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FAN.

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997,828.

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FIG. 2.

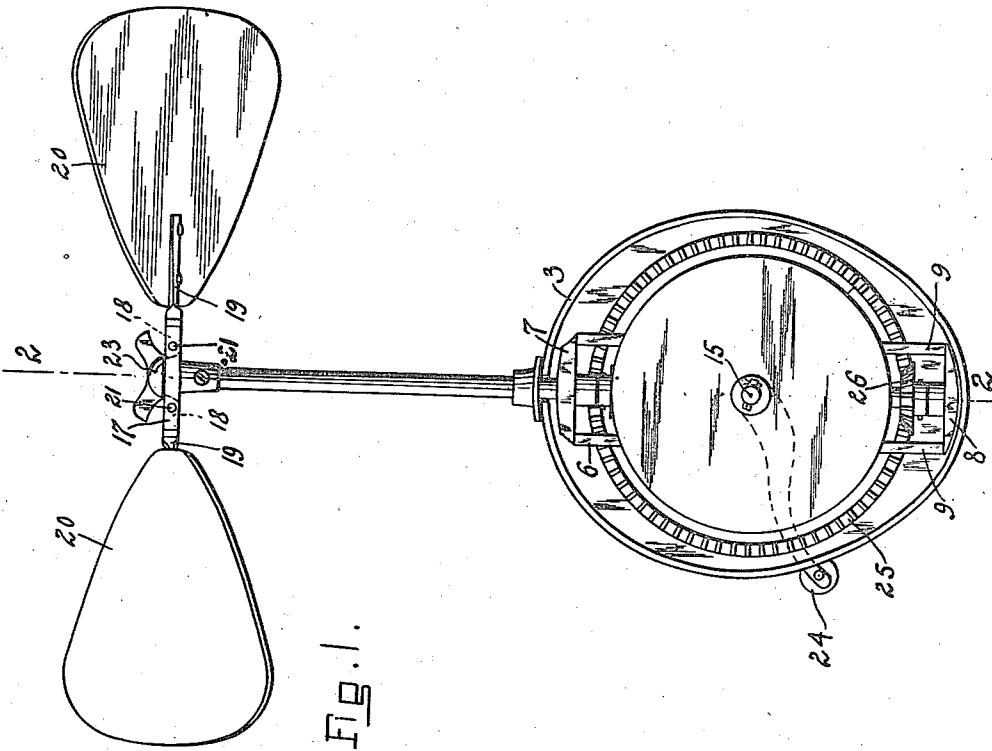
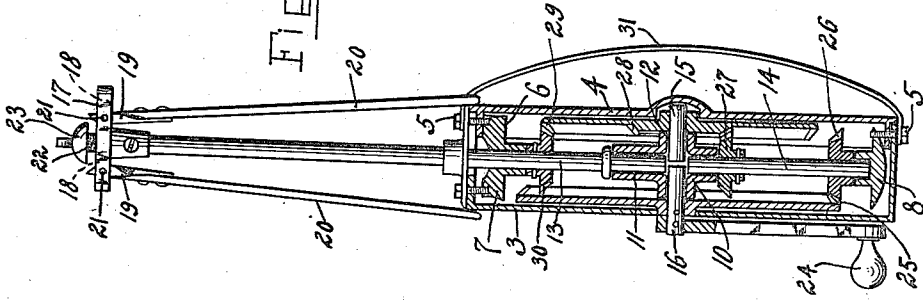


FIG. 1.

WITNESSES
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To all whom it may concern:

Be it known that I, JOHN KANDERA, a subject of the King of Hungary, and resident of the city of New York, in the county of Queens and State of New York, have invented certain new and useful Improvements in Fans, of which the following is a specification.

The present invention relates to improvements in fans, and more particularly to a fan having a plurality of blades.

One of the objects of the invention is to provide a simple and durable fan of this character which can be rapidly rotated to set up an air current, and which requires little exertion for its operation.

Another object of the invention is to provide a fan, the blades of which can be folded or collapsed, whereby the device can be carried along in the pocket of the user.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of a fan constructed in accordance with the present invention, its cover being removed to show the interior construction of the same, and Fig. 2 is a section taken on line 2—2 with the blades in their folded positions.

In the drawings, the numeral 3 indicates a casing of any suitable material and shape, having a cover 4 attached thereto, preferably, by means of screws 5, 5. In this casing is arranged a frame 6 comprising bearings 7 and 8, which are connected by substantially vertical bars 9, 9, which latter may be either made integral with the bearings or attached thereto in any suitable manner. This frame is held in position in the casing by means of the screws 5, 5, which secure the cover 4 in place in the casing 3.

