

No. 700,470.

Patented May 20, 1902.

W. D. BALDWIN & A. SUNDH.
SHIFTING DEVICE FOR PIERS, &c.

(Application filed Dec. 17, 1901.)

(No Model.)

2 Sheets—Sheet 1.

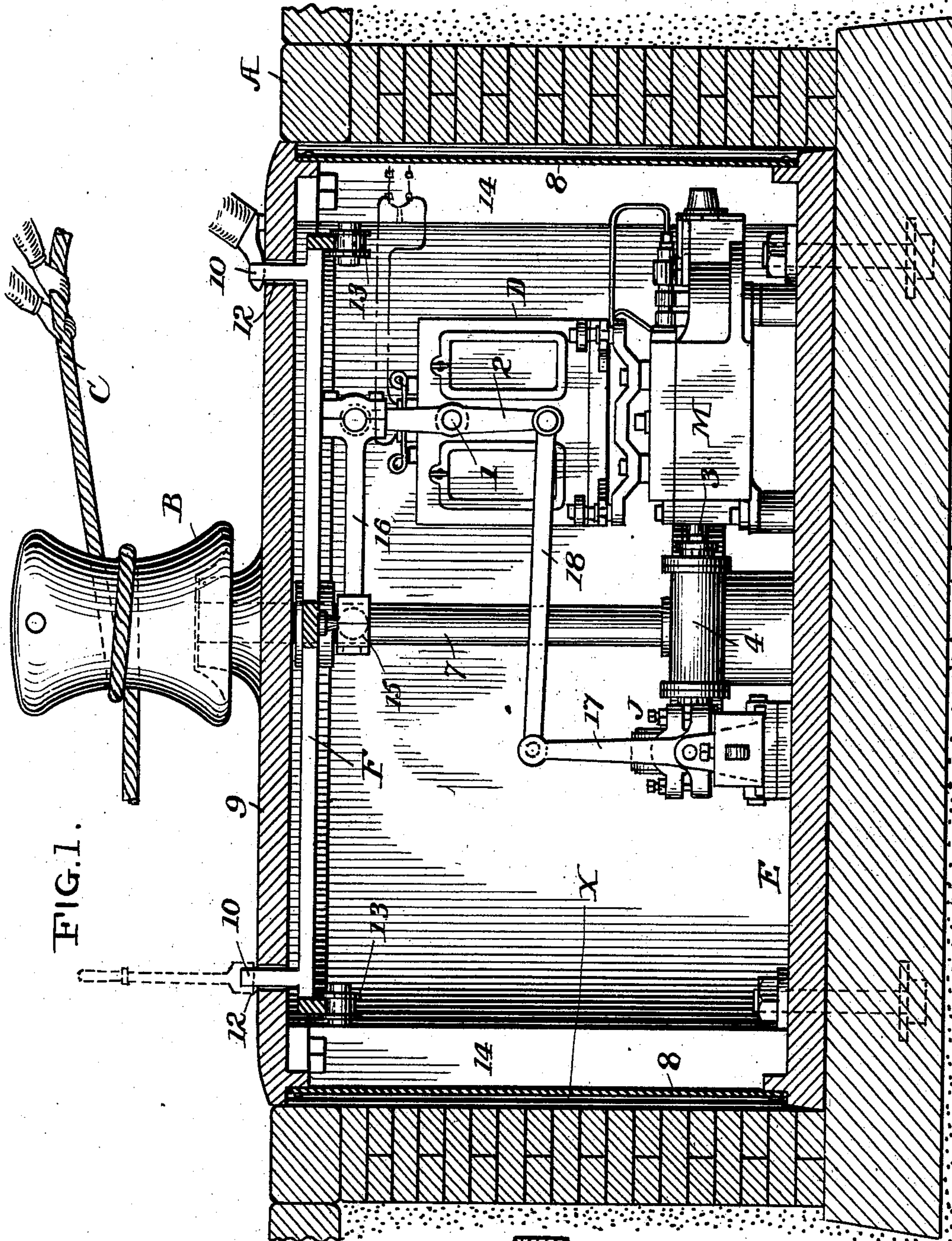
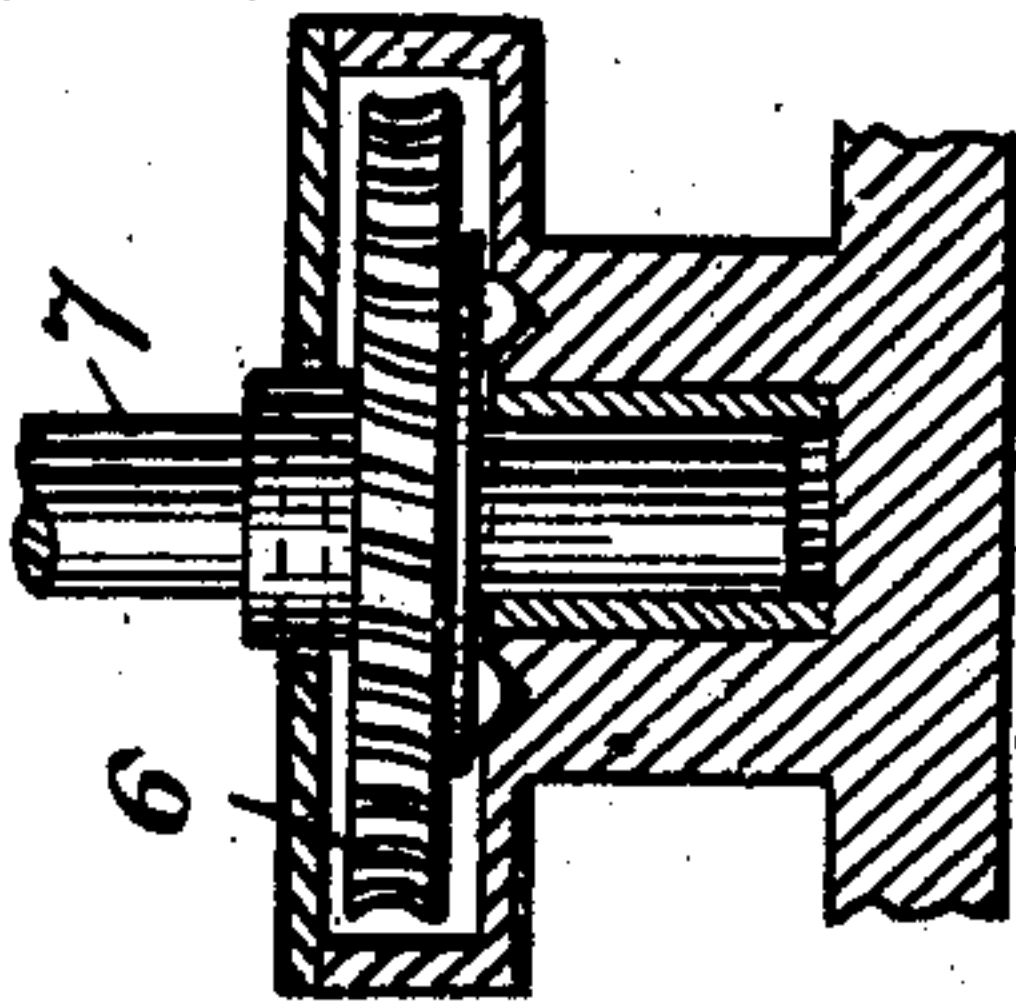


