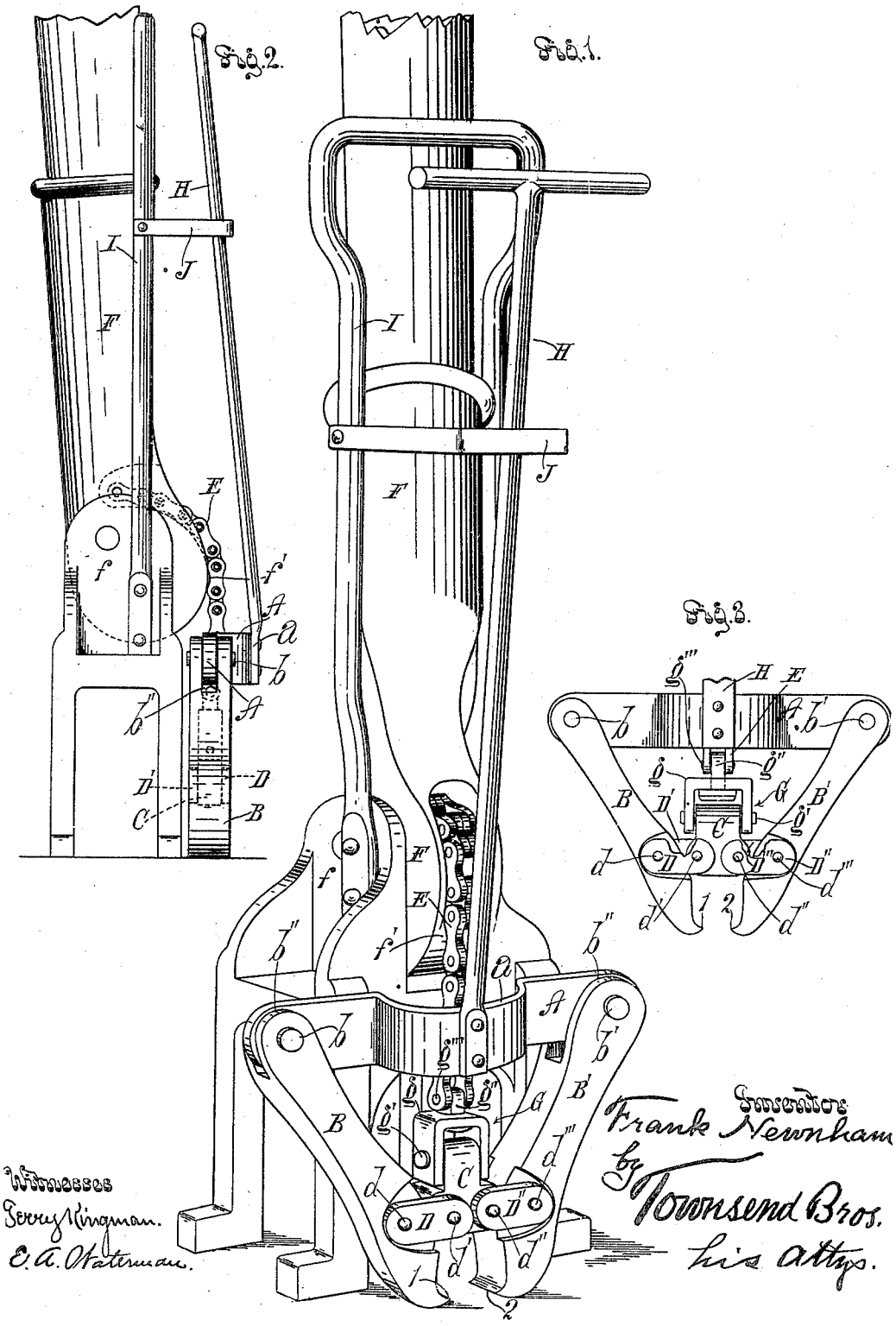
No. 649,873. Patented May 15, 1900.

F. NEWNHAM.

CLUTCH FOR PULLING SPIKES.

(Application filed July 8, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

FRANK NEWNHAM, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE RINDGE MANUFACTURING COMPANY, OF SAME PLACE.

CLUTCH FOR PULLING SPIKES.

SPECIFICATION forming part of Letters Patent No. 649,873, dated May 15, 1900.

Application filed July 8, 1899. Serial No. 723,231. (No model.)

To all whom it may concern:

Be it known that I, FRANK NEWNHAM, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Clutch for Pulling Spikes and for other Uses, of which the following is a specification.

The object of my invention is to provide a spike-pulling clutch which will grip the head or body of the spike with such power as to prevent any slipping in withdrawing the spike from railroad-ties or other bodies in which the spike is set.

My invention is applicable to other uses—such, for instance, as a gripper for raising weights and allowing the same to fall.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of my newly-invented spike-pulling clutch. Fig. 2 is a side elevation of the same. Fig. 3 is a detail front elevation of the clutch.

