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2,363,845

MASK STRUCTURE

Original Filed May 18, 1942

FIG.1.

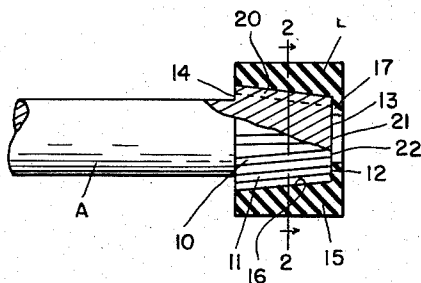


FIG.2.

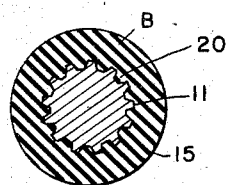


FIG.3.

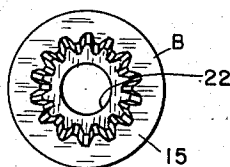
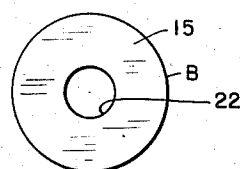


FIG.4.



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MASK STRUCTURE

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Original application May 18, 1942, Serial No. 443,518. Divided and this application July 19, 1943, Serial No. 495,321

5 Claims. (Cl. 91—65)

This invention relates generally to paint mask structures adapted during painting or plating operations to protect one or more portions of an article from paint or plating material applied to one or more adjacent portions thereof, and constitutes a division of my application filed May 18, 1942, bearing Serial No. 443,518.

More specifically, this invention refers to masks adapted to be applied to the splined end portion of a shaft to prevent paint or plating material from contacting or passing onto the splines and a marginal portion of one end of the shaft when one or more portions of the shaft are painted or plated.

One of the essential objects of the invention is to provide a mask capable of thoroughly protecting the splines and marginal end portion of the shaft without in any way interfering with the painting or plating operation.

Another object is to provide a mask that may be easily and quickly applied to and removed from the splines and end portion to be protected without marring or impairing any part of the shaft.

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

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 side elevational view of a shaft and showing a mask embodying my invention applied to a splined portion thereof, with parts broken away and in section;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is an end view of the mask per se;

Figure 4 is another end view of the mask per se.

Referring now to the drawing, A is a shaft provided at one end with a splined portion 10, and B is a mask embodying my invention for protecting the splines 11 and a marginal portion 12 of the adjacent end 13 of the shaft from paint or plating material applied to the rest or other portions of the shaft.

As shown, the splined portion 10 of the shaft tapers from an annular shoulder 14 to the adjacent end 13 of the shaft so that the splines 11 are inclined somewhat to the axis of the shaft. However, it will be understood that the splined portion 10 may be concentric with the axis of the shaft, and the splines 11 may be parallel to the axis of said shaft.

The mask B has a body 15 provided with a central opening 16 conforming in shape to and adapted to receive the splined portion 10 of the shaft, and is provided at the outer end of the opening 16 with an inwardly extending annular flange 17 adapted to overlie the marginal portion 12 of the adjacent end 13 of the shaft.

Preferably the mask B is a one piece element and is formed entirely of resilient material such as rubber or rubber composition.

In the present instance the mask B has internal splines or projections 20 that project radially inward from the wall of the central opening 16 and mate with the splines 11 of the splined portion 10 throughout their length so as to cover and protect the working surfaces of said splines 11. The inwardly extending flange 17 covers and protects the marginal portion 12 of the end 13 of the shaft, hence only the central portion 21 of said end is exposed through the circular opening 22 provided by the annular flange 17.

If desired, the outer ends of the splines 11 may be tapered slightly, and the inner face of the annular flange 17 may be likewise tapered or have a tapered portion to engage the tapered ends of the splines.

