

(No Model.)

P. ST. JOHNS.
PROPELLER WHEEL.

No. 413,573.

Patented Oct. 22, 1889.

Fig. 1.

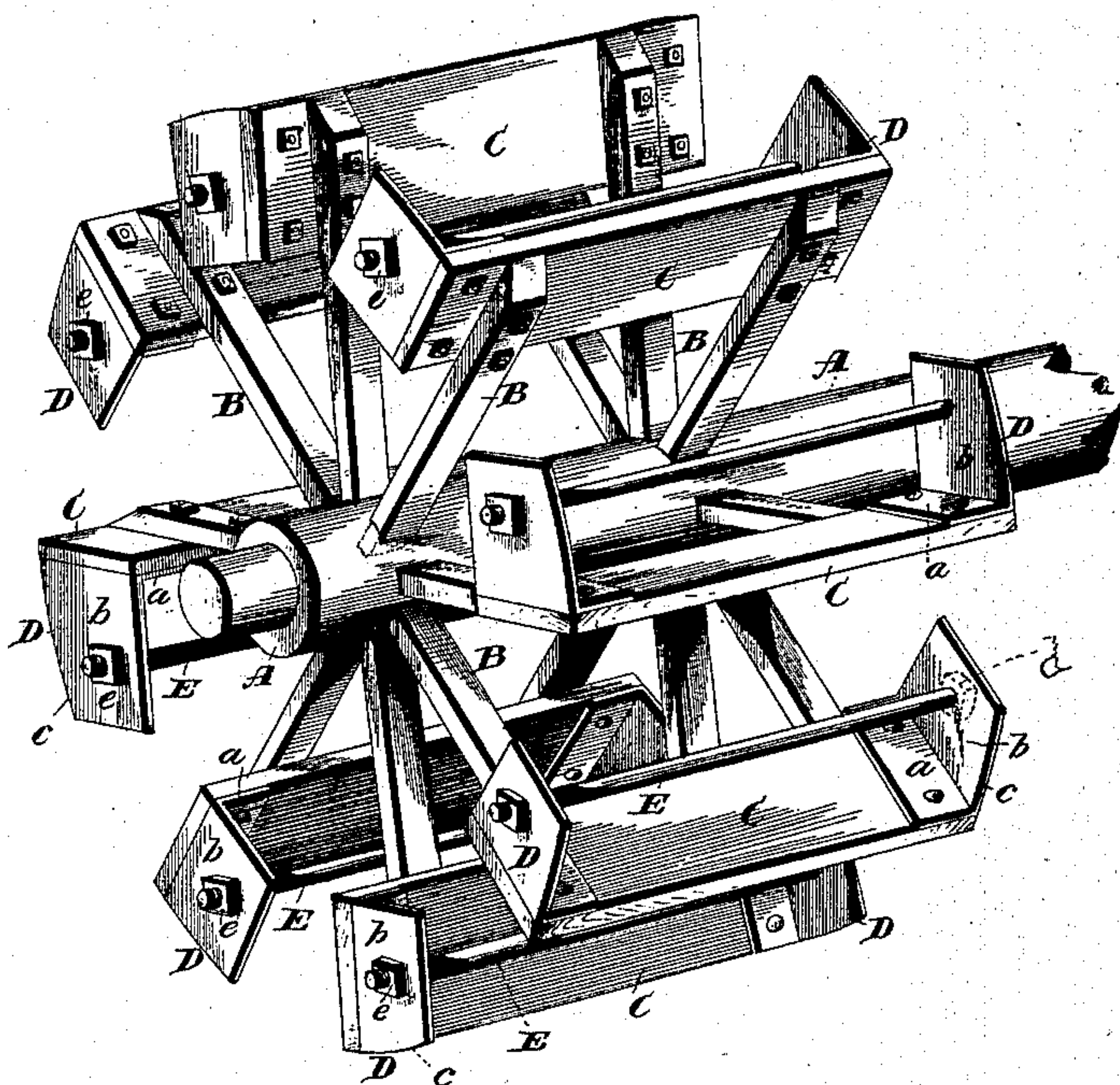


Fig. 2.

