No. 795,513. PATENTED JULY 25, 1905.

J. IRVIN.

ATTACHMENT FOR BOATS.

APPLICATION FILED MAY 14, 1904.

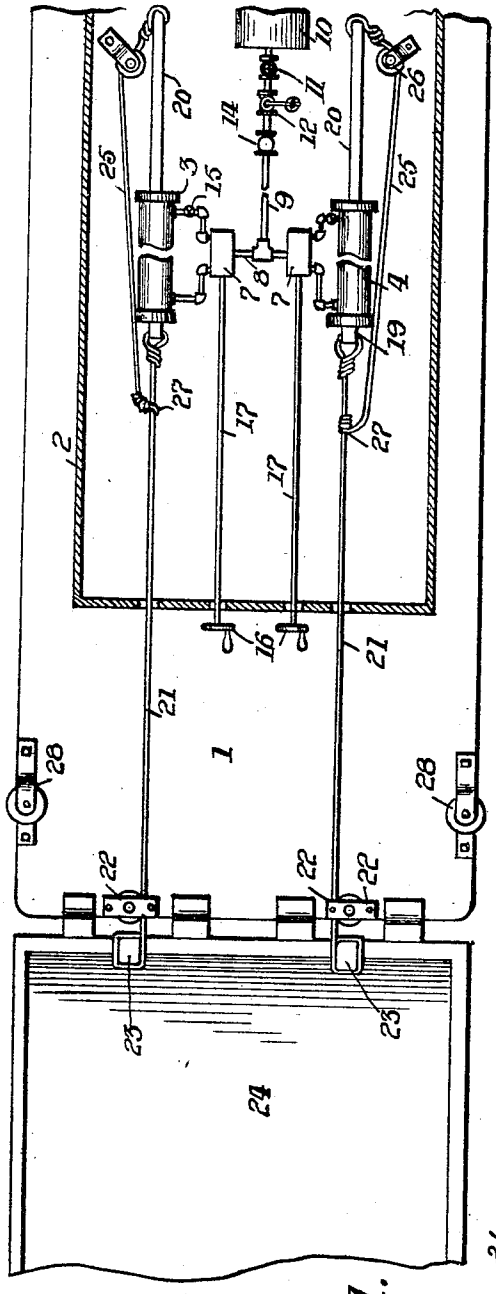

Fig. 1.

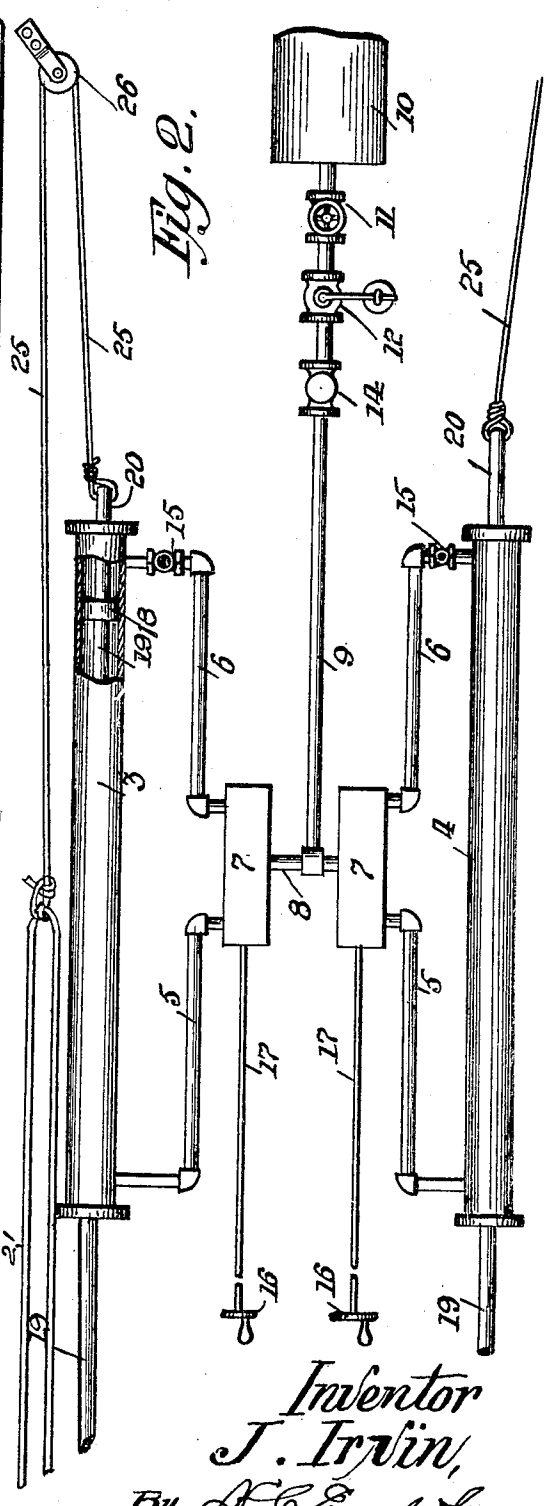

Fig. 2.

