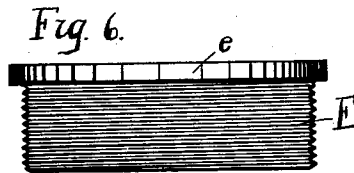
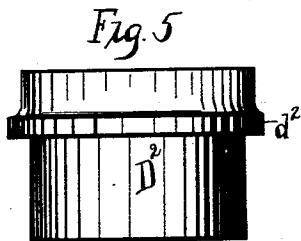
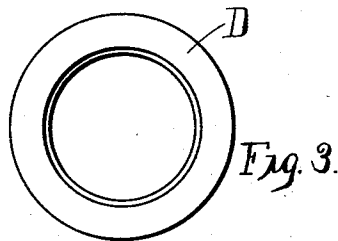
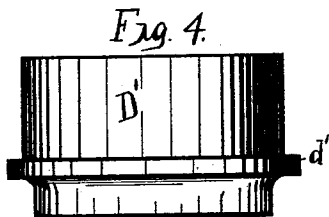
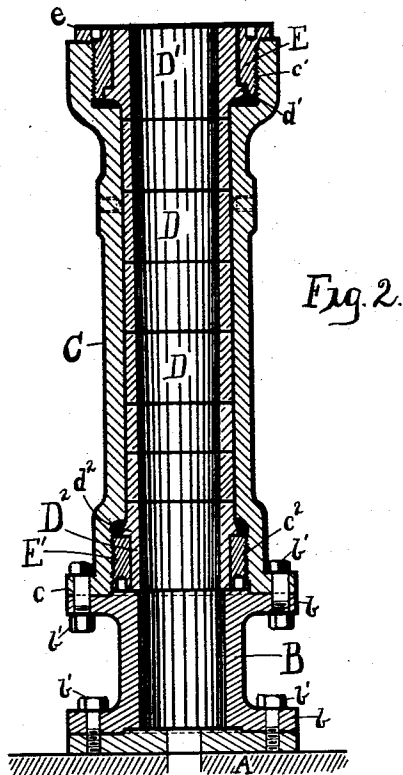
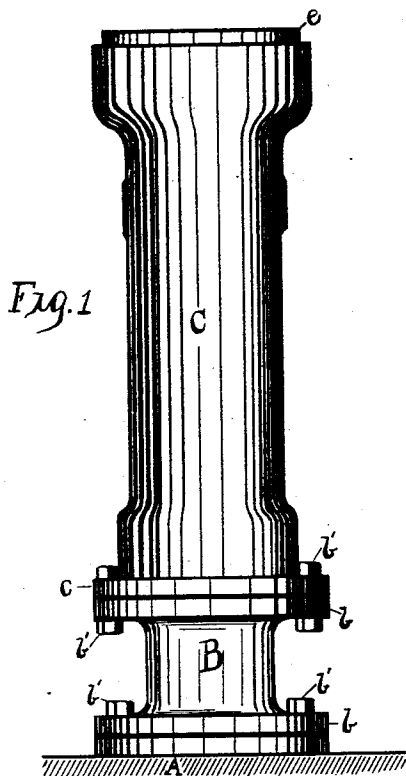


(No Model.)

W. MASON.
REDUCING DIE FOR CARTRIDGE CASES.

No. 570,760.

Patented Nov. 3, 1896.



WITNESSES:

W. Philip Farnsworth.
Thomas C. Johnson

INVENTOR
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BY *Robinson Fisher*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

REDUCING-DIE FOR CARTRIDGE-CASES.

SPECIFICATION forming part of Letters Patent No. 570,760, dated November 3, 1896.

Application filed June 15, 1896. Serial No. 595,580. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MASON, a citizen of the United States, and a resident of the city and county of New Haven, State of Connecticut, have invented a new and useful Improvement in Reducing-Dies for Large Cartridge-Cases, fully set forth and described in the following specification, taken in connection with the drawings which form a part thereof, and of which—

Figure 1 represents a side elevation of a die embodying my invention; Fig. 2, a vertical central section of the die; Fig. 3, a top view of one of the inner rings of said die; Figs. 4 and 5, elevations of the top and bottom inner rings, respectively; Fig. 6, an elevation of the top nut.

