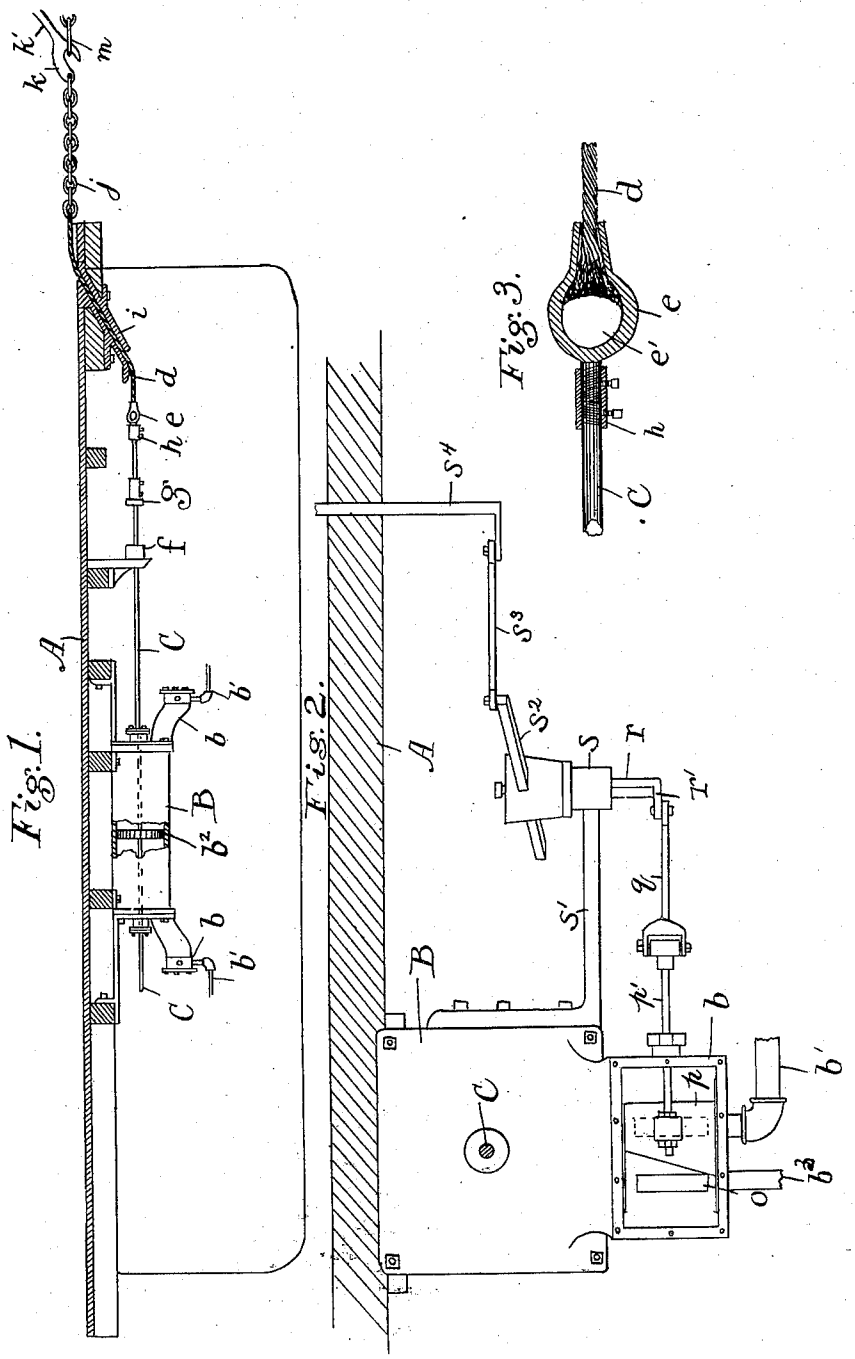
No. 653,244. Patented July 10, 1900.

W. O. JONES.

DEVICE FOR FASTENING FERRY BOATS.

(Application filed Nov. 24, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WARRICK O. JONES, OF DEERING, MAINE.

DEVICE FOR FASTENING FERRY-BOATS.

SPECIFICATION forming part of Letters Patent No. 653,244, dated July 10, 1900.

Application filed November 24, 1899. Serial No. 738,612. (No model.)

To all whom it may concern:

Be it known that I, WARRICK O. JONES, a citizen of the United States of America, and a resident of Deering, Cumberland county, State of Maine, have invented certain new and useful Improvements in Devices for Fastening Ferry-Boats, of which the following is a specification.

The invention relates to a device for fastening ferry-boats to their slips; and the object of the invention is to substitute a quicker and surer device for the old chain and windlass which has heretofore been used for this purpose.

The invention consists generally of a steam or other power cylinder having a piston and piston-rod, the latter having on its end a wire rope, chain, or other flexible connection, by which the boat is fastened to the slip. After the boat is fastened steam is turned on the cylinder, and the boat is thus held firmly to the slip. Means are provided for preventing the striking of the piston against the end of the cylinder and also for preventing injury to the apparatus when the boat starts without unhooking from the slip.

In the accompanying drawings I have illustrated my invention as applied to a ferry-boat in the form in which I propose to use it.

In the drawings, Figure 1 is a general longitudinal section showing the fastening device in elevation. Fig. 2 is a cross-section of a boat, showing the cylinder in end elevation with the head of the steam-chest removed; and Fig. 3 is a detail section showing the connection by which the wire rope is joined to the end of the piston-rod.

