No. 612,381. Patented Oct. 11, 1898.

E. A. DARLING.

APPARATUS FOR FINISHING SPINNING RINGS.

(Application filed Mar. 24, 1898.)

(No Model.)

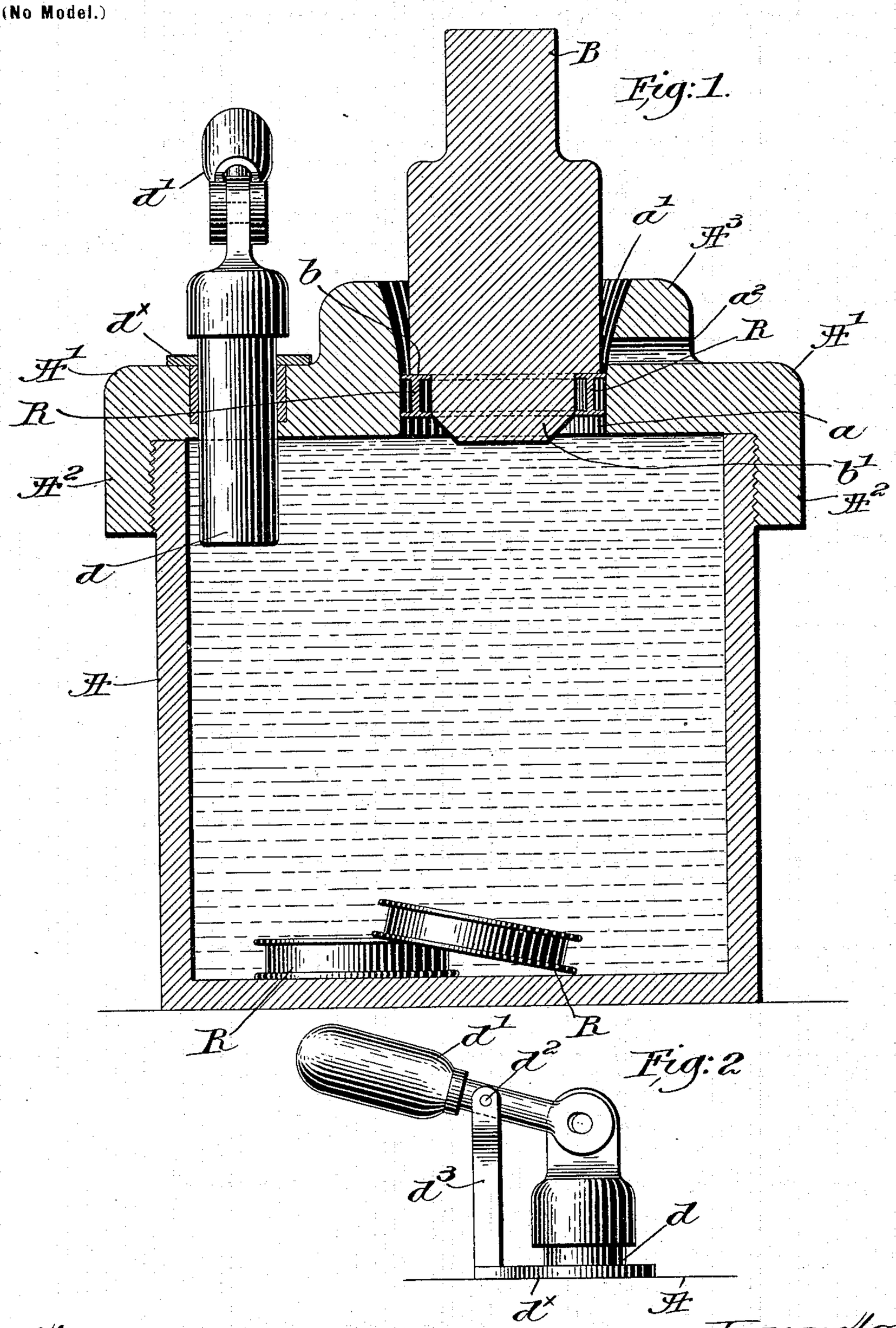

Fig: 1.

Fig: 2

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UNITED STATES PATENT OFFICE.

EDWIN A. DARLING, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE DRAPER COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

APPARATUS FOR FINISHING SPINNING-RINGS.

