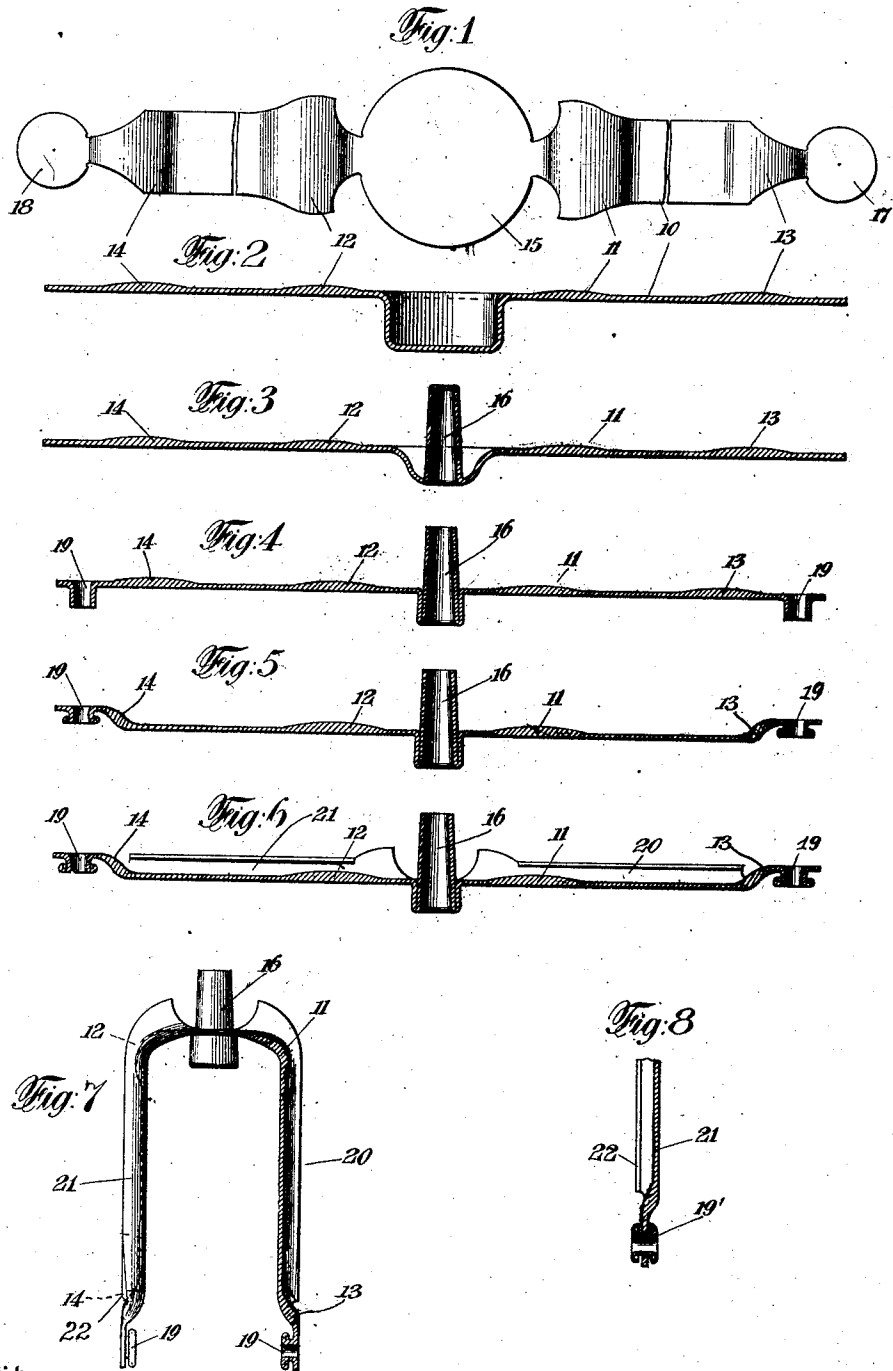


J. V. WOODWORTH.
FLIER.
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1,047,601.

Patented Dec. 17, 1912.



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UNITED STATES PATENT OFFICE.

JOSEPH V. WOODWORTH, OF BROOKLYN, NEW YORK.

FLIER.

1,047,601.

