(No Model.)

M. SCHMALTZ.

PROPELLER WHEEL.

No. 512,751. Patented Jan. 16, 1894.

Fig. 1

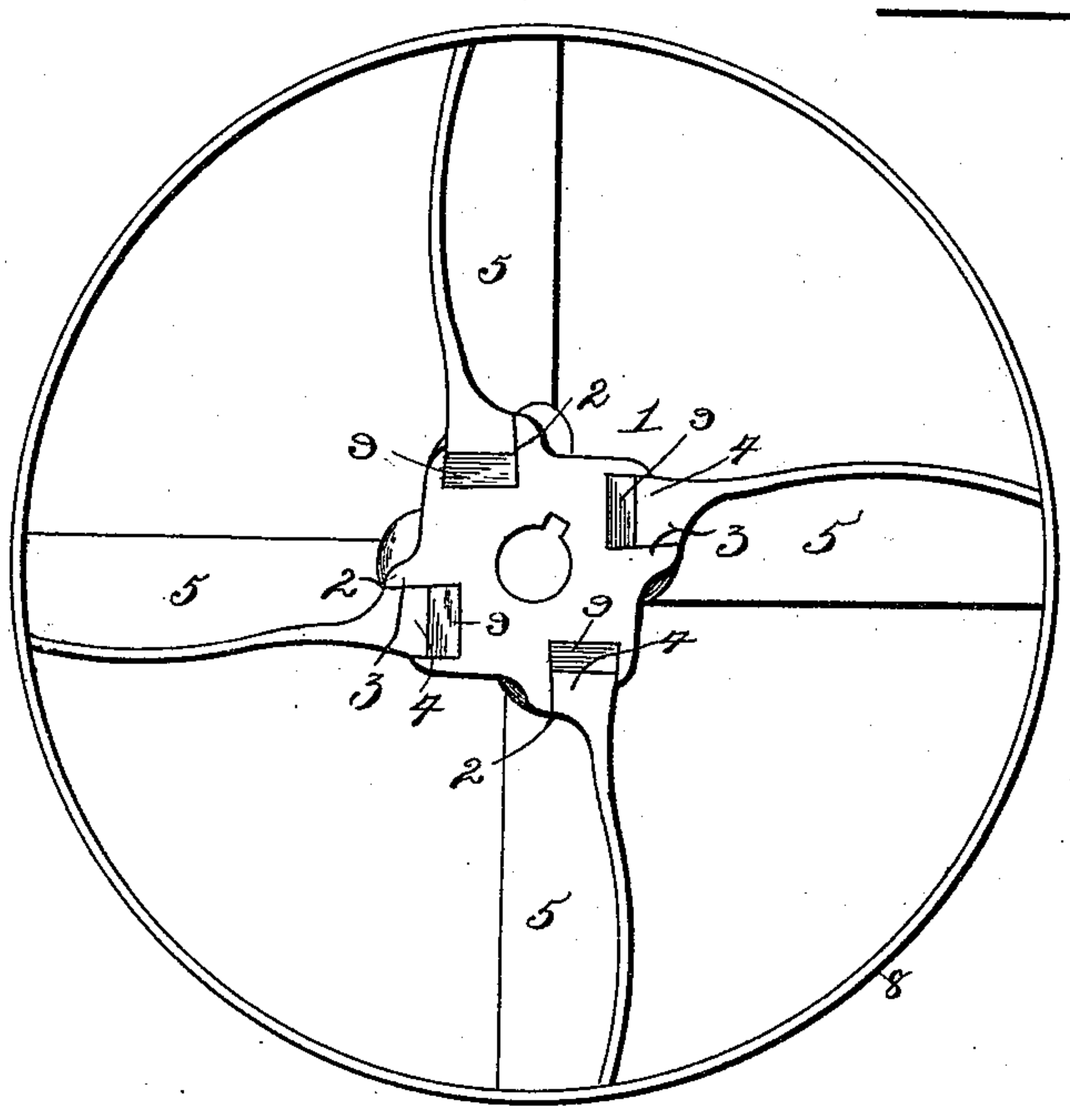


Fig. 2

