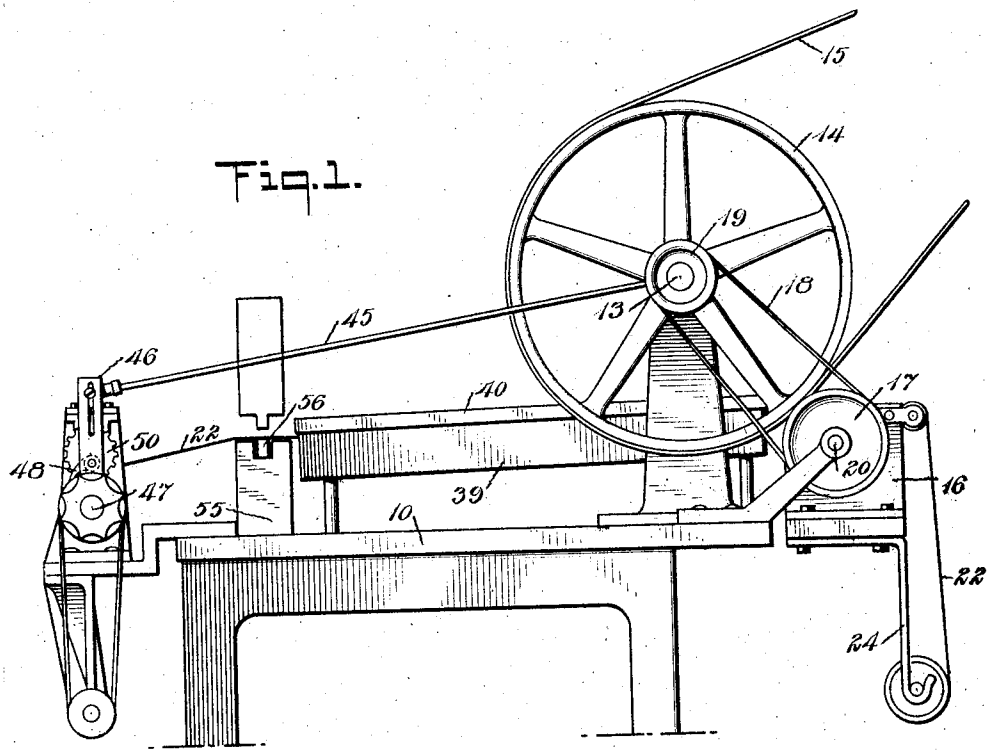
March 1, 1927. 1,619,487

J. ROCHE

PROCESS AND APPARATUS FOR MARKING ARTICLES

Filed March 10, 1924 3 Sheets-Sheet 1

Fig. 1.



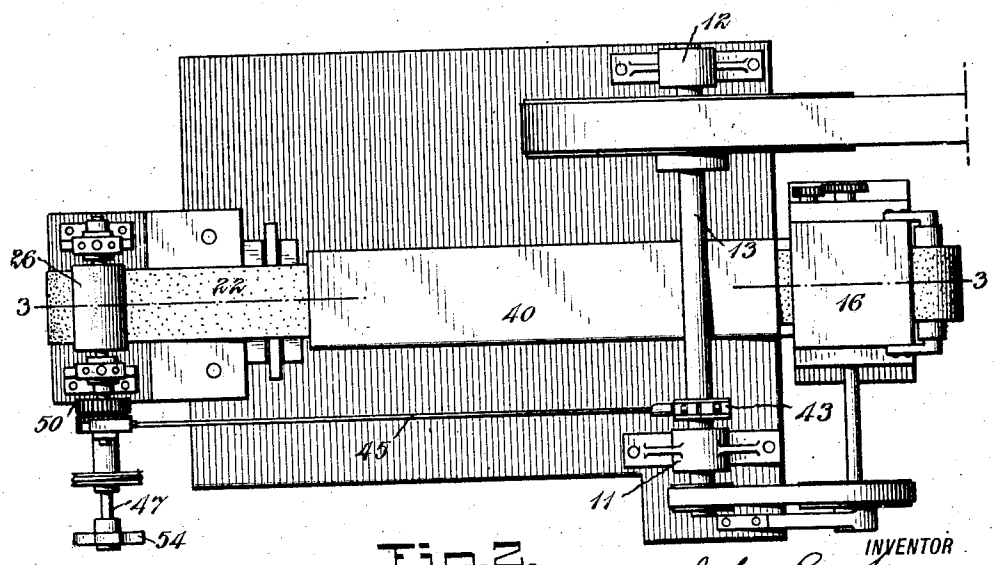


Fig. 2.

