

W. Huffman,
Paddle Wheel.

2 Sheets, Sheet 1.

No. 97404.

Patented Nov. 30 1869

Fig. 2.

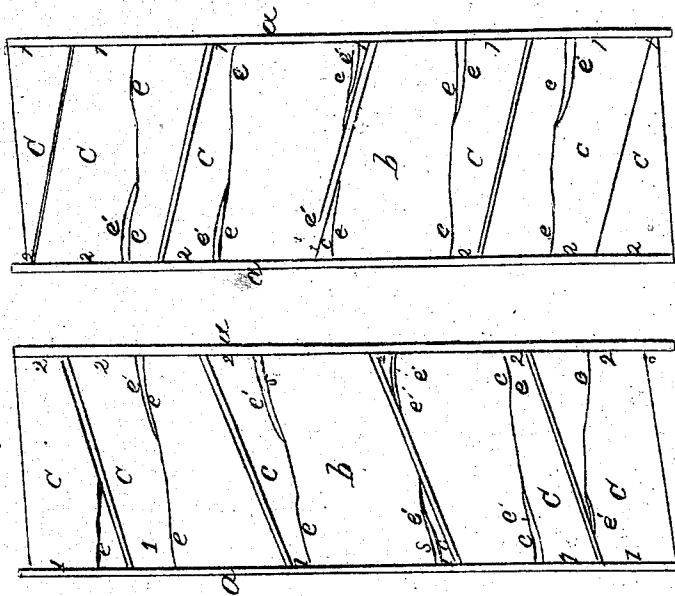
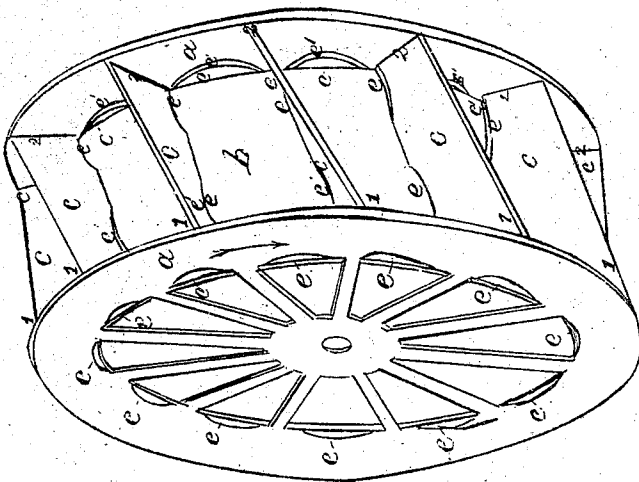


Fig. 1.



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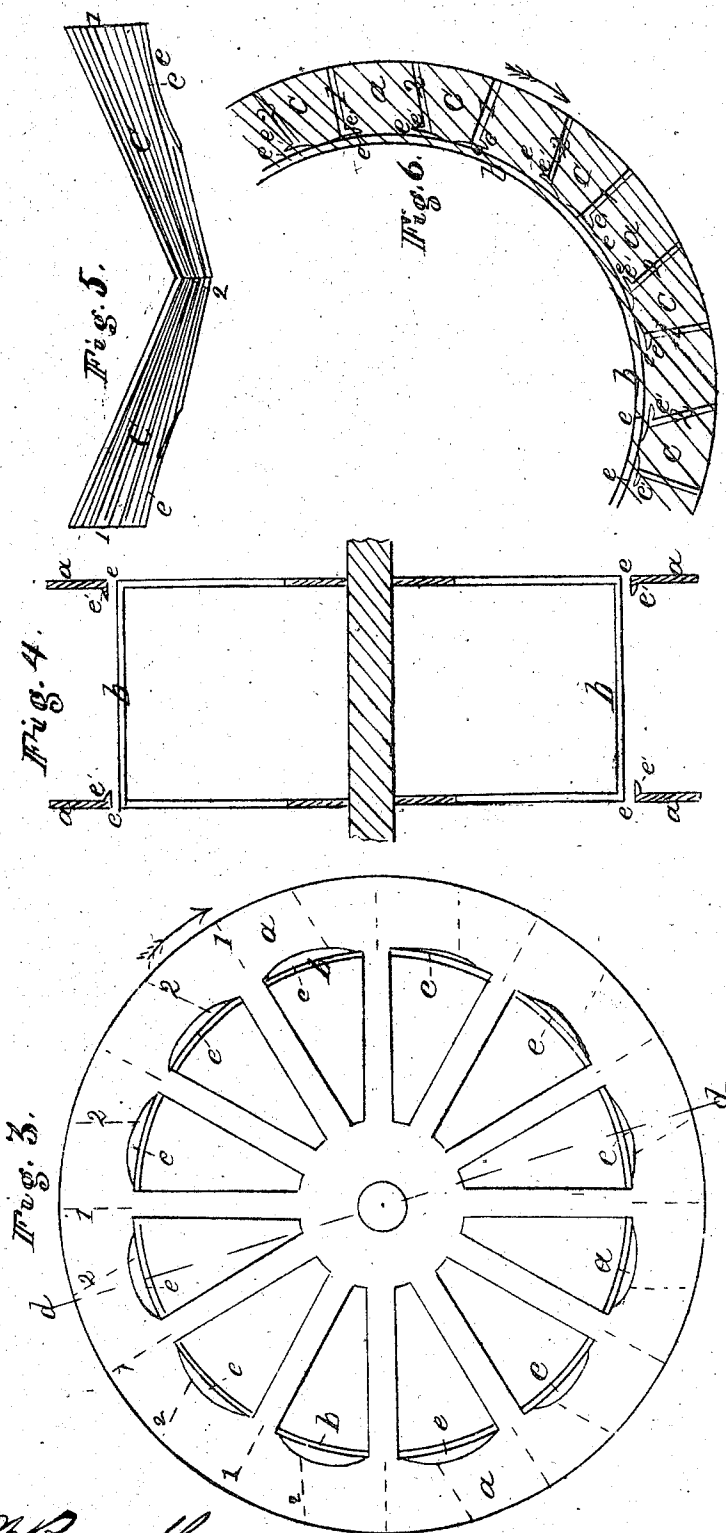
William Huffman

