H. DUSEK.

PADDLE WHEEL.

APPLICATION FILED JULY 7, 1909.

949,887.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.

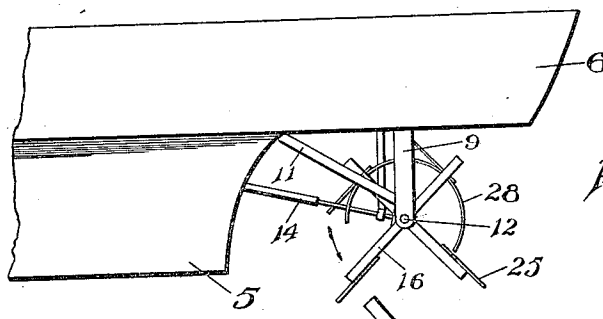

Fig. 1.

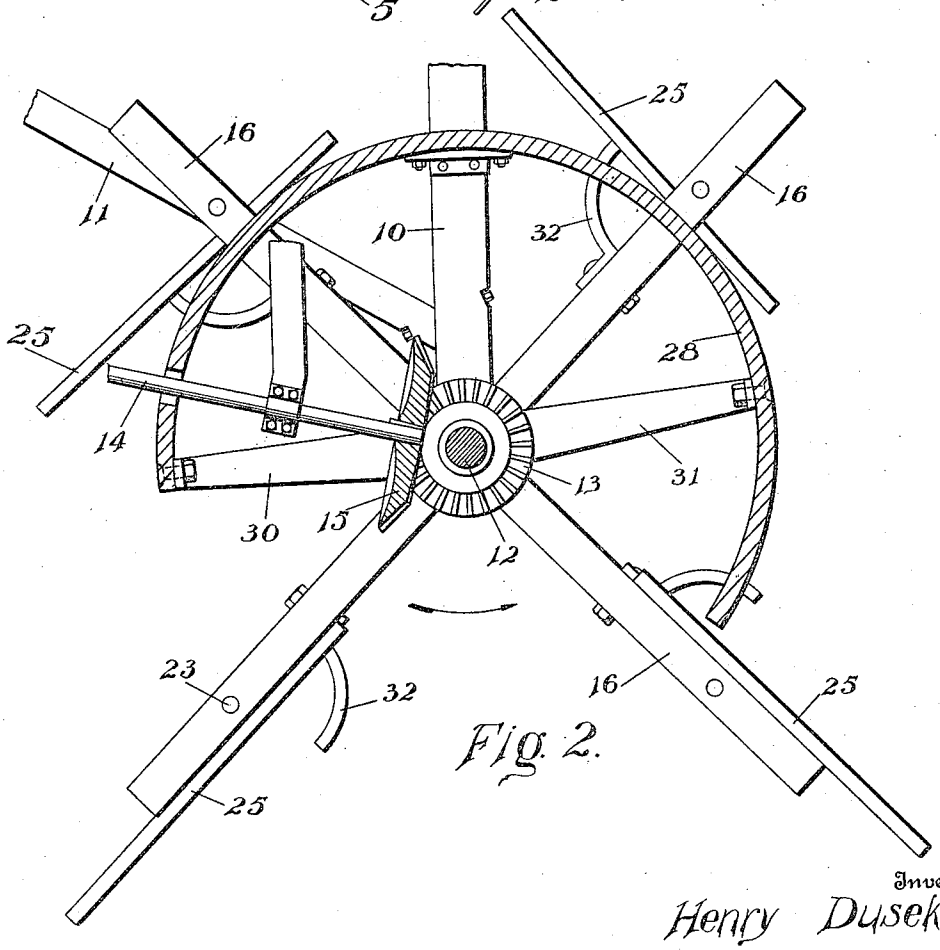

Fig. 2.

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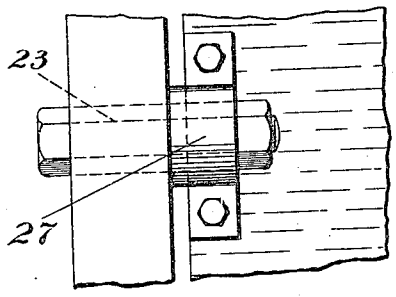


Fig. 4.

