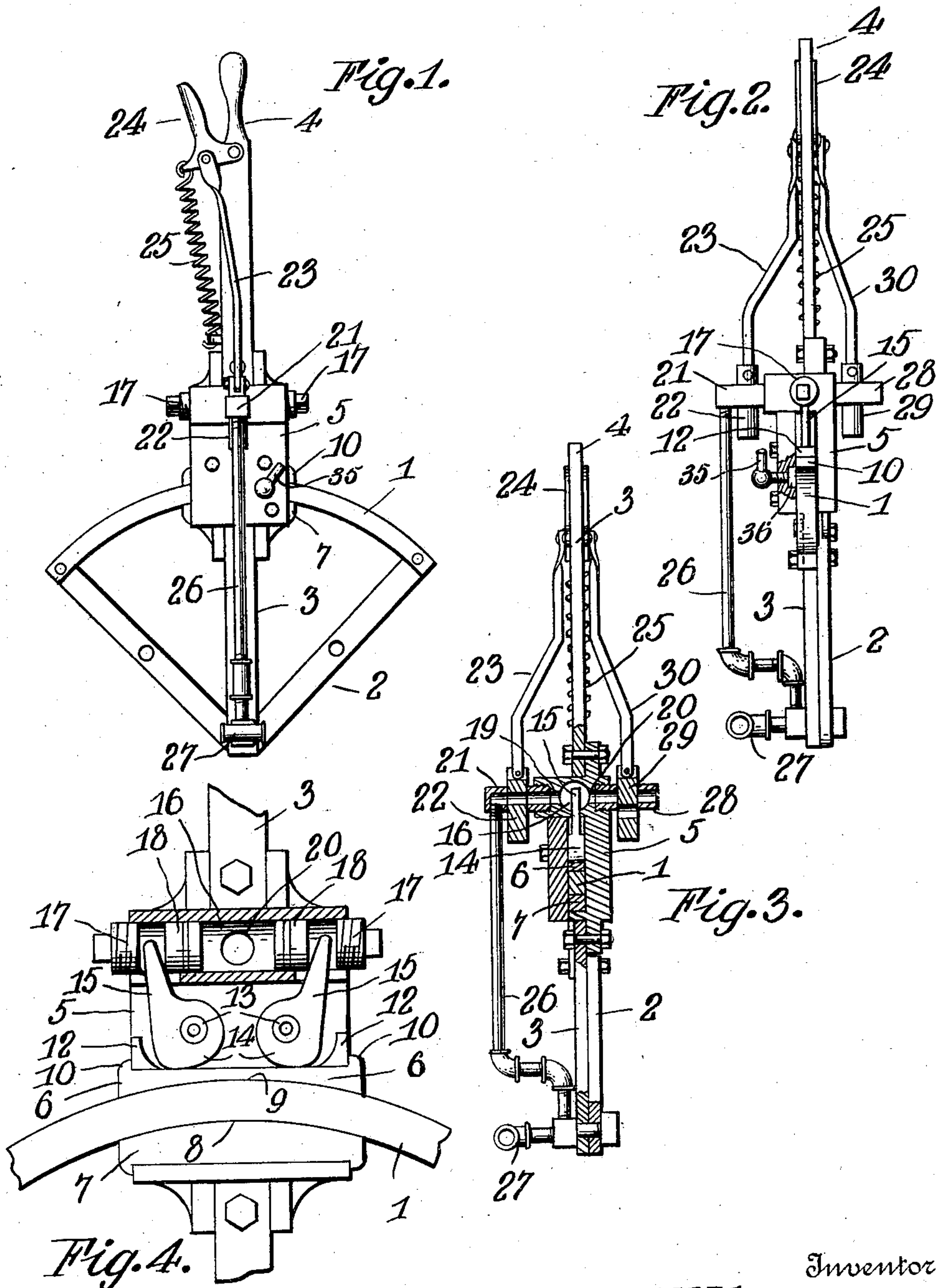


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W. W. KLEESE.
REVERSING LEVER AND QUADRANT BAR.

