June 6, 1950 J. P. DONAHUE 2,510,336

TOY PIN WHEEL

Filed Jan. 26, 1946

FIG. 1

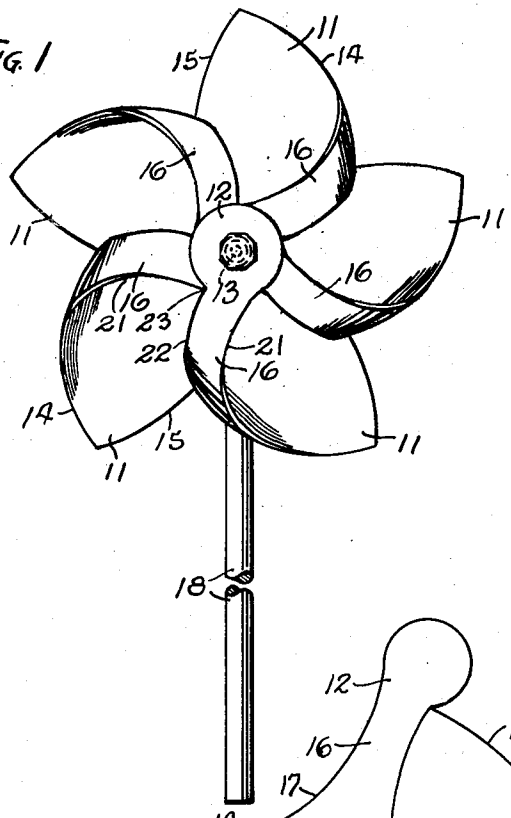


FIG. 2

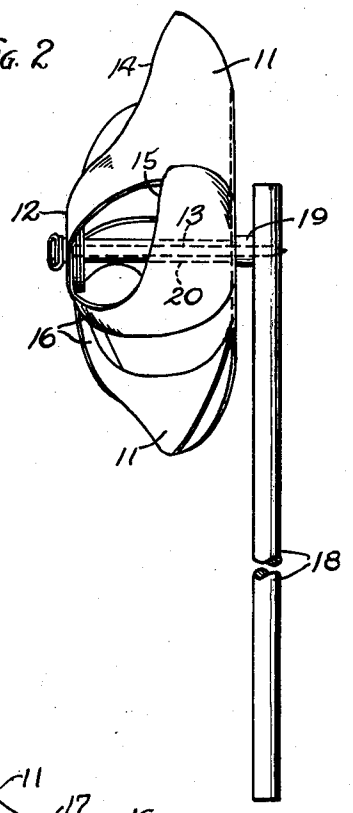
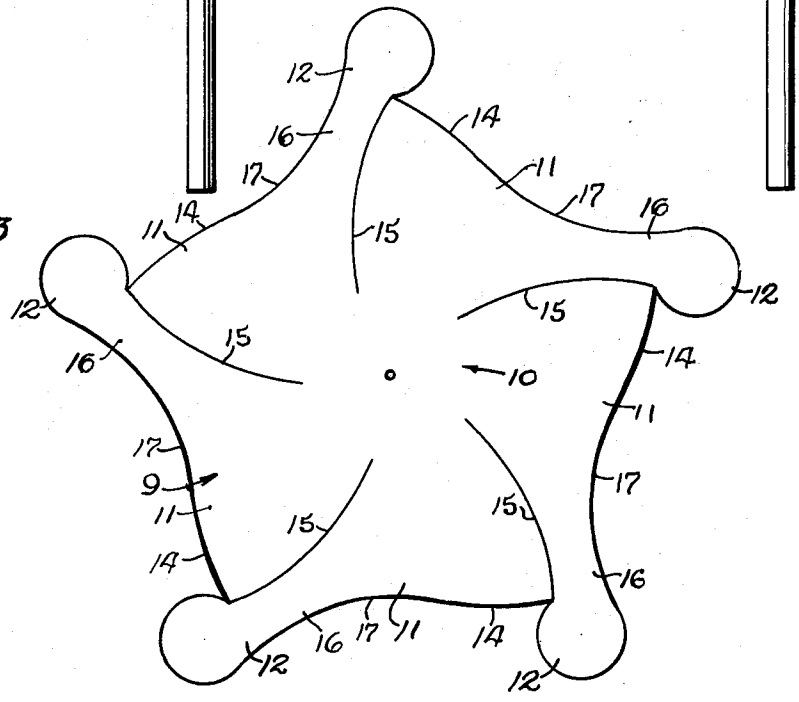


FIG. 3



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TOY PIN WHEEL

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1 Claim. (Cl. 46—58)

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The present invention relates generally to toy pinwheels made of paper or the like and it has for its general aim the provision of a pinwheel of increased efficiency and presenting an attractive appearance.

