

Feb. 15, 1944.

J. E. DUGGAN

2,341,702

MASK STRUCTURE

Filed Jan. 15, 1943

FIG. 1.

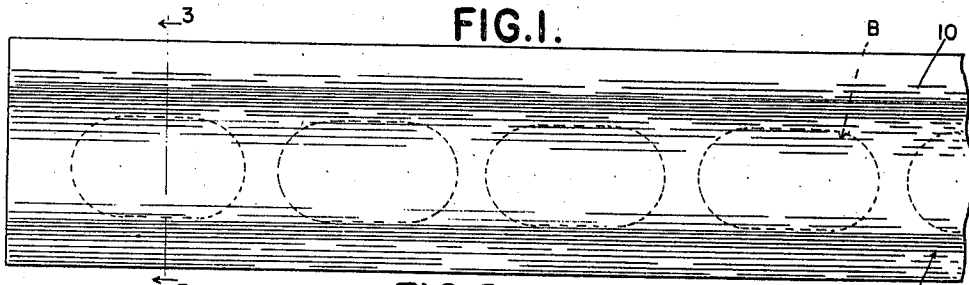


FIG. 2.

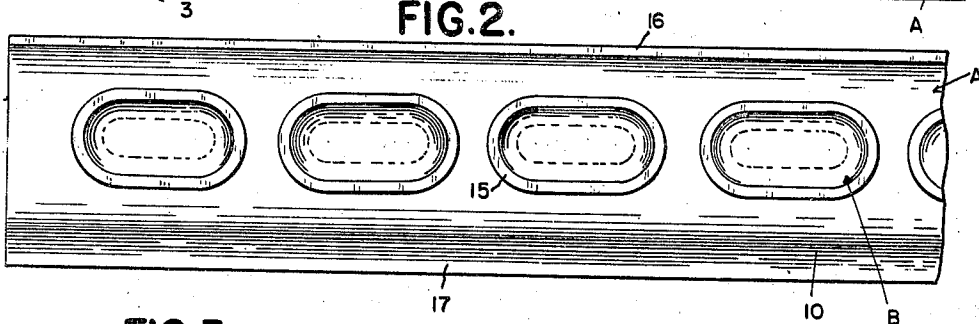


FIG. 3.

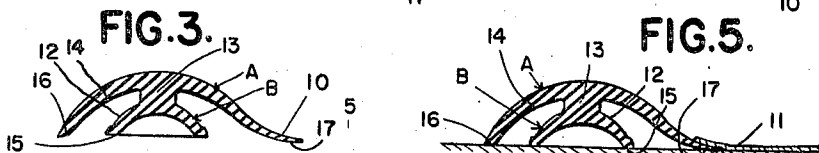


FIG. 5.

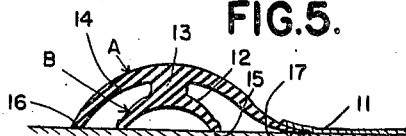


FIG. 4.

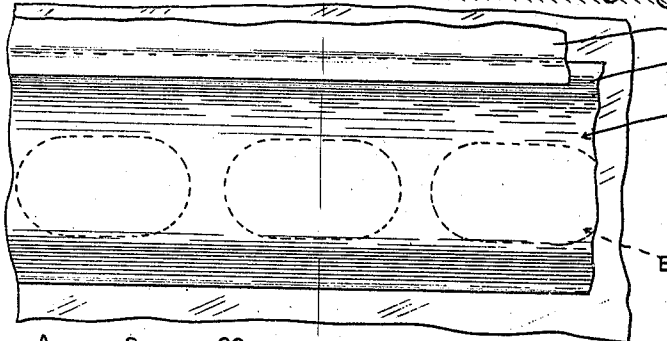


FIG. 6.

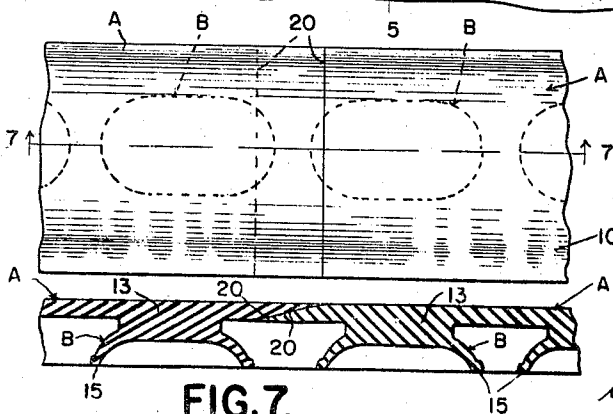
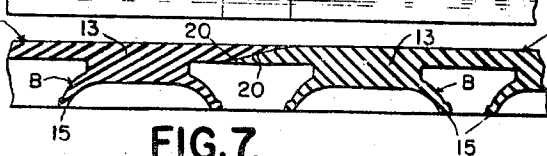


FIG. 7.