APPLICATION FILED MAY 23, 1907.



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REVERSING-LEVER AND QUADRANT-BAR.

No. 877,202.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed May 23, 1907. Serial No. 375,355.

To all whom it may concern:

Be it known that I, WILLIAM WILSON KLEESE, a citizen of the United States, residing at Aurora, in the county of Lawrence and State of Missouri, have invented certain new and useful Improvements in Reversing-Levers and Quadrant-Bars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in reversing levers and quadrant bars.

The object of the invention is to provide a device of this character having means whereby the lever may be automatically clutched into engagement with the quadrant bar at any desired position; means being provided whereby the clutching or gripping mechanism of the lever may be readily controlled.

With this object in view, the invention consists of certain novel features of construction and combination of parts that will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of one side of a releasing lever and quadrant bar constructed in accordance with the invention; Fig. 2 is an edge view of the same; Fig. 3 is a vertical sectional view through the lever on a line with the inlet and exhaust valves of the operating mechanism; and Fig. 4 is a horizontal sectional view through the same parts.

Referring more particularly to the drawings, 1 denotes the quadrant bar which is rectangular in cross section and provided with perfectly smooth segmental gripping surfaces. The opposite ends of the bar 1 are bolted or otherwise connected to the upper ends of a substantially V-shaped brace or supporting bar 2, which is bolted to a suitable supporting frame. Pivotally mounted on the apex or lower extremity of the brace bar 2 is a lever 3, having at its upper end a handle 4. Secured to the lever 3 and preferably forming a part of the same is a casing 5, through which the quadrant bar 1 is adapted to work.

Arranged in the casing 5 adjacent to its lower end are upper and lower gibs or grip-

ping shoes, 6 and 7, the lower one of which, 7, is supported upon the bottom of the casing 5 and is provided with a segmental or curved upper bearing surface 8, which is adapted to engage the lower side of the quadrant bar 1. The upper gib or gripping shoe 6 is provided on its lower side with a concave bearing surface, 9, which is adapted to be engaged with the curved upper surface of the quadrant bar. The gib 6 is provided on its opposite ends with upwardly projecting flanges 10, which are adapted to engage the outer sides of retaining lugs 12, which project laterally from one side of the casing 5, as shown.

Pivotally mounted on stub shafts 13, arranged in the casing 5, adjacent to its opposite edges and above the gib 6, are clutch operating cams, 14, the lower sides of which are adapted to be brought into engagement with the upper surface of the gib or gripping shoe, 6. On the opposite sides of the cam 14 are formed upwardly projecting operating levers 15, the upper ends of which project through slots formed in the lower side of a piston chamber 16, which is arranged in the upper portion of the casing 5 of the reversing lever. In the opposite ends of the chamber 16 are formed threaded passages which are closed by threaded plugs, 17, as shown. In the opposite ends of the chamber 16 are slidably mounted pistons 18, which are adapted to engage the upper ends of the levers 15 and to force the same outwardly, thereby rocking the cams 14 and causing the same to force the shoe or gib 6 into tight frictional engagement with the upper edge of the quadrant bar, thus holding the lever in locked position therewith at any desired point.

In one side of the chamber 16 is arranged a centrally disposed inlet port, 19, while in the opposite side of the chamber is arranged a centrally disposed discharge port, 20. Connected with the inlet port 19 is a valve casing 21, in which is slidably mounted a reciprocating cut-off valve 22, to the upper end of which is pivotally connected the lower end of an operating rod, 23. The upper end of the rod 23 is connected to an operating handle 24, which is pivotally mounted on the lever 3, adjacent to the handle 4 thereof. Also connected to the handle 24 is a coiled

spring 25, the opposite end of which is connected to the lever 3, and the tension of said spring is normally exerted to pull the handle 24 and the rod 23 downwardly and to hold the valve 22 open to permit the passage of steam or compressed air into the piston chamber. With the valve casing 21 is connected a steam or air conducting pipe, 26, the lower end of which is connected to a T, 27, which in turn is secured to the pivot bolt of the lever 3.

