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R. A. NORLING

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CHISEL RETAINER LOCK

Filed June 28, 1923

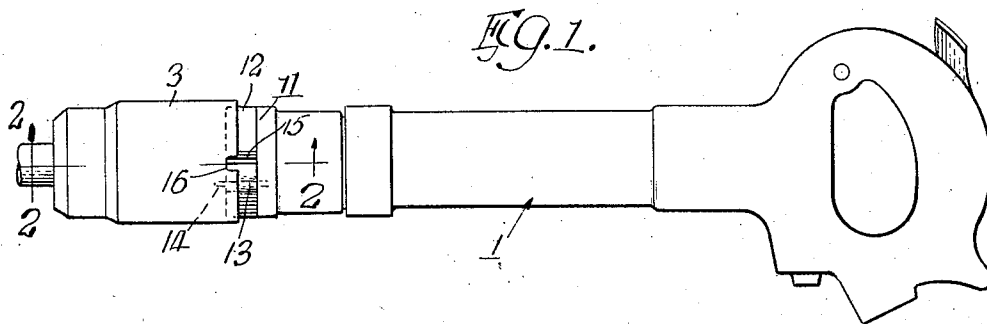


FIG. 2.

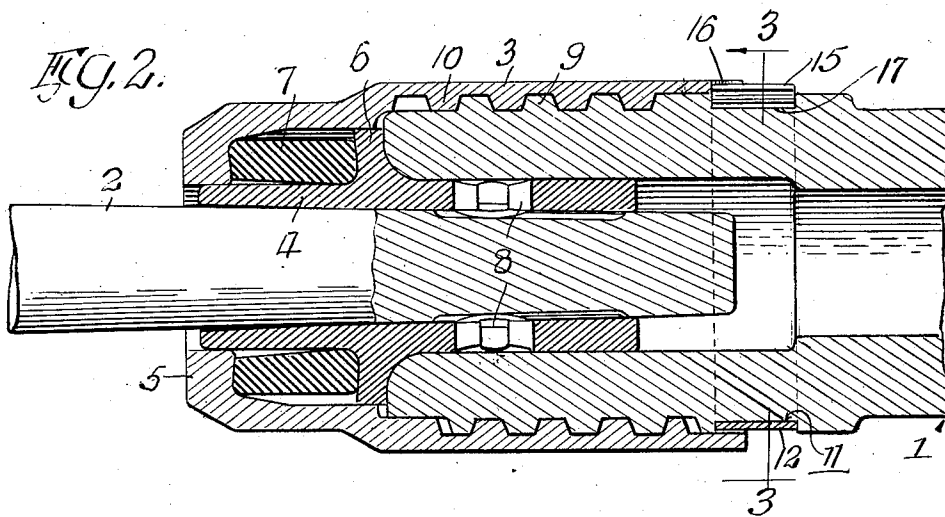


FIG. 3.

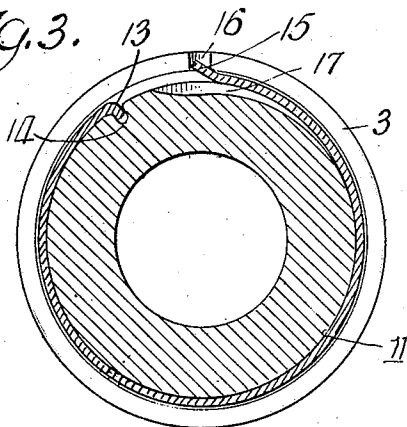
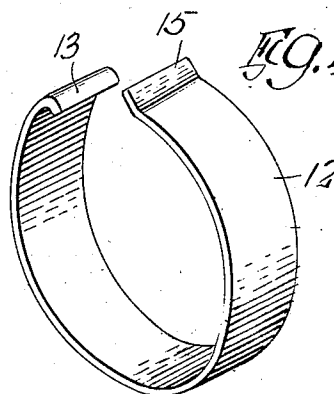


FIG. 4.



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CHISEL-RETAINER LOCK

Application filed June 28, 1923. Serial No. 648,283.

This invention relates to means for locking chisel retainers on the barrels of pneumatic riveting hammers and thus hold the retainers from being jarred or otherwise loosened off said barrels during running of the tools.

The invention consists further in the matters hereinafter described and more particularly set forth in the appended claims.

