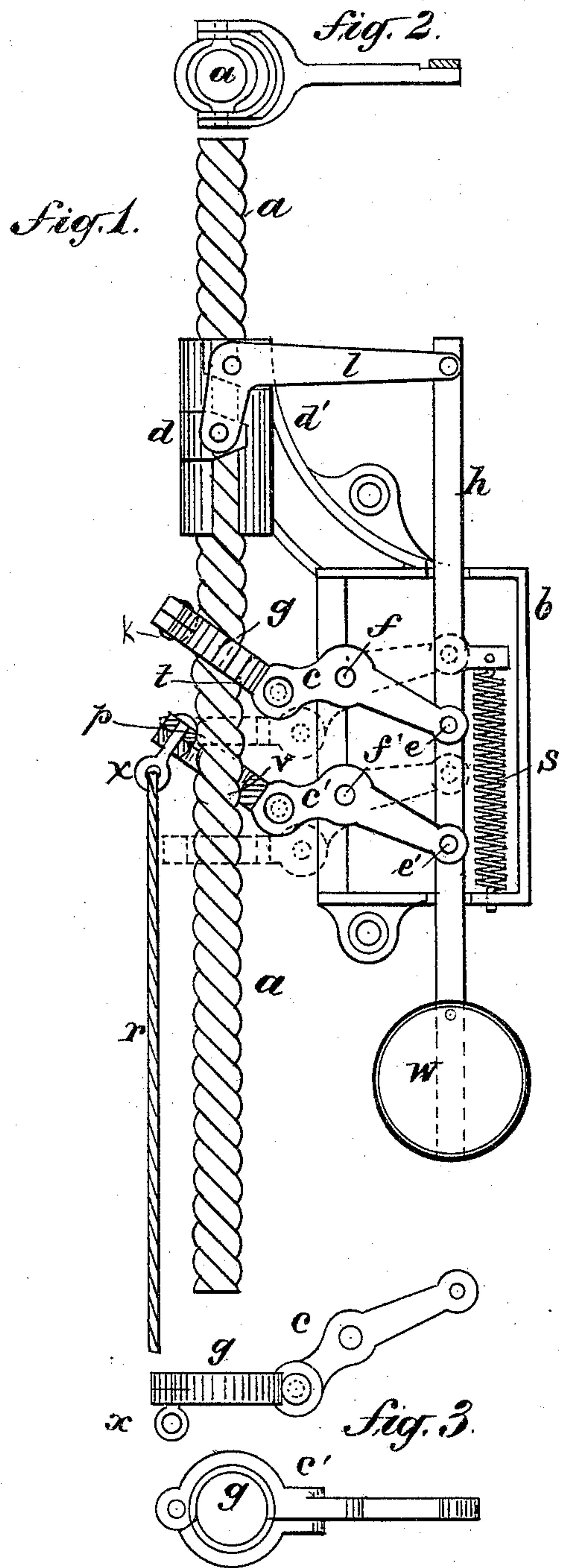


(No Model.)

L. E. MANSFIELD.
GRIP FOR HOISTING MACHINES.

No. 433,481.

Patented Aug. 5, 1890.



Witnesses:
John P. H. DeWitt.
George G. Dutcher

Inventor
Luther Earl Mansfield

UNITED STATES PATENT OFFICE.

LUTHER EARL MANSFIELD, OF BROOKLYN, NEW YORK.

GRIP FOR HOISTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 433,481, dated August 5, 1890

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To all whom it may concern:

Be it known that I, LUTHER EARL MANSFIELD, a citizen of the United States of America, and a resident of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Grips for Hoisting-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, in which—

Figure 1 is a side elevation, partly sectional, of an apparatus embodying my invention. Fig. 2 is a plan view of the brake-grip part of the device. Fig. 3 shows the gripping-jaws. Fig. 4 is a side elevation of a tackle-block to which the device has been applied, a part of the block and guard having been cut away to more fully exhibit the arrangement of the parts; and Figs. 5 and 6 are detail views of parts of the apparatus shown in Fig. 4.

