April 27, 1937. H. H. BOUND 2,078,366

METHOD OF AND APPARATUS FOR STRIPING WHEELS

Filed Jan. 14, 1935 2 Sheets-Sheet 1

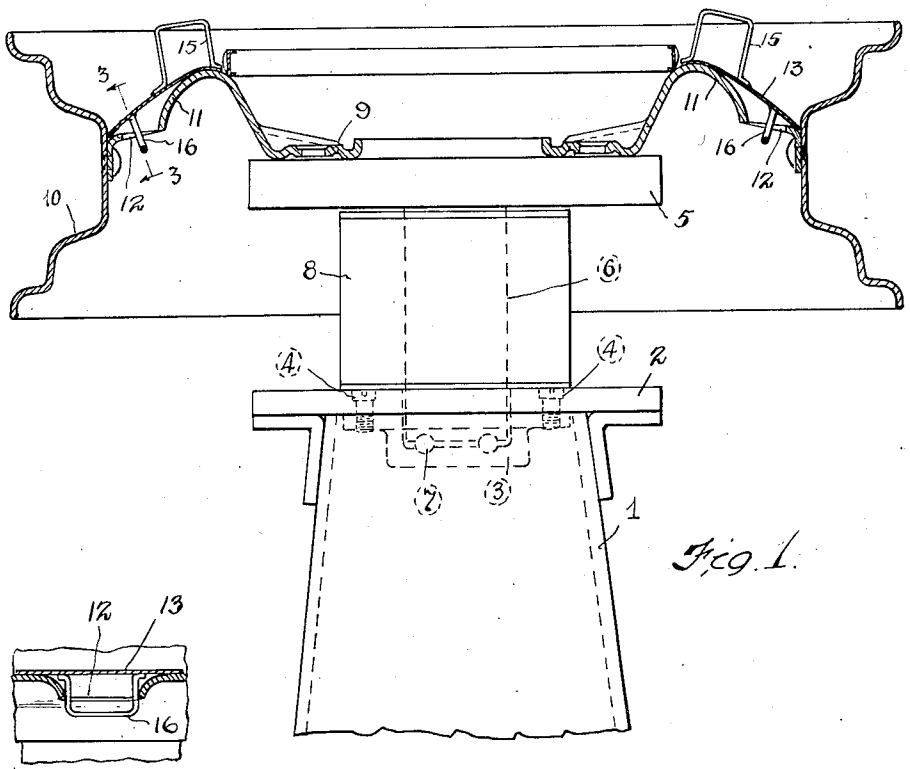


Fig. 1.

