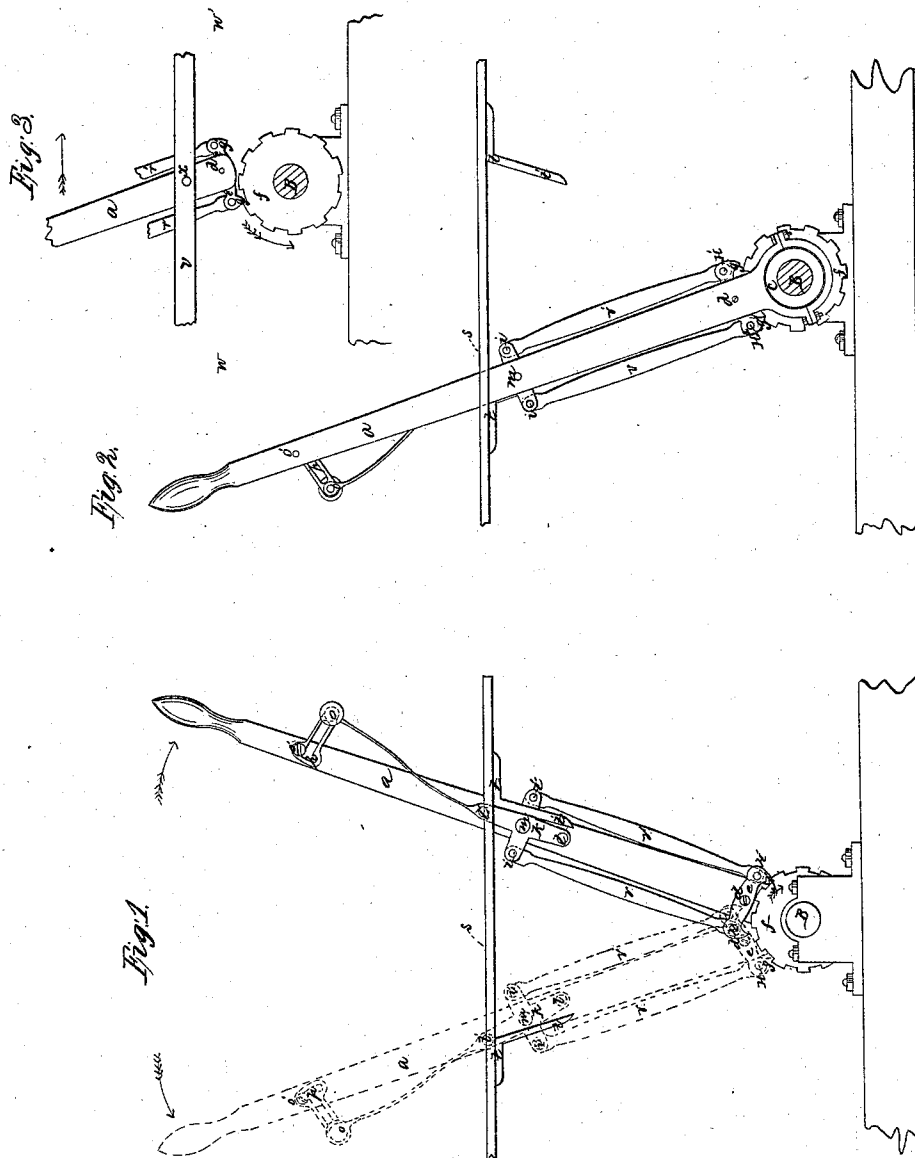


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N^o 39564.

Patented Aug. 18, 1863.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS W. GODWIN, OF PORTSMOUTH, VIRGINIA.

IMPROVEMENT IN ENGINE-LEVERS.

Specification forming part of Letters Patent No. 39,564, dated August 18, 1863.

