June 20, 1939. G. A. LYON 2,162,733

METHOD OF MAKING A MULTIPIECE ARTICLE

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Fig. 1.

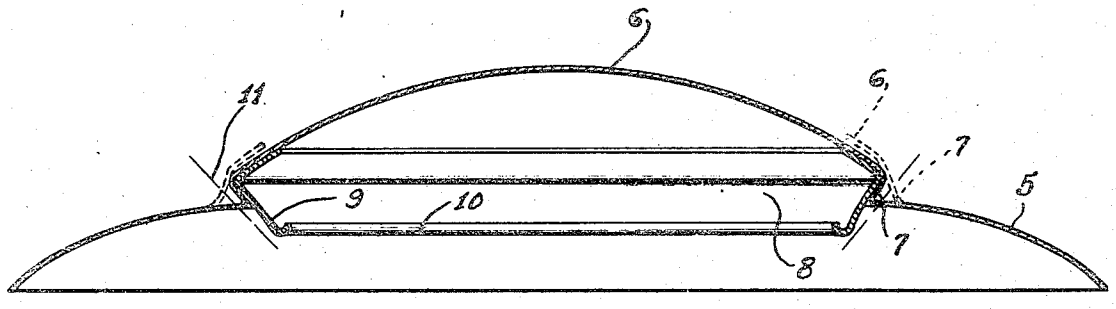


Fig. 2.

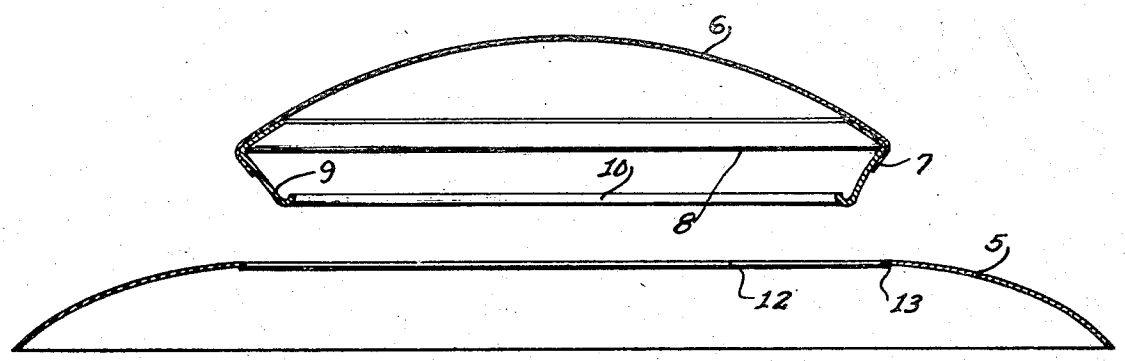


Fig. 4.

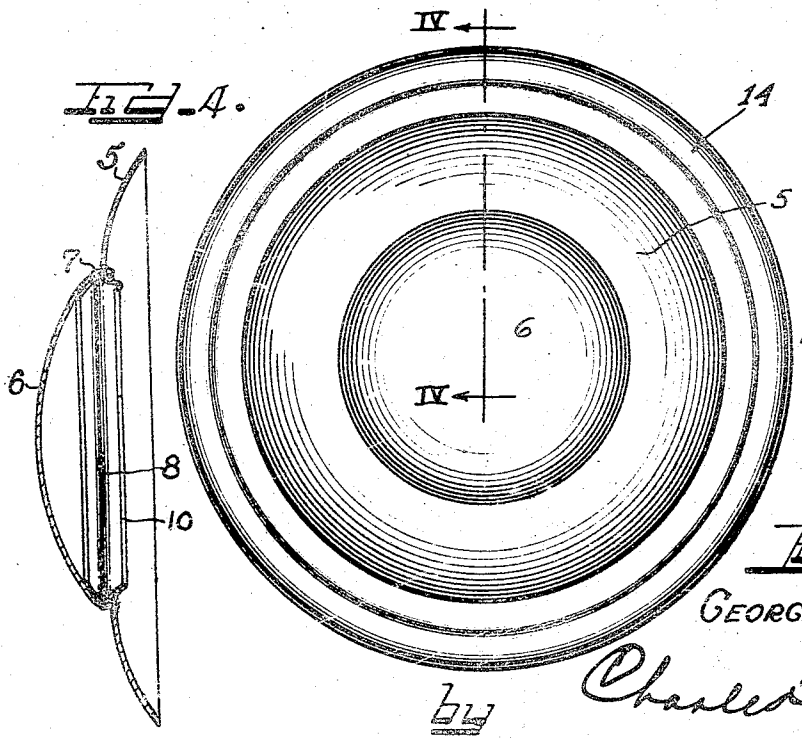


Fig. 3.

