No. 606,675. Patented July 5, 1898.

F. M. MARCY.

METHOD OF AND APPARATUS FOR TRUING SPINNING RINGS.

(No Model.) (Application filed Dec. 18, 1897.)

Fig. 1.

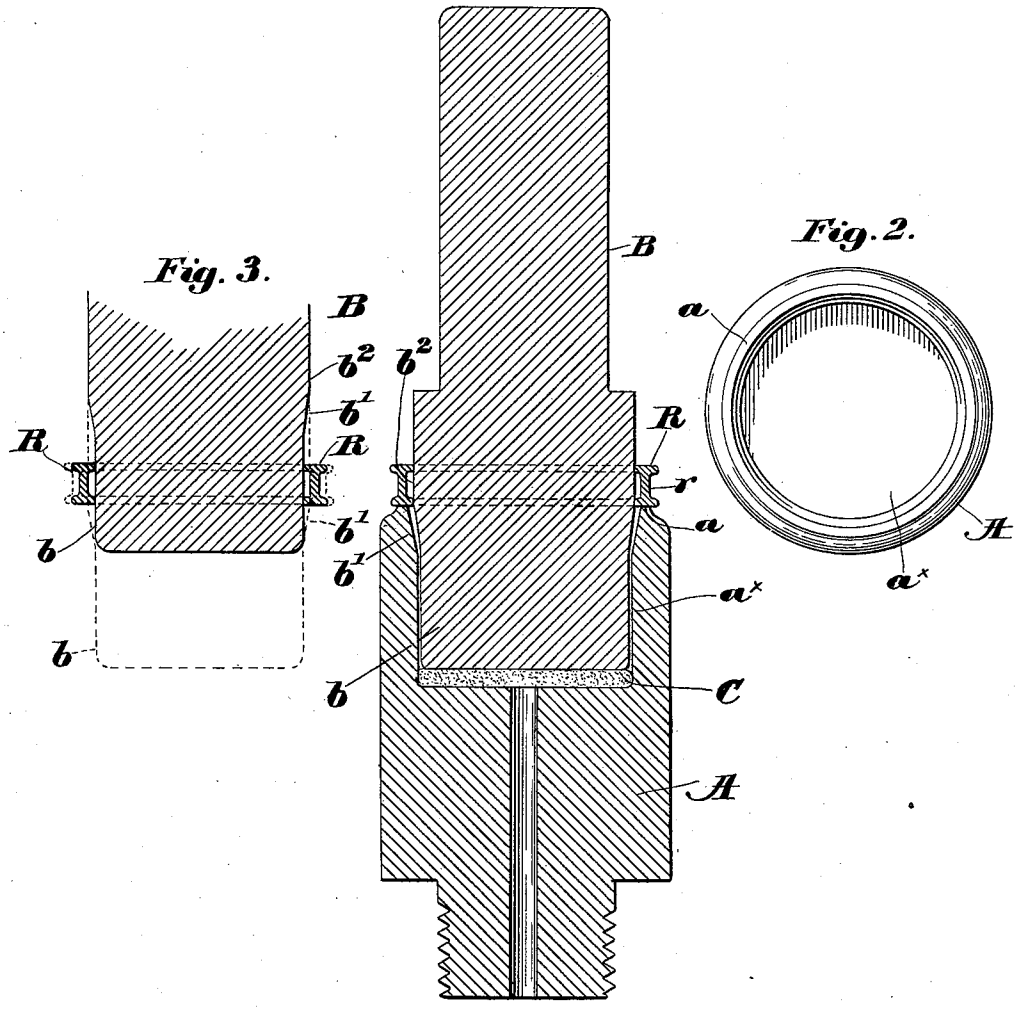

Fig. 3.

Fig. 2.

Witnesses:
Walter E. Lombard.
Edward F. Allen.

Inventor:
Frank M. Marcy,
by Crosby Gregory,
Attys.

UNITED STATES PATENT OFFICE.

FRANK M. MARCY, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE DRAPER COMPANY, OF PORTLAND, MAINE, AND HOPEDALE, MASSACHUSETTS.

METHOD OF AND APPARATUS FOR TRUING SPINNING-RINGS.

