

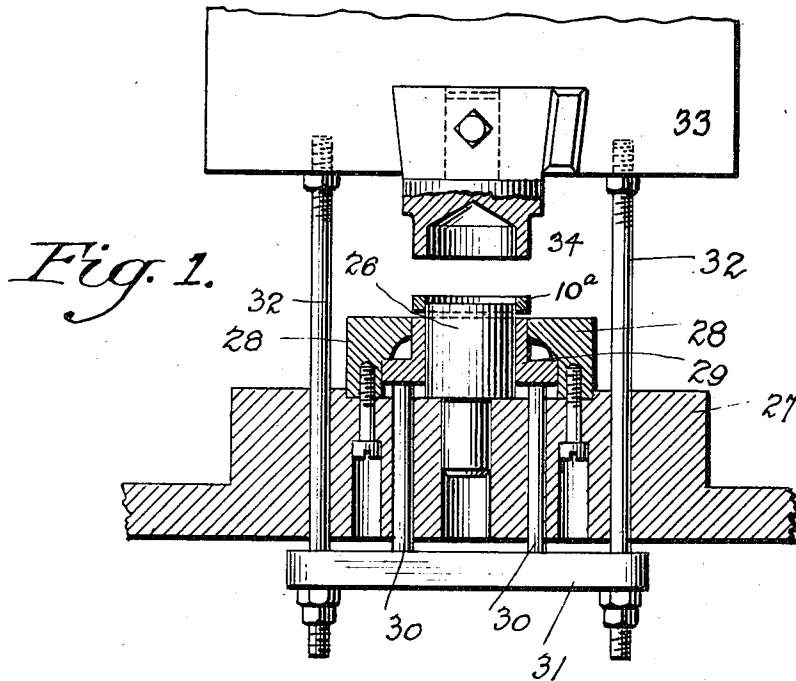
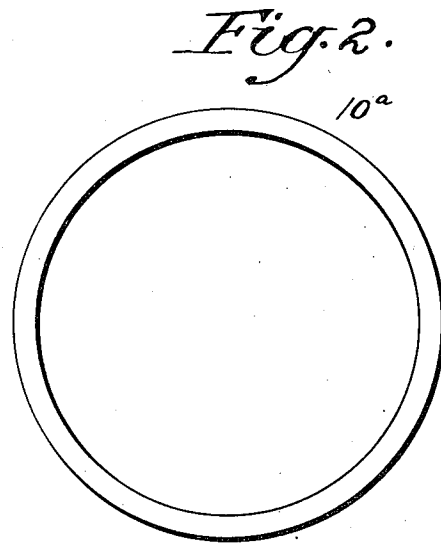
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MACHINE FOR SIZING PROJECTILE BANDS.

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1,415,459.

Patented May 9, 1922.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR SIZING PROJECTILE BANDS.

1,415,459.

Specification of Letters Patent.

Patented May 9, 1922.

Original application filed June 28, 1918, Serial No. 242,401. Divided and this application filed February 17, 1919, Serial No. 277,662. Renewed November 16, 1921. Serial No. 515,690.

To all whom it may concern:

Be it known that I, ALEXANDER W. LIMONT, a citizen of the United States, residing in Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Machines for Sizing Projectile Bands, of which the following is a full, clear, and exact description.

This invention relates to an improved machine for sizing metal bands, such as projectile bands of copper, as set forth in my application, Serial No. 242,401, filed June 28, 1918, (Patent No. 1,382,734, granted June 28, 1921,) of which the present application is a division.

The primary object of the present invention is to provide a simple, efficient machine for bringing a roughly finished band accurately to the required dimensions in a convenient and economical manner. In the manufacture of projectile bands, the greatest accuracy is required, and if there is the slightest variation from the standard dimensions, the band is rejected. Any difficulty in this respect may be overcome by the use of my improved machine or press, by which the bands can be very readily and quickly brought to the required size and shape, the possibility of error being reduced to a minimum.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a vertical, central section of a press embodying my improvements; and

Fig. 2 is a top plan view of the band on an enlarged scale.