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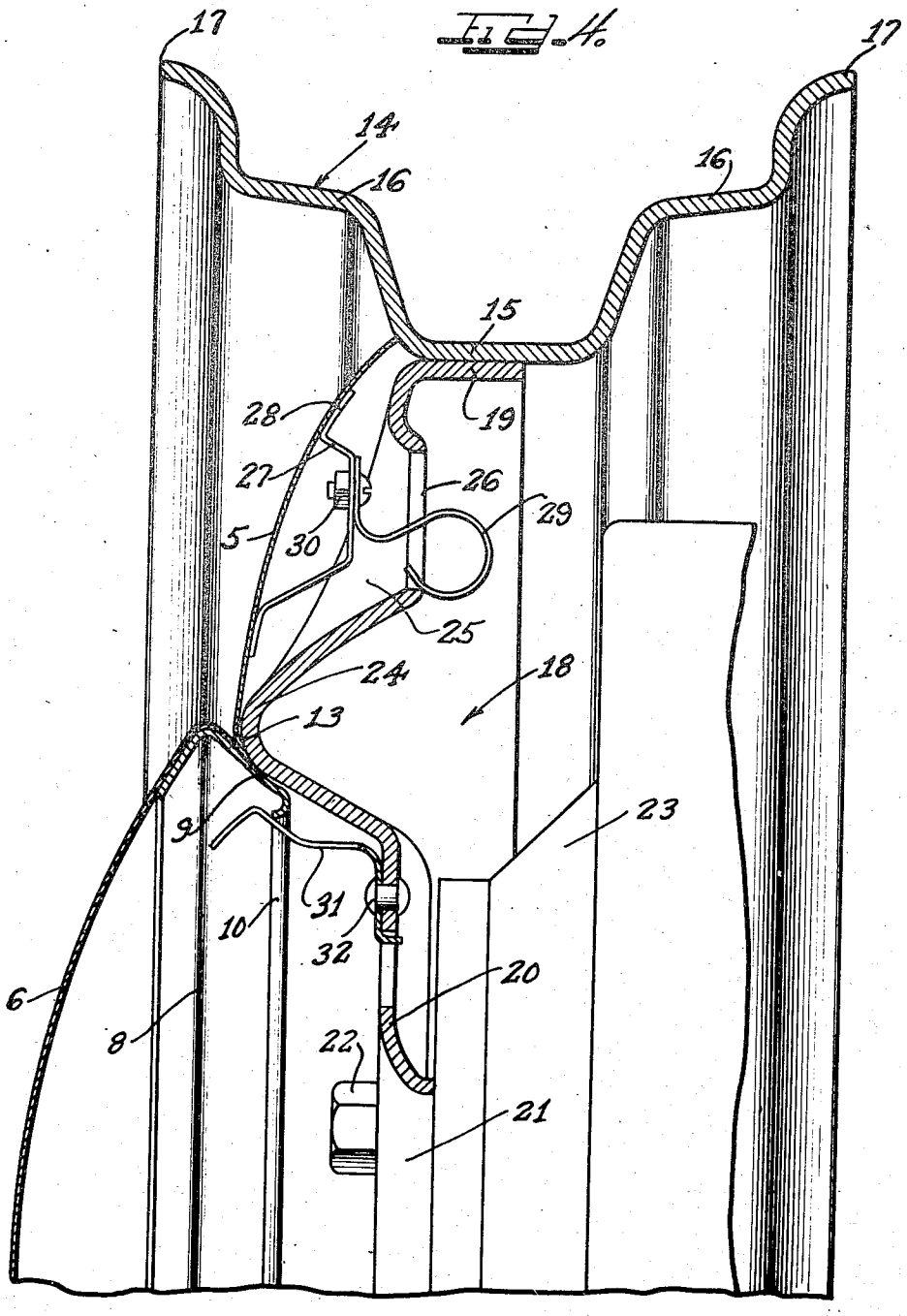
by Charles G. Hills Attys.

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Fig. 4.



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METHOD OF MAKING A MULTIPIECE ARTICLE

George Albert Lyon, Detroit, Mich.