Fig. 3

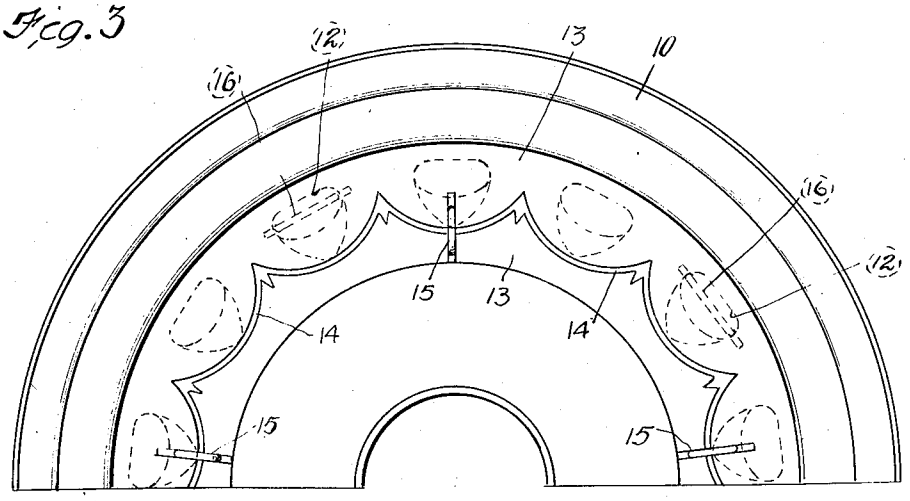


Fig. 2

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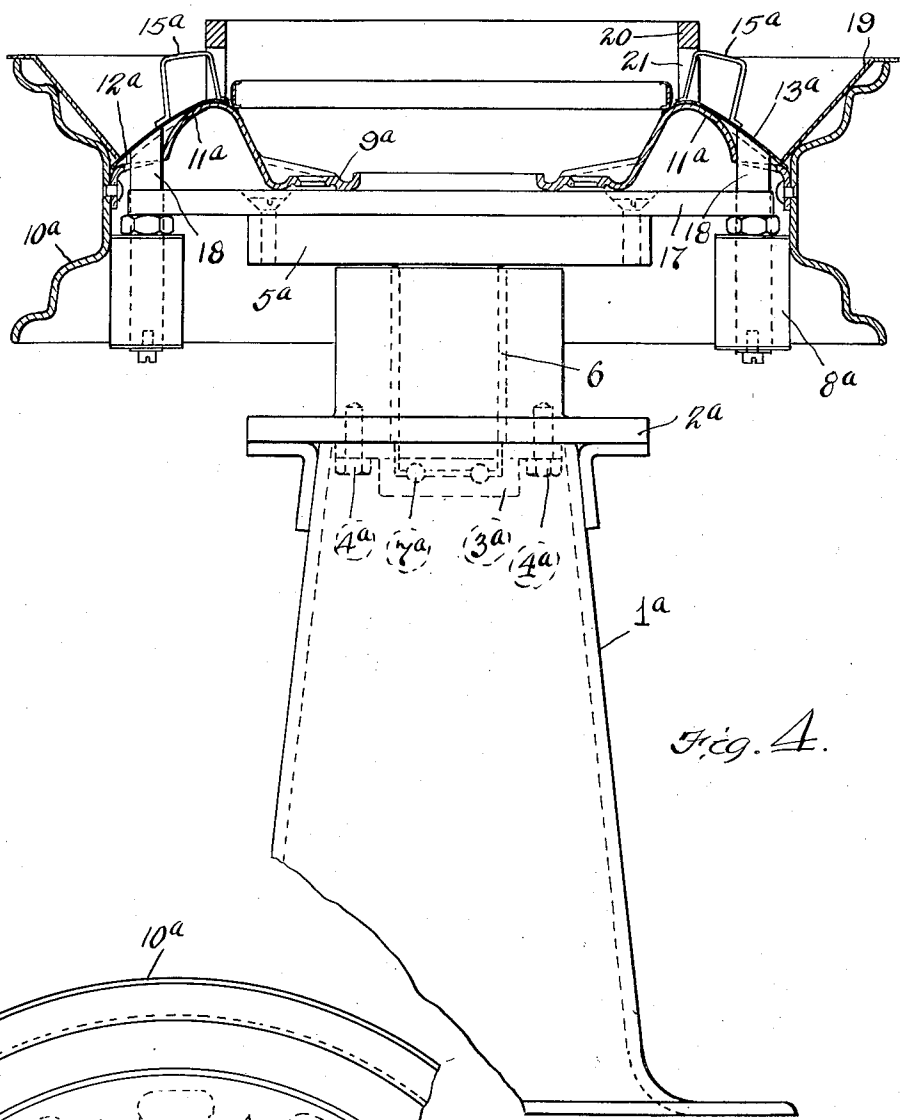


Fig. 4.

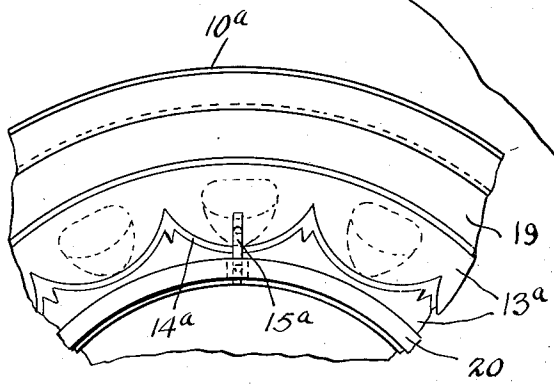


Fig. 5.

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METHOD OF AND APPARATUS FOR STRIPING WHEELS

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Application January 14, 1935, Serial No. 1,592

3 Claims. (Cl. 101—126)

The present invention relates to a means and process for facilitating and improving the operation of striping, ornamenting or painting a design on an article such as an automotive vehicle wheel.

One of the objects of the invention is to accomplish such an operation efficiently and in a minimum period of time. More specifically stated, the general object and nature of the invention is to provide a mask or shield having an aperture therein conforming to the outline of the desired striping or ornamentation when applied to the surface of the wheel; such shield to be composed of a magnetic material, and an electromagnetic means for forcibly drawing or clamping the shield tightly against the surface. The invention also includes means enabling the wheel and the shield, while so magnetically clamped, to be rotated, whereby the operator may more conveniently apply the striping or ornamenting material.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means and one mode of carrying out the invention, such disclosed means and mode illustrating, however, but one of various ways in which the principle of the invention may be used.

In said annexed drawings:

Fig. 1 is an elevational view, partly in section, illustrating the apparatus embodying the principle of my invention; Fig. 2 is a half plan view of the apparatus shown in Fig. 1; Fig. 3 is a fragmentary sectional view taken substantially along line 3—3 of Fig. 1 and in the direction of the arrows; Fig. 4 is a view similar to Fig. 1 but showing a modification of the arrangement of the electromagnets for holding the shield on the wheel; and Fig. 5 is a fragmentary plan view of a portion of the device illustrated in Fig. 4.

Now referring more particularly to the drawings, the apparatus shown therein includes a supporting standard 1, the upper portion of which only is shown. It will be readily understood that the lower portion of the standard 1 extends into a base resting upon the floor, which latter portion has been omitted for the purpose of conserving space in the drawings. The over-all height of the standard 1 is, of course, such as to enable an operator to conveniently manipulate the device. A top plate 2 composed of insulating material such as fiber or the like is mounted upon the top of the standard 1. A bearing guide 3 is positioned centrally of and secured to the under side of the plate 2 by means of suitable fastening studs 4.