FIG. 1.

WITNESSES:

F. P. Hinkel
John G. Freeman, Jr.

FIG. 3.



INVENTORS

William D. Baldwin
August Sundh

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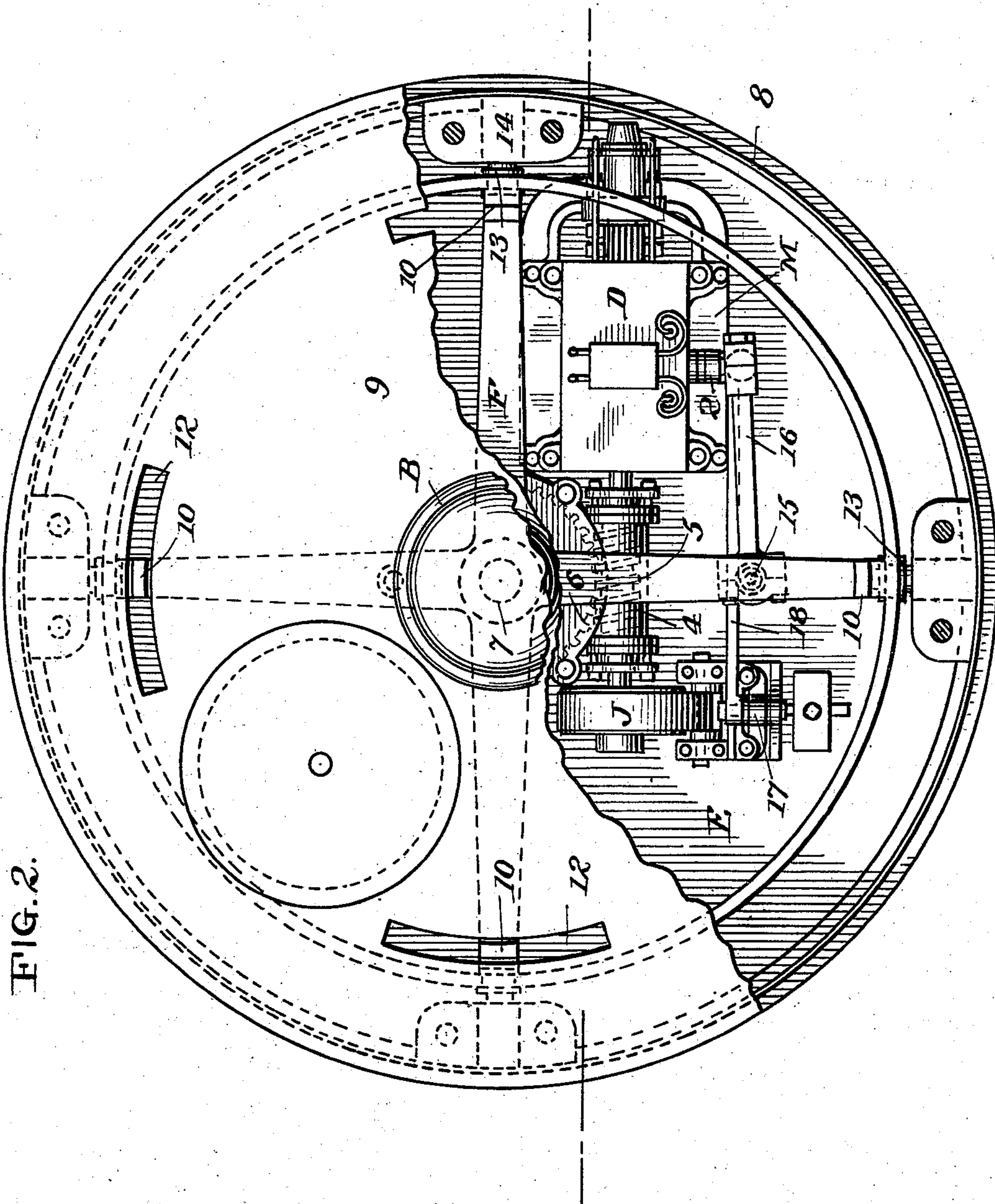


FIG. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM D. BALDWIN, OF NEW YORK, AND AUGUST SUNDH, OF YONKERS,
NEW YORK, ASSIGNORS TO OTIS ELEVATOR COMPANY, OF EAST ORANGE,
NEW JERSEY, A CORPORATION OF NEW JERSEY.

SHIFTING DEVICE FOR PIERS, &c.

SPECIFICATION forming part of Letters Patent No. 700,470, dated May 20, 1902.

Application filed December 17, 1901. Serial No. 86,332. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM D. BALDWIN, residing in the city and county of New York, and AUGUST SUNDH, residing at Yonkers, in the county of Westchester, State of New York, citizens of the United States, have invented certain new and useful Improvements in Shifting Devices for Piers, &c., of which the following is a specification.

Our invention has for its object to provide a ready means of securing any desired draft at any required speed of motion upon a cable leading to an object to be moved or raised or lowered adjacent to an embankment or pier; and our invention consists in providing a capstan arranged at any suitable point above the footway of such embankment or pier with means below said footway for actuating the capstan, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a part of a pier or embankment with a capstan and operating and controlling means embodying our invention. Fig. 2 is a plan view in part section, part of the top being broken away to expose the apparatus below the footway; and Fig. 3 is a sectional view illustrating part of the driving-gear of the apparatus.

A represents the pavement or footway of a pier or embankment adjacent to which vessels or barges may be brought for the purpose of loading or unloading, and B represents a capstan which is arranged in such position upon the said footway or pier that cables C can be carried with facility from the vessel or tackle of the vessel to the capstan, and in connection with the latter we provide a motor and means whereby the same may be set in operation to rotate the capstan at different speeds or in different directions, so that it is necessary for the operator simply to lap the cable one or more times around the capstan in the proper direction and to then start the motor in operation to raise or lower loads which otherwise would require a number of persons to handle or the use of a portable engine.