A centrally arranged bearing 10 is furthermore located in the casing, which is pro-

vided with bores 11 and 12, which cross each other, preferably, at right angles. In the bearing 10 are journaled four shafts 13, 14, 15 and 16. The shafts 15 and 16 form continuations of each other, and so also the shafts 13 and 14, which are arranged at right angles to the longitudinal axes of the shafts 15 and 16. The shaft 13 forms the main shaft of the apparatus, and is provided upon its upper free end with a lug 17, which is recessed at diametrically opposite points 18, 18 of the shaft 13. In these recesses are arranged the arms 19, 19 of the fan blades 20, 20, and fastened thereto by pivots 21 passing through the lugs 17 and the arms 19 of the blades. The outer end of the shaft 13 is screw threaded, as shown at 22. These threads mesh with the inner threads of a thumb nut 23, the diameter of which is somewhat larger than the distance between the inner ends of the arms 19 of the blades, when said blades are in their operative, substantially horizontal positions. Motion is imparted to the shaft 13 from the driving shaft 16, to which a crank 24 is attached, in the following manner: To the driving shaft is secured within the casing a bevel gear 25 meshing with a similar gear 26, mounted upon the shaft 14. To this shaft is furthermore attached a bevel gear 27, meshing with a similar gear 28, which is made integral with a larger bevel gear 29, meshing with a comparatively smaller bevel gear 30, which latter is fixedly attached to the shaft 13. The ratio between the bevel gears mentioned is such that one revolution of the bevel gear 25, that is to say of the crank 24, will result in a great number of revolutions of the shaft 13 and the blades attached thereto. To the casing is furthermore attached a flexible band 31, preferably, by the screws 5 which hold the cover upon the casing, to serve as a handle of the device.

The operation of the device is as follows: When the fan is to be placed into the pocket or a small satchel, the thumb nut 23 is loosened, whereby the inner ends of the arms 19 of the blades will be released, so that the latter may be folded substantially parallel to the axis of the shaft 13 into the positions shown in Fig. 2 of the drawings. To prepare the fan for use, the blades are brought into the positions shown in Fig. 1 of the drawings, the thumb nut tightened, and the axis of the shaft brought in a substantially horizontal position. When now

the crank 24 is rotated, the blades will rotate at a high speed and set up a cooling current of air.

It is to be noted that the device is particularly useful as a hand-fan during warm weather, or in sick rooms, etc.

The device is easily operated by simply turning the crank by a very small movement of the hand of the user, or in other words without a useless exertion which would heat the body and tire the person using the fan.

What I claim is:

1. In a fan, the combination with a casing, of a shaft rotatably arranged therein and projecting through an opening in said casing outside of the same, a lug attached to the outer end of said shaft, fan blades pivoted to said lug, said blades being adapted to be folded around their pivots into substantially parallel relation with said shaft and in contact with said casing, means upon said shaft adapted to be forced into engagement with the inner ends of said blades to hold the same in their extended positions, and means arranged outside of said casing for imparting rotation to said shaft.

2. In a fan, the combination with a casing, of a shaft rotatably arranged therein and projecting through an opening in said casing outside of the same, a lug attached to the outer screw threaded end of said shaft, fan blades pivoted to said lug, said blades being adapted to be folded around their pivots into substantially parallel re-

lation with said shaft and in contact with said casing, a thumb nut engaging the screw threads on said shaft and adapted to be forced into engagement with the inner ends of said blades to hold the same in their extended positions, and means arranged outside of said casing for imparting rotation to said shaft.

3. In a fan, the combination with a casing, of a plurality of shafts rotatably arranged therein, one of said shafts projecting through an opening in said casing outside of the same, a lug attached to the outer screw threaded end of this latter shaft, fan blades pivoted to said lug, said blades being adapted to be folded around their pivots into substantially parallel relation with said outwardly projecting shaft and in contact with said casing, a thumb nut meshing with the screw threads upon said shaft and adapted to be forced into engagement with the inner ends of said blades to hold the same in their extended positions, a gearing connecting all of said shafts, and a crank arranged outside of said casing rigidly attached to one of said shafts for imparting rotation to said fan blades.

Signed at New York, in the county of New York and State of New York, this 25th day of April, A. D. 1911.

JOHN KANDERA.

Witnesses:

SIGMUND HERZOG,
S. BIRNBAUM.