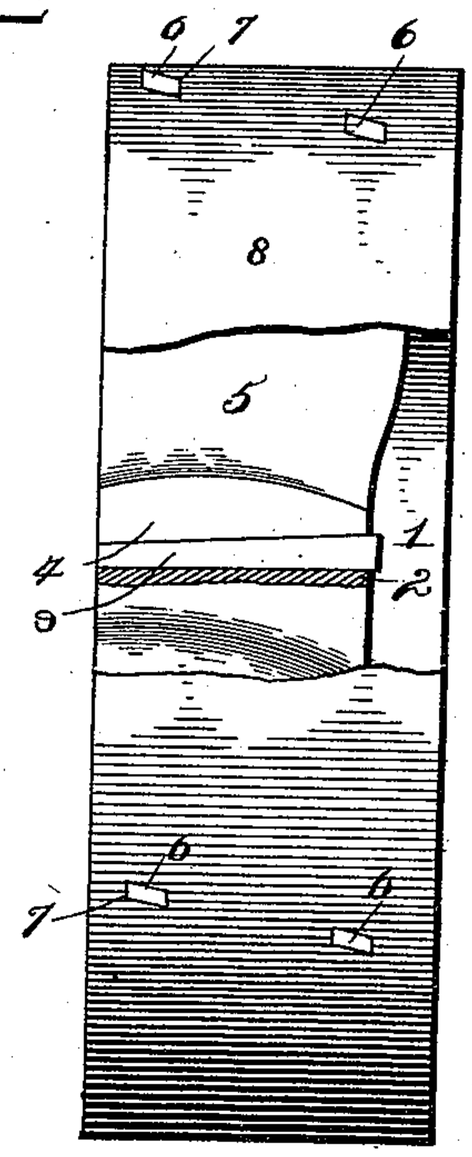


Fig. 3

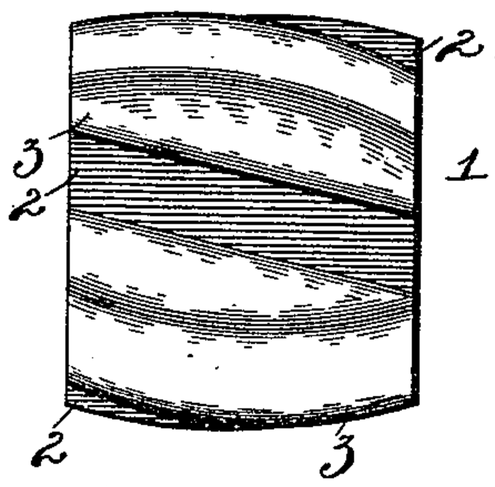
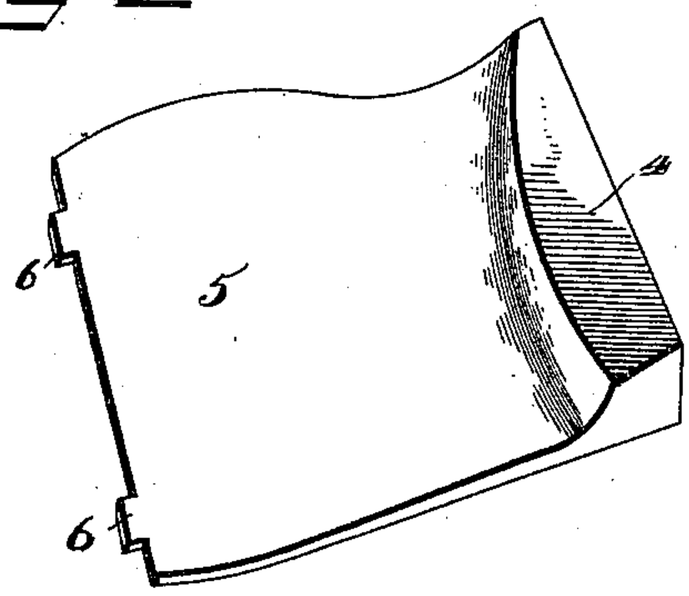


Fig. 4



Inventor
Mikle Schmaltz.