To all whom it may concern:

Be it known that I, THOMAS W. GODWIN, of Portsmouth, in the county of Norfolk, in the State of Virginia, have invented a new, useful, and Improved Engine-Lever; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 represents a front elevation of the lever, the black lines showing the operation of the lever when working the shaft toward the right, or in the direction of the black arrow at the bottom of the lever, the red lines showing its operation when working the shaft in the opposite direction. Fig. 2 represents a rear elevation of the lever. Fig. 3 represents a rear elevation of the lever when attached to a beam above the shaft, instead of the shaft itself, as in Figs. 1 and 2.

B is the main shaft of any machinery, to which is firmly attached the ratchet-wheel *f*, formed of a single disk.

a is an engine-lever, the lower end of which works on the shaft B, or on a wheel firmly attached to the shaft, as shown in Fig. 2, in which C represents the wheel.

At *d* is a bolt passing through the lever, upon which, as a fulcrum, works the cross balance-bar *e*. This cross balance-bar terminates at either extremity in a stout tooth, *g g'*, projecting downward and outward, and is attached to the lever at such a distance above the ratchet-wheel, that when the cross balance-bar is in a position at right angles with the lever, the lever may be worked freely without having the teeth *g g'* catch in the notches of the ratchet, but when the cross balance-bar is thrown out of that position by depressing either the one end or the other, the tooth, then depressed, catches in the notches of the ratchet. The teeth are of such a form, projecting outward as well as downward, that when either of them is depressed so as to catch in the notches of the ratchet-wheel, and the lever is then moved in the direction of that tooth, the tooth catches firmly in the ratchet and moves it and the shaft in that direction, but when the lever is drawn back to its original position, the tooth strikes the opposite or inner edge of the notch, and rises out of it

without affecting the motion of the ratchet-wheel in any degree. Each tooth, when depressed thus, moves the shaft in the direction in which it projects, but will not move it in the opposite direction.

H H' are movable joints by which the lower ends of the connecting-rods *r r'* are attached to the lower cross balance-bar, *e*, the upper ends of such rods being attached by similar joints *i i'* to the upper cross balance-bar, *k*. This bar, which is in the form of an inverted cross, is attached to the lever *a* by the bolt *m*, and has a stout pin projecting from its lower end *l*, and a similar one, *l'*, at a distance above *m* equal to the distance from *l* to *m*. At the point *l'* the upright beam of the cross begins to contract in size, and becomes an elastic spring, terminating at *o* in a movable joint, by which it is connected with the eccentric loop *p*. The latter moves on and is held in position by a pin, *o'*, and has a handle, *o*, by means of which it can be turned to right or left, if necessary, all which is designed to enable the operator, by means of the handle *o*, to put either of the teeth in a position to move the ratchet-wheel or to put them both out of such position.

At *t t'* are lugs inclining inward from *t* to *t'*, against which the pin *l'* strikes, and puts the lever out of working position. These lugs have, on their inner side next to the lever, a notch so as to allow the head of the bolt *m* to pass without striking. The lugs are attached to the under side of a bed-plate, which has a slot, *s*, in which the upper end of the lever moves, and when used in vessels is fastened to the deck of the vessels.

It is a well-known fact in mechanics, that in the working of machinery there are certain positions which are called "dead-points," and to meet this difficulty I designed in my invention to produce a means of starting in motion the main shaft of machinery driven by steam or any other motive power. In my invention I have had also in view the saving of time, by so arranging the lever that while it is confined in a bed-plate of metal, its working movement may be changed right or left in the most expeditious and convenient manner.

I do not wish to be confined to a lever which moves on the shaft or a wheel attached to the shaft, as above described, but may, as shown in Fig. 3, attach a cross-beam, *v*, to the posts *w w*, or to any other supports, and may con-

nect my lever with it by a bolt or pivot, *x*, upon which it shall move.

What I claim as new, and desire to secure by Letters Patent, is—

1. The use of the lower cross balance-bar, *e*, having the teeth *g g'*, substantially as and for the purpose described.

2. The construction and use of the upper

cross balance-bar, *k*, in one solid piece of the form of an inverted cross, substantially as and for the purpose set forth.

THOS. W. GODWIN.

Witnesses:

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