

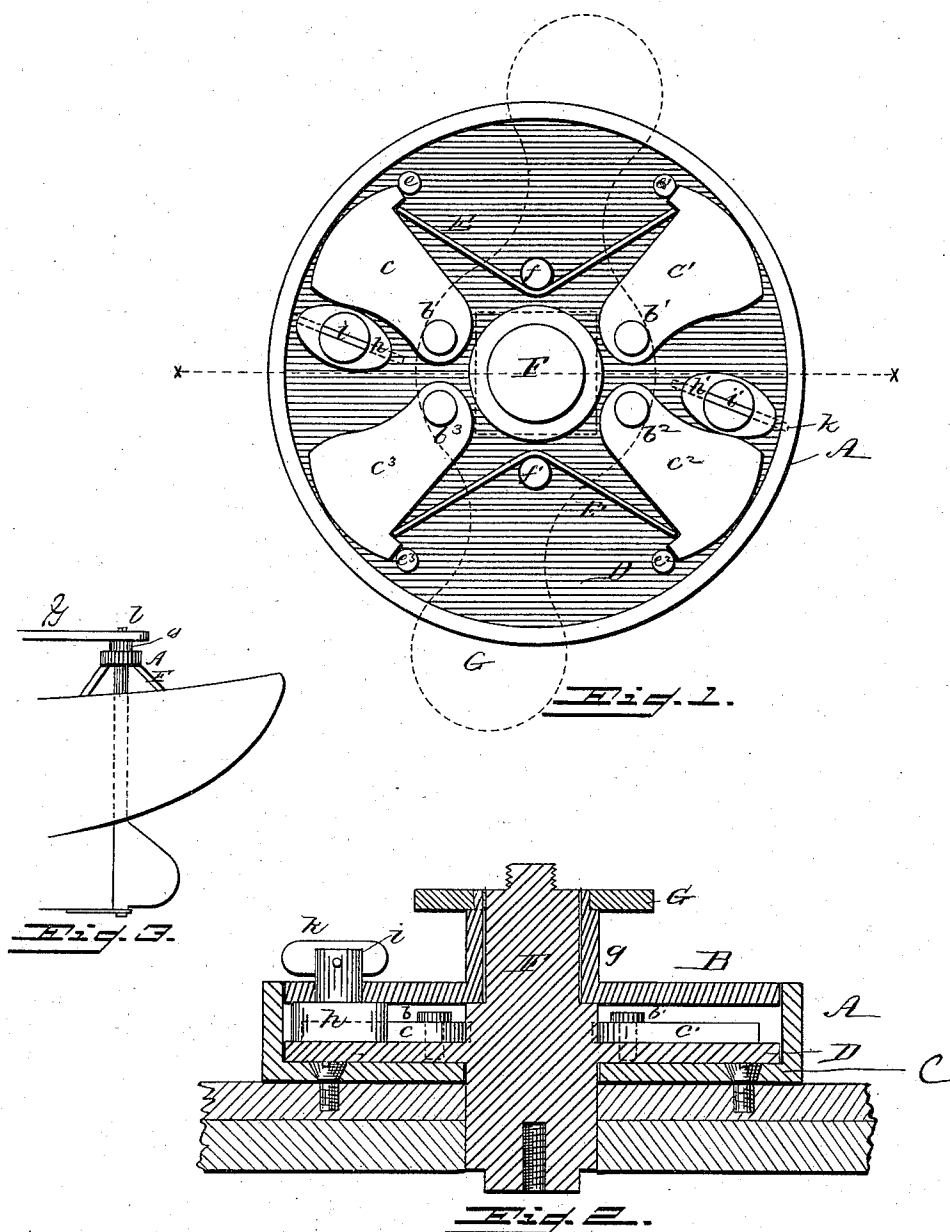
(No Model.)

E. B. LAKE.

CLUTCH.

No. 385,123.

Patented June 26, 1888.



E. B. Lake.

WITNESSES

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UNITED STATES PATENT OFFICE.

EZRA B. LAKE, OF CAMDEN, NEW JERSEY.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 385,123, dated June 26, 1888.

Application filed April 19, 1887. Serial No. 235,397. (No model.)

To all whom it may concern:

Be it known that I, EZRA B. LAKE, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Clutch Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a view of the clutch with the top removed. Fig. 2 is a transverse sectional view. Fig. 3 shows the clutch attached to a rudder-post.

