(No Model.)

H. V. BERNHARDT.

TOOL FOR EXPANDING RINGS.

No. 516,180. Patented Mar. 13, 1894.

Fig. 2.

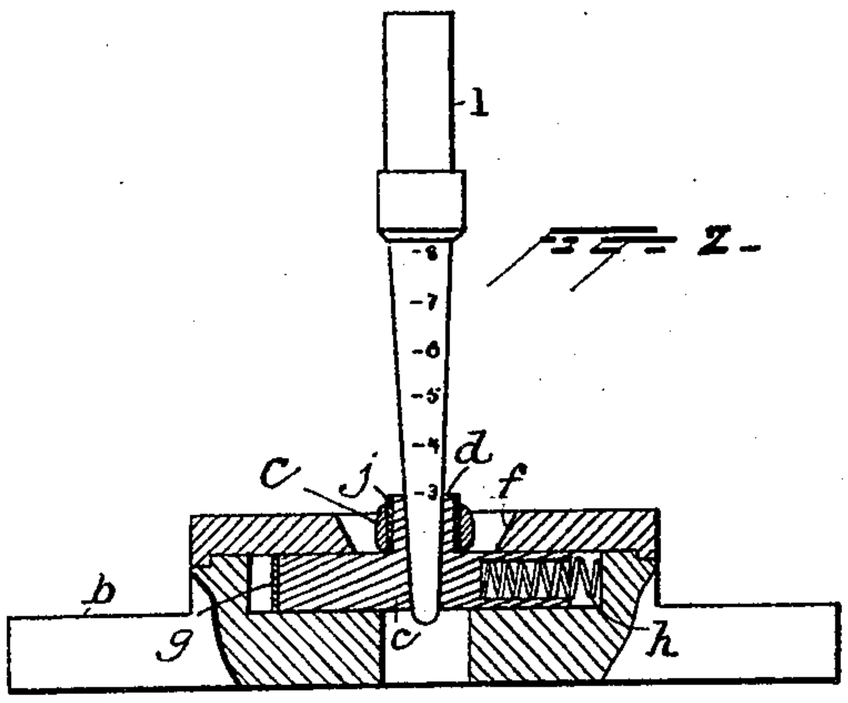


Fig. 7.

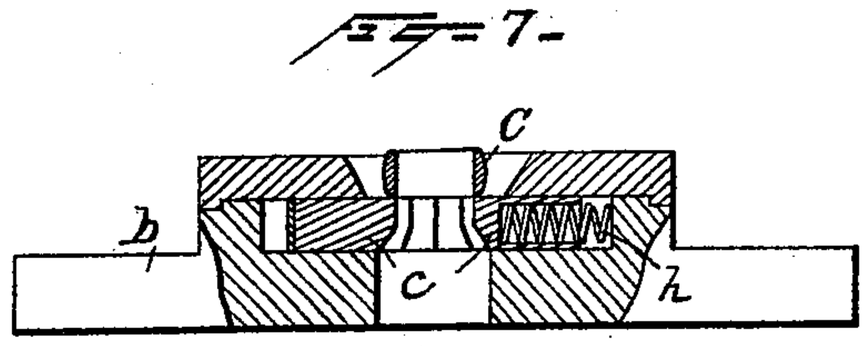


Fig. 3.