Various different arrangements of mechan-

ism and different kinds of motors and stopping and starting devices may be employed. In the construction illustrated there is a motor M, which is an electric motor having the usual switch within a casing D, controlled by rocking a shaft 1, provided with a lever 2, the current being reversed according as the lever is rocked from a central position in one direction or the other, as is usual in connection with electrically-driven machines. In the construction shown the shaft 3 of the motor extends into a worm-casing 4 and carries a worm 5, dotted lines, Fig. 2, which gears with a pinion 6 upon a shaft 7, on which the capstan B is mounted. The motor and its adjuncts are all arranged within a vault or chamber X below the pavement. Preferably they are all arranged upon a bed-plate E, circular in form, and supporting-walls 8, which are extended upward and serve to support a cover-plate or cap 9, the surface of which is substantially flush with the pavement, the bed-plate, walls, and cap constituting practically a casing in which the parts may be assembled, so that it may be placed directly within the chamber or vault X, below the pavement A, and there bolted to any suitable foundation.

It is desirable not only to be able to stop, start, and regulate the direction of movement of the capstan, but also to be able to do so from different positions, because the operator may sometimes require to be upon one side of the capstan and sometimes in a different position, and we therefore provide a stopping and starting device which may be moved from different points. This stopping and starting device may be constructed in different ways; but as shown it consists of a frame or spider F, mounted to swing freely upon the shaft 7 as a center and having upwardly-projecting lugs 10, extending through slots 12 in the cap-plate 9 and projecting slightly above the surface of said cap-plate, so that the foot may be applied to said lugs. This spider is supported upon roller-bearings 13, turning upon studs projecting from standards 14, extending between the bed-plate and cap. The spider is connected in any suitable manner

with the control-lever 2. As shown, the spider carries a wrist-pin 15, from which a connecting-rod 16 extends and is jointed to the upper end of the lever 2, so that whichever
 5 of the lugs 10 is moved the spider may be swung so as to impart motion to the lever 2. Said lugs 10 each normally occupy a position between the ends of the slots or openings 12, so that by moving the lug in one direction
 10 from the center the machine may be started in one direction, while the reverse movement will start the machine in the opposite direction.

The machine is provided at one end with an
 15 ordinary braking device J, having a lever 17, which may be vibrated in either direction to lift the brake, and this lever is connected by a rod 18 with the lower end of the lever 2, so that when the latter is swung in either direc-
 20 tion to start the motor the brake will be lifted, while when the lever 2 is brought to a central position to stop the motor the brake will be applied, all as in motor apparatus in common use and shown and described in Patent
 25 No. 558,075 of April 14, 1896, and therefore not requiring detailed description.

It will be evident that by providing a capstan arranged above the pavement or foot-
 30 way of an embankment or pier with means whereby power may be applied thereto to rotate it in either direction at different speeds, starting and stopping the same by the application of the foot when the operator is in different positions, it is possible to manipulate
 35 heavy cables for raising and lowering heavy weights or for dragging barges or other vessels to position in a manner which cannot be employed where hand labor or portable engines are used. It will also be seen that the
 40 apparatus is fully covered up and protected, so that it may be operated during all kinds of

weather and without in any way obstructing the pier or other place in connection with which it is used.

While we have described our invention as
 45 used in connection with a capstan arranged upon a pier or embankment, it will be evident that some of the features above described may be used in connection with capstans used
 50 on ships or elsewhere.

Without limiting ourselves to the precise construction and arrangement of parts shown, we claim as our invention—

1. The combination with the footway of a pier or embankment, of a capstan connected
 55 with a shaft extending downward through said footway, a motor connected to operate said shaft and provided with a control device for stopping, starting, and reversing the mo-
 60 tor, and a stopping and starting device having projections extending upward through the footway in different positions, substantially as and for the purpose set forth.

2. The combination with the footway of a pier or embankment, of a capstan arranged
 65 above the footway, a shaft connected to the capstan extending below the footway, a motor connected to rotate said shaft and provided with stopping, starting, and reversing
 70 means, and a stopping and starting device arranged to be actuated by the foot of the operator upon the footway, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of
 75 two subscribing witnesses.

WILLIAM D. BALDWIN.
 AUGUST SUNDH.

Witnesses:

W. H. BRADY,
 H. R. MARSDEN.