Fig. 5.

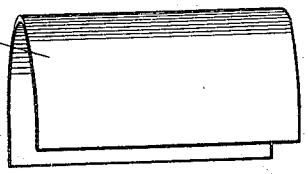
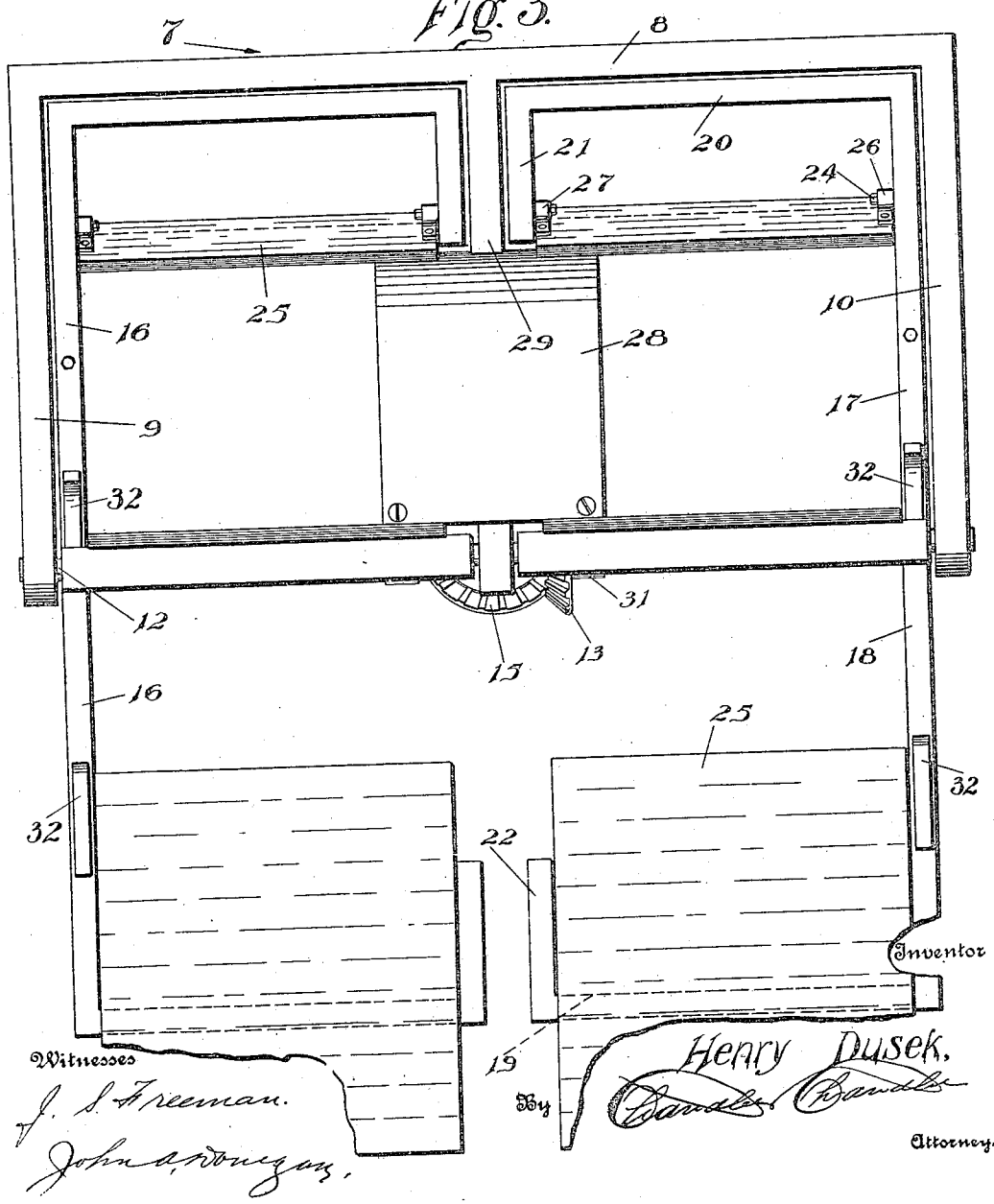


Fig. 3.