Inventor

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Witness

Geo. M. Russell
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William Huffman
Inventor

United States Patent Office.

WILLIAM HUFFMAN, OF OSHKOSH, WISCONSIN.

Letters Patent No. 97,404, dated November 30, 1869.

IMPROVED PADDLE-WHEEL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM HUFFMAN, of the city of Oshkosh, State of Wisconsin, have invented a new and improved Paddle-Wheel for propelling vessels on water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in providing a paddle-wheel with flanges, and a lining, and with floats, constructed on the helical system. The floats, with the flanges, at suitable intervals, are provided with air-passages. The wheels are constructed in duplex, right and left, the inclinations of the helices being in a contrary direction.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The wheels are provided with radial arms, collars, and shafts, of any known form.

Figure 1, plate 1, is a perspective view of a right-hand wheel.

Figure 2 is a front elevation of right and left wheels.

Figure 3, plate 2, is a side elevation of a wheel.

Figure 4 is a vertical section, cutting through the dotted line *d d*, fig. 3.

Figure 6 is a fragment of a vertical section, showing the helical range of the floats, and the air passages, and flanges to air-passages.

Figure 5 is a perspective view of a duplex float.

a a are flanges, with air-passages, *e*.

b is the lining.

c c are floats.

e e are air-passages.

e' e' are flanges to air-passages.

1 2 show the helical angle of the float *c*, with the seats of attachment to the flanges of the respective ends of the floats.

○The arrows indicate the forward movement of the paddle-wheels.

The wheels described are more particularly for use in side-wheel vessels.

The duplex float, shown in fig. 5, is for use more particularly in stern-wheels, the two wheels described being practically consolidated into one for that purpose, the general construction of the wheel being the same as above described.

The duplex float may also, at option, be used in side-wheel vessels.

The floats in the duplex wheels have a diagonal setting, right and left, in the two wheels, respectively, the angle of the end bearings of the floats being shown at 1 and 2.

The helical twist of the floats is shown in figs. 1 and 2.

Each of the floats *c* is provided with air-passages, *e*, and with flanges *e' e'*, seen in figs. 2 and 6, to check the passage of water through the air-passages.

In the flanges *a a*, at the bottom, and between each float, are air-passages, *e*, and flanges, *e'*, shown in figs. 3 and 4.

I will now proceed to describe the operation of my paddle-wheels.

The arrangement of the right and left wheels, with a succession of helical floats, on a side-wheel vessel, coming in contact with the water, each float commencing at one side of the wheel, crossing over to the other side, and only relaxes its hold on the water as the following float shall have come well into compensating service. Hence, the pressure on the water is continuous and uniform, and vessels propelled by my paddle-wheel are free from vibration.

The addition of the flanges and lining to the floats, in combination with the helical setting, the air-passages permitting a free discharge of the water from the bucket, gives my paddle-wheel a more tenacious hold on the water, and in combination with the water being discharged toward the boat, the boat sits more buoyantly on the water, draws less water, and the boat is propelled more easily.

In turning the boat any given direction, reverse the inside wheel, the opposite wheel retaining a forward motion, the water will be cast away from the boat, on the inside, and toward the boat on the outside, the boat will be canted, and the preponderance of weight will be toward the inside of the circle described in turning, and the boat will be more easily and speedily turned.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Duplex helical floats, fig. 5, in combination with lining *b* and flanges *a a*, provided with air-passages *e e*, in either flanges or floats, or both.

2. The air-passages *e e*, provided with flanges *e' e'*, in combination with paddle-wheels, substantially as and for the purposes set forth.

WILLIAM HUFFMAN.

Witnesses.

GEO. W. BURNELL,
GEORGE GARY.