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J. E. DUGGAN
PAINT MASK STRUCTURE
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2,363,843

FIG. 1.

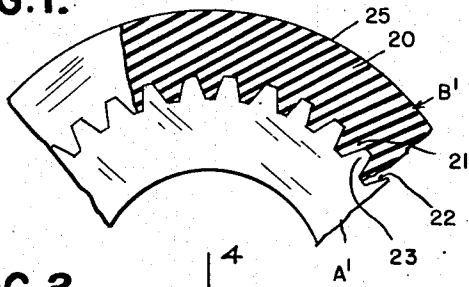


FIG. 3.

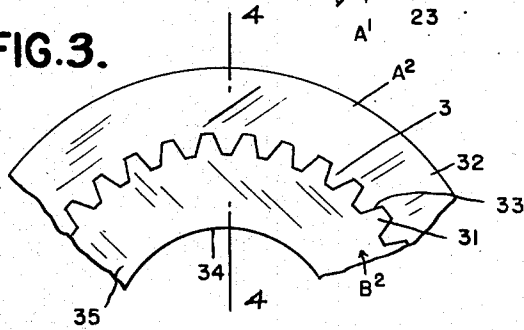


FIG. 2.

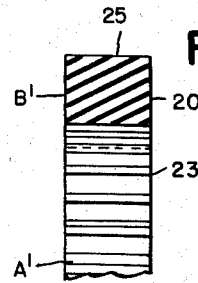
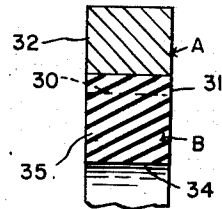


FIG. 4.



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PAINT MASK STRUCTURE

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3 Claims. (Cl. 91—65)

This invention relates generally to devices that are used during painting or plating operations to protect portions of articles from paint or plating material applied to adjacent portions thereof, and refers more particularly to masks for preventing paint or plating material from contacting or passing onto the teeth of gears, pinions, splines and the like when other portions of the gears, etc., such as the body portions thereof, are painted or plated.

One of the essential objects of the invention is to provide a mask capable of thoroughly protecting the teeth mentioned without in any way interfering with the painting or plating operation.

Another object is to provide a mask that may be quickly and easily applied to and removed from the portions to be protected without marring or impairing any part thereof.

Another object is to provide a mask that is simple in construction and economical to manufacture.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein:

Figure 1 is a fragmentary side elevation of a gear with a mask embodying my invention applied thereto and having parts broken away and in section;

Figure 2 is a fragmentary edge elevation of the gear illustrated in Figure 1 and showing in section the mask applied thereto;

Figure 3 is a fragmentary side elevation of a gear and a slightly modified form of mask embodying my invention applied thereto;

Figure 4 is a sectional view taken on line 4—4 of Figure 3.

In Figures 1 and 2 I have illustrated an assembly wherein an annular body 20 of a mask B' has internal teeth or projections 21 for preventing the paint or plating material from entering the spaces 22 between the external teeth 23 of the gear A'. In this construction, the teeth 21 of the mask are equal in width to and mate snugly with the teeth 23 of the gear so as to cover and protect all portions of said teeth 23 except opposite sides thereof which in this instance may be painted or plated with opposite sides of the body 24 of the gear. In use, the mask B' may be applied to the gear A' by causing the teeth 21 of the mask to enter the spaces 22 between and mesh with the teeth 23 of the gear A' to assume the masking position illustrated in Figure 1.

When in this position an external metal ring (not shown) provided with contracting means such as an adjusting screw, may be applied to the outer surface 25 of the body 20 of the mask to cause the teeth 21 of the mask to be pressed inwardly into snug engagement with the external teeth 23 of the gear A' to be protected. However, the mask B' is preferably undersized relative to the gear A' so that the rubber or rubber composition from which the mask B' is formed has to be stretched slightly when the mask is applied as aforesaid to the gear. Thus, when the mask B' is in its masking position as illustrated in Figure 3, the inherent resiliency thereof alone should normally be sufficient to cause the teeth 21 of the mask to snugly engage the teeth 23 of the gear to keep paint or plating material off the working surfaces of the teeth 23 of the gear.