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UNITED STATES PATENT OFFICE.

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PADDLE-WHEEL.

949,887. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed July 7, 1909. Serial No. 506,404.

To all whom it may concern:

Be it known that I, HENRY DUSEK, a citizen of the United States, residing at Cameron, in the county of Milam, State of Texas, have invented certain new and useful Improvements in Paddle-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in propellers and more particularly to the type known as stern propellers.

One object is the provision of a construction wherein the blades are turned so as to bring their normal outer-most edges in position to engage the water during the ascending movement of the blades.

Another object is the provision of a deflector arranged in the path of movement of the blades and adapted to turn the latter on their ascending movement and to position the blades so that their flat faces will engage with the water during the descending movement.

A further object is the provision of a stop or support upon which the blades will rest after having been turned by the deflector.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is a side elevation of the stern of a boat showing my improved device applied thereto. Fig. 2 is a vertical sectional view of the device. Fig. 3 is a rear end view thereof. Fig. 4 is a detail of the connection between the blade and frame. Fig. 5 is a perspective view of the deflector.

Similar numerals of reference are employed to designate corresponding parts throughout.

The boat to which my invention is shown applied is provided with what is known as an over-hang stern. It must be understood however, that I am not to be limited to this specific application since it can be readily understood, from what will appear later, how the device might equally as well be applied to other types of boats.

The stern proper is designated by the numeral 5 and the over hang by the numeral 6. Securely fitted to the lower face of the overhang 6 and extending transversely of the latter is a bracket designated in general by the numeral 7. This member is provided with a horizontal portion 8 which is fixedly secured to the overhang 6, the said horizontal portion 8 terminating at either end in depending arms 9 and 10. The latter may be of any suitable length and are braced by means of struts 11, the opposite ends of which are secured to the lower ends of the arms and the lower face of the overhang 6.

Journaled in the lower end portions of the arms 9 and 10 are the opposite ends of a shaft 12, to the intermediate portion of which is keyed a bevel gear 13. The driving shaft is designated by the numeral 14 and extends through the stern 5, to a point adjacent the bevel gear 13 and has keyed to its outer end a bevel gear 15 which meshes with the bevel gear 13.

By referring now to Figs. 1 to 3 inclusive it will be seen that keyed to the opposite end portions of the shaft 12 and between the arms 9 and 10 are a pair of frames designated in general by the numerals 16 and 17. Since these members are identical in structure a description of one will be sufficient. The side 18 of each frame is a trifle less than twice the length of the supporting arms 9 and 10 and its intermediate portion is provided with an opening for the reception of the shaft 12 to which it is keyed. The opposite ends of the side 18 are provided with right-angular extensions 19 and 20 which extend inwardly and terminate at a point adjacent the intermediate portion of the horizontal side 8 of the bracket. The terminals of the ends 19 and 20 are provided with inwardly extending portions 21 and 22 disposed parallel with the side 18 and of considerably less length than the latter. Each of the extensions 21 and 22 terminate at a point intermediate the middle and one end of the side 18, or substantially so. Alining openings are formed in the side 18 and adjacent the free ends of the extensions 21 and

22. These openings receive the opposite ends of shafts 23 and 24 which are fixedly secured within the openings.

The paddle blades are designated by the numeral 25 and are each rectangular in contour and cross section and of a length to nicely fit in the space between the side 18 and either of the extensions 21 and 22. The blades are somewhat greater in width than the lengths of the extensions 21 and 22 and are so arranged that they will bear on the ends 19 and 20 at certain times during the rotation of the frames. The blades are loosely fitted on the shafts 23 and 24 by means of a pair of boxings 26 and 27, which receive the shafts 23 and 24 and are arranged adjacent the opposite ends and on one face of the blades.

By referring now to Figs. 1 to 3 inclusive, it will be seen that the boxings 26 and 27 are located at points substantially intermediate the horizontal center and inner ends of the blades 25 so that the outer ends or those ends extending beyond the ends 19 and 20 of the frame, will gravitate and bear on the said ends 19 and 20 during the ascending movement of the blades.

