

(No Model.)

E. CAMPBELL.

GRIPPING DEVICE FOR SPRING PACKING RINGS.

No. 419,413.

Patented Jan. 14, 1890.

Fig. 1.

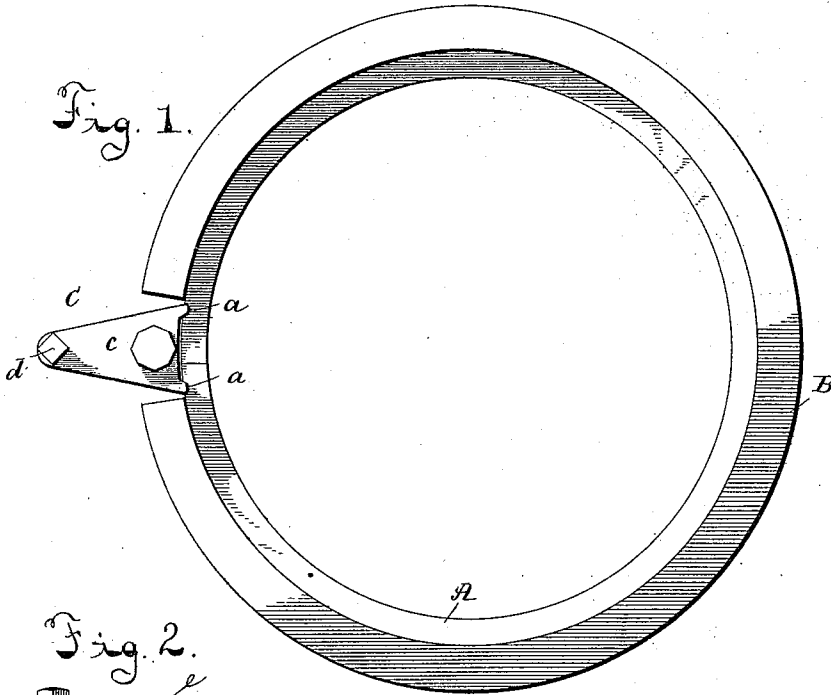


Fig. 2.

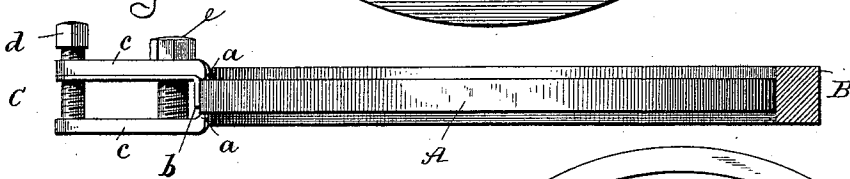


Fig. 3.

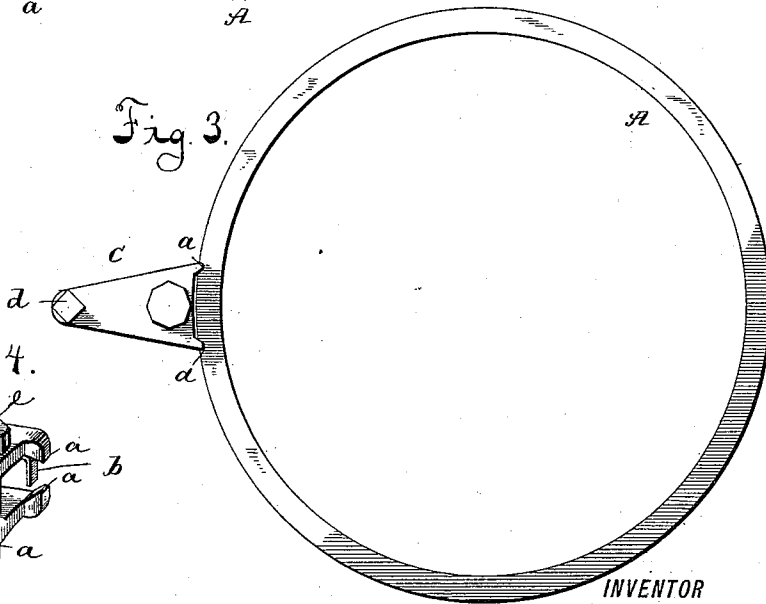
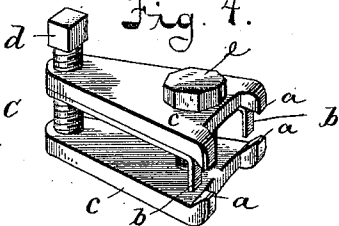


Fig. 4.



