R. SCHMIDT.

Improvement in Propellers.

No. 123,733. Patented Feb. 13, 1872.

Fig. 1.

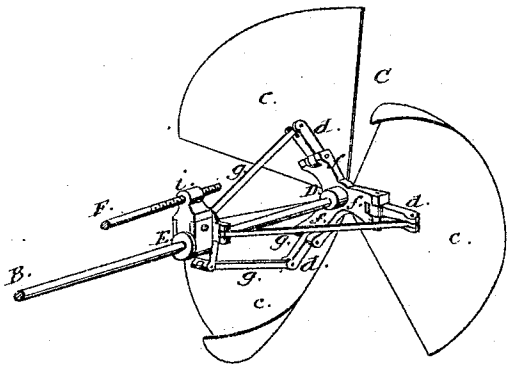


Fig. 2.

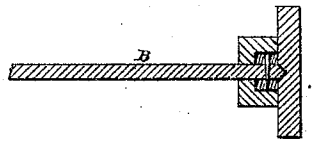
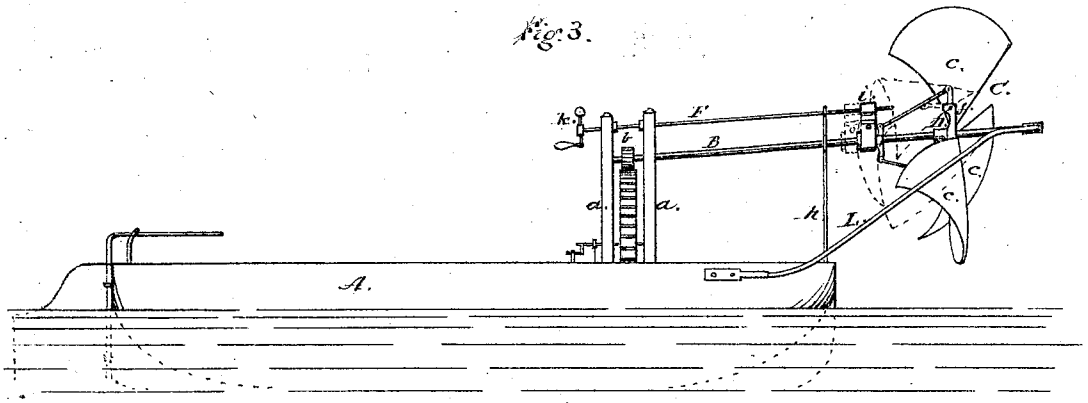


Fig. 3.



Witnesses.

C. W. Howard

Edw. W. Dunn

Inventor:

Rudolf Schmidt

123,733

UNITED STATES PATENT OFFICE.

RUDOLPH SCHMIDT, OF CINCINNATI, OHIO.

IMPROVEMENT IN PROPELLERS.

Specification forming part of Letters Patent No. 123,733, dated February 13, 1872.

SPECIFICATION.

I, RUDOLPH SCHMIDT, of the city of Cincinnati, Hamilton county, Ohio, have invented certain Improvements in Air-Propellers, of which the following is a specification:

The Nature and Objects of the Invention.

My invention relates to an improvement in the propulsion of canal-boats and other craft, by means of an air-propeller placed in the fore part of the vessel, to be operated by means of steam or other power, to give motion to the same. This device when revolved by a power finds a resistance in the air, giving an effect similar to that of a screw-propeller operating in the water.

The object of my invention is to furnish to canal-boats, principally, a means of propulsion that will not interfere in the least with the banks of the stream as the vessel is borne onward with its freight.

I form my propeller with three or more wings warped inward toward the vessel, in such a manner as that when placed successively about a common axis they offer in their revolving movement a resistance to the air, and draw or push as the shaft to which the wings are indirectly attached revolves to the right or left.

