(No Model.)

A. G. & G. V. PINFOLD.

APPARATUS FOR ENLARGING OR REDUCING FINGER RINGS.

No. 542,350. Patented July 9, 1895.

FIG. 1

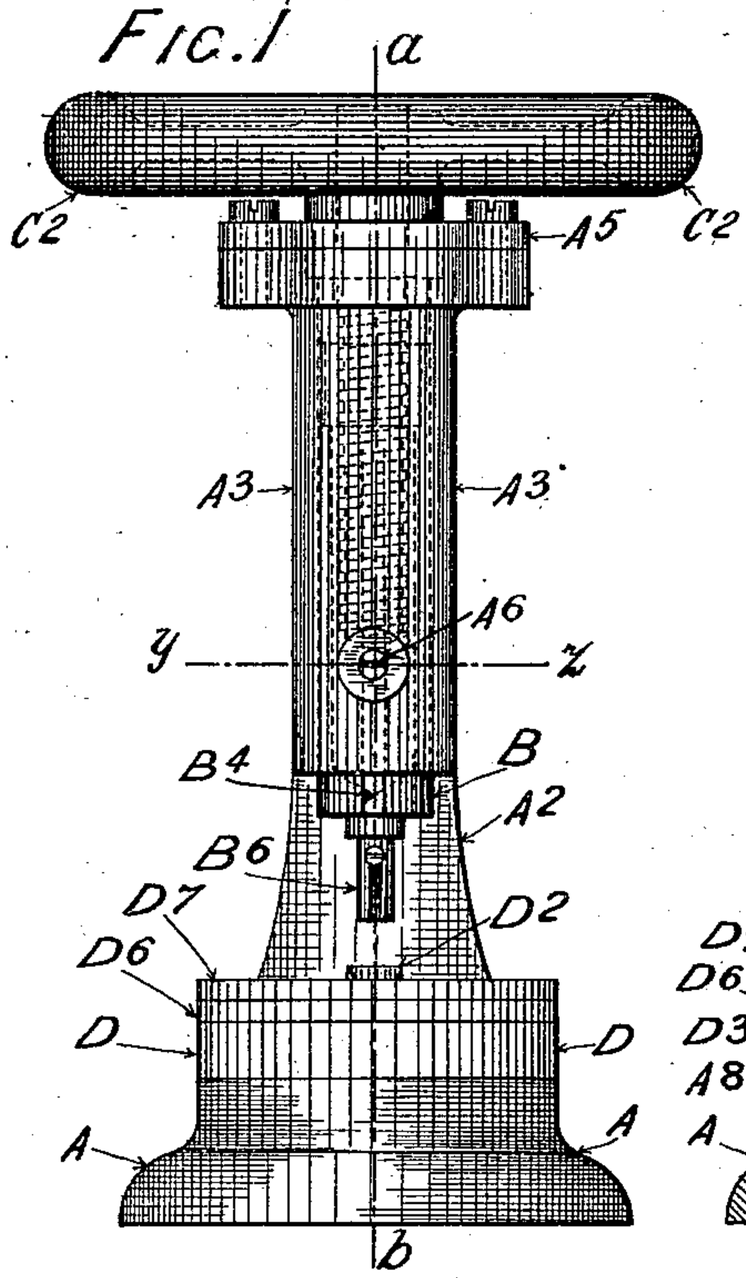


FIG. 2

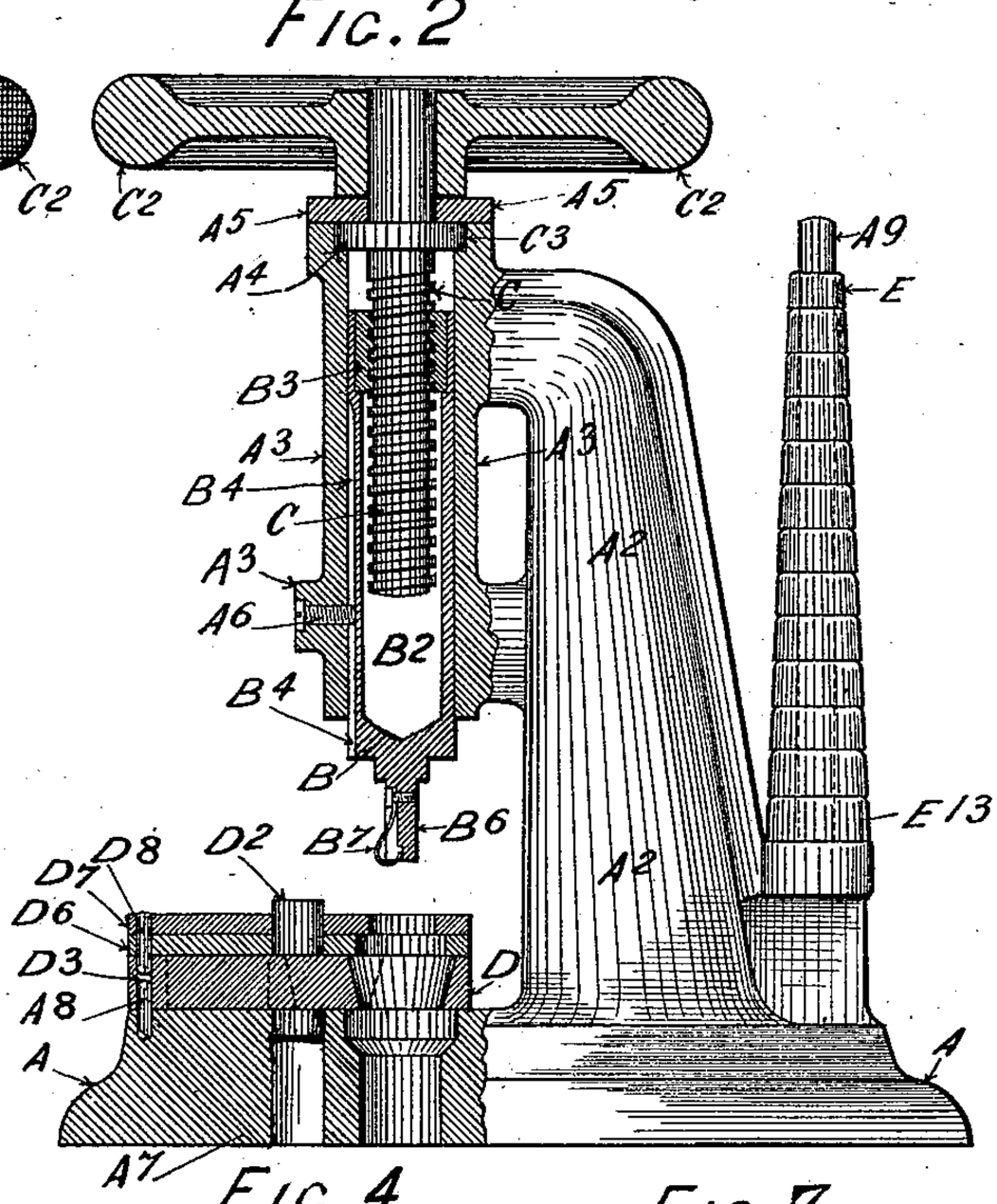


FIG. 3

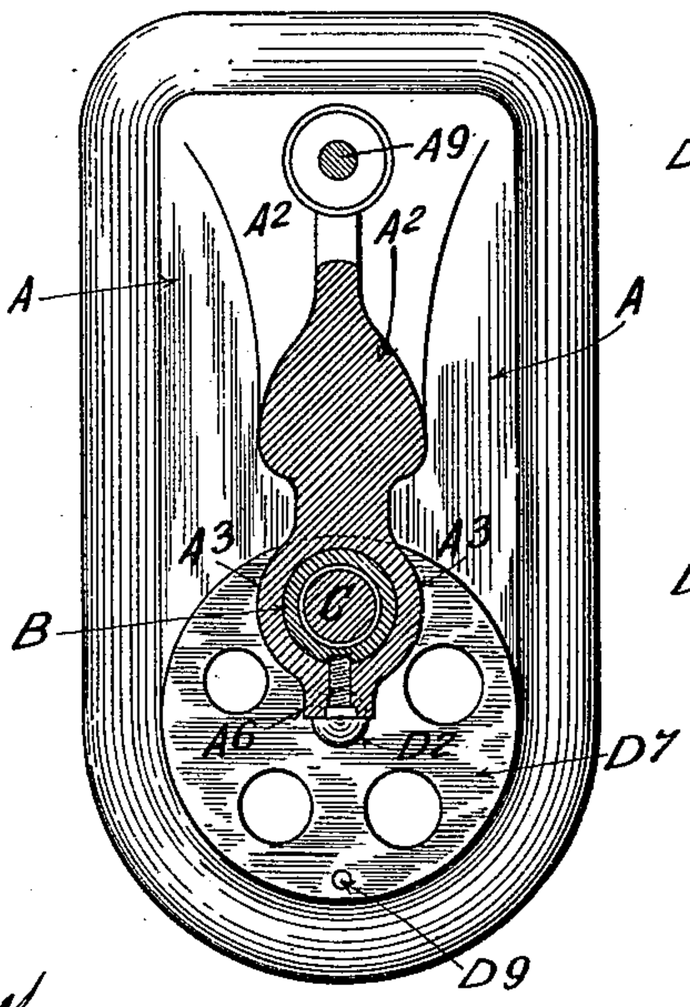


FIG. 4

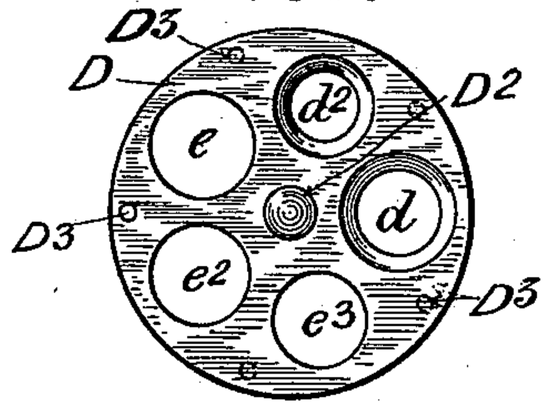


FIG. 5

