

(No Model.)

C. G. NYE.
SCREW PROPELLER.

No. 390,615.

Patented Oct. 2, 1888.

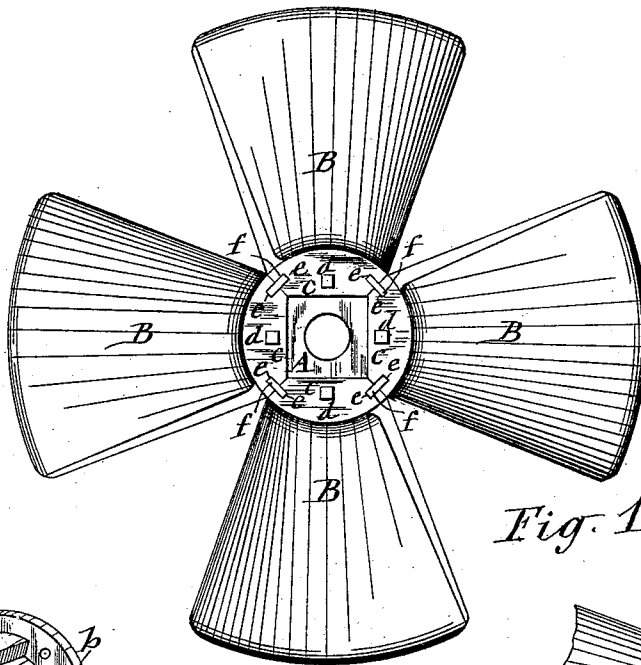


Fig. 1

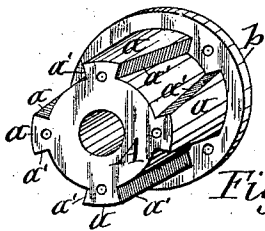


Fig. 3

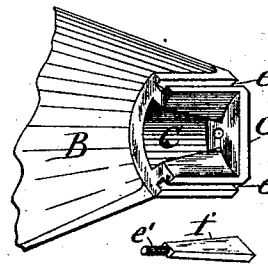


Fig. 4

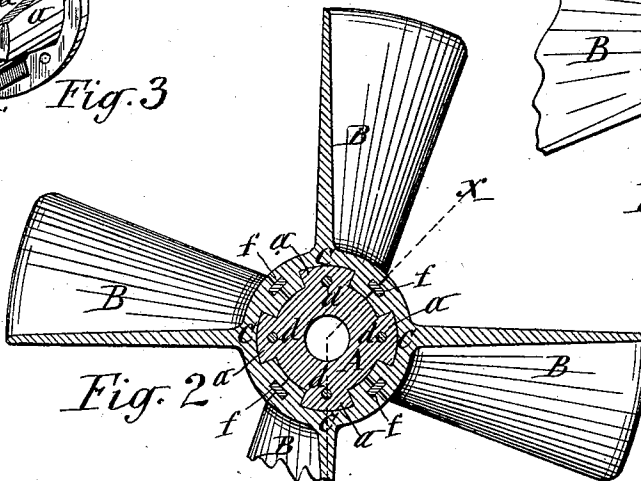


Fig. 2

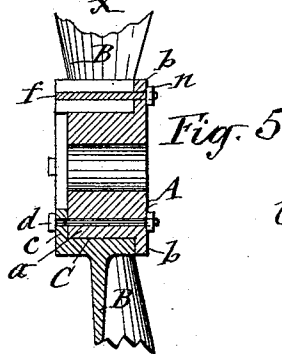


Fig. 5

WITNESSES:

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CHARLES G. NYE, OF SYRACUSE, NEW YORK.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 390,615, dated October 2, 1888.

Application filed July 11, 1888. Serial No. 279,621. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. NYE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Propeller-Wheels, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction and combination of the component parts
10 of a screw-propeller wheel, which permits a ready renewal of its blades, when required, without necessitating the removal of the hub of said wheel from the shaft, and which also
15 allows the attachment of the blades to be tightened when required, all as hereinafter more fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a face
20 view of a propeller-wheel embodying my invention. Fig. 2 is a central transverse section of the same, taken in a plane at right angles to the axis of the wheel. Fig. 3 is a detached perspective view of the hub. Fig. 4 is a detached
25 perspective view of one of the blades and one of the keys by which the blades are tightened on the hub; and Fig. 5 is a longitudinal section through the plane *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents the hub of the wheel, and B one of the blades thereof.