In order that the blades may be deflected and turned to a position substantially at right-angles to the sides 16 and 17 when they have completed approximately one-half of their ascending movement, a deflector 28 is employed. This member is preferably formed of a single piece of sheet metal bent to the shape of a semi-circle and is secured to the lower end of an arm 29 depending from the center of the horizontal portion 8 of the bracket 7 and located directly between and spaced from the frames. The arm 29 is a trifle greater in length than the side extensions 21 and 22 at the ends 19 and 20 of the frame and is secured to the outer face and at the middle portion of the deflector 28 by means of bolts or rivets.

With this construction it is obvious that the opposite ends of the deflector 28 will lie in a horizontal plane with the shaft 12, or substantially so, and the opposite sides of the deflector will extend downwardly and beyond the extensions 21 and 22 of the frame and in the path of movement of the blades 25. The deflector is held braced by means of a pair of arms 30 and 31, the inner ends of which are secured to a sleeve which loosely receives the shaft 12 and the outer ends of which are bolted or otherwise secured to the inner face and adjacent the opposite ends of the deflector.

In the operation of the device, it being assumed that one of the blades is at a point below the deflector, and movement imparted to the shaft 12 by means of the shaft 14, it will be seen when the blade moves in the direction of the arrow in Fig. 1 or toward the lower end of the deflector that its flat face will be presented to the water until it arrives at the lower end of the deflector. When in this position the blade will have completed approximately one-half of its ascending movement and as it moves farther upward its inner end will contact with the lower end of the deflector, whereby it will be turned on its pivot until the flat face which was presented to the water bears on the outer face of the deflector, as clearly shown in Fig. 1. As the blade continues its movement over the outer face of the deflector and arrives at a point adjacent the opposite end where it begins its descending movement the water will tend to force the blade outwardly to a position parallel with the frame by bearing on its flat face and between its outer end and pivot point. As the blade moves farther downward and arrives at the forward end of the deflector 28 its tendency to become parallel with the frame will be increased until its inner end clears the forward end of the deflector when the water will force the outer end portion of the blade in position to bear on the end of the frame.

In order that the blades will not forcibly strike the deflector when they are turned during their ascending movement abutments 32 are provided. Each of these members consists of a single piece of bar metal, one end of which is secured to one face of the sides 18 below the shaft 23 of the blade while its opposite end curves forwardly and upwardly above the horizontal plane of the deflector. Thus it will be seen when the blades are turned during their ascending movement the forward end portion of the outer sides of the blades will strike against the free ends of the abutments which will prevent the blades from striking on the deflector and reduce the tendency to injure the same.

From the foregoing it can be seen that I have provided a device which is comparatively simple in structure and inexpensive to manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

What is claimed as new, is:—

1. In a propeller the combination with a rotatable shaft; of a frame having one side portion keyed to said shaft, and the opposite side portion extending to a point adjacent said shaft, a blade pivoted between the sides of said frame, and a deflector arranged beneath the short side of said frame and in the path of movement of said blade.

2. In a propeller the combination with a rotatable shaft; of a frame having a side portion keyed to said shaft, and opposite end portions extending parallel with said shaft and terminating in side extensions of less length than the first-named side of the frame, shafts having their opposite ends

secured in said side and side extensions and blades rotatably mounted on said shaft with their outer ends bearing on the ends of said frame.

3. In a propeller a rotatable frame, a blade pivoted within said frame and maintained parallel with the frame by bearing on one end thereof, and a deflector having one end adapted to engage with one end of the blade during the ascending movement of the latter and to turn said blade at substantially right angles to the side of said frame.

4. In a propeller the combination with a shaft; of a frame having one side keyed to said shaft and provided with an end parallel with said shaft, a movable blade combined with the frame and having its outer end portion bearing on the end of the frame, and a deflector having one end adapted to engage with the inner end portion of the blade and to turn the latter at substantially right-angles to the frame.

5. In a propeller a rotatable frame, a blade pivoted to said frame and arranged parallel with the latter, a deflector for engaging said blade during its ascending movement and turn it at right-angles to the frame and maintaining it in that position until the descending movement of the blade when it supports the blade in position to be turned by the water.

In testimony whereof, I affix my signature, in presence of two witnesses.

HENRY DUSEK.

Witnesses:
JOHN WATSON,
T. F. HARDY.