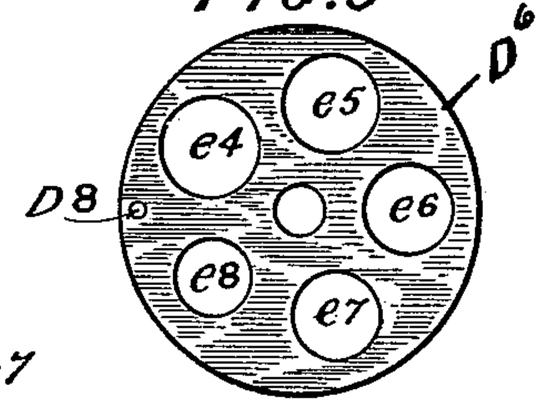


FIG. 6

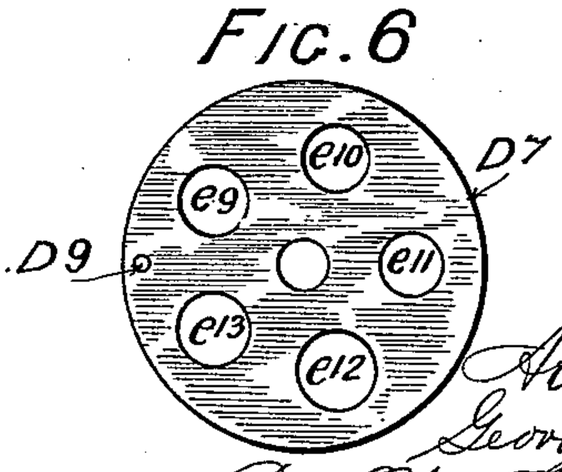


FIG. 7

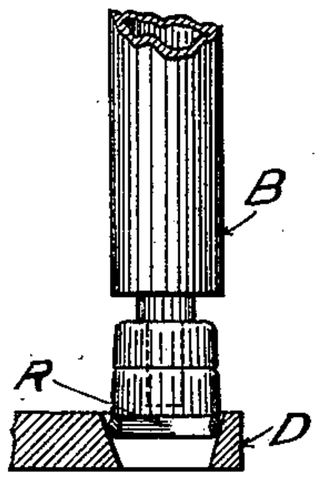
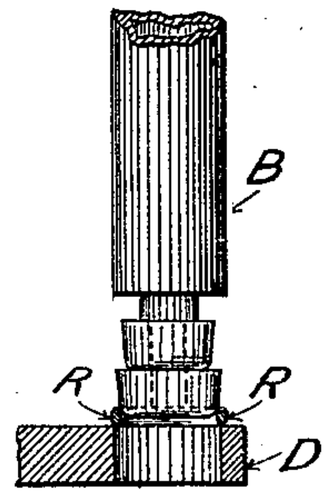


FIG. 8



Witnesses:-
H. K. Boulter
C. Monthuy

Inventors
Arthur G. Pinfold
George V. Pinfold
By Wm. E. Boulter attorney.

UNITED STATES PATENT OFFICE.

ARTHUR GOUGH PINFOLD AND GEORGE VALENTINE PINFOLD, OF CLECKHEATON, ENGLAND.

APPARATUS FOR ENLARGING OR REDUCING FINGER-RINGS.

SPECIFICATION forming part of Letters Patent No. 542,350, dated July 9, 1895.

Application filed February 26, 1895. Serial No. 539,794. (No model.) Patented in England February 6, 1893, No. 2,595.