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PROCESS AND APPARATUS FOR MARKING ARTICLES

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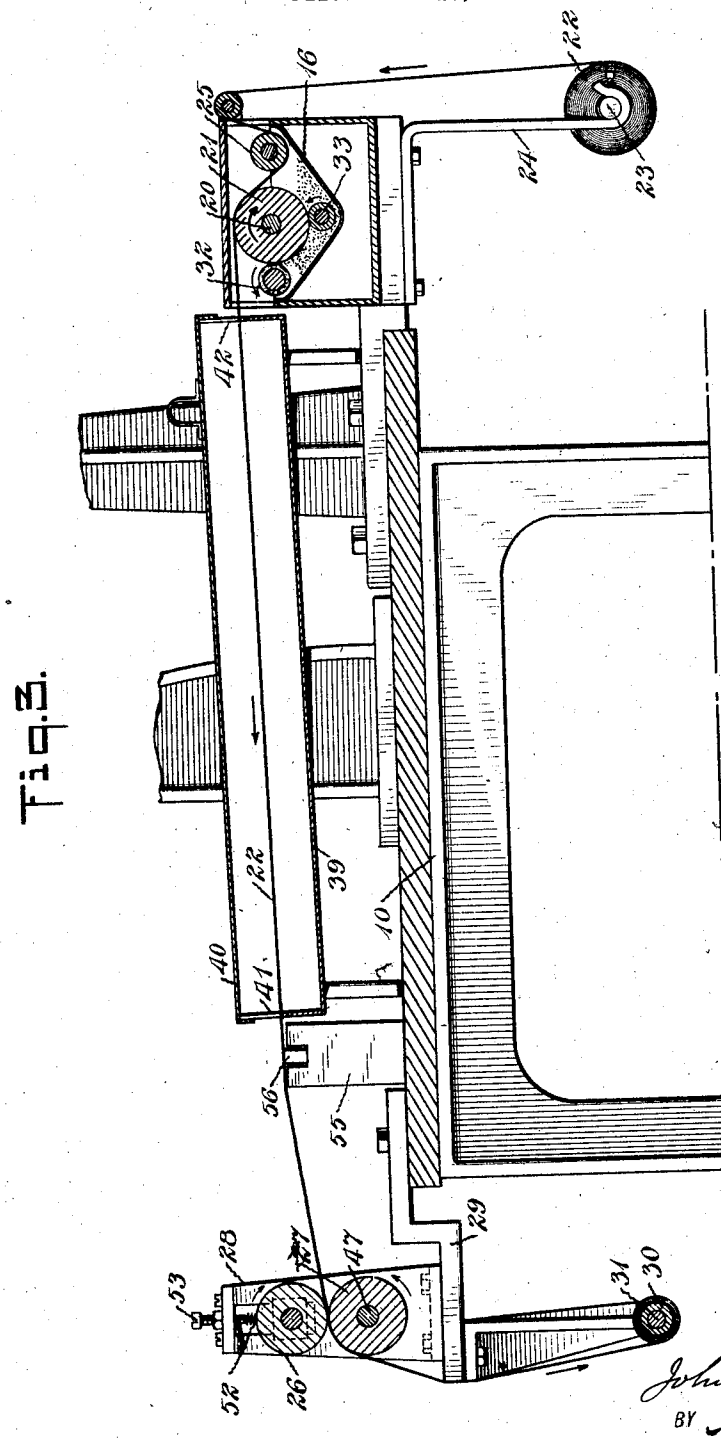


Fig. 3.

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PROCESS AND APPARATUS FOR MARKING ARTICLES

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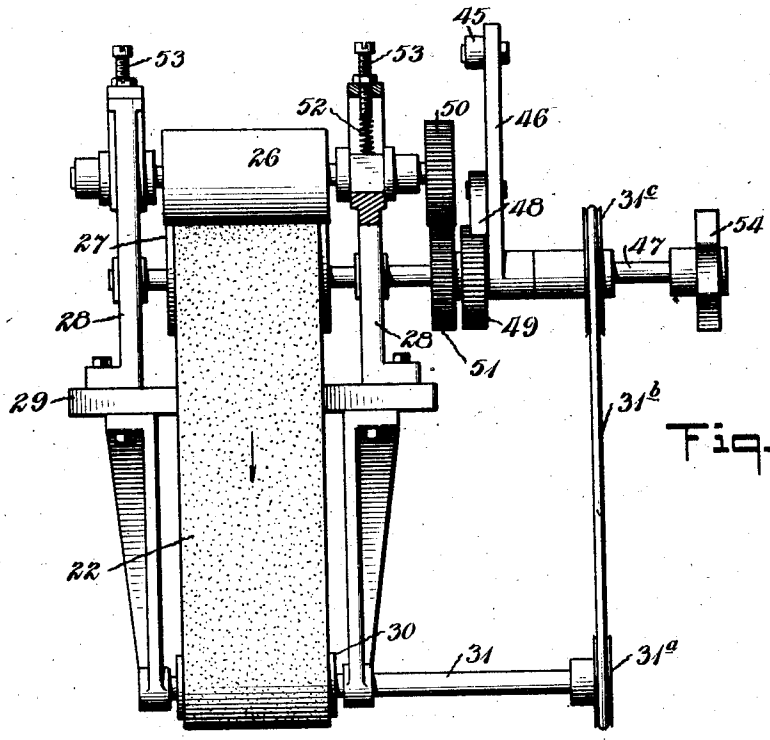