SPECIFICATION forming part of Letters Patent No. 606,675, dated July 5, 1898.

Application filed December 18, 1897. Serial No. 662,376. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. MARCY, of Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Methods of and Apparatus for Truing Spinning-Rings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the manufacture of spinning-rings it has been found that they are liable to be untrue—that is, they are not of a uniform internal diameter, as they are not truly circular. This is due to the unequal structural strains to which the rings are subjected in the process of hardening, as such strains are usually distributed unevenly, and the resulting eccentricity of the ring becomes serious when the ring is in use, as the traveler is obliged to run in an eccentric path, interfering with its regularity of movement and increasing the wear upon it.

This invention has for its object the production of a method of treating spinning-rings whereby they are trued to accurate internal diameter and circular curvature, and one simple form by which the method may be carried out also forms a part of this invention.

Figure 1 is a vertical sectional view of one form of apparatus for practicing my invention. Fig. 2 is a top or plan view of the ring-support, and Fig. 3 shows the manner of mechanically expanding the ring to the proper internal diameter and curvature.

In practicing my invention I take the ring after it has been hardened in any usual manner and reheat it to a proper temperature such as will permit subsequent steps without rupture. While the ring is thus heated I force therein an arbor having a tapering end and an adjacent cylindrical portion having preferably a diameter slightly larger than the internal diameter of the heated ring. This effects a gradual and slight stretching of the ring, and while the ring is held upon the arbor it is cooled, preferably by immersion in water or other suitable cooling medium, thus giving the ring a second hardening. The ring while cooling is thus absolutely governed by the arbor or form, and the internal strains in the ring are distributed evenly and in such manner that the ring will preserve its shape and true circular curvature after the withdrawal of the form.

Referring to Fig. 1, the ring R after being heated is held on an annular seat a, formed by the upper edge of the cup-shaped support A, which may be held upright in any suitable manner. The annular seat a holds the ring beneath the web r thereof, giving it a firm support, and while so supported an arbor or form B is forced into the heated ring. The end b of the form is made smaller than the internal diameter of the ring and tapers, as at b', to a diameter preferably slightly greater than the internal diameter of the ring when heated, the adjacent portion b^2 of the form being accurately cylindrical and of the exact diameter it is desired the ring shall be interiorly. As the form is pushed into the heated ring the latter will be expanded from full-line diameter, Fig. 3, to dotted-line diameter as the part b^2 of the form enters the ring. The form with the expanded ring upon it is then withdrawn from the ring-support A and preferably plunged into water or other cooling medium to cool and harden the ring, after which the latter is separated from the form in any suitable manner, as by a slight tap with a hammer. The arbor or form is forced into the ring conveniently by tapping it with a hammer, and to stop the inward movement of the form without shock I prefer to place a cushion C of suitable yielding material in the recess $a^\times$ of the support A.

While my invention is particularly adapted for truing spinning-rings, other annular objects may be operated upon in accordance therewith.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The method of truing hardened spinning-rings, which consists in reheating the ring, mechanically expanding the ring by the temporary insertion of an arbor or form having a diameter greater than the interior diameter of the heated ring, and immersing the ring in a cooling medium while on the form, to harden

the ring at its proper internal diameter, and finally removing the ring from the form.

2. The method of truing rings, which consists in heating the ring, temporarily inserting therein a cylindrical arbor or form having a tapering end, to gradually stretch the ring to the desired internal diameter, cooling the ring by immersion in a cooling medium while upon the cylindrical portion of the form, and finally removing the cooled ring from the form.

3. In an apparatus for truing spinning-rings, an annular support to sustain the ring beneath its web, and an arbor or form having a tapering end and adjacent cylindrical portion of the diameter desired for the interior of the ring, the form being adapted to be driven into the ring while held upon the support, to gradually stretch the ring to the diameter of the cylindrical portion of the form.

4. In an apparatus for truing spinning-rings, an annular support to sustain the ring beneath its web, an arbor or form having a tapering end and adjacent cylindrical portion of the diameter desired for the interior of the ring, and a cushion for the end of the arbor, the latter being adapted to be driven into the ring while held upon the support.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK M. MARCY.

Witnesses:
A. G. DAVIS,
H. N. PARKER.