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To all whom it may concern:

Be it known that I, JOSEPH V. WOODWORTH, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fliers, of which the following is a specification.

The invention relates to fliers as employed in the spinning of cotton, wool, jute, hemp and yarn for textile fabrics, and also bagging and rope.

It has for its object to produce, instead of the present cast, forged, or hot pressed metal flier, a sheet metal, one-piece flier and one which may be struck up from a suitable blank. Such flier will be of considerably less weight than those of the present type, less power therefore being required to operate the spinning machine and roving frames employing the same; and, moreover, the efficiency of the improved flier is greater and a more perfect balance and smoothness of all working parts is obtained. The flier may be produced, furthermore, at less cost and allows of ready interchangeability and duplication of the same.

The nature of the invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 is a plan of the blank of suitable sheet metal which is formed into the flier. Figs. 2 to 6 are vertical sections illustrating the different stages in the manufacture of the flier. Fig. 7 is a front elevation, partly in section, illustrating the completed flier. Fig. 8 is a fragmentary view illustrating a modification.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawings, I have illustrated in Fig. 1 substantially the shape of the blank 10 of material, such as sheet steel, from which the flier is formed. It will be noted, particularly with respect to Fig. 2, that this material may be reinforced in rolling the blank material, as at certain portions, 11, 12, and 13, 14 to strengthen the finished flier respectively at the arm portions and at the eye portions. The central portion 15 of this blank is first cupped, as shown in Fig. 2, and the tubular, tapering neck 16 of the flier drawn therein in well known manner, as shown in Fig. 3. In Fig.

4, the upwardly turned material about the neck 16 is shown closed thereon, greatly strengthening the flier at this point; and the upper end of the neck has been perforated and the ends 17 and 18 of the blank cupped and likewise perforated to form the eyes 19. Fig. 5 illustrates the edges of the eyes turned over to prevent cutting of the material in passing therethrough. When employing fliers of considerable size, the ends 17 and 18 are preferably merely punched out without cupping and an eyelet 19', Fig. 8, inserted, thus increasing the life of the flier as a whole in allowing replacement of the eyelet. In Fig. 6, the intermediate material is curled over to form the tubular arms 20 and 21 of the flier, the same, however, not being completely closed and leaving an open slot 22 for the insertion of the material. The formed up blank is then bent about, in any suitable manner, to the shape of an inverted U, forming the flier shown in Fig. 7. The flier thus produced is accurately balanced, smooth throughout and reinforced where most necessary. When but one leg is desired, it is of course to be understood that one of the two legs 20 or 21 may be flattened out.

I claim:—

1. A flier composed of a single piece of sheet metal having a portion thereof curled over into an open-slotted tubular leg, one end thereof being perforated; a tubular neck drawn in said piece of sheet metal; and an arm connecting the neck with the other end of the leg.

2. A flier composed of a single piece of sheet metal having a portion thereof curled over into an open-slotted tubular leg, one end thereof being cupped and perforated to form the eye, and the edge of said eye being curled over; a tubular neck drawn in said piece of sheet metal; and an arm connecting the neck with the other end of the leg.

3. A flier composed of a single piece of sheet metal having a portion thereof curled over into an open-slotted tubular leg, one end thereof being perforated; a tubular neck drawn in said piece of sheet metal, the lower end thereof being turned upwardly and then outwardly, the latter portion forming the arm of the flier connecting said neck with the other end of the said leg.

4. A flier composed of a single piece of sheet metal having a portion thereof curled over into an open-slotted tubular leg, one

end thereof being perforated; a tubular neck drawn in said piece of sheet metal, the lower end thereof being turned upwardly and then outwardly, the latter portion forming the arm of the flier connecting said neck with the other end of the said leg; and reinforcing material integral with said arm.

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10 5. A flier composed of a single piece of sheet metal having a portion thereof curled over into an open-slotted tubular leg one end thereof being perforated; a tubular neck drawn in said piece of sheet metal, the lower end thereof being turned upwardly

and then outwardly, the latter portion forming the arm of the flier connecting said neck with the other end of said leg; reinforcing material integral with said arm; and reinforcing material integral with the leg portion near the eye thereof.

Signed at New York, in the county of New York, and State of New York, this 28th day of August A. D. 1912.

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Witnesses:

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