. These fingers have their outer end portions spaced apart from the plate 21 to which they are secured and extend downwardly with the plate to which they are secured as shown in Fig. 1. In order to conform with the position of the ears 11 and 12 when the ring is in a spread condition, the sizes of each of the fingers 24 adjacent the plates to which they are secured, taper downwardly and inwardly as shown in Fig. 1. The free ends of the plate fingers 24 are tapered to conform with the tapered ends of the plates. By this construction, two movable units are provided, with each unit consisting of a base member, plate 21, ribs 22, lug 23, and finger 24. Each unit may be cast in a single piece.

The practical operation of my device is as follows:

The threaded rod 13 may be threaded to bring the bearing members 18 and 19 a substantial distance away from each other in positions where the ears 11 and 12 will extend upward between the two plates 21, or if it is desired, between the two fingers 24. By rotating the threaded rod in the opposite direction, the two units will move toward each other, thereby bringing the two ends of the band 10 toward each other accordingly. After the band has been properly tightened on the pipes, a short bolt may be placed through the ears 11 and 12 for permanently holding them together. This method of operation of the device is similar to that of a vice. In many instances, it is desirable to split a ring band for purposes of removal or for other purposes, and in such cases, it is merely necessary to rotate the member 13 in the opposite direction in order to move the two units away from each other with the two units in engagement with the ears 11 and 12 of the ring to be spread. When it is desired to spread the ring, the positions of the two units on the ring may be in one of two ways. If the ears 11 and 12 are each embraced by a plate and a finger, then and in that event, a rotation of the member 13 in one direction will cause the plates 21 to move toward each other for tightening the ring, and when the member 13 is rotated in the opposite direction, the fingers 24 will be on the inner sides of the two ears 11 and 12 and the movement of the plates away from each other will cause the ears 11 and 12 to also move away from each other and the spreading of the ring will result. The second method of spreading the ring is shown in Fig. 1 wherein the lugs 23 are placed through the usual bolt holes of the ears 11 and 12 with the plates 21 positioned between the ears 11 and 12. Obviously when the member 13 is threaded in the proper direction to bring the two units toward the outer ends of the member 13 and away from each other, the ring will be spread. When the lugs 23 are employed, there is no chance of the ears 11 and 12 of the ring accidentally slipping off of the units during the spreading process.

Some changes may be made in the construction and arrangement of my improved tool for compressing and spreading split rings without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope.

I claim:

In a device of the class described, an elongated rod member, a ratchet wrench secured to the center portion of said rod, right hand threads on said rod at one side of said wrench, left hand threads on said rod on the other side of said wrench, a base member threaded onto said rod on one side of said wrench, a second base member threaded on said rod and positioned on the other side of said wrench, a straight plate flange on each of said base members extending a substantial distance from the base member to which they are secured and extending transversely of the longitudinal axis of said rod, and a finger plate on the inner side of each of said flange plates having its outer end portion spaced apart from the flange plate to which it is secured.

HENRY C. LAUB.