Application March 20, 1936, Serial No. 69,845

3 Claims. (Cl. 113—116)

This invention relates to improvements in a multipiece article and a method of making the same, and more particularly to the making of two separate articles from a single piece of material, such, for example, as an ornamental wheel disk and a hub cap, suitable for disposition upon the same vehicle wheel, although they may be used on separate wheels, if so desired.

The present invention is illustrated in connection with the making of ornamental wheel disks and hub caps for disposition over the outer side surfaces of vehicle wheels by way of example only, it being understood that the invention is applicable for the making of other and various parts for different purposes.

In the art of making ornamental wheel disks and hub caps for vehicle wheels, as well as in other arts of metal working, wherein it is necessary to cut out a portion of a sheet of metal, such as a central portion thereof, objectionable material or stock waste has heretofore resulted. In this type of metal working field, economy is frequently essential, and the cost of the metal stock used is a considerable item. Consequently, it is desirable to avoid wastage of stock.

It is frequently desirable to have a pair of separate metal parts for subsequent placement in juxtaposition with adjacent margins of the respective parts overlapping. In certain instances, this is especially true in the art of ornamenting vehicle wheels wherein it is desirable to have an ornamental wheel disk and a hub cap separate therefrom, but both the parts being so arranged as to give an external appearance as though they were of one piece. This is accomplished by overlapping the adjacent marginal portions of the hub cap and wheel disk. Heretofore, it has been necessary to make the disk and the hub cap of initially separate pieces of stock in the event the marginal overlapping was desired. Such a process was subject to the aforementioned objectionable wastage of material.

With the foregoing in mind, it is an important object of the present invention to provide a method of making a pair of parts for juxtaposition with overlapping margins from a single piece of material, with substantially no waste in stock.

It is also an object of this invention to provide a method of making an ornamental wheel disk and a hub cap from the same original piece of stock so that the resulting separate parts when placed in juxtaposition will have overlapping marginal portions.

Another object of the invention is the provision of a method of making a crown portion and a circumscribing portion out of the same piece of material, and joining a fastening flange to one of these portions during the making operation.

Still another object of the invention is the provision of an ornamental wheel disk and a hub cap usable separately but which were both originally a single piece of stock having a re-entrant groove therein.

Also an object of this invention is the provision of a method of making a pair of parts for juxtaposition with overlapping marginal portions from a single piece of material with only one line of severance in the material.

Other objects and advantages of the present invention will become apparent from the disclosures hereinafter, taken in connection with the accompanying drawings, in which:

Figure 1 is a central vertical sectional view, illustrating a single piece of material having the general form of a hub cap and wheel disk, prior to the cutting of the single piece into separate parts;

Figure 2 is a central vertical sectional view in exploded style, showing the structure of Figure 1 after cutting;

Figure 3 is a side elevational view of a vehicle wheel equipped with the structure of Figure 2; and

Figure 4 is a sectional view of the hub cap and wheel disk parts in assembled position.

As shown on the drawings:

As mentioned hereinabove, the present invention contemplates the making of two separate parts out of a single piece of material so that these parts may be disposed in juxtaposition and have overlapping marginal portions. The invention is not limited to any particular shape of the respective parts, nor any special contour therefor. However, for the purposes of adequately illustrating the present invention, I have shown an ornamental wheel disk and a hub cap, both for disposition over the outer side surface of a vehicle wheel, and have indicated a method of making these respective parts. Of course, in the present instance, the original piece of stock and the disk and hub cap will all be circular in shape, although this invention is equally adaptable for the making of oval, arcuate, polygonal or other and variously shaped pieces.

In Figure 1, I have illustrated a single piece of stock, generally circular in shape, and formed to provide an outer circumscribing disk portion

5, a central raised crown portion 6 and a re-entrant portion 7 connecting the parts 5 and 6. As seen clearly in this figure, the re-entrant portion 7 provides a reentrant groove externally of the piece of stock. The re-entrant portion or crown skirt 7 is formed around a retaining flange 8 which is a separate piece of material having an inwardly sloping skirt 9 terminating in a curled or turned edge 10.

In the initial forming of the structure shown in Figure 1, the skirt 7 and crown 6 are originally in the position indicated by the dotted lines, with the skirt sloping outwardly to join the part 5. The fastening flange 8 is disposed within the crown portion 6, and by suitable rolling or die-forming operations, the skirt 7 is shaped to the re-entrant form shown in the full lines, tightly embracing the larger diametral portion of the fastening flange.