SPECIFICATION forming part of Letters Patent No. 612,381, dated October 11, 1898.

Application filed March 24, 1898. Serial No. 674,986. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. DARLING, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Apparatus for Finishing Spinning-Rings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of an apparatus for finishing spinning-rings, whereby they can be finally hardened in true cylindrical form.

As is well known, the machine work on spinning-rings, while accurately shaping them, tends to draw the temper, and when they are rehardened the unequally-distributed internal strains set up tend to distort or get the rings out of true.

By the apparatus herein described the rehardening is effected under such conditions that the finished ring will be true and accurately cylindrical.

Figure 1 is a vertical sectional view of one form of apparatus embodying my invention, and Fig. 2 is a detail of a portion thereof to be described.

Referring to Fig. 1, a strong tank or chamber A has securely attached thereto a cover A′, herein illustrated as having a downturned edge A^2 interiorly threaded to screw upon a similar thread at the top of the tank, the latter in such case being of course cylindrical. The cover A′ has a hollow boss A^3 thereon, the interior of which communicates with the tank through a cylindrical hole *a* in the cover and of the exact size of the finished ring, the walls of the hole *a* forming a shaping and trueing die for the exterior of the ring to be treated. Above the die portion the bore of the boss A^3 flares, as at *a′*, to facilitate the ready entrance of the ring and to guide it to the die, and a transverse hole a^2 is made in the wall of the boss at the top of the die for a purpose to be described.

A movable plug B has at its lower end a shoulder *b*, serving as a seat for the ring R to be treated, the end of the plug being reduced in diameter at *b′* to fit the interior of the ring and made accurately cylindrical and of the size desired for the interior of the finished ring.

In carrying out my invention the tank is filled with water or other cooling fluid up to the level of the overflow or vent a^2, and a ring to be treated is reheated, inserted in the tapered bore *a′* of the boss, and the plug is then applied to force the ring while hot down through the circular die *a*, the ring being cooled by the water or other medium while it is held between the forming-die *a* and the end *b′* of the plug. Thus the ring will be absolutely cylindrical exteriorly and interiorly when cool, the shoulder *b* of the plug B insuring a proper seat for the ring when it is forced into and through the die *a* by downward pressure of the plug.

The operation is substantially automatic, as the passage of the ring through the die shapes and trues it, and it is cooled by contact with the water, and when forced through the die it can be knocked off of the plug by tapping it on the under side of the cover A′ to drop into the tank A, displacing enough water to make up for any loss by evaporation or otherwise during the operation, so that the water is practically maintained at the proper level until the tank is nearly full of finished rings. The plug may be operated by any suitable device or it can be depressed by tapping with a hammer.

If desired, the water in the tank may be raised to meet each ring when it is forced into the die *a*, as by a solid plunger *d* passing through a hole in the cover A, provided with a stuffing-box $d^{\times}$, said plunger having an actuating-handle *d′*, pivotally connected therewith and fulcrumed at d^2 on a standard d^3, erected on the cover. (See Fig. 2.)

By lifting the plunger the water-level will be lowered, and vice versa, so that the ring may be forced into the die *a* and the water raised to contact with it after the ring has been in the die for the desired length of time.

When the tank contains as many finished rings as it will conveniently hold, the cover A is removed and the rings are withdrawn.

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

1. In an apparatus for finishing rings, a fixed, open-ended cylindrical die to shape the outer circumference of the ring, and a support movable into and out of the die and having a seat, and a cylindrical portion on which the heated ring is mounted and which shapes its inner circumference, movement of the support carrying the ring through the die.

2. In an apparatus for finishing rings, a tank containing a cooling medium, a cover therefor having an open-ended cylindrical die, and a movable support adapted to enter and shape the interior of a heated ring, the ring being passed through the die to be thereby shaped circumferentially, and thereafter being discharged into the cooling medium in the tank.

3. A closed receptacle having an open-ended cylindrical die in its top, means to control the level of a cooling medium in the tank, a support movable into and out of the die and having a seat, and a cylindrical portion to enter and shape the interior of a heated ring resting on the seat, movement of the support into the die carrying the ring therethrough to be shaped circumferentially and to be thereafter discharged into the tank.

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

EDWIN A. DARLING.

Witnesses:

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