(No Model.)

G. S. BINCKLEY.

HAND LEVER.

No. 589,890. Patented Sept. 14, 1897.

Fig. 1.

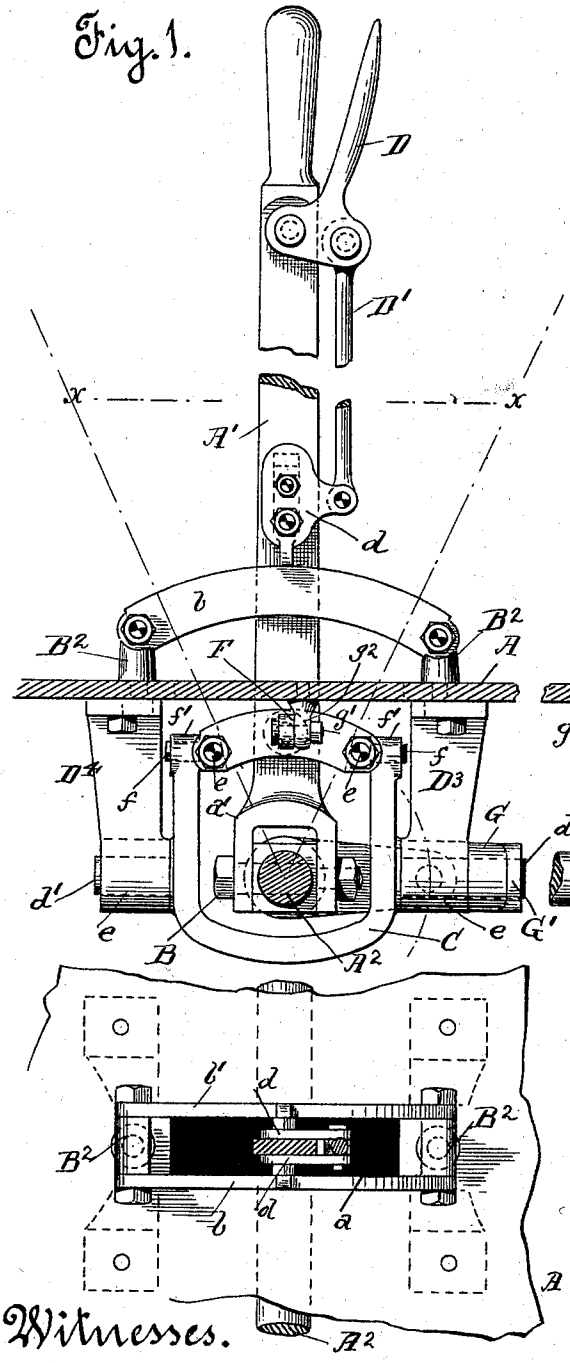


Fig. 2.

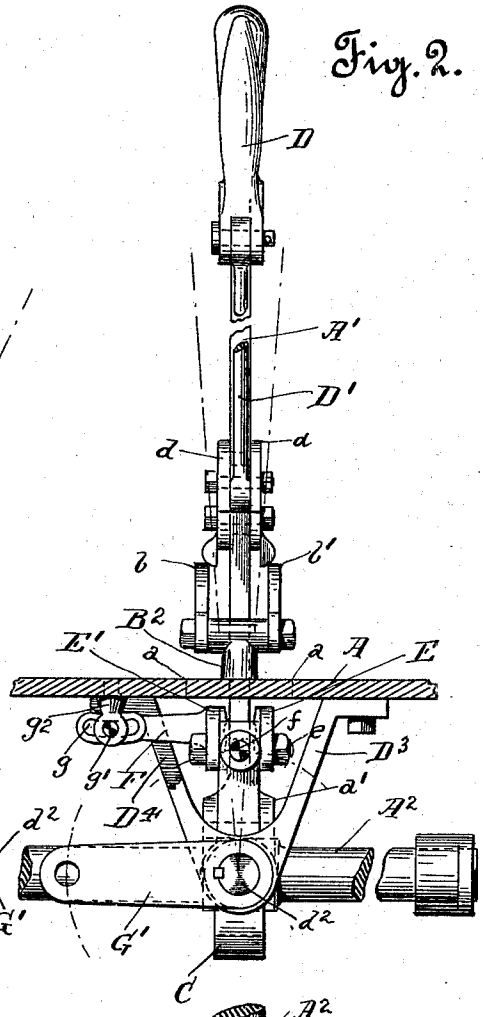


Fig. 3.