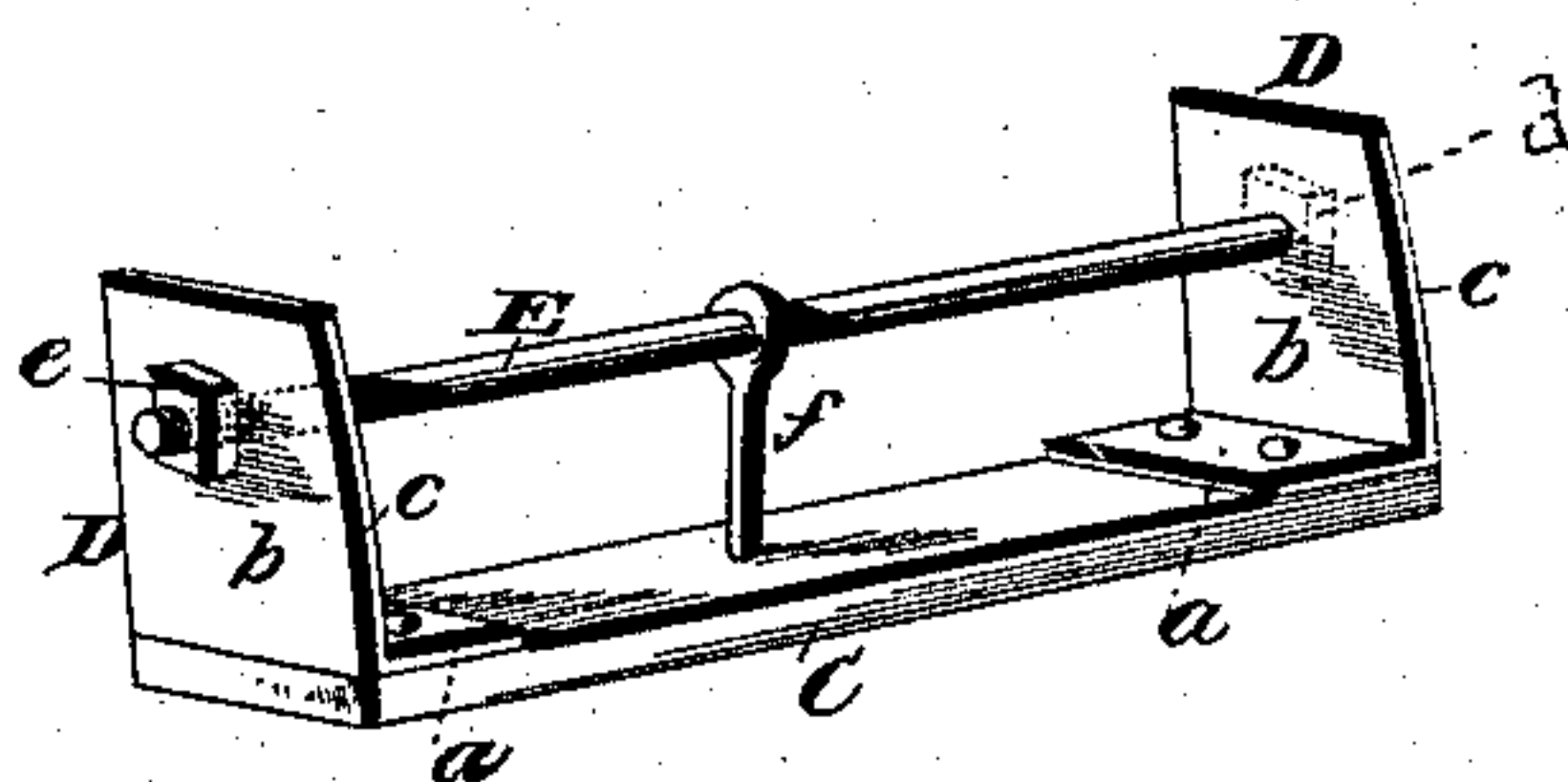
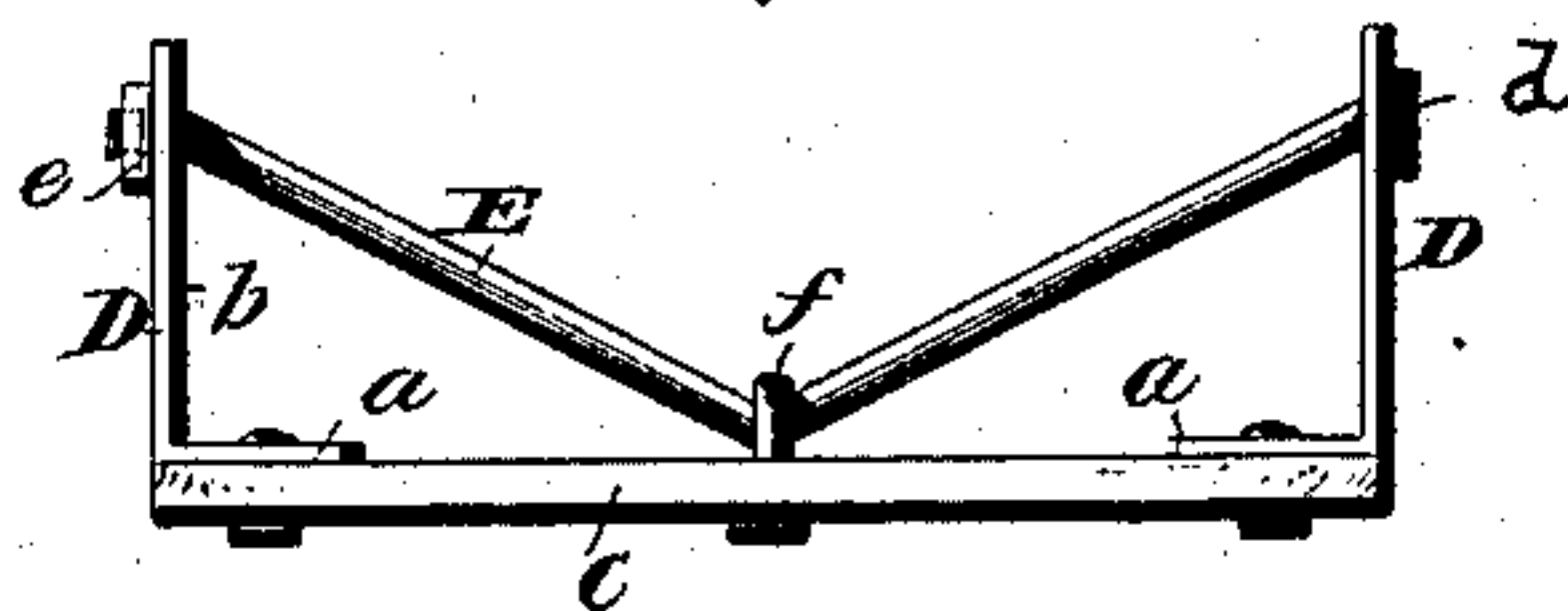


