

UNITED STATES PATENT OFFICE.

JAMES STEEN, OF SIMPSON COUNTY, MISSISSIPPI.

FERRY-BOAT.

SPECIFICATION forming part of Letters Patent No. 392,079, dated October 30, 1888.

Application filed August 2, 1888. Serial No. 281,827. (No model.)

To all whom it may concern:

Be it known that I, JAMES STEEN, a citizen of the United States, residing in the county of Simpson and State of Mississippi, have invented certain new and useful Improvements in Ferry-Boats, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a perspective view of my improved ferry-boat attached to a stationary cable stretched across a stream; Fig. 2, a plan view of the same in the same relative position; Fig. 3, a perspective view of one of the lee-boards used to assist in propelling and steering the boat, and Fig. 4 a detail view of one of the pulleys or blocks.

The invention has for its objects, essentially, to provide a perfectly reliable and safe ferry-boat for use particularly upon swift-running streams, whereby the force of the current of the stream may be utilized to propel the boat back and forth across the stream, as will be fully hereinafter set forth.

Referring to the annexed drawings by letter, A designates an ordinary flat-bottom ferry-boat, provided on its sides with the hand-rails or guards B; and C, a stationary cable stretched across a stream and firmly attached to suitable supports upon the banks thereof. This cable C is preferably elevated a sufficient distance above the stream to permit boats and rafts to pass freely under it.

Journaled in a suitable frame, D, erected upon the side of the boat next to the cable, is a horizontal drum, E, provided with a pilot or steering wheel, F. Pivotally connected to opposite ends of the boat upon the side next to the cable, by means of links G, are the pulley-blocks H. Upon the cable are mounted two similarly-constructed pulley-blocks, H', also provided with pivotal links G', these pulley-blocks being adapted to travel freely upon the cable. The letter I designates a rope or chain attached at its ends to the pivotal links of the traveling pulleys H' H' and passed around the pulleys in the blocks H H at the ends of the boat and wound several times around the horizontal drum E.

As thus constructed, it will be observed that when the pilot-wheel is turned in either direction the rope will be shortened at one end of the boat and lengthened at the other end, thus

throwing the boat around to an acute angle with respect to the stationary cable C. When the boat is thus set at the angle to the cable, (shown most clearly in Fig. 2,) it is evident that the current of the stream, impinging against the inclined side of the boat, will serve to propel the same across the stream in the direction of the arrow *a*. When the boat reaches the shore of the stream, all the operator has to do to propel it back to the opposite bank is to give the pilot-wheel F a few turns in the opposite direction, when the other end of the boat will be thrown up the stream, and so on back and forth across the stream.

The object in pivotally attaching the pulley-blocks H to the ferry-boat is to permit the blocks to swing freely around with the movements of the boat and always assume a position at right angles to the cable no matter what the position of the boat may be. By attaching the blocks H to the boat by links G they will be projected out from the side of the boat a sufficient distance to prevent the rope I from rubbing against any part of the boat, it being evident that were the rope allowed to contact with the boat at any point the constant friction caused by the movements of the boat would soon wear away the rope and render it unsafe.

The letters J J designate two vertical shafts journaled upon the cable side of the boat, and provided at their upper ends with horizontal arms or handles J'.

Pivoted upon the hand-rail B, one near each shaft J, are two stops, K, which, when turned up, as shown in Fig. 1, will engage with the arms J' and prevent their shaft turning.

Attached rigidly to the lower ends of the vertical shafts J are the lee-boards L L, which are adapted to swing around beneath the boat and be set at an angle to the same. When set at the proper angle with respect to the boat, as shown in Figs. 1 and 2, it will be observed that these lee-boards will greatly assist in propelling the boat across the stream, their position being such that the current will act upon them in the same manner as it does upon the boat. The boards L may also be employed to swing the boat around at right angles to the cable to let rafts or drifting logs pass without injuring the boat, and they may also be used as rudders. Should the rope I break between

the drum and one of the traveling pulley-blocks and the boat be swung around at right angles to the cable, these lee-boards may be utilized to propel the boat to either side of the stream.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the cable, the boat, the drum journaled on the boat, the links G, pivotally attached to the cable side of the boat, and carrying pulley-blocks, pulley-blocks mounted on the cable, a rope connecting the two pulley-blocks upon the cable and passing around the drum and through the pulley-blocks

upon the boat, the vertical rods J, journaled on the cable side of the boat and provided with arms J' at their upper ends, and boards L at their lower ends, these boards being adapted to swing around under the boat, and the stops K, pivoted on the boat and engaging the said arms J', substantially as and for the purposes described.

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

JAMES STEEN.

Witnesses:

B. F. JONES,

A. I. LUSK.