My invention consists, chiefly, in detachably connecting said parts by interlocking bearings
35 at their junction, or a recess or shoe on one of said parts embracing a projection on the other part. *a a* denote said projections, which I preferably form on the peripheral face of the hub A, and lengthwise thereof, and C C represent the shoes formed on the heels of the blades
40 and embracing the aforesaid projections *a a*. In order to securely tie said parts together, I form the projections *a a* tapering endwise in width and with undercut longitudinal
45 edges *a' a'*, and form the shoes C C tapering correspondingly and with undercut longitudinal side walls embracing the undercut edges *a' a'* aforesaid, the shoes being slipped, with their large ends foremost, onto the projections *a a*
50 from the smaller ends of the latter, and in this

manner said parts become effectually wedged on each other. By means of collars *b c*, fastened at opposite ends of the hub, the shoes C C are confined endwise on the projections *a a*. If desired, both of said collars may be formed
55 separately from the hub and shoe; but for the purpose of rendering the attachment of the blades to the hub more secure I prefer to form the collar *b* integral with the end of the hub adjacent to the wide ends of the projections *a*
60 *a*, and form the collar *c* of sections which are integral with the shoes C C at the small ends thereof.

The collars *b* and *c* are drawn toward each other by bolts *d d*, extending longitudinally
65 through the projections *a a* and through the said collars, and provided at one end with nuts by which to tighten them, and thus the heels or shoes C C of the blades B B are securely retained on the hub.

In order to further insure the rigidity of the attachment of the blades to the hub, I form the adjacent longitudinal edges of the shoes C C
70 with longitudinal grooves *e e*, which are tapered reverse from the taper of the shoe, and in the said grooves I insert correspondingly tapered
75 keys *f f*, which are formed at one end with screw-threaded shanks *e' e'*, passing through the collar *b* of the hub, and provided at their
80 outer ends with nuts *n n*, by which the keys can be drawn toward the narrow ends of the grooves, so as to become effectually wedged therein. The shoes C C being thus wedged
85 from opposite directions effectually prevents them from moving on the hub.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A propeller-wheel composed of a hub formed on its peripheral face with projections
90 extending lengthwise thereof and tapered longitudinally, blades provided at their heels with correspondingly tapered recesses embracing the aforesaid projections, and collars on opposite ends of the hub and confining the heels of
95 the blades between them, substantially as set forth and shown.

2. The combination of the hub A, formed with the projections *a a* extending lengthwise thereof, the collar *b*, integral with one end of
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the hub, the blades B, formed with the shoes C, embracing the aforesaid projections, and with the collar *c* on one end, and bolts *d d*, passing through the hub and collars, substantially as described and shown.

3. The combination of the hub A, formed with the projections *a a*, extending lengthwise thereof and tapered longitudinally, the collar *b*, integral with one end of the hub, the blades B, formed with the shoes C, embracing the aforesaid projections and tapered correspondingly, the collar *c*, integral with one end of said shoes, and bolts *d d*, passing with their ends through the two collars, substantially as described and shown.

4. The combination of the hub A, formed with the projections *a a*, extending lengthwise thereof and having undercut longitudinal edges, the collar *b*, integral with one end of the hub, the blades B, formed with the shoes C, embracing the aforesaid projections and having undercut longitudinal walls, the collar *c*, integral with one end of said shoe, and bolts clamping said collars against the opposite ends of the hub, substantially as described and shown.

5. The combination, with the hub A and blades B B, of the shoes C C, formed integral with said blades and with the longitudinal grooves *e e* on their adjacent edges, and the keys *f f*, inserted in said grooves, substantially as described and shown.

6. The combination of the hub A, formed with the projections *a a* extending lengthwise

thereof, tapered endwise in width and having undercut longitudinal edges, the collar *b*, integral with one end of the hub, the blades B B, formed with shoes C C, tapered in width and having undercut walls embracing the aforesaid projections, and provided on their outer edges with the grooves *e e*, tapered endwise reverse from the taper of the shoes, tapered keys *f f*, inserted in the grooves *e e*, and bolts clamping the collars against opposite ends of the hub, substantially as described and shown.

7. The combination of the hub A, formed with the projections *a a* extending lengthwise thereof and tapered endwise in width, the blades B B, formed with the shoes C C, tapered corresponding to and embracing the aforesaid projections, and provided at their adjacent edges with grooves *e e*, tapered reverse from the taper of the shoes, collars *b c*, fastened at opposite ends of the hub, and the tapering keys *f f*, inserted into the grooves *e e* and formed with the screw-shanks *e' e'*, passing through one of the aforesaid collars, and adjusting-nuts *n n* on the said shanks, substantially as described and shown.

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 9th day of July, 1888.

CHARLES G. NYE. [L. s.]

Witnesses:

C. L. BENDIXON,
MARK W. DEWEY.