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR BOATS.

No. 795,513. Specification of Letters Patent. Patented July 25, 1905.

Application filed May 14, 1904. Serial No. 207,937.

To all whom it may concern:

Be it known that I, JOHNSON IRVIN, a citizen of the United States of America, residing at Rochester, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Attachments for Boats, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to towing-machines for vessels, and more particularly to that class of towing-machines wherein means is employed for drawing the tow, such as coal-barges, into engagement with the towing vessel and lashing the same thereon.

The object of my invention is to provide a towing-machine of the above-described character which may be readily constructed upon towing vessels now in use, my improved towing-machine entirely dispensing with the capstans and "niggers" now employed.

Another object of my invention is to provide a machine of this character which may be easily manipulated from the bow of the boat and may be employed for moving spars and the like objects about the vessel, and in connection with my improved machine I employ means whereby the slack rope, which is often occasioned in towing barges and other vessels of like character, may be taken up and prevented from becoming entangled with the ropes and objects upon the deck of the vessel.

Briefly described, my improved towing-machine comprises two cylinders which may be stationed upon the deck of the vessel or may be suspended from the first deck thereof, and I employ the steam generated by the boilers of the vessel to operate the pistons located in the cylinders, and to the ends of said pistons is adapted to be connected the towing-hawser whereby a barge or the like may be drawn into engagement with the towing vessel and held in this position by the pressure of steam against the piston-heads. To control the operation of the cylinders, I employ four-way valves, which are operated from the bow of the boat.

The above construction will be hereinafter more fully described, and specifically pointed out in the claims, and referring to the drawings accompanying this application, wherein like numerals of reference indicate like parts throughout both views, in which—

Figure 1 is a top plan view of the bow of a towing vessel, showing a barge lashed thereto; and Fig. 2 is a top plan view of a portion of my improved towing-machine.

To put my invention into practice, I employ the ordinary towing-boat which is generally used, the bow of these boats being constructed of a rectangular form and provided with the well-known lashing posts and sheaves, in the latter of which the towing-hawsers operate, and after the barge or like tow has been drawn into engagement with the towing vessel the same is lashed thereto by hawsers engaging the lashing-posts.

In the accompanying drawings the reference-numeral 1 indicates the bow of an ordinary tow-boat, and 2 indicates the cabin thereof, in which is located the mechanism of the tow-boat, which includes the boilers and engines, and it is from these boilers that I take a supply of steam to operate my improved towing-machine.

The reference-numerals 3 and 4 indicate two cylinders, which may be of any desired length, and these cylinders, as heretofore stated, are either stationed on the lower deck of the vessel or may be suspended from the upper deck or may be located in any position whereby they will not interfere with the general construction or operation of the tow-boat. These cylinders are connected, by means of the pipes 5 and 6, to four-way valves located in casings 7 7, these valve-casings being connected together by a pipe 8, to which is connected a supply-pipe 9, this supply-pipe receiving steam from a suitable reservoir-cylinder 10, which is located adjacent to the boilers of the towing vessel. Upon the supply-pipe 9 I mount a shut-off valve 11, a pressure-valve 12, and a lubricating-valve 14. The object of said valves will be hereinafter more fully described.

The reference-numerals 15 15 indicate two valves, one of which is located upon each of the pipes 6, thus connecting the rear end of the cylinder with the four-way valves, and these four-way valves are operated by crank-wheels 16 16, carried by rods 17 17, which are adapted to extend forward to the bow of the boat in the position generally occupied by the capstan-valves or niggers now generally used.

In each cylinder I provide a piston-head 18, upon each side of which is connected piston-rods 19 and 20, and to the end of the piston-rods 19 is attached, by any suitable means, towing-hawsers 21 21, these hawsers passing through the ordinary sheaves 22 22,

located upon the bow of the towing vessel, and the ends of these hawsers are adapted to be wound around the pulling-posts 23 23 of the barge or like tow 24. To the ends of the piston-rods 20 20 are secured hawsers 25 25, these hawsers passing around suitable pulleys 26 26, which are located adjacent to the cylinders 3 and 4, and these pulleys are mounted upon the framework of the towing vessel or in any place advantageous to the general operation of the towing-machine. The ends of these hawsers 25 25 are secured to the hawsers 21 21, as indicated at 27 27. The object of this construction will be more fully described in the operation of my improved machine.

