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Patented June 17, 1902.

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

(Application filed Dec. 17, 1901.)

(No Model.)

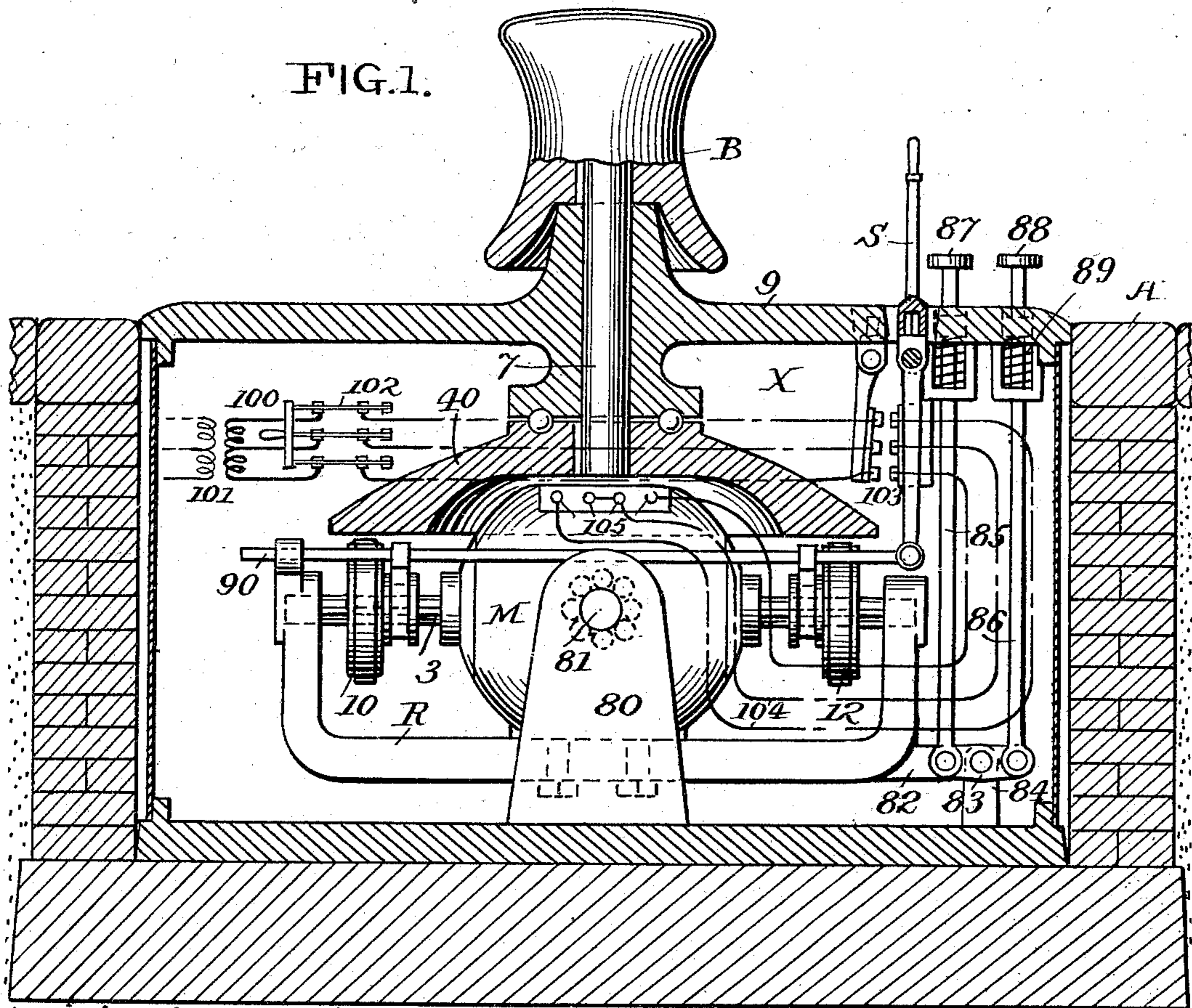
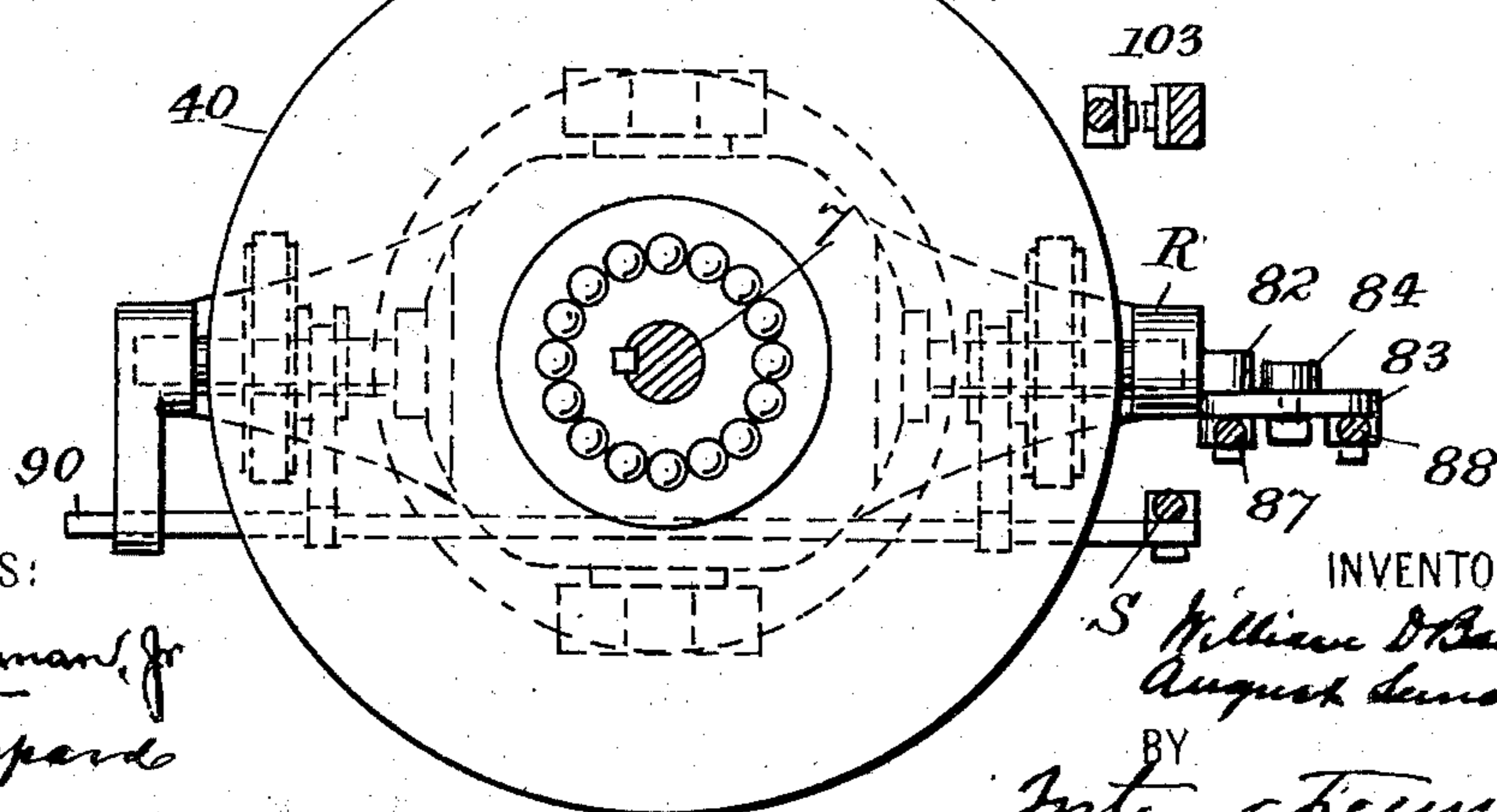