A plate 5 composed of magnetic material is made integral with the shaft 6 which extends through the insulating plate 2 and is rotatably journalled in the bearing guide 3 by means of the ball bearings 7. An electro-magnetic coil 8 rests on the top of the insulating plate 2 and surrounds the shaft 6.

An automotive vehicle wheel consisting of the customary elements such as the hub 9, the rim 10 and the disc or spoke portion 11, is carried on the top of the plate 5. The specific embodiment of the wheel shown in the accompanying drawings is commonly known as the all metal artillery type and has a plurality of openings 12 simulating the appearance of spokes in the wheel.

A mask or shield 13 of magnetic material is composed of two parts whose adjacent edges are so conformed as to define an opening 14 which in turn corresponds to the desired configuration of the striping which is to be applied to the surface of the wheel portion 11. The two parts of the shield 13 are permanently secured together in proper relationship by means of the U-shaped bridges 15 whose ends may be welded thereto. The bridges 15 also serve as handle portions by means of which the shield 13 may be applied and removed from the wheel.

As best shown in Fig. 3, U-shaped projecting rods 16 may be secured to the under surface of the shield 13 and adapted to extend into the apertures 12 of the wheel for the purpose of insuring the proper alignment of the shield when it is placed upon the wheel surface.

The construction illustrated in Fig. 4 is essentially the same as that illustrated in Fig. 1 and accordingly similar reference characters but having the subscript "a" will be employed to designate those parts of Fig. 4 which correspond exactly to similar elements in Fig. 1. The principal difference between the construction illustrated in Fig. 4 and that shown in Fig. 1 is that in Fig. 4 the central magnet 8 is supplanted by a plurality of smaller electro-magnets 8a which are supported from a central plate 17 which overlies the head plate 5a. The electro-magnets 8a correspond in number to the number of openings 12a in the wheel and the armatures 18 of the electromagnets are arranged to project through such spoke openings and at their upper ends are formed to substantially the curvature of the lower face of the shield 13.

There is also shown in Fig. 4 an outer mask 19 substantially coniform in shape and arranged to overlie the inner periphery of the tire-carrying rim so as to protect the same during the striping operation. A central holding ring 20 generally annular in form and at its lower edge provided with a plurality of slots 21, such ring assisting in holding the inner edge of the mask 13a snugly in engagement with the face of the wheel and also assists in preventing the paint used during the striping operation from spotting the inner periphery of the wheel. The slots 21 are provided to accommodate the bridging members 15a in the manner illustrated in Fig. 4.

An operating switch (not shown) is provided for the electro-magnetic coils 8 and 8a in order that the same may be intermittently energized by the operator during the desired periods of time. Preferably, such a switch will be a foot switch mounted on the floor. The method of operation of the above-described apparatus is as follows:

The operator places the wheel to be striped on the top of the rotatable plate 5 or 5a substantially in the position as shown in Figs. 1 and 4. The shield 13 or 13a is then placed over the wheel. The magnetic coil 8 or 8a is next energized, and the magnetic flux thereof will tend to not only hold the wheel on the top of the plate 5 or 5a, but will also tightly clamp the shield 13 or 13a down against the surface of the wheel. The operator next applies the striping material over the aperture 14 or 14a by means of spraying or painting or any other conventional method, and at the same time the wheel and plate 5 or 5a may be rotated so that it is unnecessary for the operator to change his position.

It is of utmost importance in the operation of applying a stripe or other ornamentation to a surface that the mask or shield be at all times tightly clamped thereagainst in order to prevent the applied material from running under the edges of the shield. It will thus be seen that the above-described method and means substantially eliminates any such hazard and that the wheel and shield during the striping operation are at all times firmly held in position without necessitating the presence of clamps or similar fastening devices. The mere operation of an electric switch accomplishes the function of releasing and clamping the assembled elements.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the means and the steps herein disclosed, provided those stated by any of the following claims or their equivalent be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In an apparatus for applying designs to magnetic metallic articles by means of a stencil, the combination of a supporting standard, a plate rotatably mounted on said standard for carrying such article, a stencil composed of a magnetic material and adapted to overlie the surface on which the design is to be placed, and an electro-magnet so mounted with respect to said plate that the lines of flux of the electro-magnet will pass through said plate, through such an article placed thereon, and through said stencil placed upon such article.

2. An apparatus for supporting a stencil of magnetic material, upon a wheel formed of magnetic material, while applying a design therethrough to the surface of such wheel, comprising a supporting standard, a magnetic plate rotatably mounted thereon, and means magnetizing and demagnetizing said plate at the will of an operator.

3. In an apparatus for applying a design by stencil, a supporting standard; a plate of magnetic material rotatably mounted thereon; an article to be decorated placed upon said plate, said article being substantially of magnetic material; a stencil of metallic material placed upon said article; and means magnetizing and demagnetizing said rotatable plate at the will of an operator whereby lines of magnetic force pass through said plate, said article and said stencil holding same in fixed intimate contact.

HARRY H. BOUND.