In the fore part of the vessel I erect a series of uprights or standards to form a support to the shaft about which the propeller revolves. At the head of this shaft I attach or fit a collar, which has radiating from it three arms. To these arms are hinged levers, to which are attached plates, with their surfaces warped, and forming, when combined, the propeller above mentioned. To the levers, respectively, are hinged rods, which are also hinged at their opposite ends to a movable collar. The objects of this hinged device are several and important.

In constructing an air-propeller for a vessel it is highly important that it be elevated considerably above the deck of the same, in order that the wings of the screw, (which, to be effective, should be large,) may be free from contact with the water, even when the vessel is heavily laden. Now in the passage of a vessel up or down a stream or canal, bridges are frequently met with which it would be impossible to pass had the vessel a propeller of large diameter. To avoid this difficulty I have invented this hinged device, by which, it will be readily seen, I can contract materially the size of the propeller by simply drawing the collar, to which the hinged rods are attached, toward the stern of the vessel, and by this means lower the same. It will be observed that the wings of my propeller are attached to the hinged levers, and not to the collar-arms near the end of the shaft. Sometimes it is desirable in canal or river navigation that the propeller be dispensed with temporarily, and other means be employed to move the vessel, in which case the propeller, with its open wings, would offer a resistance to the wind greatly to the detriment of the vessel's progress, and in this case the folding device would prove valuable.

The shaft to which the propeller is attached is supported in journals formed in the uprights planted in the vessel, one at its bow and two others nearer the middle of the vessel. At the end of the shaft opposite to the propeller is a pinion, which is driven by a large wheel revolving about a shaft in the hull of the vessel, more immediately connected with the power. In my model I use a clock-spring power simply by way of illustrating the operation of the invention. Above the shaft, which forms the axis of my propeller, is a rod running parallel with the same and having the same supports. This rod has screw-threads at one end which work into a screw-collar attached to the collar which slides on the shaft. On this rod are off-sets which bear against the standards or supports as the rod is revolved, to lower or raise the wings of the propeller through the agency of the screw working in the screw-collar.

As above stated, I support the shaft of the propeller with uprights planted in the deck and hull of the vessel. I have a brace in addition to these, which is attached firmly to the end of the shaft, and also the vessel's sides which takes a large part of the propeller's weight, especially as it is struggling to move the vessel. These braces serve also to assist in preventing any lateral movement of the shaft. I, by preference, place the propeller in the front, although it may be arranged for the rear of the vessel just as well.

Description of Accompanying Drawing.

Figure 1 is a perspective view of propeller;

Fig. 2 is section through the head of shaft; Fig. 3, side elevation of vessel with propeller.

Similar letters of reference refer to corresponding parts in all the figures.

A is the vessel. B is the shaft, having attached to it the pinion *b*, between uprights *a a*. C is the propeller, formed of wings *c c c*, and attached firmly to the hinged levers *d d d*. D is a collar fixed to the shaft, and with its radiating arms, *f f f*, forms the head of the propeller. E is the movable collar encircling the shaft B, and sliding freely on the same. To this collar is attached rods *g g g*, which are hinged to the collar E, and also to the levers *d d d*. In the bow of the vessel is planted the upright *h*, to serve as a support to the shaft B, as well as a guide to the rod F. The rod F, which has other supports or guides, *a a*, has screw-threads which work into the screw-collar *i*. When the propeller is to be lowered the crank *k* is turned to the right, and as the screw at the end of the rod enters the screw-collar *i* the collar E is drawn aft, while the rods *g g g* with their hinges perform their part and fold the wings of the propeller closely about the shaft of the same. At the sides of the vessel are tension-rods L, which are also attached to the end of the shaft B, and serve as a brace and also support to the shaft B and the propeller fastened thereon.

I am aware that I am not the first inventor of the propeller operated in the air as a means of propelling vessels, and do not claim anything in it as a principle; but

What I do claim as new, and desire to secure by Letters Patent, is—

The wings *c c c*, arranged in combination with levers *d d d*, rods *g g g*, collar E, and shaft B, to form a folding air-propeller, as and for the purpose set forth.

RUDOLPH SCHMIDT.

Witnesses:
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F. W. HOWARD.