Fig. 4.

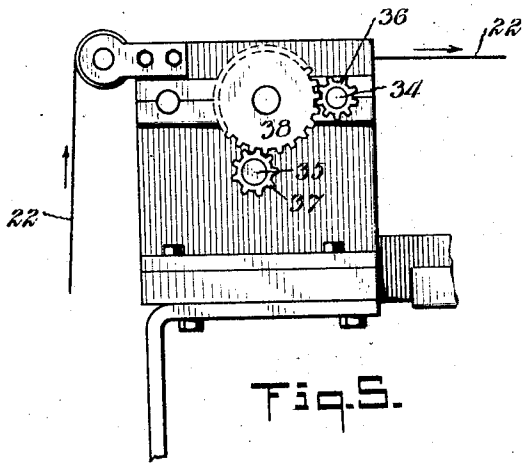


Fig. 5.

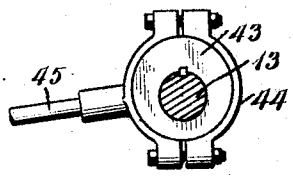


Fig. 6.

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BY Thomas Kay

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Patented Mar. 1, 1927. 1,619,487

UNITED STATES PATENT OFFICE.

JOHN ROCHE, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO AMERICAN LEAD PENCIL COMPANY, A CORPORATION OF NEW YORK.

PROCESS AND APPARATUS FOR MARKING ARTICLES.

Application filed March 10, 1924. Serial No. 698,192.

The present invention relates to an improved process and apparatus for stamping letters, figures, emblems, and designs of all kinds upon articles of any description; and more particularly to a machine whereby gold, silver, bronze or other metallic powders may be utilized for the purpose stated.

The machine in question is constructed to utilize a roll of thin paper or equivalent material by depositing a suitable powder thereon, and carrying the paper so powdered over the article to be marked, where a die suitably cut with the design in high relief may be stamped upon the paper by hand or by any suitable mechanism. The article is preferably covered with varnish or other suitable adherent to which the powder from the paper band clings in the design thus stamped. Of course, it is understood that the powder may be deposited on either the top or bottom side of the paper, it simply being necessary to change the respective positions of the stamp and the article to be stamped. There are many different kinds of stamping machines, and the invention can be fitted for use with any of them.

The apparatus may be adapted to be used with means for automatically feeding to it the articles to be stamped, but this is not essential to the invention, as it is also suited to the stamping of articles fed to it by hand. Accordingly an embodiment of the invention adapted to this latter mode of use has been shown and described herein, as making for greater simplicity in descripton.

A preferred form of the invention is illustrated in the accompanying drawings, wherein Figure 1 is a side elevation of the complete machine, Figure 2 is a plan view of the same, Figure 3 is a longitudinal sectional view taken on the line 3—3 in Figure 2, Figure 4 is a front elevation of the band-actuating elements of the machine. Figure 5 is a side elevation of the powder-depositing mechanism, and Figure 6 is a view of the feed-actuating eccentric in elevation.

The base 10 of the machine carries uprights 11 and 12 which support the bearings for the main driving shaft 13. A pulley 14, driven by the belt 15, actuates the shaft 13, although any convenient motive mechanism may be employed in this connection.

The powder-depositing mechanism within the box 16 is preferably actuated by a pulley 17 driven by a belt 18 running over the pulley 19 on the main shaft 13; said pulley 17 being fast on the shaft 20.

The box 16, preferably provided with a tapering bottom (see Figure 3) is partly filled with the printing powder as shown; and the shaft 20 carries a cylindrical drum or roller 21, the lower portion of which dips into and moves through the mass of powder as the shaft 20 revolves.

The clean or unused paper band 22 forms a roll wound on a roller 23 resting in hook-shaped bearings at the ends of the brackets 24. This band extends first under the idle roller 25 in the box 16, thence over the powder-depositing drum 21, and to the feeding rollers 26 and 27 mounted on the uprights 28 carried by the bracket 29. Finally the band 22 is received upon a revolving roll 30 carried by the shaft 31 actuated as hereinafter described. As shown by the arrows in Figure 3, the drum 21 revolves so that its periphery moves in the opposite direction to that of the band 22, thereby insuring an effective rubbing action of the powder-depositing drum which causes certain adherence of the powder to the paper.