In use, the mask B may be sleeved upon the splined portion 10 of the shaft to the position illustrated in Figure 1 by first aligning the internal splines 20 of the mask with the spacers or grooves 30 between the external splines 11 of the shaft, and then slipping the mask endwise upon the splined portion 10 until the inner end of the mask is substantially flush with the shoulder 14. When the mask is in its masking position as illustrated in Figure 1 the working surfaces of the splines 11 and the marginal portion 12 of the adjacent end 13 of the shaft are completely covered and protected against paint and plating material applied to the other portions of the shaft. Thus, the mask will effectively prevent paint or plating material applied to other portions of the shaft from engaging the working surfaces of the splines 11 and the marginal portion 12.

Preferably the mask B is undersized relative to the splined portion 10 of the shaft so that it has to be stretched slightly when it is applied to said splined portion. Hence the inherent resiliency of the mask and the tension under which it is placed when applied will be sufficient to hold it in snug engagement with the splined portion 10 of the shaft when the mask is in operative masking position.

What I claim as my invention is:

1. A mask for protecting a splined end portion

of a shaft from paint or plating material applied to other portions of said shaft, comprising a one piece resilient member having an opening for receiving the splined portion, teeth projecting radially inward from the walls of said opening for surface to surface engagement with the splines of said splined portion, and an annular flange at one end of the opening for surface to surface engagement with an adjacent end of said shaft.

2. A mask for protecting a splined end portion of a shaft from paint or plating material applied to other portions of said shaft, comprising a stretchable member having a splined portion conforming in shape to and adapted to be stretched endwise upon the splined end portion of the shaft and having an annular flange engageable in surface to surface relation with an adjacent end of said shaft.

3. A mask of the class described comprising a resilient annulus having on the inside thereof circumferentially spaced projections for mating engagement with the splines of a splined portion of a shaft and having at one end an inwardly extending flange for engagement with an end of the splined portion of the shaft.

4. Means for protecting simultaneously the working surfaces of circumferentially spaced splines of a splined end portion of a shaft and a marginal portion of the adjacent end of said shaft from paint or plating material applied to the body portion of the shaft, comprising a resilient relatively elastic one piece solid annular masking element having an interior perimetrical surface substantially less than the exterior perimetrical surface of said splined portion so that said masking portion may be fitted by stretching it under tension onto the working surfaces to be masked, said masking element having inwardly extending radial projections so spaced and of such depth and thickness that when the masking element is stretched onto the working surfaces to be masked said radial projections will be squeezed into snug non-slip surface to surface engagement with said working surfaces to pre-

vent paint or plating material applied to the body of the shaft from entering the spaces between the splines of said splined portion, said masking element also having an inwardly projecting annular flange adapted to overlie in surface to surface relation the adjacent end of the shaft when the radial projections aforesaid are squeezed into snug engagement as aforesaid with said working surfaces to prevent paint or plating material applied to the body of the shaft from contacting the marginal portion aforesaid of said shaft.

5. Means for protecting simultaneously the working surfaces of circumferentially spaced splines of a splined end portion of a shaft and a portion of the adjacent end of said shaft from paint or plating material applied to the body portion of the shaft, comprising a resilient relatively elastic solid annular masking element having an interior perimetrical surface substantially less than the exterior perimetrical surface of said splined portion so that said masking element may be fitted by stretching it under tension onto the working surfaces to be masked, said masking element having inwardly extending radial projections so spaced and of such depth and thickness that when the masking element is stretched onto the working surfaces to be masked said radial projections will be squeezed into snug non-slip surface to surface engagement with said working surfaces to prevent paint or plating material applied to the body of the shaft from entering the spaces between the splines of said splined portion, said masking element also having at one end thereof an inwardly projecting flange adapted to overlie in surface to surface relation the adjacent end of the shaft when the radial projections aforesaid are squeezed into snug engagement as aforesaid with said working surfaces to prevent paint or plating material applied to the body of the shaft from contacting the portion aforesaid of the adjacent end of said shaft.

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