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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SHIFTING DEVICE FOR PIERS, &c.

SPECIFICATION forming part of Letters Patent No. 702,393, dated June 17, 1902.

Application filed December 17, 1901. Serial No. 86,335. (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.

10 Our invention relates to capstans, and especially to an arrangement of capstans in connection with the footway of a pier or embankment, whereby it may be used as a means for shifting loads or vessels; and our invention
15 consists in a construction whereby the capstan may be driven from a motor, and especially an electric motor rotated in one direction, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

20 Figure 1 is a sectional elevation showing a vault below a footway and a capstan and operating devices; and Fig. 2 is a plan view, in part section, illustrating the arrangement of the parts within the vault below the cap of
25 the same.

The capstan B is arranged above the footway or pavement A, a portion of which constitutes the roof or cover 9 of a vault X beneath the pavement and in which the operating parts are arranged. The shaft 7 of the
30 capstan extends through the roof and carries at the lower end a driving-disk 40. Below the driving-disk 40 is arranged a motor-engine M, which is provided with trunnions 81, turning
35 in standards 80, and having a frame R, which supports the bearings of the armature-shaft 3, the latter carrying two pinions 10 12, which turn with but can slide on the said shaft. The motor M is of a character to rotate in one di-
40 rection only, and one purpose of this invention is to enable such a motor to be effectively employed, avoiding the necessity of the usual reversing switches or devices, and in order to impart rotation in different directions to the
45 capstan B the motor-frame is supported on trunnions, as described, so that it may be swung to bring either of the pinions 10 or 12 into frictional engagement with the disk 40. This swinging of the motor may be effected

in different ways; but, as shown, an arm 82 50 extends from the frame R to a lever 83, pivoted to a standard 84, and two rods 85 86 extend from the opposite ends of the lever upward through the cap 9 and terminate in footpieces 87 88. Springs 89 tend to lift the rods 55 85 86 when either is depressed, so as to normally maintain the parts in the positions shown in Fig. 1 with the driving-pinions out of contact with the disk. By depressing one or the other of the footpieces 87 88 the frame 60 of the motor may be swung to bring one or the other of the driving-pinions into frictional engagement with the disk. When the parts are in the positions shown in Fig. 1, the capstan is free to turn under the draft upon the 65 rope wrapped around it.

In order to vary the speed of rotation of the capstan, we make use of any suitable means for shifting the pinions 10 12 upon the shaft 3. As shown, each pinion is provided with a 70 hub having an annular groove receiving a fork, (shown as a shifter-rod 90,) the latter being connected to a lever S, extending through an opening in the cap 9 of the vault. By adjusting the driving-pinion, whichever it may 75 be, when it is shifted by means of the lever S, the speed of movement imparted to the disk 40 may be regulated as desired.

While the motor M may be of any suitable character, we prefer to make use of an asyn- 80 chronous alternating-current motor with rotary field wound upon the stator and short-circuited armature or rotor. The motor may be wound to operate upon either a single or multiphase system, we having shown a three- 85 phase motor, the rotary field of which may be included in the secondary 100 of the transformer 101 by a suitable main switch 102. Another switch 103 controls the starting and stopping of the motor, and from this switch 90 conductors 104 lead to suitable binding-posts 105, connecting with the field-windings.

While we have shown an arrangement to be used in connection with piers and embankments, it will be evident that some of the parts 95 above described may be used in connection with capstans arranged on ships.

Without limiting ourselves to the precise

construction and arrangement of parts shown, we claim as our invention—

1. The combination with a capstan, and its shaft, of a driving-disk upon the said shaft, a motor provided with a shaft supporting pinions on opposite sides of the shaft of the capstan, and means for swinging the motor to bring one or the other of the pinions into frictional engagement with the disk, substantially as set forth.
2. The combination with a capstan, and its shaft, of a driving-disk upon the said shaft, a motor provided with a shaft supporting pinions on opposite sides of the shaft of the capstan, means for swinging the motor to bring one or the other of the pinions into frictional engagement with the disk, and means for shifting the pinions to vary the speed imparted to the disk, substantially as set forth.
3. The combination with a capstan, its shaft, and disk, of a motor adapted to turn in one direction only arranged below the disk and supported upon trunnions, a shaft extending to opposite sides and carrying pinions 10, 12, and means for rocking the motor to bring either pinion into frictional engagement with the disk, substantially as set forth.
4. The combination with a capstan, disk, motor arranged below the disk and provided

with pinions 10, 12, of supports for the motor adapting it to swing therein, and means extending to a position adjacent to the capstan for swinging the motor, substantially as set forth.

5. The combination of a capstan, shaft, disk, and motor supported upon trunnions below the disk and provided with pinions 10, 12, rods extending upward to a position adjacent to the capstan, and connections between the rods and frame of the motor, whereby the motor may be swung by pressure upon the rods, substantially as set forth.

6. The combination with a capstan, disk, swinging motor provided with pinions, and devices for swinging the motor from a position adjacent to the capstan, of a device arranged adjacent to the capstan and connected to shift the pinions in respect to the center of the disk, substantially as and for the purpose set forth.

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

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AUGUST SUNDH.

Witnesses:

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