The reference-numerals 28 28 indicate two sheaves which are generally carried upon the sides of the vessel at the bow thereof, and these sheaves are used in connection with my improved towing-machine whenever it is desired to tow a barge or the like from a position at an angle to which the towing vessel is located.

The operation of my improved towing-machine is as follows: When it is desired to tow a barge or the like vessel, the ends of the towing-hawsers are lashed to the vessel to be towed and steam is admitted to the cylinders 3 and 4, which are controlled by the four-way valves 7 7, and upon steam being admitted through the pipes 5 5 to the four-way valves the piston-head 18 will be forced to the forward end of the cylinder, from where it exhausts, and upon the piston-head traveling in this direction the towing-hawser will be carried with it and the tow drawn into engagement with the towing vessel and will be held there either by the pressure of steam against the piston-head or may be reinforced by lashing the barge to the lashing-posts of the towing vessel. In case the tow should lie at a distance from the towing vessel and it was impossible to pull the barge into engagement with the towing vessel by one stroke of the piston-rod the hawser 21 could be detached from the barge and the piston-head 18 returned to the forward end of the cylinder and the hawsers again secured to the barge in a taut condition, whereby upon the piston-head 18 traveling to the rear end of the cylinder the barge will be drawn into closer proximity to the boat, the travel of the barge depending upon the length of the cylinders 3 and 4. In some instances after the barge has been drawn into engagement with the towing vessel it is desired to use the towing-hawsers to draw other barges into engagement with the sides of the vessel and it can readily be seen that upon the piston-head 18 receding to the forward end of the cylinders a considerable amount of slack hawser is accumulated, and to dispense with this slack hawser becoming entangled with other ropes and objects upon the bow of the boat I have provided the piston-rods 20 20, which upon the piston-head 18 receding to the forward end of the cylinders the piston-rods will be drawn inwardly, pulling the hawsers 25 over the pulleys 26, which will keep the hawser taut from the barge to a point adjacent the cylinder, this operation being clearly shown in Fig. 2 of the drawings. By operating the four-way valves pressure can be admitted to the rear of the piston-head 18 and the towing-hawser again used for drawing a barge into engagement with the towing vessel. I have provided the valve 11 whereby the entire supply of steam may be controlled or entirely shut off, the pressure-valve 12 being employed in case excess amount of steam should enter the four-way valves and the cylinders, and I have provided the lubricating-valve 14 whereby a suitable lubricant may be automatically fed into the steam-supply, from whence it will pass to the cylinders and four-way valves and thoroughly lubricate the same. The valves 15 15 are employed, whereby the amount of steam which is adapted to enter the rear end of the cylinders may be governed, this valve governing the speed at which the slack hawser is taken up after the barge has been drawn into engagement with the towing vessel.

The apparatus heretofore described in addition to being utilized for drawing the barge up to the towing vessel can also be utilized for moving spars, which are commonly provided on vessels of this class. These spars are used for a number of purposes—namely, for pressing the boat from the shore when the boat is lying idly and for forcing the boat away from the shore when the water is too shallow for the paddle-wheel to operate. They are also sometimes used to connect the towing vessel with a barge when the latter is in such shallow water that the towing vessel cannot approach it, and as these spars are very heavy it is necessary to provide means for drawing them aboard the boat after they have been used, and for this purpose the appliances heretofore described can be utilized.

It will be noted that the general arrangement of the cylinders and the valves controlling the same may be changed without departing from the general scope of the invention.

What I claim is—

1. In a towing-machine of the character described, the combination with a source of steam, of two cylinders, pistons operating in said cylinders, piston-rods connected to said pistons towing-hawsers connected to the ends of said piston-rods, auxiliary piston-rods carried by the said pistons, take-up lines connected to said towing-hawsers and said auxiliary piston-rods and means for controlling the operation of said cylinders, substantially as described.

2. A towing-machine comprising one or more cylinders, pistons mounted in said cylinders, piston-rods connected to said pistons and projecting through the opposite ends of

the cylinders towing-hawsers connected to one end of said piston-rods, take-up lines connected to said towing-hawsers and the piston-rods, means for operating said pistons within the cylinders and means for controlling the movement of said pistons, substantially as described.

3. A towing-machine comprising one or more cylinders, piston-heads mounted in said cylinders, two piston-rods carried by said heads, a towing-hawser connected to one of said piston-rods, a take-up line connected to said hawser and the other of said piston-rods, a steam-pipe connected to said cylinders, means for lubricating said cylinders, and means for controlling the movement of said pistons within the cylinders, substantially as described.

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

JOHNSON IRVIN.

Witnesses:
E. E. POTTER,
K. H. BUTLER.