Fig. 3.



Witnesses
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per
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UNITED STATES PATENT OFFICE.

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PROPELLER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 413,573, dated October 22, 1889.

Application filed June 22, 1889. Serial No. 315,201. (No model.)

To all whom it may concern:

Be it known that I, PETER ST. JOHNS, a citizen of the United States, residing at Milton, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Propeller-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

This invention relates to certain new and useful improvements in propeller-wheels; and it has for its object to provide a wheel of this character that shall be light and strong, and by the employment of which in steamboats and like vessels the speed of the vessel may be increased very materially.

The invention consists in the peculiarities of construction of the wheel and the combinations, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a perspective view of a wheel embodying my improvements detached from its bearings and casing. Fig. 2 is a perspective view of one of the buckets detached from the hub, and Fig. 3 a modification thereof.

Referring now to the details of the drawings by letter, A designates the hub or shaft of the wheel, and B the arms or spokes, to the outer ends of which are attached the blades or paddles C. The arms or spokes are connected to the hub or shaft, preferably as shown in the drawings—that is, having tenons on their inner ends which engage in sockets or mortises in the hub.

C are the buckets attached in any suitable manner to the outer ends of the arms, and of suitable size and material.

D are flanges, preferably of heavy boiler-iron, although other material suited to the purpose may be employed. Each of these

flanges is formed with a horizontal portion *a*, adapted to rest on and be secured to the front face of the bucket in any suitable manner, and with a flat portion *b*, extending at right angles to the arms, as shown, and in the path of the wheel. The inner faces, or the portions of the flanges nearest the hub, are formed at right angles to the blade; but the front faces of the said flanges are curved, as shown at *c*, said curve being on the same arc of the circle as the outer edges of the buckets, taking the hub as a center. I have found from experience that this construction produces the best results.

In order to brace the flanges, I preferably employ a transverse rod or brace E, extending from one flange to the other on each blade. This brace or rod may be connected to the flanges in any suitable manner, preferably as shown in the drawings, in which the rod or brace is shown as having at one end a head *d*, and at the other end screw-threaded to engage a screw-threaded opening in the other flange, and being provided with an adjusting-nut *e*, for the purpose of tightening and drawing together the flanges, if occasion should require.

In larger-sized buckets or wheels it has been found desirable to employ a stay or eye bolt between the ends of the brace-rods, as shown at *f* in Fig. 2; but in small wheels this will hardly be found necessary.

What I claim as new is—

1. The combination, with the buckets and the flanges secured thereto, as shown, of the brace-rods connecting each pair of flanges and having provision for longitudinal adjustment, substantially as and for the purpose specified.

2. In a paddle-wheel, the combination, with the buckets, of the flanges attached thereto near the outer ends thereof and having their acting portions extending at right angles to the buckets, the brace-rods connecting each pair of flanges, and the eyebolts secured to the buckets between the flanges and supporting the rod, substantially as shown and described.

3. In a paddle-wheel, a bucket having flanges at each end, with their acting surfaces

extending at right angles to the length of the
bucket, combined with a brace-rod E, having
its ends passed through the opposite flanges
and one end provided with a nut, the said rod
5 being inclined in opposite directions from
the center, and an eyebolt embracing the rod
near the center and secured in the bucket, as
and for the purpose specified.

In testimony that I claim the above I have
hereunto subscribed my name in the presence of
of two witnesses.

PETER ST. JOHNS.

Witnesses:

JOHN E. WHEELLOCK,
CASSIUS A. PRATT.