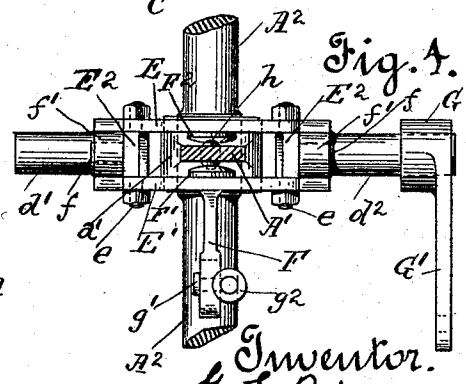


Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE S. BINCKLEY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE UNION IRON WORKS, OF SAME PLACE.

HAND-LEVER.

SPECIFICATION forming part of Letters Patent No. 589,890, dated September 14, 1897.

Application filed January 2, 1897. Serial No. 617,835. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BINCKLEY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Hand-Levers; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to certain new and useful improvements in hand-levers for operating and controlling mechanical devices, which consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings, and described and pointed out in the specification.

The object of the invention is to so construct the hand-lever and its connections that entirely separate and distinct trains of mechanism may be operated and controlled by a single hand-lever—as, for instance, to control the opening and the closing of a throttle-valve and the mechanism for starting and reversing an engine, thus enabling the use of one lever to perform the work ordinarily required of two or more levers, and hence creating a saving not only in the expense of a number of the levers, but a saving of time and a saving of annoyance and possible confusion of the operator by being compelled to handle a series of levers.

In order to fully understand the invention, reference must be had to the accompanying sheet of drawings, forming a part of this application, wherein—

Figure 1 is a side view in elevation, showing the hand-lever and its connecting mechanism. Fig. 2 is an end view in elevation of the mechanism illustrated by Fig. 1. Fig. 3 is a top plan view taken on line x x, Fig. 1; and Fig. 4 is a similar view taken below the floor-line.

In the drawings the letter A is used to indicate the floor or base-plate, and A′ is used to indicate the hand-lever, which extends through an elongated opening a, cut within the floor or base-plate A. This lever at its lower end terminates in or is provided with a jaw a', which jaw embraces and is secured to the shaft A^2 by the bolt B. The bolt B passes through the sides of the jaw a' and through the shaft A^2 at a right angle to its axis, thus making a fulcrum upon which the hand-lever A′ is free to move or swing sidewise in the plane of the axis of the shaft A^2 without disturbing the said shaft.

The hand-lever A′ works between two quadrant-bars b b', located above and secured to the floor or base-plate A by any suitable means, such as short standards B^2. The quadrant-bars are placed such a distance apart as to permit lateral or side movement to the hand-lever as thrown over upon its fulcrumed point. In order to provide against accidental side movement or play to the hand-lever, a vertically-movable catch or latch d is secured to each face thereof, which catch or latch is connected to the hand-lever D, fulcrumed to the lever A′ near its upper end by the connecting-rod D′. The catches or latches d embrace the outer face of each quadrant b b' and act or serve as guides for holding the hand-lever against lateral or side movement or play, although they permit of free forward or backward movement being given to the hand-lever for the reason that they slide upon the face of the quadrants, unless notches be provided in the face of the quadrants, into which the catches or latches fit, in which case it would be necessary to raise the catches from within the quadrant-notches before the hand-lever be thrown forward or backward. It will thus be observed that while the hand-lever is free to be thrown forward and backward in the position illustrated by dotted lines in Fig. 1 in order to oscillate the shaft A^2 it is held locked against side or lateral movement. This oscillatory shaft A^2 is connected in any suitable manner—say with the throttle-valve mechanism of an engine. (Connection not being shown.) Consequently as the hand-lever is thrown backward or forward the said shaft will be oscillated so as to control the movement of the throttle-valve.

Below the floor or base A is suspended, by brackets D^2 D^3, the yoke C, the trunnions d' d^2 of the yoke working in bearings e of the brackets. The centers of these trunnions are in axial line with the axis of the shaft A^2. Between the horns of this yoke C are suspended the secondary quadrants E E′, which quadrants are secured by bolts e' to the end blocks E^2. These end blocks are provided

with trunnions f, which work in bearings f' in the horns of the yoke C. The secondary quadrant E′ is provided with a laterally-projecting arm F, which arm has cut therein, near its outer end, the curved slot g. Within this slot is fitted a pin g', which is secured to a stud g^2, downwardly projecting from the floor or base-plate. This pin, fitting within the curved slot, holds the arm F and the swinging secondary quadrants at all times and under all conditions in a horizontal plane, whatever position the yoke C may assume, and causes the swinging quadrants to move along in the direction of the axis of the shaft A^2.