In the opposite side of the piston chamber, 16, and connected with the discharge port 20 is a valve casing 28, in which is arranged a slidably mounted exhaust valve 29, to the upper end of which is connected an operating rod 30. The rod 30 is similar in construction and arrangement to the rod 23, and is connected at its upper end to the handle 24, whereby when said handle is actuated to close the inlet valve 22, said rod 30 will open the exhaust valve and permit the steam or air from the chamber 16 to escape through the discharge port 20. When the handle 24 is released to permit the spring 25 to open the inlet valve 22, through the rod 23, said rod 30 will close the exhaust valve 29, thus enabling the steam which enters the valve 22 and inlet port 19 to act upon the piston in the piston chamber 16, and actuate the cams 14, and thereby engage the shoe or gib 6 with the quadrant bar.

By providing a quadrant bar and clutch mechanism as herein shown and described, the lever 3 may be locked into engagement with said bar in any desired position.

A lock lever 35 projects through the casing 5 and is provided at its inner end within said casing with a gib or shoe 36, adapted to bear on the quadrant, 1, when the lever is turned by hand and lock the reverse lever in any desired position on said quadrant bar when there is no steam or air on or should the air or steam fail.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the invention may be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In a device of the character described, the combination with a pivotally mounted lever, of a quadrant bar adapted to be engaged by said lever, and fluid operated means carried by the latter to lock the same into en-

gagement with the quadrant bar at any desired position, means under the control of the operator carried by said lever for controlling the fluid operating means to lock and unlock said lever relatively to said quadrant.

2. In a device of the character described, the combination with a pivotally mounted lever, of a quadrant bar having smooth upper and lower edges, a clutch mechanism carried by said lever to engage said bar at any desired point, and fluid operated means to automatically operate said clutch mechanism, and means carried by said lever for controlling said fluid operated means.

3. In a device of the character described, the combination with a pivotally mounted lever, of a quadrant bar having a smooth upper and lower surface, clutching gibs carried by said lever to engage said quadrant bar, operating cams adapted to be engaged with one of said gibs, and fluid operated means to actuate said cams, and means carried by said lever for controlling said fluid operated means.

4. In a device of the character described, the combination with a pivotally mounted lever, of a quadrant bar having a smooth upper and lower surface, clutching gibs carried by said lever to engage said quadrant bar, operating cams adapted to be engaged with one of said gibs, a piston chamber carried by said lever, pistons mounted in said chamber to engage said cams, inlet and discharge valves arranged in said chamber, and means to control said valves, substantially as described.

5. In a device of the character described, the combination with a pivotally mounted lever, of a quadrant bar having a smooth upper and lower surface, clutching gibs carried by said lever to engage said quadrant bar, operating cams adapted to be engaged with one of said gibs, a piston chamber carried by said lever, cam operating levers adapted to project into said piston chamber, slidably mounted pistons adapted to engage said levers, inlet and discharge valves arranged in the opposite sides of said chamber, operating rods connected to said valves, a handle pivotally mounted on said lever and connected to the upper ends of said operating rods whereby said inlet valve is closed and exhaust valve opened, and a retracting spring to open said inlet valve and close the exhaust valve when said handle is released, substantially as described.

6. In a device of the class described, the combination with the pivotally mounted lever of a quadrant bar having smooth upper and lower surfaces, clutching gibs carried by said lever to engage said quadrant bar, operating cams adapted to be engaged with one of said gibs, a piston chamber carried by said

lever, cam operating levers adapted to project into said chamber, slidably mounted pistons adapted to engage said levers, inlet and discharge valves arranged in the opposite
5 sides of said chamber and means connected with said valves for simultaneously opening one valve and closing the other.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM WILSON KLEESE.

Witnesses:

P. B. ASKINS,

DAVID L. RICKMAN.