To all whom it may concern:

Be it known that we, ARTHUR GOUGH PINFOLD and GEORGE VALENTINE PINFOLD, subjects of the Queen of England, and residing at Cleckheaton, England, have invented certain Improvements in Apparatus for Enlarging or Reducing Finger-Rings and other Annular or Circular Articles, (for which we have obtained Letters Patent in England, No. 2,595, dated February 6, 1893,) of which the following is a specification.

This invention relates to improvements in apparatus for enlarging or reducing wedding-rings, watch-barrels, and other small articles of annular or circular form.

In the accompanying sheet of drawings, forming a part of this specification, Figure 1 represents an elevation of our improved apparatus. Fig. 2 represents a side view of the same, partly in section, on the broken line *a b*, Fig. 1. Fig. 3 represents a sectional plan on the broken line *u z*, Fig. 1. Figs. 4 to 8 are views of detail, hereinafter referred to.

The bed A of the apparatus has a standard A^2 cast upon it, in which the vertical cylindrical guide or barrel A^3 is bored to receive the ram B, fitted therein. The ram has a concentric hole B^2 bored in the top, in which the nut B^3 is fixed, and this nut fits the screw C, which may be rotated by the hand-wheel C^2, but is confined longitudinally by its collar C^3 between the shoulder A^4 in the cylindrical guide and the cap A^5 upon the top. The ram B is prevented from rotation by the screw-pin A^6, fixed in A^3, engaging the keyway B^4, cut along the ram, so that said ram may be raised or lowered by turning the screw.

A rotary die or bolster block D (a separate plan view of which is shown in Fig. 4) is mounted on the bed and is confined in position by its center pin D^2, fitting a hole A^7 in the bed-plate, and the pin A^8, fixed in the bed entering one of the holes D^3, drilled in the block D. A hole A^7, the pin A^8, and the holes D^3 are formed in such a relative position that when the pin A^8 is in one of the holes D^3 one of the holes *d* or d^2 or one of the holes *e*, e^2, or e^3 are beneath the center of the ram. A series of taper punches or dies E to E^{13} (mounted for convenience on the vertical stud A^9, secured to the back of the bed) are employed in conjunction with the die-block, any of which may be mounted upon the carrier B^6, projecting from the bottom of the ram B, and be retained thereon by the spring B^7.

The holes *d* or d^2 are for reducing rings and other similar annular objects.

In use the ring R is placed in the top of the hole, as shown in sectional view, Fig. 7, and a punch of the required size carried by the ram is brought down upon it to force it into the hole the required distance. Wide rings may be reversed and the operation repeated, so as to make both sides equal.

The holes *e*, e^2, and e^3 are employed in conjunction with the dies to enlarge rings, in which case the ring R is placed over a suitable-sized hole, as shown in the sectional view, Fig. 8, and one or more of the punches more or less forced through it.

The series of enlarging-holes may be extended from e^3 to e^{13} by means of the die-plates D^6 and D^7, perforated with holes graduated in size. The plate D^6 is provided with a pin D^8, projecting on both sides, and the under side is adapted to pass into the hole D^3, drilled through the block to retain it in conjunction with the center pin D^2 in proper relative position to said block and enable it to be rotated therewith. The plate D^7 is made the same size as D^6, but the holes are smaller, and it is retained in position by the center pin D^2 and its hole D^9 engaging the top of the pin D^8. The holes *e* to e^{13} are preferably made not quite cylindrical, but are a little wider at the bottom than the top.

We claim—

1. In a device of the character described, the combination with a support, of a vertically-movable ram adapted to carry a punch at its lower end, and a rotatable die-block provided with a series of graduated openings adapted to be brought into position beneath the ram and punch, said block having a series of perforations adapted to align with a socket in the support, one or more die plates rotatably mounted over the die-block and provided with a series of graduated openings, said die plate or plates being provided also with perforations adapted to align with the perforations in the die-block, and pins adapted to be arranged within the aligned perforations of

the die-block, plate, or plates and support, for the purpose specified.

2. In a device of the character described, the combination with a support having a vertical opening, of a ram arranged in said opening, a punch-carrier on the lower end of the ram and adapted to receive a punch, a nut carried by the ram and having a threaded opening, said ram having a lateral vertical keyway, a screw engaging said threaded opening, a hand wheel carried by said screw, a screw or stud engaging the keyway, a die block rotatably mounted on the support and having a series of graduated openings adapted to be brought into alignment with the ram and punch, a die plate rotatably mounted over the die block and provided with a series of graduated openings, and pins adjustably securing the die-block and die plate to the support, as specified.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ARTHUR GOUGH PINFOLD.
GEORGE VALENTINE PINFOLD.

Witnesses:
DAVID NORVELL,
CHARLES BONFIELD.