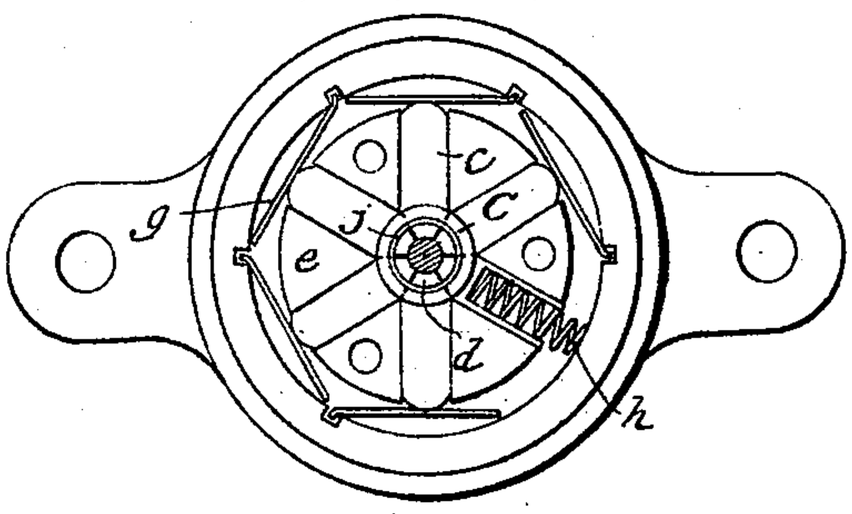


Fig. 8.

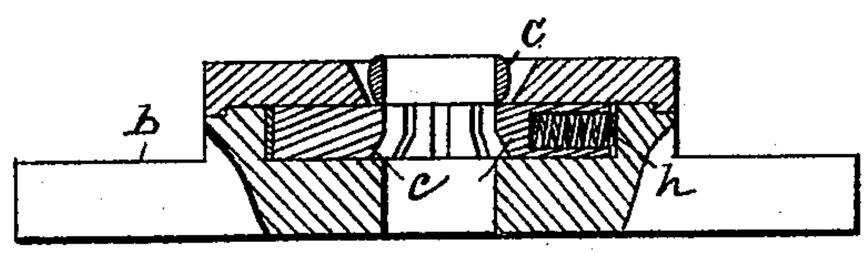


Fig. 4.

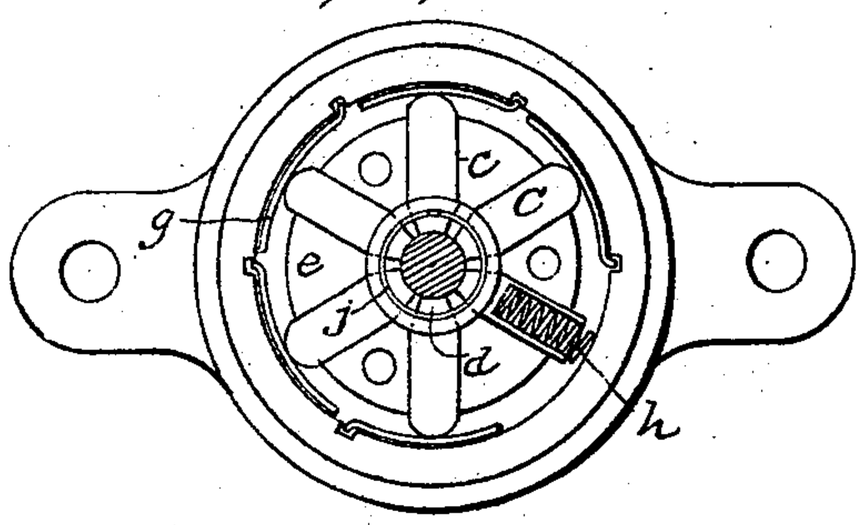


Fig. 5.

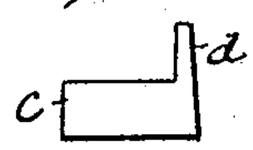


Fig. 6.

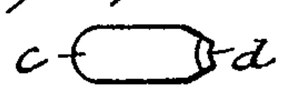
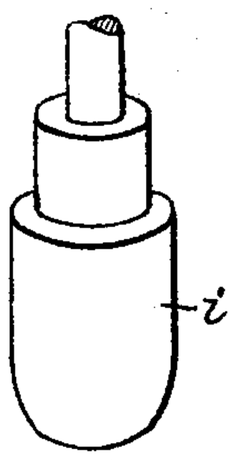


Fig. 1.



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HERMAN V. BERNHARDT, OF BROOKLYN, ASSIGNOR TO THE J. B. BOWDEN & COMPANY, OF NEW YORK, N. Y.

TOOL FOR EXPANDING RINGS.

SPECIFICATION forming part of Letters Patent No. 516,180, dated March 13, 1894.

Application filed November 26, 1892. Serial No. 453,247. (No model.)