In all the figures similar letters of reference represent like parts.

This invention relates to dies for reducing cartridge-cases of large dimensions to tapering forms and for similar purposes. Dies of this character consist of tubular bodies into which the cartridge-case is forced in a hydraulic press or by any other means where the requisite force can be obtained. As it is impracticable to make a tubular die of such dimensions as are required for large cartridge-cases in a single piece, to suitably harden it throughout, at the same time avoiding any change of form in the hardening process that would render the piece useless, or to grind the interior to the proper nicety after hardening, the object of this invention is the construction of a die in several parts, each of which may be separately hardened and ground, as desired.

To this end the invention consists in a die the inner portion of which is formed of a series of rings built up one above the other surrounded by a casing, to which they are secured, as shown hereinafter.

Referring to the drawings for a more particular description, A represents a section of the hydraulic press to which the die is attached and by which it is operated. A cast-iron connection B consists of a hollow cylinder with annular flanges *b* at both ends. The flanges *b*, by means of bolts or screws *b'*, are

secured to the press A and the casing C of the die.

The tubular casing C, of cast-iron, has on its lower end an annular flange *c*, corresponding to the flange on the upper end of the connection B, for the bolts *b'*. The internal axial bore of the casing C is somewhat greater in diameter near the ends than in the center, and in these enlarged parts the casing is internally threaded, as shown at *c'* and *c''*. Within the casing C is a series of hollow rings of tool steel, each of such thinness that it may be hardened throughout and of such depth that it may be ground to a nicety. Each of the rings D is adapted to be hardened and ground before the parts are assembled, so that when placed in position in the tubular casing all will be in a perfect axial line one with another. The bore of each ring is slightly tapered and each ring is of slightly less diameter than the ring above, so that when the rings are in position there will be a slight taper from one end of the die toward the other. By this construction of the die in several parts each part may be hardened separately and accurately ground to fit together, and any one part may be easily removed and replaced by another.

Evidently the casing C holds the rings against transverse movement; but a further connection is shown by which the rings are secured to the casing, and thereby to the press, by means of nuts E and E'.

The uppermost and lowermost rings D' and D² are provided with annular flanges *d'* and *d''*, Figs. 2, 4, and 5, of greater diameter than that of the central portion of the bore of the casing C. Nuts E and E', threaded externally to fit the internal threading *c'* and *c''* of the casing, are hollowed axially to surround the rings D' and D². When the nuts E and E' are screwed into the casing, their inner ends abut against the flanges *d'* and *d''* on the rings D' and D² and force the rings securely together. The upper nut E, Fig. 6, has a flange *e* at its upper end which is adapted to rest on the upper end of the casing C, as shown in Fig. 2.

I do not limit my invention to the exact

method described above for securing the rings together and to the casing, as these parts may be locked laterally by steps or dowels and held together by screws or bolts from end to end of the die.

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

1. A die for reducing cartridge-cases to tapering form, consisting of a series of steel rings hardened separately built up one above another the lower edge of one resting on the upper edge of the one below and secured together, to form a continuous tapering tube, substantially as described.

2. A die for reducing cartridge-cases to tapering form, consisting of a series of steel rings hardened separately built up one above another, the lower edge of one resting on the upper edge of the one below to form a continuous tapering tube, and surrounded by a tubular casing, substantially as described.

3. A reducing-die for cartridge-cases consisting of a series of hardened steel rings built

up one above another; a tubular casing surrounding said rings; and nuts at both ends of said casing, adapted to be secured to said casing and hold said rings in contact with each other, substantially as described.

4. A reducing-die for cartridge-cases consisting of a series of hardened steel rings built up one above another, the uppermost and lowermost rings being provided with annular flanges; a tubular casing surrounding said rings, and adapted to be connected to the press; and nuts hollowed axially, adapted to be secured to the ends of said casing, surrounding said uppermost and lowermost rings and bearing against the flanges thereof, substantially as described.

In witness whereof I have hereunto set my hand, at New Haven, in the county of New Haven, State of Connecticut, this 11th day of June, 1896.

WILLIAM MASON.

Witnesses:

DANIEL H. VEADER,
CHARLES I. SHEPARD.