After the forming of the structure of Figure 1, this structure is cut annularly along a line of cut indicated by the dotted line 11, to separate the crown 6 from the disk part 5, as seen in Figure 2, leaving a relatively large central aperture 12 in the disk part. The cut is preferably made adjacent the base of the skirt 7 inside the re-entrant groove so that there is no need of re-forming the skirt 7 after cutting. The cutting operation also turns the edge of the disk 5 slightly inwardly, as indicated at 13 in Figure 2, although if the turning of the edge resulting from the cutting operation is not deemed sufficient, the edge may be further turned by a simple shaping operation.

It will be noted that the foregoing method provides two parts, in this instance the disk 5 and crown 6 which, when placed in juxtaposition, will have overlapping adjacent marginal portions. It will be further noted that there has been on wastage of stock in the forming and cutting of the original piece of stock from which the disk 5 and crown 6 were cut.

After the cutting operation, with the illustrated structure, the crown 6 together with its fastening flange 8 forms a suitable hub cap for attachment over the central outside surface of a vehicle wheel, while the part 5 provides an ornamental disk for overlying the outer side surface of a vehicle wheel between the central portion covered by the hub cap and the wheel rim.

In Figure 3, I have shown the crown part 6 and the disk part 5 attached to a vehicle wheel. This wheel includes a drop center tire rim generally indicated by numeral 14.

At any time after the formation of the crown part 6 and the disk part 5, as previously described herein, the disk part 5 may be provided with suitable attaching means for detachably securing it to the wheel. The crown part 6 may be detachably secured to the wheel in any suitable manner, such for example as by means of spring fingers (not shown) mounted on the wheel in the manner in which the usual form of hub cap known to the industry is secured thereto.

It will be noted that when the parts are so assembled upon the wheel, that portion of greatest diameter of the hub cap 6 overlies the inner marginal portion of the disk 5, so that from the outer side of the vehicle wheel, there is no visible line of separation between the disk 5 and the hub cap 6, as seen clearly in Figure 3.

From the foregoing, it is apparent that I have provided a new and novel method of making a pair of elements placeable in juxtaposition with overlapping marginal portions from a single piece of material, without any waste of stock. It is also apparent that the method is simple and economical to use or follow and is adaptable for the provision of various parts of different contours, sizes and shapes. It will also be seen that this method may be followed to produce a novel combination of ornamental disk and hub cap for decorating the outer side surface of a vehicle wheel.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than is necessitated by the prior art.

I claim as my invention:

1. The method of making a multi-piece article which consists in forming a single sheet of material into a central crown portion and an outer ring portion extending substantially transverse to the central axis of said crown portion and connected by an intermediate portion disposed substantially transverse to the general plane of the ring portion, deflecting said intermediate portion toward said central axis and under the outer edge of said crown portion to provide a turned under flange for said crown portion at a reentrant angle to said ring portion and to bring the innermost margin of said ring portion radially inward of said outer edge of the crown portion so as to form a seat for accommodating said flange after it has been severed from said ring portion, and then severing said ring portion from said flange at the bottom of said reentrant angle to form said crown portion with its flange and said ring portion into two separate pieces so arranged that the outer edge of the former may overlap the inner edge of the latter.

2. The method of making a multi-piece article which consists in forming a single sheet of material into a central crown portion and an outer ring portion extending in a direction radially outwardly from the central axis of said crown portion and connected by a substantially transverse intermediate portion, inserting a tapering skirt in said crown portion, deflecting said intermediate portion into clinched engagement with said skirt and under the outer edge of said crown portion to provide a turned under flange for said crown portion at a reentrant angle to said ring portion and to bring the innermost margin of said ring portion radially inward of said outer edge of the crown portion so as to provide without further forming a seat for accommodating said flange after it has been severed from said ring portion, and then severing said ring portion from said flange at the bottom of said reentrant angle to form said crown portion with its flange and said ring portion into two separate pieces arranged to be disposed with the outer edge of the former overlapping the inner edge of the latter.

3. The method of making a wheel hub cap and cover plate which consists in forming a single sheet of material into a central hub cap portion and an annular outer plate portion connected together by a substantially transverse intermediate portion, deflecting said intermediate portion radially inward so as to position it under the outermost edge of said hub cap portion to provide a turned under flange for said hub cap portion at a reentrant angle with re-

spect to said portions and to bring the innermost margin of said plate portion radially inward of the outer edge of said hub cap portion, and then severing said hub cap portion and said annular outer plate portion from each other by cutting said sheet in proximity to the bottom of said reentrant angle, whereby said turned under flange on the resulting hub cap may be nested without further forming in the opening defined by the inner edge of the resulting cover plate part.

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