In the accompanying drawings—

Fig. 1 is a side elevational view of a pneumatic riveting hammer having at the forward end of the barrel a chisel retainer releasably locked on the barrel by a locking device of my invention;

Fig. 2 is an enlarged fragmentary longitudinal vertical sectional view through the forward end of the barrel and attached chisel retainer on line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 2; and

Fig. 4 is a perspective view of the spring locking ring to be hereinafter described.

In the drawings, I have shown a pneumatic riveting hammer having a barrel 1 carrying at its forward end a chisel retainer embodying the features of my invention. By the use of such retainer a chisel 2 may be applied to the hammer and permit the use of the latter for cutting off heads of rivets in repair or other work.

The retainer includes an outside sleeve 3 and an inside sleeve 4, each made in one piece and with the outside sleeve 3 applied over the forward end of the barrel 1 and projecting forwardly beyond the same, as shown in Fig. 2. The inside sleeve 4 fits about the shank of the chisel 2 and permits the use of a chisel with an un-reduced shank. The forward end of the sleeve 3 has an inwardly extending flange 5, and the sleeve 4 adjacent the end of the barrel 1 has an outwardly extending flange 6. Between these flanges 5 and 6 is placed a cushion means 7 preferably in the form of an annulus or ring of rubber. The rubber ring 7 is carried by the sleeve 4 extending between the flanges 5 and 6. Plugs 8, 8 carried by the sleeve 4 and engaging the bore of the barrel 1 at its forward end are employed to hold the sleeve 4 in the barrel, in the same manner as described and claimed

in the copending application of Axel Levedahl, filed February 10, 1922, Serial No. 535,624.

In accordance with my invention, the barrel 1 is provided on the outside at its forward end with a coarse screw thread 9, and the retainer sleeve 3 is provided with a complementary internal screw thread 10 whereby the sleeve 3 may be screwed on the barrel 1. At the inner end of the sleeve 3, the barrel 1 is provided with an exterior annular groove 11, in which is placed a spring clip 12.

Said clip 12 is split at one point of its circumference, as shown in Fig. 4, and has one of its split or severed ends turned inward to provide a flange 13. This flange 13 engages in a recess or slot 14 formed in the bottom of the groove 11 and extending across the same. The spring clip 12 is made normally smaller in diameter than the barrel at the bottom of the groove 11 so that it tightly embraces and grips the barrel in said groove. To engage the retainer sleeve 3, the other end 15 of said clip 12 is bent outward to enter a notch 16 in said sleeve 3, as shown in Figs. 1 and 3.

When the sleeve 3 is screwed up on the barrel, it extends partly over the spring clip 12, as indicated in Figs. 1 and 2, and depresses the end 15 of the spring. This end 15 will snap into the notch 16 and lock the sleeve 3 on the barrel and hold it from unscrewing. Any attempt, due to jar and vibration of the tool while running or otherwise, to unscrew the sleeve 3 will expand the spring clip 12 into tight contact with the bore of the sleeve 3, owing to the fact that the spring has one end fixed to the barrel 1 and the other end to the sleeve 3. The groove 11 is made shallow so that its depth will approximate the thickness of the clip 12. This brings the clip 12 close to the sleeve 3 before expanded (see Fig. 3.) and thus quickly grip the sleeve when expanded with comparatively little turning of the sleeve. The clip end 15 is inclined in a direction to ratchet under the notch 16 as the sleeve 3 is turned on the barrel, but engages one edge of the notch 16 to resist movement of the sleeve 3 when turned in a direction to unscrew it from the barrel. The more pressure exerted to unscrew the sleeve 3, the

tighter the lock between the spring clip 12 and said sleeve becomes, with the result that the sleeve is locked on the barrel.

To release the sleeve 3 for the removal of the retainer, the groove 11 is provided adjacent the clip end 15 with a deeper portion 17, as shown in Fig. 3. This permits the clip end 15 to be depressed and released from the notch 16, whereupon the sleeve 3 is free from the clip 12 and may be unscrewed from the barrel 1. As the clip 12 extends beyond the inner end of the sleeve 3, the clip 12 is readily accessible for depression of its end 15 into the deeper portion 17 of the slot 11 to release the sleeve. This deeper portion 17 is about one-third of the groove, thus making the clip 12 grip two-thirds of it.

