Dec. 11, 1928. 1,694,516

A. T. PRESCOTT

FERRY BRIDGE

Filed Aug. 3, 1927

Fig. 2.

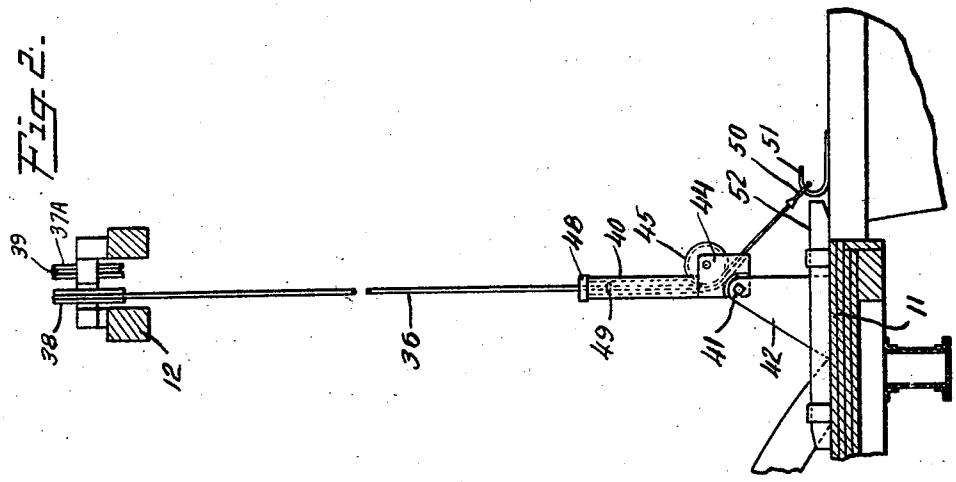
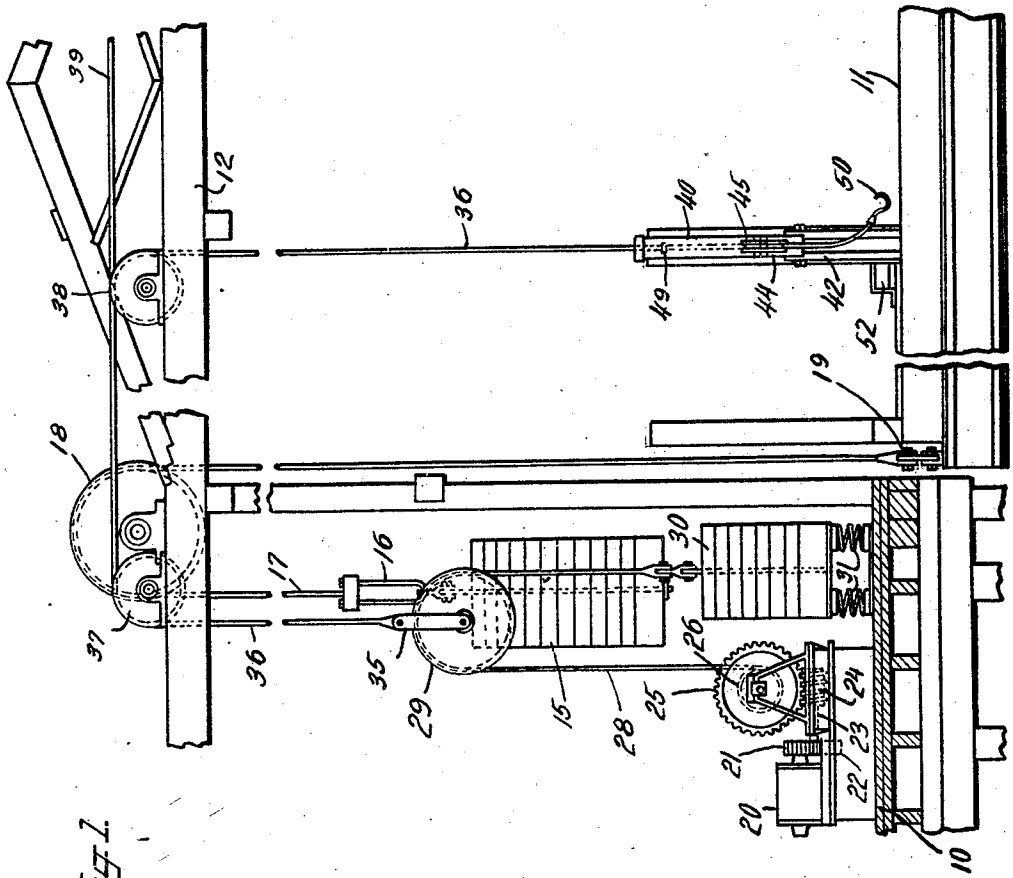


Fig. 1.