INVENTOR.

JAMES EDWARD DUGGAN

BY

Whittam, Heller & Belknap

ATTORNEYS

UNITED STATES PATENT OFFICE

2,341,702

MASK STRUCTURE

James Edward Duggan, Indianapolis, Ind.

Application January 15, 1943, Serial No. 472,515

19 Claims. (Cl. 91—65)

This invention relates generally to devices that are used during painting or plating operations to protect certain 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 predetermined areas of a given surface when other areas thereof are painted or plated.

One of the essential objects of the invention is to provide a flexible masking strip capable of being applied to various contours or lines regardless of whether they are curved, straight or wavy.

Another object is to provide a masking strip having as an integral part thereof elongated suction cups engageable with such contours to hold the strip in the desired position thereon. Thus, suction passages, hose and the like have been eliminated entirely. Moreover, separate suction cup valve elements assembled with the strip have been dispensed with, too. In the present instance the strip and suction cups are made as a unit in a mold and are preferably formed entirely of resilient material such as rubber or rubber composition.

Another object is to provide a masking strip capable of thoroughly protecting a predetermined area of a given surface without in any way interfering with the painting or plating operation of an adjacent area of said surface.

Another object is to provide a mask that may be easily and quickly applied to and removed from the surface mentioned without marring or impairing the same.

Another object is to provide a mask that may be used repeatedly without being scrapped. Heretofore, masking tape and adhesive coated strips have been used but they are difficult to remove and usually leave marks on the surface from which they are removed. Moreover, they are not serviceable after being used and therefore have to be scrapped.

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 top plan view of a portion of a masking strip embodying my invention;

Figure 2 is a bottom plan view of the strip illustrated in Figure 1;

Figure 3 is a cross sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a plan view of a masking strip and apron in masking position on a given surface and showing the area above the strip to be plated or painted;

Figure 5 is a cross sectional view on the line 5—5 of Figure 4;

Figure 6 is a plan view of a joint between two strips such as that illustrated in Figure 1;

Figure 7 is a longitudinal sectional view on the line 7—7 of Figure 6.

Referring now to the drawing, A is the body, and B are the suction cups of a masking strip embodying my invention. Preferably the body A and cups B are integral and are made of resilient material such as rubber or rubber composition.

The body A is in the form of an inverted channel or trough of semi-circular cross section and may be any length desired. Preferably the body A is provided throughout or along one longitudinal edge thereof with a laterally projecting web 10 to which an apron or light flexible sheet 11 of resilient or other suitable material may be attached as in Figure 4 for masking an additional area of a given surface.

The suction cup B are on the underside of the body A at longitudinally spaced points of the longitudinal median line thereof and are preferably elongated trough-shaped members for engagement with the surface to be covered by the body A. Preferably the cups B are spaced slightly below and have their crown portions 12 connected by elongated vertical ribs or webs 13 with the crown portion 14 of the body A so that the edges 15 of the cups engageable with the surface to be covered by the body are normally substantially flush with the longitudinal side edges 16 and 17, respectively, of the body.

In the process of construction, the masking strips may be molded in predetermined lengths as desired.

Thus, the body A, cups B and intermediate connecting ribs 13 are formed as a unit in one molding operation. The apron 11 may be formed separately and then attached by any suitable means to the web 10 of the strip. Such apron 11 may be any size desired, depending upon the area to be covered thereby.

Should it be desired to attach an end of one strip to an end of another strip as illustrated in Figures 6 and 7, or to form one strip into a closed loop or circle by joining together opposite ends of such strip, the end portions 20 of the body A

are preferably beveled or chamfered as illustrated in Figure 6 so that said end portions may be cemented or otherwise secured together in overlapping relation without making a thick joint. In fact, the arrangement is preferably such that the thickness of the joint between such end portions is substantially equal to the thickness of the body A at any point intermediate the end portions thereof.

In use, the strip illustrated in Figure 1, or the strip and apron combination illustrated in Figure 4 may be easily and quickly attached to a given surface by merely pressing the suction cups B against said surface at the proper place to cause said strip or strip and apron combination to cover the particular area of the surface to be protected. As a result, the side edges 16 and 17 of the strip will be engaged and held by the suction cups B in firm engagement with such surface. In fact, the engagement between the edge 16 of the strip and the surface mentioned will be such that said edge 16 will serve as a substantially knife-like divider between the area to be protected and the area to be painted or plated.

Thus, from the foregoing, it will be apparent that I have provided a mask that may be easily and quickly applied to and removed from a given surface without marring the same. Such mask serves effectively to protect the area of the surface covered thereby and may be used over and over again without being scrapped. As a result, a substantial saving in time, labor and material is effected.