The lock of my invention is simple in construction and operation and effective for the purpose designed, in that it positively and securely locks the retainer sleeve 3 against movement on the end of the barrel under the vibrations to which a tool of this kind is subjected when in use. Moreover, the lock prevents the retainer sleeve 3 from being loose or moved off the barrel as the tool is transported from place to place and comes into contact with surrounding objects. The lock enables a one-piece retainer sleeve 3 to be employed, and the spring clip 12 is so constructed that any movement of the sleeve 3 in a direction to spread the clip 12 only makes tighter the lock between the parts. The end 15 of the clip 12 moreover does not project beyond the barrel and therefore is not in the way to be injured or catch in surrounding objects as the tool is handled and used. The parts fitting tight and snug, there is nothing to jar loose or break, and moreover no deep holes or cavities need be cut in the barrel to receive the parts and thus the barrel not weakened and made liable to breakage.

While I have shown and described herein in detail a lock of my invention, it is of course to be understood that the details of construction may be variously changed and modified without departing from the spirit and scope of my invention.

I claim as my invention:

1. In a percussive tool, the combination with a barrel, of a chisel retainer for the barrel including a sleeve threaded on said barrel, and a split spring clip extending about the barrel beneath a portion of said sleeve, said clip tightly gripping the barrel and having one end in fixed engagement therewith and the other end in engagement with said sleeve, the portion of the sleeve at the clip closely surrounding the same and being engaged by the clip in a manner to expand the clip into tight contact with the sleeve for locking the latter on the barrel on turning the sleeve in a direction to unscrew it from the barrel.

2. In a percussive tool, the combination with a barrel, of a chisel retainer for the bar-

rel, including a sleeve threaded on said barrel, and a split spring clip extending about the barrel beneath the inner end of said sleeve, said clip tightly gripping the barrel and having one end in fixed engagement therewith and the other end in releasable connection with the sleeve, the inner end of the sleeve closely surrounding the clip and being engaged thereby in a manner to expand the clip into tight contact with the sleeve for locking the latter on the barrel on turning the sleeve in a direction to unscrew it from the barrel, said barrel having a depression so disposed as to permit the end of the clip at the sleeve to be pressed inward out of locking engagement therewith.

3. In a percussive tool, the combination with a barrel, of a chisel retainer for the barrel, including a sleeve threaded on the barrel, and a split spring clip extending about the barrel beneath the inner end of said sleeve, said clip tightly engaging the barrel and having one end intumed to engage in a recess in the barrel and the other end out-turned to releasably engage in a notch in the inner end of the sleeve, the inner end of the sleeve closely surrounding the clip and being engaged thereby in a manner to expand the clip into tight contact with the sleeve for locking the latter on the barrel on turning the sleeve in a direction to unscrew it from the barrel, said barrel having a depression to permit the out-turned end of the clip to be pressed inward out of locking engagement with the sleeve, said out-turned end of the clip projecting laterally beyond the inner end of the sleeve to be accessible for depressing.

4. In a percussive tool, the combination with a barrel having an exterior annular groove, of a chisel retainer for the barrel including a sleeve screwed on the barrel and having its inner end extending over said groove, and a split spring clip extending about the barrel in said groove, said clip tightly gripping the barrel about the bottom of said groove and having one end bent inward to engage a recess in the bottom of the groove and the other end bent outward to engage a notch in the overhanging inner end of the sleeve, the inner end of the latter closely surrounding the clip so that the clip will be expanded into tight contact with the sleeve for locking the latter on the barrel on turning the sleeve in a direction to unscrew it from the barrel, said groove being deeper at said notch to permit the out-turned end of the clip to be pressed inward and be released from said sleeve.

5. In a percussive tool, the combination with a barrel having an exterior annular groove, of a chisel retainer for the barrel including a sleeve threaded on the barrel and having its inner end extending partially across said groove, a flat split spring clip extending about the barrel in said groove and

substantially fitting the same so as to project beyond the inner end of the sleeve, said clip having one end engaged in a recess in the barrel and the other end out-turned and releasably engaging a notch in the inner end of said sleeve, said groove having a depth substantially equal to the thickness of the clip so that the latter may normally tightly grip the barrel in the groove and be expanded into tight contact with the closely surrounding inner end of the sleeve on turning the latter in a direction to unscrew it from the barrel, said groove being deeper at the notch to permit the out-turned end of the clip to be pressed inward and be released from the sleeve.

In testimony that I claim the foregoing as my invention, I affix my signature this 25th day of June, 1923.

REINHOLD A. NORLING.