This invention has relation to clutch mechanism, and has for its object to provide a clutch which shall be capable of clutching a shaft in either direction of its movement. This form of clutch is adapted for use in a variety of positions, but is particularly adapted for use on steering mechanism, where it is desired to retain a shaft and its attached mechanism—as, for instance, a wheel or a rudder—in any desired position sufficiently rigid to resist considerable strain, and at the same time to be able to be quickly and easily changed from one position to another. This clutch is therefore well adapted for use on the steering mechanism of a vessel, where the action of the water upon the rudder has a tendency to swing the same from one side to the other. It is also adapted for use on the steering-wheel of vehicles—such as fire-ladder trucks—where the wheels are adapted to be swung around independently of the movement of the truck. Again, it can be used upon the steering or guide wheel of a tricycle, and, in fact, it is adapted and designed to be used in any position in which a shaft is to be controlled in its rotary movement.

This invention therefore consists in the construction, combination, and arrangement of parts more fully described, and specifically pointed out in the claims.

A is a fixed hollow cylindrical box forming the case for the clutch mechanism, having top B and bottom C. D is a duplicate or false bottom plate for the same, and $c, c', c'',$ and c''' are the clutch-levers, fitted on pins $b, b', b'',$ and b''' on the bottom D. Stops $e, e', e'',$ and e''' near

the edge of bottom D limit the movement of the clutch-levers.

E E' are flat metal springs held in position by pins $f f'$, their ends impinging against the sides of the levers $c, c', c'',$ and c''' and pressing the same toward each other—that is, the lever c is pressed toward the lever c'' and the lever c' pressed toward the lever c''' . The outer ends of the clutch-levers are formed in such a shape that when the levers press against the stops $e, e', e'',$ and e''' their peripheries will exactly coincide with the periphery of the bottom plate, D; or, in other words, they will all form a part of the outline of the same circle, and when in this position they will not prevent the rotation of the bottom plate, D, within the case A. When pressed toward each other by the action of the springs E E', their outer ends extend beyond the edge of the bottom plate, D, and form wedges, effectually preventing the bottom plate, D, from being rotated within the case A. The shaft F, being rigidly attached to the bottom plate, D, will be held from turning when the levers are pressed toward each other, and will only be allowed to turn when the four levers are held apart.

The top B is provided with a hollow sleeve, g , which loosely slides over the upper end of the shaft F, and has a handle, G, attached thereto, by which the shaft is turned.

$h h$ are keys or blocks fitting between the inner sides of the clutch-levers and serving to separate the same. These blocks are carried on shafts $i i$, journaled in the plate B, which are provided with thumb-pieces $k k$ on their upper ends. A jam-nut, l , on the upper end of the shaft F holds the several parts in position within the case A.

The operation of the device is as follows: When the clutch is in proper position, the springs E E' press the levers toward each other and cause their outer ends to impinge against the inner side of the case A and firmly lock the shaft F in its position. When the handle G is turned in either direction, the plate B turns with it in the same direction, and the blocks $h h$, pressing against two of the levers, release the same from impingement with the inside of the case and allow the shaft F to turn. When the handle is released, the springs E E'

will overcome the pressure of the blocks, and by causing the clutch-levers to again press against the inside of the case will lock the shaft in position till the handle is again turned either
5 in the same or the opposite direction.

If, for any reason, it is desired to entirely release the clutch, the shafts *i i'* are turned by means of the thumb-pieces *k k'* till the blocks
10 *h h'* press the levers against the stops *e e' e'' e'''*.

When in this position, the shaft is not locked, and can be freely revolved either by the handle G or from below the clutch-box.

While I have shown and described my clutch as having four levers, I do not confine myself
15 to the use of such number, as I may use two levers in place of four.

What I claim as my invention is as follows:

1. The combination, with a rotary shaft, of a double clutch consisting of and comprising
20 a circular plate secured to said shaft, a cylindrical box within which said plate is arranged, eccentrically-pivoted levers attached to said plate on either side of said shaft, springs bearing upon said levers, and a rotary cap provided
25 with keys which engage with said levers

and cause the same to be released from engagement with the inner surface of the box, substantially as set forth.

2. The combination, with the rotary shaft F and plate D, rigidly attached thereto and
30 movable therewith, and pivoted levers *c c' c'' c'''*, whose outer ends coincide with the periphery of said plate when the levers are separated a given distance and extend beyond said periphery when they are drawn together, of a releasing
35 and controlling mechanism consisting of the top plate, B, provided with keys *h h'*, and handle G, whereby the initial movement of said handle and plate will separate the levers
40 and allow the continued movement of the handle to rotate the shaft, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of March, 1887.

EZRA B. LAKE.

Witnesses:

WILL H. POWELL,
R. DALE SPARHAWK.