In order to insure proper collection of the powder by the drum 21, rollers 32 and 33 are provided within the box 16, whose peripheries are in contact with that of the drum 21; and, as shown in Figure 5, the shafts 34 and 35 of these rollers are provided with pinions 36 and 37 meshing with the spur gear 38 on the shaft 20, so as to prevent slipping and provide a positive actuation of the rollers 32 and 33.

It will be seen that the elements so far described serve to carry the paper band 22 and to coat its under surface with printing powder. On its way from the box 16 to the feeding mechanism, the band 22 passes through a long powder-catching box 39 having a removable cover 40, and slots or openings 41, 42, at its ends through which the band passes. Into this box there will fall any superfluous powder on the paper, which is thus caught to be used over again in the box 16.

Inasmuch as the paper should be at rest at the moment each stamping takes place, and move slightly forward between the stamping operations, means are provided for producing an intermittent forward feeding of the

band. In the preferred form shown this is accomplished by providing upon the shaft 13 an eccentric 43, turning within a divided band 44 to which is attached the connecting rod 45. (See Figures 1, 2 and 6.)

The rod 45 is pivotally connected at its extremity with the slotted lever 46 loosely mounted on the shaft 47 of the feed roller 27. A pawl 48 on this lever 46 engages and drives intermittently a ratchet 49 which is fast on the shaft 47, thus driving the roller 27 a short distance forward for each step corresponding to one revolution of the main shaft 13. By means of the pinions 50 and 51 on the respective shafts of the feeding rollers 26 and 27, these rollers are positively rotated in the directions indicated by the arrows in Figure 3. The bearings of the upper rollers 26 have vertical play and are pressed downward by springs 52 made adjustable by set screws 53. In this manner the band is effectively squeezed between these rollers to insure its forward movement with each intermittent revolution of the feeding rollers 26 and 27. When the machine is at rest, the rollers 26, 27 may be adjusted manually by means of the star wheel 54 on the shaft 47.

As the band 22 is fed out through the rollers 26 and 27, it is rolled up on the shaft 31 which is made to revolve by means of a pulley 31^a driven by a belt 31^b running on the pulley 31^c, fast on the shaft 47. A certain amount of slip is permitted in the belt 31^b to accommodate the changes in diameter of the roll of ribbon 22 on the shaft 31.

As will be seen from Figures 1 and 2, the ribbon 22, to the under side of which the powder is adhering, passes over an anvil 55 of any suitable character, adapted firmly to support the article 56 upon which the letters, figures or design are to be stamped. By applying a suitable die to the upper surface of the ribbon 22, and firmly pressing it down upon the article 56 during the period when the ribbon is at rest, the powder under the ribbon is transferred to the surface of the article, thus imprinting the desired character or design. The surface of the article may be varnished or be otherwise prepared to receive and retain the powder. The die for stamping is also preferably heated, as the heat softens the varnish and causes the powder to adhere.

Application of the die (indicated in dotted lines in Figure 1) may be accomplished either by hand or by suitable mechanism, but as such mechanism forms no part of the present invention, it is not illustrated herein.

It is also to be understood that a new article 56 can be placed on the anvil 55 under the ribbon 22 for each period of rest of the ribbon, either by hand or by automatic feeding mechanism which forms no part of this invention.

The improved process may be carried out by a great variety of machines and many changes may be made in the apparatus herein set forth without departing from the scope of the present invention which is not limited to the details herein shown and described.

What is claimed is—

1. The process of marking an article which consists in applying a suitable marking powder loosely to one side of a bare flexible strip, interposing said strip between the article and a marking die with its powder side next to said article while the powder is still adhering to said strip, and pressing the strip against said article by means of the die.

2. A marking apparatus comprising a support or anvil for the article to be marked, means adapted for applying powder to a flexible strip and means adapted to convey said flexible strip past said powder-applying means to said support.

3. Apparatus as in claim 2, combined with means interposed between the powder-applying means and the article support for catching and retaining superfluous powder that may drop from the strip.

4. In apparatus as in claim 2, a strip-conveying means comprising two rollers in contact, rotating means for said rollers, a drum for receiving the end of the flexible strip and means for rotating said drum driven by the roller rotating means and adapted to permit a suitable amount of lost motion to compensate for the progressive increase of the strip roll as the strip is wound up.

In testimony whereof I have hereto set my hand on this 27th day of February, 1924.

JOHN ROCHE.