A represents the deck of the boat, and B is a steam-cylinder of ordinary construction secured to the under side of the deck and having steam-chests *b*, one on each end.

b^2 is the piston, and C is the piston-rod, which extends directly through the cylinder toward the ends of the boat. The piston-rod C is connected at each end with a flexible guide, here shown as a wire rope *d*, which passes up through the deck to a point near the end of the boat through an inclined hawse-pipe *i*, the lower end of the hawse-pipe being substantially in line with the axis of the cylinder, so that the pull of the piston-rod will be in a straight line. Means are provided for securing the flexible guide *d* to the ferry-slip. As here shown, a short section of chain *j* is spliced on the end of the wire rope *d*, and on the end of the chain *j* is a hook *k*, adapted to be hooked into the end of the chain *m*, which is secured to the ferry-slip, the latter not being herein shown. The hook *k* is provided with a lever-handle *k'*, by which a purchase may be applied in unhooking the chain. Means are provided for guarding against the striking of the piston against the end of the cylinder when the steam is let on. As here shown, I make use of a buffer, one of the members, *g*, being clamped to the rod and the other, *f*, being secured to a bracket which is fastened to the under side of the deck. This buffer is composed of a suitable yielding material, as rubber, and it is so located that it comes into action before the piston strikes the end of the cylinder.

In order to prevent injury to the apparatus in case the boat should start before the hook is released, I provide a joint which may be pulled apart when excessive strain is brought on it. This joint I prefer to place at the point where the wire rope connects with the end of the piston-rod. It is composed of a link *e*, having a tapering socket on one end large enough to admit the end of the wire rope, the latter being expanded within the socket, and some easily-fused metal, as babbitt, is melted and poured in through a lateral opening *e'* in the link. When an unusual strain is exerted, the wire rope is pulled out of the socket without injury to any of the parts and may be replaced readily. The opposite end of the link from the socket is formed into a screw-threaded stud and, with the extreme end of the piston-rod, is screwed into a coupling *h*, and both screws are secured against turning by set-screws. It will be understood that the same fastening connection is used at each end of the boat, although only one end is here illustrated.

Steam is admitted to each end of the cylinder through the steam-chests *b*, each of which has a steam-port *o* and an exhaust-port. (Shown in dotted lines in Fig. 2.)

The steam-supply pipe b^3 communicates with the boiler, and there are suitable exhaust-pipes *b'*.

The valve mechanism is connected with the

upper part of the boat, preferably with the pilot-house, each steam-chest being connected with the pilot-house on its end of the boat. The sliding valve p is provided with an inclined edge which admits the steam gradually. The valve-stem p' is pivoted to the connecting-rod q, the end of which is connected with the crank r' on the lower end of a vertical shaft r, journaled in a suitable bearing s, here shown as formed on the end of an arm s', extending out from the cylinder. In the upper end of the vertical shaft there is a horizontal arm s^2, which may be adjusted as to its length in or out for the purpose of regulating the throw of the valve. The end of the arm s^2 is connected with a link s^3, which in turn is connected with the lower end of a vertical crank-shaft s^4, extending up through the deck to the pilot-house. (Not here shown.) By turning the crank-shaft s^4 the steam may be let on or shut off at will.

From the above description the operation of my device will be readily understood. As soon as the boat touches the slip the hook k is hooked to the chain on the slip by the deck-hand, and the captain in the pilot-house immediately turns the crank s^4, and the steam at once forces the piston to the end of the cylinder, drawing the wire rope taut and holding the boat firmly to the slip as long as the steam-pressure is on the cylinder. When the boat is ready to start, the valve is thrown over, the exhaust-port opened, and the wire rope and chain slacked up, so that the hook may be released by the aid of the lever-purchase given by handle k'. When the boat reaches the opposite slip, the steam is turned on at the other end of the cylinder, and the operation of fastening is repeated. As before pointed out, if the boat starts off by any chance without being unhooked from the slip the joint e will pull apart, so that no injurious strain can be placed on the apparatus. The device here shown may be duplicated on each side of the boat, if desired; but in practice I find that the boat is held firmly by being fastened on one side only. If there is much motion to the water, the boat, held as it is by the pressure of the steam, will yield slightly when the strain becomes too great, the slack being taken up at once as soon as the pressure is removed.

It will be understood that compressed air or any other fluid under pressure may be used in the cylinder in place of steam.

I claim—

1. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor, a flexible connection secured to the end of the piston-rod and means for fastening the same to the ferry-slip.

2. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor extending entirely through said cylinder, a steam chest and valve on each end of said cylinder, a flexible connection on each end of said piston-rod and means for fastening said flexible connection to the ferry-slip.

3. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor located beneath the deck, a flexible connection on the end of said piston-rod extending at an inclination up through said deck toward the end of the boat and a hook for fastening said flexible connection to the ferry-slip.

4. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor, a hook for fastening said flexible connection to the ferry-slip and a buffer to take the longitudinal thrust of said piston-rod.

5. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor, a flexible connection on the end of the piston-rod, a hook for fastening the said flexible connection to the ferry-slip and a joint in said flexible connection adapted to be drawn apart by an excessive strain.

6. In a fastening device for ferry-boats, the combination of a cylinder, a piston and piston-rod therefor, a wire rope on the end of said piston-rod, means for fastening said wire rope to the ferry-slip and a connecting member between said wire rope and said piston-rod composed of a tapering socket in which the end of said wire rope is inserted and expanded and a lateral opening back of said socket to admit melted babbitt or other fused metal.

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mark

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