

N. T. EDSON.

Improvement in Paddle-Wheels.

No. 128,217.

Patented June 25, 1872.

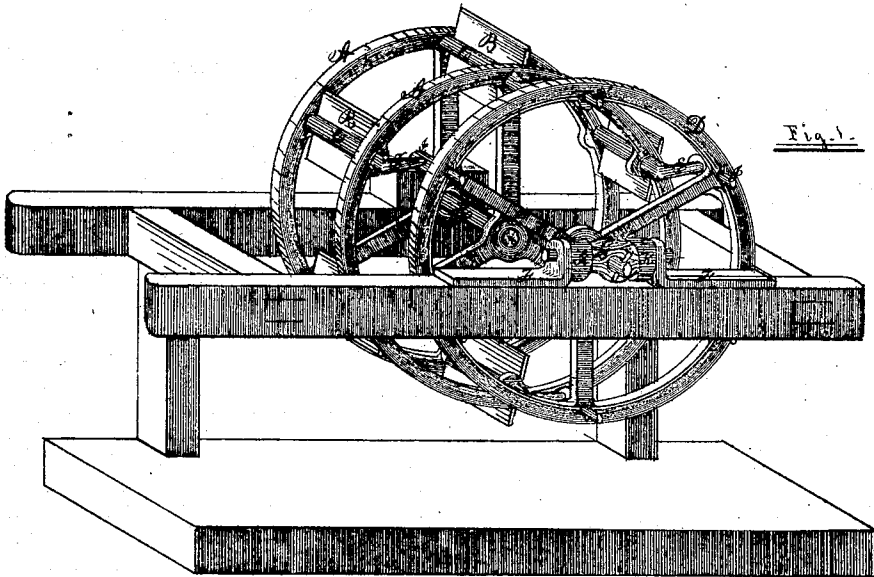


Fig. 2.

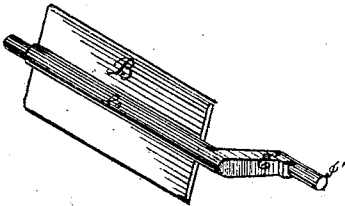
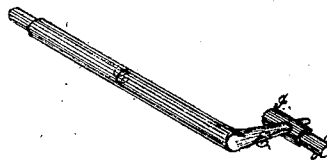


Fig. 3.



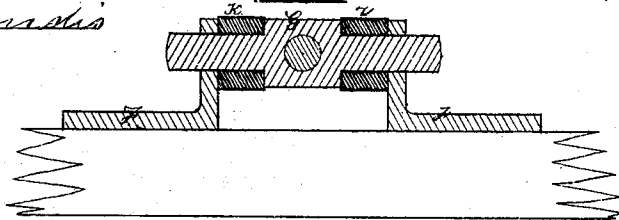
Witnesses.

*Fred R. Place*  
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Fig. 4.



# UNITED STATES PATENT OFFICE.

NATHANIEL T. EDSON, OF NEW ORLEANS, LOUISIANA.

## IMPROVEMENT IN PADDLE-WHEELS.

Specification forming part of Letters Patent No. 128,217, dated June 25, 1872; antedated June 8, 1872.

I, NATHANIEL T. EDSON, of New Orleans, parish of Orleans, and State of Louisiana, have invented certain Improvements in Feathering Bucket Paddle-Wheels, of which the following is a specification:

The first part of my invention relates to feathering bucket paddle-wheels that contain an entire wheel in addition to the wheels that carry the buckets; and it consists in providing movable pins to the bucket-cranks that will slip on the cranks, by means of which a large expense in constructing and a large amount of friction in use are saved. The second part of my invention relates to a combination of the above cranks with a crank or cranks that have their pins fixed or solid, whereby the bucket-crank with the fixed pin will hold the bucket-wheels and the crank-carrying wheel in their relative positions, leaving the cranks with movable pins free to adjust themselves in regard to their varying lengths during the revolving of the wheel. The third part of my invention relates to an elastically-arranged journal-box which carries the shaft of the bucket crank-carrying wheel, the object of which is to relieve the crank or cranks with fixed pins of strain, to which they are liable while passing their centers.

Figure 1 is a perspective view of a paddle-wheel embodying my invention. Fig. 2 is a bucket-shaft and its crank with a solid or fixed pin. Fig. 3 is a shaft and its crank with a movable pin. Fig. 4 is a sectional view of a hanger, journal-box, and spring.

A are wheels, to which the buckets B are attached by the journals of their shaft C passing through orifices formed in wheels A. D is the wheel which carries the cranks E and E'. G is the journal-box in which revolves the journal of the shaft of wheel D. F is the hanger or pillar-block, in the orifices of which the rounded ends of the journal-box G are placed. Rubber or other springs K are placed on the rounded ends of the box to hold it midway between the two parts of the hanger F. The hanger is firmly attached to the guard or timber of the vessel at an elevation to bring the center of the journal-box G on a level with the center of the main shaft H and as

far in the rear of the shaft as is the length of the bucket-cranks E'. The cranks E and E' are connected to wheel D by pins I and I', the pins passing through the orifices formed in wheel D. The pins I are formed with orifices, in which the ends of cranks E are placed. When the wheels A are revolved forward the crank with the fixed pin will revolve the wheel D. On the crank passing its centers (the level of the main shaft) its power to act on the wheel D is diminished, consequently a second crank with a fixed pin is added, as near quartering with the first as the number of buckets in the wheel will admit; or, if one only of the cranks with fixed pins is used, a pin may be placed through a part or all of the cranks E, near their ends, to prevent the crank-pins I from slipping off, and to aid in revolving wheel D. If more than one of the cranks with fixed pins are used the length of such cranks should be exactly alike, also the length of the wheel-arms, measuring from the center of the wheels to the orifices formed for the reception of the journals of shaft C and pins I'. If all the cranks are formed with fixed pins the buckets should be of an odd number, so that no two cranks will pass their centers at the same time. The arrangement of the journal-box G with its hanger and spring is intended to relieve the cranks with fixed pins of strain consequent upon a spring of the vessel or wheel on their passing their centers. The movement of the box being only horizontal the position of the buckets in the water will not be changed. The buckets are not set plumb, but their bottom edges should project forward from one to four inches to each foot of their width, according to the use intended for the vessel to which they are attached. If used for towing or freight an angle or projection sufficient only to relieve the journals of the main shaft of the weight of the wheel is all that need be given; if great speed is the desideratum an angle or projection of about four inches to each foot of width of the bucket, with the wheel located well aft, will be necessary to prevent the vessel's stern from settling in the trough of the water which the forward part of its hull has formed.

I claim as my invention—

1. The cranks E, in combination with the pins I and with wheel D, substantially as and for the purpose hereinbefore set forth.
2. The combination of one or more of the cranks E' with fixed pins with the cranks E with movable pins, substantially as and for the purpose hereinbefore set forth.
3. The elastically-arranged journal-box G, in combination with hanger F and with spring K, substantially as and for the purpose hereinbefore set forth.

NATHL. T. EDSON.

Witnesses:

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