Witnesses
W. E. Schneider.
C. E. Doyle.

By his Attorneys,
C. A. Snow & Co.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MIKLE SCHMALTZ, OF BAY CITY, MICHIGAN, ASSIGNOR OF ONE-HALF TO WILLIAM J. WANLESS, OF SAME PLACE.

PROPELLER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 512,751, dated January 16, 1894.

Application filed July 20, 1893. Serial No. 481,047. (No model.)

To all whom it may concern:

Be it known that I, MIKLE SCHMALTZ, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented a new and useful Propeller-Wheel, of which the following is a specification.

My invention relates to propeller wheels, and has for its object to provide simple, inexpensive, and serviceable construction of parts and means for connecting the same, whereby such parts may be adjusted with facility and locked against displacement; and, furthermore, to provide a sectional wheel capable of utilizing the full amount of the water through which it passes.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is an elevation of a propeller wheel embodying my invention. Fig. 2 is a side view of the same, partly broken away. Fig. 3 is a plan view of the hub. Fig. 4 is a detail view, in perspective, of one of the blades.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the hub, the surface of which is provided with a series of spirally-arranged channels 2, which are formed in the similarly-arranged integral ribs or enlargements 3. The material between such ribs or enlargements is cut away to lighten the structure. The channels or grooves 2 are dove-tailed in cross-section to receive the dove-tailed webs 4 upon the inner ends of the blades 5, such blades being provided at their outer ends with projections 6, to engage apertures or perforations 7, in the rim 8. To assemble the parts of the wheel the blades are fitted at their inner ends in the channels of the hub and are then disposed within the rim with their terminal projections 6 in registration with the apertures of the same, after which tapered wedges 9 are inserted in the channels 2, between the floors of the latter and the adjacent extremities of the blades, and are driven home to extend said blades, whereby their dove-tailed surfaces are cramped snugly in the correspondingly-shaped portions of the channels and the terminal projections are locked firmly in the apertures of the rim. Such projections are then headed upon the outer surface of the rim.

It is obvious that the floors of the channels in the hub are straight and do not conform to the curvature of the outer surface of the hub, and that the inner ends of the blades are straight to conform to the floors of the channels, whereby the bearing of the wedges or keys upon the contiguous opposing surfaces of the channels and blades is firm and even throughout. The outer terminals of the blades may be slightly convexed to conform to the curvature of the inner surface of the rim; and in manufacturing the blades, the projections with which said outer ends are provided should be made slightly greater in length than the thickness of the rim to provide material for forming the heads upon the outer surface of the rim.

The facility with which the parts of the wheel may be assembled will be readily understood from the foregoing description, and in addition thereto it should be noted that by means of the construction provided an even tension of the rim may be attained by the proper adjustment of the wedges or keys.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, what I claim is—

1. In a propeller wheel, the combination with the rim, of blades bearing at their outer extremities against the inner surface of the rim and provided with terminal projections extending through apertures in the same, a hub provided with channels in which the inner ends of said blades are fitted, and means for adjusting the blades relatively to the hub, substantially as specified.

2. In a propeller wheel, the combination with a rim, of a hub provided with dove-tailed channels, blades provided at their inner extremities with dove-tailed webs fitting in said

channels, and tapered keys fitted in the channels between the floors thereof and the contiguous ends of the blades, substantially as specified.

3. In a propeller wheel, the combination of a hub provided with spirally-disposed ribs or enlargements which are partly cut away to form channels having straight floors, blades fitting at their inner ends in said channels, a rim provided with spaced apertures or perforations, projections integral with the outer ends of the blades fitting in said apertures or perforations and headed upon the outer surface thereof, and tapered wedges or keys fitting in the channels between the inner ends of the blades and the floors of the channels, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MIKLE SCHMALTZ.

Witnesses:
DEVERE HALL,
H. A. BENCE.