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## GRIPPING DEVICE FOR SPRING PACKING-RINGS.

SPECIFICATION forming part of Letters Patent No. 419,413, dated January 14, 1890.

Application filed October 31, 1889. Serial No. 328,782. (No model.)

*To all whom it may concern:*

Be it known that I, ELMER CAMPBELL, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Gripping Devices for Spring Packing-Rings; and I do hereby declare that the following is 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.

My invention relates to improvements in devices or clamps for use in making spring packing-rings.

In making spring piston packing-rings as hitherto practiced the ring is first turned somewhat larger than the bore of the cylinder in which it is to work, the sides are finished, and then a piece is diagonally cut from the ring, leaving it, when closed together, slightly larger than the bore of the cylinder. The ring is then closed by forcing it into a heavy chuck-ring to bring the ends together and hold them while being clamped in a lathe-chuck, after which the heavy ring is removed and the ring is turned the exact diameter of the cylinder. When made by this method, the unequal tension in the parts of the ring when clamped by the lathe-chuck distorts the ring and leaves it out of round when finished and released from the chuck. To avoid this difficulty and to secure a ring which, when fitted to the cylinder, will have equal radial tension throughout its circumference, it has been proposed to use a flexible band to embrace and draw the ends of the ring together, thus leaving the parts of the ring nearly free to assume the form it would take were the ends drawn together and then grasped and held by their extremities. Any circumferential pressure or restraint to bring and hold the ends together for chucking has a tendency to cause the ring to be distorted in some degree when finished.

The object of my invention is to provide convenient means for grasping and holding the ends of the ring after they have been brought together, so that the ring may be ab-

solutely free to assume its natural form when chucked.

To this end my invention consists in the combination of a pair of jaws, each provided with two gripping points or teeth, a gage to regulate the depth of grip, and means for causing the jaws to grip and hold the ends of the ring together.

In the accompanying drawings, Figure 1 is an end elevation showing a spring packing-ring with my improved gripping device applied to the ring. Fig. 2 is a side view of the spring-ring and gripper, the ring-holder being in section. Fig. 3 is an elevation showing the spring-ring detached from the holder, its ends held together by the gripper and ready to be clamped in a lathe-chuck for turning to the proper diameter. Fig. 4 is a perspective of the gripper detached.

A is a spring piston packing-ring made somewhat larger than the bore of the cylinder in which it is to be used, and having a piece removed in the usual way.

B is an open ring-holder, within which the spring-ring is forced to bring its ends together. This ring-holder is left open at one side, so that the gripper may be applied to the adjacent ends of the spring-ring.

Any suitable means for bringing and holding the ends of the ring together while the gripper is applied may be adopted, and is regarded as the equivalent of the open ring for that purpose.

C is the gripping device as a whole, the same embracing the combination of jaws *c c*, each of which is provided with two points or teeth *a a*, a screw-bolt *e* for connecting the jaws, a stop or gage piece having parts *b b* for regulating the depth from the outside, which the point will grasp the ring, and a set-screw *d* for forcing the jaw-teeth into engagement with the ring. The screw-bolt *e* serves to adjust the jaws bodily toward or from each other, and as a link or bar upon which the jaws are vibrated slightly by the set-screw *d* to cause them to grip the ends of the ring.

It will be observed that both ends of the open spring-ring are gripped between a sin-

gle pair of points or teeth, leaving the body of the ring entirely free to swing on said teeth as pivots, so that it may assume the form natural to the tension of the material  
5 thereof.

Having now described my invention, I claim—

10 1. The gripping device herein described, consisting of the combination of a pair of jaws, each of which is provided with two points or teeth, and means for opening and closing said jaws, substantially as described.

15 2. The device described for gripping the adjacent ends of spring-rings, consisting of the combination of a pair of jaws, each hav-

ing two points or teeth, a gage or stop, and means for opening and closing the jaws, substantially as described.

3. The gripping device described, embracing the combination of a pair of jaws, each provided with two teeth, a gage or stop, and a set-screw for operating the jaws, substantially as described. 20

In testimony whereof I affix my signature in the presence of two witnesses.

ELMER CAMPBELL.

Witnesses:

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W. H. BUSH.