What I claim as my invention is:

1. A mask structure comprising a flexible strip provided on the underside thereof with spaced suction cups, said cups being elongated trough shaped members at the longitudinal median line of said strip.

2. A mask structure comprising a strip having a body and a plurality of suction cups, the body being an inverted channel of semi-circular cross section, the suction cups being on the underside of said body at longitudinally spaced points thereof.

3. A mask structure comprising a strip having a body and a plurality of suction cups, the body being an inverted channel of semi-circular cross section, the suction cups being spaced below and yieldably connected to the underside of said strip at approximately the longitudinal median line thereof.

4. A mask structure comprising an inverted channel shaped strip of resilient material provided on the underside thereof with longitudinally spaced depending elongated ribs, and suction cups of resilient material depending from said ribs.

5. A mask structure comprising an inverted channel shaped strip of resilient material provided on the underside thereof with longitudinally spaced depending elongated ribs, and suction cups of resilient material having crown portions connected to said ribs having surface engaging edges substantially flush with the side edges of said inverted channel shaped strip.

6. A mask structure comprising an inverted channel shaped strip provided along one side edge thereof with a laterally projecting web, suction cups suspended from the underside of said channel shaped strip at approximately the longitudinal median line thereof, and an apron attached to said web at one side of said strip.

7. A mask structure having an inverted channel shaped strip of resilient material provided

throughout its length at one longitudinal side edge thereof with a laterally projecting web for attachment to an apron and provided on the underside of the channel at approximately the longitudinal median line thereof with longitudinally spaced depending suction cups.

8. A mask structure having an inverted channel shaped strip provided at one longitudinal side edge thereof with a laterally projecting web for attachment to an apron and provided on the underside of the channel at approximately the longitudinal median line thereof with longitudinally spaced depending suction cups.

9. A one piece mask structure comprising a strip-like body of semi-circular cross section having on the underside thereof at approximately the crown portion thereof a plurality of longitudinally spaced downwardly opening suction cups.

10. A one piece mask structure comprising a strip-like body of semi-circular cross section having on the underside thereof at approximately the crown portion thereof a plurality of longitudinally spaced downwardly opening suction cups, the lower edges of said suction cups normally being substantially flush with opposite longitudinal side edges of the strip-like body.

11. A one piece mask structure comprising a strip-like body having on the underside thereof at approximately the longitudinal median line thereof a plurality of longitudinally spaced downwardly opening suction cups, opposite end portions of said strip-like body being beveled so that said end portions may be secured together in overlapping relation to provide a joint substantially equal in thickness to the thickness of the strip-like body intermediate the suction cups.

12. A mask structure comprising a flexible strip, downwardly opening suction cups beneath the strip at longitudinally spaced points of the longitudinal median line thereof, and yieldable means suspending said cups from the underside of said strip.

13. A one piece mask structure comprising a flexible strip of semi-circular cross section provided on the underside thereof at longitudinally spaced points of the crown portion thereof with downwardly opening suction cups of semi-circular cross section, the cross sectional curvature of the cups being substantially concentric with the cross sectional curvature of the strip.

14. A mask structure having an apron for covering a surface to be protected, and a supporting member for said apron, comprising a flexible strip marginally attached to said apron and provided at longitudinally spaced points of the longitudinal median line of the strip with integral suction cups.

15. A pliable mask structure comprising an elongated flexible strip of semi-circular cross section provided on the underside of the crown portion thereof with longitudinally spaced downwardly opening suction cups of semi-circular cross section.

16. A mask structure comprising an elongated strip of semi-circular cross section provided on the underside of the crown portion thereof with longitudinally spaced downwardly opening suction cups of semi-circular cross section, the cross sectional curvature of the cups being substantially concentric with the cross sectional curvature of the strip.

17. A one piece mask structure formed entirely of resilient material and comprising an elongated body of semi-circular cross section having on the

underside thereof at approximately the crown portion thereof a plurality of longitudinally spaced downwardly opening suction cups, the lower edges of said suction cups normally being substantially flush with opposite longitudinal side edges of said elongated body, said body being provided along one longitudinal side edge thereof with a laterally projecting portion to which an apron or sheet may be attached for masking purposes.

18. A pliable mask structure formed entirely of resilient material and comprising a transversely curved strip provided on the underside thereof at longitudinally spaced points of the longitudinal median line thereof with downwardly opening

5 suction cups and provided along one longitudinal side edge thereof with a laterally projecting portion to which an apron or sheet may be attached for masking purposes, the lower edges of said suction cups being spaced laterally from but substantially flush with the laterally projecting portion and the other longitudinal side edge of said transversely curved strip.

10 19. A one piece pliable mask structure comprising a transversely curved strip provided on the underside thereof at the crown portion thereof with longitudinally spaced downwardly opening suction cups.

JAMES EDWARD DUGGAN.