INVENTOR
Arthur T. Prescott.
BY
Marshall & Hawley.
ATTORNEYS

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UNITED STATES PATENT OFFICE.

ARTHUR T. PRESCOTT, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO J. EDWARD OGDEN, OF MOUNTAINVILLE, NEW YORK.

FERRY BRIDGE.

Application filed August 3, 1927. Serial No 210,287.

This invention relates to ferry bridges.

More specifically stated, the invention relates to mechanism for supporting and mooring a ferry boat to a ferry bridge. Various devices of a more or less complicated nature have been developed for supporting and mooring a ferry boat to the movable end of a ferry bridge or hinged platform.

All such devices which draw the boat into the proper relation to the bridge and support the boat in such position, use separate and distinct elements for performing these two functions.

This invention has for its salient object to provide simple and practical mechanism comprising a minimum number of parts for bringing the boat and bridge into mooring relation and for securing them in such relation.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which—

Fig. 1 is an elevational view partly broken away and partly in section showing a portion of a ferry bridge and the stationary platform or dock at the side of the bridge; and

Fig. 2 is a sectional elevation showing the interengaging portions of the bridge and boat and the hoisting and mooring mechanism carried thereby.

The invention briefly described consists of hoisting mechanism carried by the platform or dock adjacent the ferry bridge and so connected to the bridge and to the boat that a single element will perform the function of pulling the boat into mooring relation to the bridge and retaining the boat in moored position. Further details of the invention will appear from the following description.

This invention relates to the type of ferry landing or ferry bridge device shown in the Du Bosque Reissue Patent No. 14,313, granted June 5, 1917, and constitutes an improvement on and simplification of the device described and claimed in said patent.

In the particular form of the invention illustrated there is shown a portion of a shore platform or dock 10. It will be understood that there are two of such platforms, the ferry bridge 11 being mounted between the platforms. The bridge 11 is preferably hinged in the usual manner.

A scaffold or frame 12 is mounted above the bridge and is preferably supported by suitable frame work from the platforms or, if desired, the scaffold or superstructure may form the supporting frame for the roof of the building enclosing the ferry bridge.

The weight of the bridge is partially counterbalanced by counterweights 15 which are connected by a yoke or clamp 16 to a cable 17. The cable passes over a freely rotatable sheave 18 mounted on the scaffold 12 and the free end of the cable is connected as shown at 19 to the bridge 11. It will be understood without further description that counterweights 15 are provided at both sides of the bridge and are connected to the two side edges thereof. Furthermore, there are preferably provided two sets of mooring devices with one hoisting mechanism as hereinafter described.

The hoisting mechanism consists of a motor 20 mounted on the platform 10 and operatively connected by gears 21 and 22 to rotate a shaft 23. Shaft 23 has a worm 24 mounted thereon and adapted to drive a worm wheel 25 connected to a drum 26 and adapted to rotate the drum.

A cable 28 is secured at one end to the drum 26 and extends over a sheave 29, the other end of the cable being connected to an adjustable counterweight 30 normally resiliently supported on springs 31 carried by the platform 10.

The sheave 29 has connected thereto a yoke 35 to which there is secured a cable 36 which extends over a pair of sheaves 37 and 38 carried by the scaffold 12. The cable passes downwardly from the sheave 38 through a sleeve or tubular member 40 pivoted at 41 to a bracket 42 which extends upwardly from and is carried by the bridge 11. The tubular member 40 has an extension 44 within which is mounted a sheave 45 beneath which the cable extends.