The press shown in the drawing comprises a fixed mandrel 26 of cylindrical shape rising from a bed plate 27, the diameter of said mandrel corresponding to the internal diameter of the band to be formed. Around the mandrel 26 is a die 28 having a cylindrical inner surface corresponding in diameter to the external diameter of the band to be formed, the cylindrical inner surface of the die facing and being concentric with the upper part of the mandrel. A sizing sleeve 29 is adapted to slide up and down between the mandrel and die, said sleeve being mounted on rods 30 supported by a plate 31, which plate 31 is, in turn, supported by

rods 32 from the gate 33 of the press. The main part of the sizing sleeve 29 is cylindrical in shape, its inner surface conforming snugly to the exterior surface of the mandrel and its outer surface conforming snugly to the inner cylindrical surface of the die 28. The upper edge of said sizing sleeve is squared off preferably, so as to form a band with a squared off edge, and the upper part of the sleeve corresponds in interior and exterior diameter respectively with the band to be formed. Another sizing sleeve 34, generally similar to the sleeve 29 and having its lower cylindrical part of the same dimensions, is adapted to enter the space between the mandrel and die when the gate is lowered.

The roughly finished cylindrical band, which is preferably formed in the manner set forth in my prior application, is placed around the mandrel, as shown at 10^a, and on the first part of the downward movement of the press, the plate 31 is lowered so as to let the sleeve 29 down on to the support 27 and thereby permit the blank to move down into the die. While in the die and around the mandrel, the blank is compressed by the downward pressure of the upper sizing sleeve, its upper edge being engaged by the upper sizing sleeve which is co-extensive therewith, and its lower edge being similarly engaged and supported on the lower sizing sleeve. The pressure exerted causes a displacement of the metal in the blank, which is copper or like ductile metal, and it will be understood, therefore, that the metal of the blank will be forced to fill exactly the space defined between the mandrel and die and the sizing sleeves. As this space will correspond in all its dimensions to the band which it is desired to form, it will be apparent that the roughly finished band will be perfected in shape and brought very accurately to the required dimensions.

When the proper pressure has been exerted and the required dimensions obtained, the pressure on the blank is removed by raising the gate of the press with the sleeve 34. As the gate moves upward, it carries the rods 32, plate 31 and pins 31, and this causes the lower sleeve to be raised sufficiently to move the finished band up out of the die. In this manner, the finished band is ejected from the die. It will be

observed, from the drawing, that the parts are so proportioned that when the pressing of the blank commences, its upper surface is substantially flush with the upper surface of the die, and the upward movement of the band after the pressing operation is necessary to remove the band from the die and mandrel or facilitate such removal.

Various modifications in the details of the machine construction may be made without departing from the scope of the invention as defined in the claims.

What I claim is:

1. In a machine for making projectile bands, the combination of a die bed, an upstanding, stationary mandrel thereon, a die member surrounding the mandrel with clearance to receive a band, and separate means to compress the band in the space between the mandrel and the die member.

2. In a machine for making projectile bands, a die bed, a fixed upstanding mandrel thereon, a fixed die surrounding the mandrel, means to support a band in the space between the mandrel and die, and movable means for exerting pressure on the upper edge of the band while the same is in the die.

3. In a machine for making projectile bands, a die and a mandrel fixed relatively to each other, the die surrounding the mandrel with clearance to afford a receiving space for a band, and means for compressing a band in said receiving space.

4. In a machine for making projectile bands, a fixed, upstanding mandrel, a fixed die surrounding the same, a sleeve in the die to support a band in the space between the mandrel and the die, and means for compressing the band while it is supported by said sleeve.

5. In a machine for making projectile bands, a mandrel and a die fixed relatively to each other and creating between them a band-receiving space, a band-supporting

member in the die, and means for exerting pressure on the band while it is supported by said supporting member, said supporting member being movably mounted so that it may be shifted to eject the band.

6. In a machine for making projectile bands, a mandrel and a die fixed relatively to each other, and a pair of sizing sleeves working in the die.

7. In a machine for making projectile bands, a die bed, a fixed mandrel rising therefrom, a die surrounding said mandrel with a clearance space to receive a band, a vertically movable sleeve in the die for supporting the band, means for exerting pressure on the band from above while it is supported on said sleeve so as to cause it to fill the space between the mandrel and die, and means for actuating said sleeve to eject the band from the die.

8. In a machine for making projectile bands, a die bed, a fixed, upstanding mandrel thereon, a fixed die surrounding the mandrel concentrically with a clearance space between it and the mandrel to receive a band, said mandrel extending upward above the die, a sleeve working in the die to support the band from beneath, an upper sleeve adapted to fit over the upper end of the mandrel and to compress the band in the space between the mandrel and die while it is supported on the lower sleeve, means for mounting the lower sleeve movably, and means for mounting the upper sleeve movably.

9. In a machine for making projectile bands and the like, a mandrel and a die fixed relatively to each other to provide a band-receiving space, and means operating in the band receiving space to exert pressure on the edges of the band and compress the same.

In witness whereof, I have hereunto set my hand on the 13th day of February, 1919.

ALEXANDER W. LIMONT.