The invention consists, primarily, in an automatic grip that will seize and hold a rope or chain the instant that such rope or chain begins to move in a given direction, together with means for releasing the rope from the action of said grip, and, secondarily, in a modified grip, which may be brought into operation by the application of further power to the mechanism which releases the automatic grip. *b* is the frame of the device. It may be of almost any form or shape, the only requirements being that it shall furnish a bearing for the jaw-pivots and means for attachment to the desired place of application—for instance, the box portion of a dumb-waiter or the standing part of the suspending-rope. In the tackle-block the shell of the block is extended to perform this office, and itself constitutes the frame. In this frame are pivoted gripping-jaws *g*, arranged to swing back and forth (here up and down) in the same plane, and by means of a weight or spring these jaws are normally held in a position at an angle other than a right angle to the lines defining the space to be occupied by the rope. This is usually more conveniently accomplished by setting the jaws somewhat obliquely upon the arms sustaining them, or making an elbow, as it were, between the jaws proper and the pivot. These jaws are also usually connected by a rod *h*, placed on one side of the pivots, (in Fig. 1 on the right side, and in Fig. 4 on the left,) that their

movements may be coincident, and a ring *x* or other device is provided for attaching the tripping-cord *r*.

W is the weight, and *s* the spring above referred to, while *a* is the rope to be gripped. To an extension of rod *h*, I attach a bell-crank lever *l*, the crank end of which is also spread into a jaw, and the length of which is such as to bring the opening in this jaw in line with the opening in jaws *g*, and to said jaws I pivot two semi-cylindrical brake-shoes *d*, preferably provided with ears, as shown, one pivoted to *l* at the turn or bend of the crank and the other near the extremity. Steadiness of movement will be secured by connecting one shoe to the frame *b*, as shown.

Jaws *g* may be made as shown—that is, in two parts pivoted together and provided with a fastening-screw *k*, in order to permit them to be applied to a rope already in place without passing it through from the end; but this is not absolutely essential. They may be made as solid rings, or the upper one may be entirely open to the left and the lower one to the right. Their inner faces are preferably rounded to lessen the wear on the passing rope.

The operation is as follows, it being assumed, for instance, that frame *b* is attached to a dumb-waiter, the suspending-rope of which passes up and over a pulley and then down and through the jaws *d* and *g*, where it is seen as rope *a* in the drawings. Now so long as rope *a* moves in one direction, (here down,) as it would were any one pulling upon it to raise the waiter, the grip permits its free passage, the inclination of jaws *g* being in the other direction; but the moment the pulling force is removed and the weight of the waiter tends to draw rope *a* up through, that instant rope *a*, bearing against the inside of the upper jaw *g*, will move it upward, which movement, transmitted through rod *h*, moves lower jaw *g* upward and causes it and upper jaw *g* to tightly grip the rope between them, thus preventing any further upward movement of rope *a*. To permit the further upward movement of rope *a*, the attendant has only to seize *r*, and, pulling upon it, draw back jaws *g*, when rope *a* may move freely so long as jaws *g* are held retracted. If it is desired that rope *a* shall have but a moderate movement, more power is applied to cord *r*, jaws *g* are further de-

pressed at the gripping ends, and of course raised at the opposite ends. Raising their rear ends raises the connecting-bar *h* and the long arm of lever *l*, thus forcing the brake-shoes *d* together, when they will bind upon the rope and retard its movement.

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

10 1. A grip composed of a frame and jaws pivoted to said frame and free to swing back and forth in the same plane, as described, all combined substantially as set forth.

15 2. A grip composed of a frame, jaws pivoted to said frame and free to swing back and forth in the same plane, as described, and a connecting-rod pivoted to said grips at points beyond their fulcrums, all combined substantially as set forth.

20 3. A grip composed of a frame, jaws pivoted to said frame and free to swing back and forth in the same plane, as described, and means, substantially as described, for holding said jaws inclined from their pivots in the direction in which they are intended to arrest the 25 movement of the rope, all combined substantially as and for the purpose set forth.

4. A grip composed of a frame, jaws pivoted to said frame and free to swing back and forth

in the same plane, as described, and a releasing-cord connected to one of said jaws, all 30 combined substantially as and for the purpose set forth.

5. A grip composed of a frame, jaws pivoted to said frame and free to swing back and forth in the same plane, as described, a releasing- 35 cord connected to one of said jaws, a connecting-rod pivoted to the lever of said jaw and provided with a bell-crank lever, to which are pivoted two brake-shoes, one near the extremity and the other near the bend of the crank, 40 all combined substantially as and for the purpose set forth.

6. The combination, with a suspending-cord, of a grip composed of a frame, jaws pivoted to said frame and free to swing back and forth 45 in the same plane, a connecting-rod pivoted to said grips at points beyond their fulcrums, means for holding said jaws inclined from their pivots in the direction of movement toward which they are intended to arrest the 50 rope, and a releasing-cord, all combined to operate as and for the purpose set forth.

LUTHER EARL MANSFIELD.

Witnesses:

JOHN P. H. DEWINT.

GEORGE G. DUTCHER.