A indicates a bar.

B B′ indicate two jaw-levers pivoted to the bar by pivots *b b′* at a distance apart and converging toward the jaws 1 2.

C indicates a toggle-block located between the converging levers.

D D′ D″ D‴ indicate toggle-arms pivotally connecting the block C with the levers, respectively, below the bar—that is to say, at a point near the jaws.

d d′ d″ d‴ indicate the toggle-pivots. I provide suitable means for operating the toggle-block. This is preferably a flexible connection, as at E, which indicates a chain connected with the toggle-block.

F indicates a lever to which the chain is attached, said lever being provided with a fulcrum *f* and also with a curved face *f′*, over which the said chain is led. The chain is connected with the toggle-block by means of a swivel connection, (indicated in a general way by the charactur G.)

g indicates a swivel-yoke pivoted to the block by a pivot *g′*.

g″ indicates a swivel-bolt, which is pivoted to the yoke at right angles to the pivot *g′*, by which the yoke is pivoted to the block. The chain is pivoted to the bolt by a pivot *g‴*.

H indicates a handle fastened to the clutch-bar A and by means of which the jaws of the clutch can be quickly and easily set to catch the spike to be drawn.

I indicates a handle for handling the fulcrum *f* of the lever.

J indicates a loop fastened to the handle I to retain the handle H.

In practical operation the workman handles the appliance by means of the handles H I and lever F. The clutch is placed with its jaws 1 2 on opposite sides of the spike or other object to be gripped, and the lever is then operated over its fulcrum to draw up on the toggle-block C. This draws up on the toggle-arms D D′ D″ D‴, thus forcing the jaws together. The force applied to pull up thus operates with great power to cause the jaws to grip the spike or other object between the jaws, and the result is that the greater the force applied to draw the jaws upward the greater is the force applied to cause the jaws to grip the object. Thereby slipping is absolutely prevented.

Preferably the bar A is set in slots *b″* in the ends of the jaw-levers B B′, and said bar is bent at the middle, as at *a*, to escape the chain.

The purpose of the swivel connection is to adjust the jaws to any position of the spike.

It is important for the best results that the jaws be thick and strong below the toggle-pivots and that their edges project toward each other in a horizontal manner, as indicated in Fig. 3. The edges are designed to cut into the sides of the spike-head, so that it is not necessary to get under the head. It is also important that the pivots *b b′* be set at a considerable distance apart in the bar A. The gripping power of the jaws is rapidly multiplied as the distance between said pivots increases, the length of the jaws remaining the same and said jaws practically forming a triangular figure with the bar. The jaw-levers and the members D, D′, D″, D‴, and C form a toggle-joint, the power of which will increase in a high ratio as the pivots *b b′* are thrown outward from verticals drawn from the pivots *d d‴*. By means of the bar A the pivotal points *b b′* can be brought to any de-

sired position relative to the other pivotal points of the toggle, and the gripping power can be made as great as may be required.

By reason of the bar with pivots *b* and *b'* and the toggle-block C, to which the toggle-arms are pivoted, the operative parts are connected by these pivotal points, a great flexibility of adjustment of the clutch is provided for, the readiness with which the clutch adapts itself to grip or release the spike or other object is perfected, and all unequal strain and consequent breakage are avoided.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a bar; two jaw-levers pivoted to the bar at a distance apart and converging toward the jaws; a toggle-block located between the converging levers; toggle-arms pivotally connecting the block with the levers respectively below the bar; and means for operating the toggle-block.

2. The combination of a bar; two jaw-levers pivoted to the bar at a distance apart and converging toward the jaws; said jaws being provided with edges projecting toward each other; a toggle-block located between the converging levers; toggle-arms pivotally connecting the block with the levers respectively below the bar; and means for operating the toggle-block.

3. The combination of a bar; two jaw-levers pivoted to the bar at a distance apart and converging toward the jaws; said jaws being provided with edges projecting toward each other; a toggle-block located between the converging levers; toggle-arms pivotally connecting the block with the levers respectively; a flexible connection connected with the toggle-block; and a lever to which the flexible connection is attached; said lever being provided with a fulcrum and also with a curved face over which the flexible connection is led.

4. The combination of a bar; two jaw-levers pivoted to the bar at a distance apart and converging toward the jaws; said jaws being provided with edges projecting toward each other; a toggle-block located between the converging levers; toggle-arms pivotally connecting the block with the levers respectively; a lever with flexible connection for operating the block; and a swivel connection connecting the flexible connection with said block.

5. A clutch comprising a bar; two jaw-levers pivoted to the bar at a distance apart and converging toward the jaws; said jaws being provided with edges projecting toward each other; a toggle-block located between the converging levers; toggle-arms pivotally connecting the block with the levers respectively; means for operating the toggle-block; and a handle attached to the bar for handling the clutch.

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