In Figures 3 and 4 I have illustrated a slight modification wherein the working surfaces of internal teeth 30 of a gear A² are protected by the external teeth 31 of an annular mask B². In this construction, the teeth 31 of the mask are equal in width to and mate snugly with the teeth 30 of the gear A² so as to cover and protect all portions thereof except opposite sides thereof which may be painted or plated with opposite sides of the body 32 of the gear. In use, the mask B² may be applied to the gear A² by causing the teeth 31 of the mask to enter the spaces 33 between and mesh with the teeth 30 of the gear to assume the masking position illustrated in Figure 3. When in this position an internal metal ring (not shown) provided with expanding means such as an adjusting screw, may be applied to the inner surface 34 of the body 35 of the mask to cause the teeth 31 of the mask to be pressed outwardly into snug engagement with the internal teeth 30 of the gear to be protected. However, the mask B² is preferably oversized relative to the gear A² so that the rubber or rubber composition from which the mask is formed has to be squeezed or contracted slightly when the mask is applied as aforesaid to the gear. Thus, when the mask B² is in its masking position as illustrated in Figure 3, the inherent resiliency thereof alone should normally be sufficient to cause the teeth 31 of the mask to snugly engage the teeth 30 of the gear to keep paint or plating material off the working surfaces of the teeth 30 of the gear.

Thus, in each instance, the masks are formed of resilient material such as rubber or rubber composition and will yieldably engage the teeth of the gears or the splines as the case may be.

Such masks may be easily applied to or removed from the gears or splined portion and will effectively keep paint or plating material off the working surfaces of the teeth or splines thereof. In each instance the masking engagement between the masking element and teeth of the article is such that the masking element effectively prevents paint or plating material applied to the body portion of the article from entering the spaces between the teeth of said article. Also in each instance the masks are under tension relative to the portion of the article to be protected whereby snug, tight, non-slip, glove-like fit is obtained between the masking element and article to maintain the masking engagement aforesaid.

What I claim as my invention is:

1. Means for protecting the working surfaces of circumferentially spaced radial teeth of a gear from paint or plating material applied to the body portion of said gear, comprising a resilient relatively elastic one piece solid masking annulus having an interior peripheral surface substantially less than the exterior peripheral surface of said gear so that said masking annulus may be fitted by stretching it under tension over the working surfaces to be masked, said masking annulus having radial projections so spaced and of such depth and thickness that when the masking annulus is stretched over the working surfaces to be masked said radial projections will be squeezed into snug non-slip surface to surface engagement with the working surfaces of said teeth to prevent paint or plating material applied to the body portion of the gear from entering the spaces between the teeth of said gear.

2. Means for protecting the working surfaces of circumferentially spaced transversely extending teeth of a gear from paint or plating material applied to the body portion of said gear, comprising a relatively elastic solid masking annulus

having an interior peripheral surface substantially less than the exterior peripheral surface of said gear so that said masking annulus may be fitted by stretching it under tension over the working surfaces to be masked, said masking annulus being substantially equal in width to the width of the gear and having portions so spaced and of such depth and thickness that when the masking annulus is stretched over the working surfaces to be masked said portions will be squeezed into snug non-slip surface to surface engagement with the working surfaces of said teeth to prevent paint or plating material applied to the body of the gear from entering the spaces between the teeth of said gear.

3. Means for protecting the working surfaces of circumferentially spaced transversely extending teeth of a gear from paint or plating material applied to the body portion of said gear, comprising a relatively elastic solid masking annulus for peripheral mating engagement with said gear, said masking annulus having a peripheral surface substantially less than the mating peripheral surface of said gear so that said masking annulus may be fitted by stretching it under tension against the working surfaces to be masked, said masking annulus having transversely extending portions substantially equal in length to the length of the transversely extending teeth of said gear, the transversely extending portions being so spaced and of such depth and thickness that when the masking annulus is stretched over the working surfaces to be masked said transversely extending portions will be squeezed into snug non-slip surface to surface engagement with the working surfaces of said teeth to prevent paint or plating material applied to the body of the gear from entering the spaces between the teeth of said gear.

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