More specifically stated, the object of the invention is to provide a blank which may formed into a pinwheel having vane elements of novel and advantageous character and connected with the supporting pin in a manner such as to present to an impinging air stream working surfaces of enlarged area.

The objects of the invention thus generally set forth, together with other and ancillary advantages, are attained by the construction and arrangement shown by way of illustration in the accompanying drawings, in which:

Figure 1 is a front elevational view of a pinwheel constructed in accordance with my invention.

Fig. 2 is an edge elevational view of the device.

Fig. 3 is a plan view of a blank from which the pinwheel is formed.

In general, the improved pinwheel is formed from a blank 9, preferably of generally pentagonal shape and cut to form a central circular base section 10 and a plurality of contiguous, radially disposed vane segments 11, five vanes being employed in the preferred embodiment. Carried by the vane segments 11 and integral therewith are hub tabs 12 adapted to be brought together and held in overlapping coaxial relation by a headed supporting pin 13 passing through the central or base portion 10.

In accordance with my invention, the vane segments 11 are especially shaped and so connected with the central supporting pin 13 as to increase substantially the effective working surface areas presented to the impinging air stream. Thus the vane segments are made of increased width through the provision of convex leading and trailing edges 14 and 15, and they are formed with narrow portions or straps 16 projecting laterally, substantially at right angles thereto constituting, in the assembled form of the wheel, connecting links between the vanes proper and the hub tabs 12.

As best shown in Fig. 3, the blank 10 is so cut that the portion of the peripheral edge of the blank comprising the leading edge 14 of each

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vane is convexly shaped and is then curved reversely as at 17 to form the peripheral edge of its connecting strap 16 of concave shape. On the other hand, the edge 15 of each vane segment which extends in a generally radial direction and comprises the trailing edge of each vane is of continuous convex curvature and forms the opposite edge of the strap for the next or adjacent vane. Thus the vanes are made of maximum width consistent with adequate strength in the straps 16.

The hub tabs 12 are in the nature of extensions of the straps, being shown in Fig. 3 as projecting well beyond the tips of the vane segments 11. By this arrangement, the straps are in effect lengthened so as to reduce the degree of twist necessary to be imparted to the vanes in fastening them together at the center of the pinwheel. This is important in that it further enlarges the forwardly facing areas of the vanes presented to the impinging air stream by requiring only a minimum amount of vane surface to be turned back into overlying relation with itself when the pinwheel is formed from the blank 9. Also a reduction in the degree of twist imparted to the vane segment reduces the frictional resistance between the hub tabs and the pin 13.

In practice, the pinwheel is mounted upon a suitable support such as a stick 18, one end of which is apertured transversely to receive the pin 13. Preferably, a collar 19 is interposed between the stick and central or base portion 10 of the wheel; and, if desired, a spacing sleeve 20 may be interposed between the base portion and the overlapping hub tabs 12 as shown in Fig. 2. It will be observed that when thus assembled, the straps are relatively disposed approximately at right angles, and since they are relatively narrow, they interpose a minimum of obstruction to the impinging air stream.

As seen in Figs. 1 and 3, the hub tabs 12 are offset slightly relative to the straps 16 so that the trailing edge 21 of each strap merges directly into the adjacent edge of the hub tab, thereby forming an approximately straight line tangential to the hub tab. With the vanes fastened together at their centers, this line is intersected by the leading edge 22 of the adjoining strap at substantially right angles as indicated at 23 in Fig. 1.

I claim as my invention:

A blank for a pinwheel comprising a central or base portion, a plurality of contiguous vane segments extending radially from said base portion, a narrow strap portion extending laterally from each vane segment substantially at right angles thereto and projecting well beyond the tip of the adjacent vane segment in the form of a tab, the tabs being adapted to be secured together in overlapping coaxial relation with each other and said base portion, the radial edge and the portion of the peripheral edge adjacent the radial edge of each vane segment being of convex curvature and the peripheral edge of each strap portion being of concave curvature, said peripheral edges merging smoothly together.

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