To all whom it may concern:

Be it known that I, HERMAN V. BERNHARDT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improved Tool for Expanding Rings, of which the following is a specification.

My invention is especially designed for the manufacture of rings from ornamented annular blanks, the object being to preserve the ornamentation on the finished ring without blemish.

The mechanism employed in carrying out the invention is useful in connection with a ring formed by any of the well known or suitable methods, to expand the same to any required size, whether the ring be ornamented or not.

In the accompanying drawings forming part of this specification, Figure 1 represents a swage, which, in conjunction with its die, will always expand a ring to a given size, and hence when such swages are used it will be necessary to provide one for each size ring desired. Fig. 2 is a vertical elevation, partly in section, of a sizing tool, showing the ring in place before expansion. Fig. 3 is a plan view of the die shown in Fig. 2, partly in section, with the ring in place before expansion. Fig. 4 is a plan view, similar to that shown in Fig. 3, showing the ring after expansion. Fig. 5 is a side view of one of the sliding jaws. Fig. 6 is a top view of the same. Fig. 7 is a sectional elevation of a die operating as does the die shown in Figs. 2, 3 and 4 but without provision for protecting the inner face of the ring, which, when such die is used, should not be ornamented. In this figure the ring is shown before expansion. Fig. 8 is an elevation of the die shown in Fig. 7, but with the ring expanded.

We will assume that the ring is made with ornamentation on both sides, or on one side only, or provided with ornamentation in any other way, or is without ornamentation.

Referring to Figs. 2 to 8 inclusive, *b* represents the bed-plate of the female member of the sizing tool. *c* represents the movable jaws thereof, of which six are shown. These jaws, as shown in Figs. 2 to 6, are formed with a flange *d*, and are arranged to slide between side guide-pieces or cheeks *e* and the bed-plate *b* at the bottom and a guide-piece *f* on the top side thereof. Each sliding jaw is provided with a spring, which may be a flat spring as shown at *g*, or a coiled spring as shown at *h*. In the latter case the rear end of the sliding jaw is recessed and the coiled spring placed therein abutting at its outer end against a portion of the bed-plate *b*. The swaging tool may be either a tapering one graduated to indicate the different sizes as shown at *l*, Fig. 2, or a tapering swage with a straight portion as shown at *i*, Fig. 1. In expanding the ring, it is placed around the flanges *d* of the various sliding jaws, which flanges are in the form of an annulus when closed, as shown in Fig. 3, and of a size on the outer periphery thereof to receive the ring. If the ring is ornamented on both sides, a washer of leather *j* is placed around the said flange between it and the ring. Upon the introduction of the tapering tool *l*, it will be seen that the sliding jaws will be forced apart, and hence will expand the ring regularly without marring its ornamentation, none of the metal parts of the sizing tool coming in contact therewith. If the sizing tool *i* is used, the operation will be the same, but for different sizes of rings separate swages *i* must be used. The use of the swage *i*, however, has the advantage of providing the ring with a straight inner wall, instead of, as occurs when the tapering tool *l* is used in connection with the die of Figs. 7 and 8, an inclined inner wall.

Figs. 7 and 8, it will be seen, differ from Figs. 2, 3 and 4 only in the omission of the flanges *d* on the sliding jaws. This omission is made when the ring is not ornamented on the inner side, the metal of the swage then coming in direct contact with the inner side of the ring and expanding it in that manner. Of course either of the tools just described might be used for sizing rings which were not provided with ornamentation.

I claim—

1. In a device for expanding rings, the combination of a base, movable jaws in said base

adapted to support a ring, springs placed in recesses in said jaws and tending to move the same toward a common center and a mandrel or swage for expanding said ring, substantially as set forth.

2. In a device for expanding rings, the combination of a base, movable jaws in said base having flanges arranged at an angle to said jaws and adapted to enter a ring, and a mandrel or swage for driving said jaws apart to expand the ring, substantially as set forth.

This specification signed and witnessed this 18th day of November, 1892.

HERMAN V. BERNHARDT.

Witnesses:
EUGENE CONRAN,
GEORGE B. BUCHANAN.