The tubular member 40 has a head or abutment 48 at its upper end through which the cable extends and the cable has a collar 49 disposed within the sleeve and adapted to engage the abutment under predetermined conditions hereinafter set forth. The lower end of the cable carries a hook 50 adapted to engage a hook 51 carried by the boat. The bridge has mounted thereon bars or toggles 52 provided for the purpose of properly positioning the bridge with relation to the boat.

The bridge 11 is normally held at such an

elevation that the toggle bars 52 will be disposed above the level of the deck of the approaching boat. The collar 49 will then by its engagement with the abutment 48 assist in supporting the bridge.

The counterweight 30 is so proportioned that the sum of the lifting effects of the weights 15 and 30 will be greater than that required to counterbalance the bridge when the bridge is unloaded but may advantageously be somewhat less than is required to counterbalance the bridge when the maximum load is passing over the bridge.

Another cable (not shown) similar to and substantially parallel to cable 28 is also connected to the counterweight 30 and to drum 26 and passes over a sheave parallel to sheave 29. A yoke corresponding to yoke 35 is connected to the parallel sheave and a cable 39 is connected to the yoke and passes around a sheave axially alined with sheave 37 and across the top of the bridge and around a sheave 37A and down to another mooring device exactly similar to that shown in Figs. 1 and 2.

This construction is fully illustrated in Du Bosque Reissue Patent No. 14,313, and need not be illustrated in this application.

The tension on the cable 28 and on the cable parallel thereto (not shown) although not sufficient to lift the weight 30 from the supports 31, 31, furnishes an upward pull on the cables 36 and 38 in addition to the upward pull on the cable 17 exerted by the counterweight 15.

After the approaching boat has been moved into position against the end of the bridge, the motor 20 is operated to slack off the cable 28 until the toggle bars 52 engage the deck of the boat and also until the cables 36 and 39 are sufficiently slack to permit the hooks 50 to be engaged with the hooks 51 on the boat. The motor 20 is then reversed and the winding drum 26 is turned in a direction to lift the counterweight 30 a sufficient distance above the supports 31, 31 to prevent it from engaging the supports on the rising and falling movements of the bridge and the end of the boat moored thereto. As the drum 26 is wound up, the cables 36 and 39 will exert a horizontal pulling force on the boat and will also exert a lifting force on the boat and on the bridge due to the position of the sheaves 45.

From the foregoing description it will be seen that the device described is well adapted to perform the desired functions and that by locating the sheave 45 as described, the single cable will have a vertical component for lifting the boat and a horizontal mooring component and, furthermore, has a lifting effect on the bridge.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. The combination with a ferry bridge of mechanism for mooring a ferry boat thereto comprising a single lifting and pulling element operatively connected to the bridge and to the boat and constructed and arranged to have a vertical lifting component and a horizontal pulling and mooring component, the portion of said element between the bridge and the boat being disposed obliquely with relation to the portion of the element disposed above the connection to the bridge.

2. The combination with a ferry bridge of mechanism for mooring a ferry boat thereto comprising a cable, means for exerting a pulling force on said cable, a sheave located substantially above the upper surface of the bridge, said cable being led beneath said sheave, and means for securing the free end of the cable to a ferry boat, the portion of the cable between the sheave and the boat being disposed obliquely with relation to the portion of the cable disposed above the bridge.

3. The combination with a ferry bridge of mechanism for mooring a ferry boat thereto comprising a cable, means for exerting a pulling force on said cable, a sheave located substantially above the upper surface of the bridge and adjacent the free end thereof, said cable being led beneath said sheave, and means for securing the free end of the cable to a ferry boat, the portion of the cable between the sheave and the boat being disposed obliquely with relation to the portion of the cable disposed above the bridge.

4. The combination with a ferry bridge of mechanism for mooring a ferry boat thereto comprising a cable, means for exerting a pull on said cable, guiding means disposed vertically above the bridge for guiding the cable thereto, guiding means carried by the bridge and disposed a material distance above the upper surface thereof, and means for securing the free end of the cable to the boat, the portion of the cable between the sheave and the boat being disposed obliquely with relation to the portion of the cable disposed above the bridge.

In witness whereof, I have hereunto set my hand this 29th day of July, 1927.

ARTHUR T. PRESCOTT.