The hand-lever A′ extends upwardly between the secondary quadrants E E′, and it is provided, at a point between the said quadrants, with a spherical-ended pin h, composed of steel or other suitable material, the ends of which pin fit within the socket cut in the inner face of the disks F′ F^2, which disks are so fitted between the secondary quadrants E E′ that the outer face thereof will slide along the inner face of the said quadrants as the hand-lever is thrown forward or backward.

The end of trunnion d^2 of the yoke C extends beyond the bearing of bracket D^3 and has keyed or otherwise secured thereon the collar G, which collar is provided with an outwardly-extending arm G′. This arm connects with any suitable line of mechanism, (not shown,) as the reversing mechanism of an engine, so that as the said arm is thrown up or down the mechanism controlled thereby will be suitably operated.

In order to operate the line of machinery controlled by the movement of the shaft A^2, the hand-lever A′ is thrown either forward or backward, so as to cause the jaw end of the lever to oscillate the shaft A^2 in the desired direction. The hand-lever as thrown to oscillate the shaft A^2 will not move or swing the yoke C, for the reason that the said lever moves between the secondary quadrants. If it is desired to operate the line of machinery controlled by the movement of the arm G′, it is necessary that the hand-lever D be first pressed inward, which, through its connections, raises the catches or latches d, so as to clear the quadrants b b'. The hand-lever is then thrown laterally or to one side in line with the axis of the shaft A^2, which, as moved over, causes the yoke C to swing in its bearings by the lever drawing upon the swinging quadrants E E′. As thrown laterally the hand-lever turns upon its fulcrumed point. Consequently the shaft A^2 remains undisturbed. During the throw of the yoke C the trunnion d^2 is turned so as to raise or lower the arm G′ in order to operate the line of machinery controlled thereby. By simply throwing the hand-lever forward or backward at a gradual lateral incline both lines of mechanism may be set in operation by one throw of the hand-lever. It will thus be observed that each line of machinery may be operated independently, or both may be controlled by one movement of the hand-lever.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent, is—

1. The combination in a lever mechanism, of a hand-lever, a jaw formed on the lower end thereof, which embraces an oscillatory shaft controlling a train of mechanism, a bolt passing through the jaw and oscillatory shaft and forming a fulcrumed point for the hand-lever, at right angles to the axis of the shaft, the fixed quadrants between which the hand-lever works, the latch or catch movably connected to the hand-lever and arranged to engage the quadrants, the swinging or secondary quadrants secured between the horns of a swinging yoke which is thrown by the lateral throw of the hand-lever, and of connection between the swinging yoke and an independent train of mechanism from that controlled by the oscillatory shaft.

2. The combination with the hand-lever, of an oscillatory shaft to which the hand-lever is fulcrumed at right angles to its axis, said shaft being connected to one train of mechanism, the quadrant-bars between which the hand-lever works, a movable latch or catch carried at each side of the hand-lever which engages the quadrant-bars, the secondary quadrants suspended between the horns of a swinging yoke, the disks arranged between the swinging quadrants and held in place by a spherical-ended pin passing through the hand-lever, and of suitable connection between the swinging yoke and a second train of mechanism.

3. In a lever mechanism, the combination with the oscillatory shaft connected to a train of mechanism, of a hand-lever fulcrumed to the shaft at right angles to its axis, the fixed quadrants between which the hand-lever works, a movable latch carried at each side of said lever which embraces the sides of the fixed quadrants, the swinging yoke connected to a second train of mechanism, the secondary quadrants suspended between the horns of the swinging yoke, the sliding disks arranged between said quadrants and held in place by means of a spherical-ended pin passing through the hand-lever, an arm having a slot cut in its outer end portion projecting from one of the suspended quadrants and a pin working in the slotted end portion of the arm and serving to hold the arm and suspended quadrants in a horizontal plane during the movement of the swinging yoke.

In testimony whereof I affix my signature in presence of two witnesses, this 26th day of December, 1896.

GEORGE S. BINCKLEY.

Witnesses:
N. A. ACKER,
LEE D. CRAIG.