

(No Model.)

L. D. LIBBEY.

CABLE GRIP.

No. 373,188.

Patented Nov. 15, 1887.

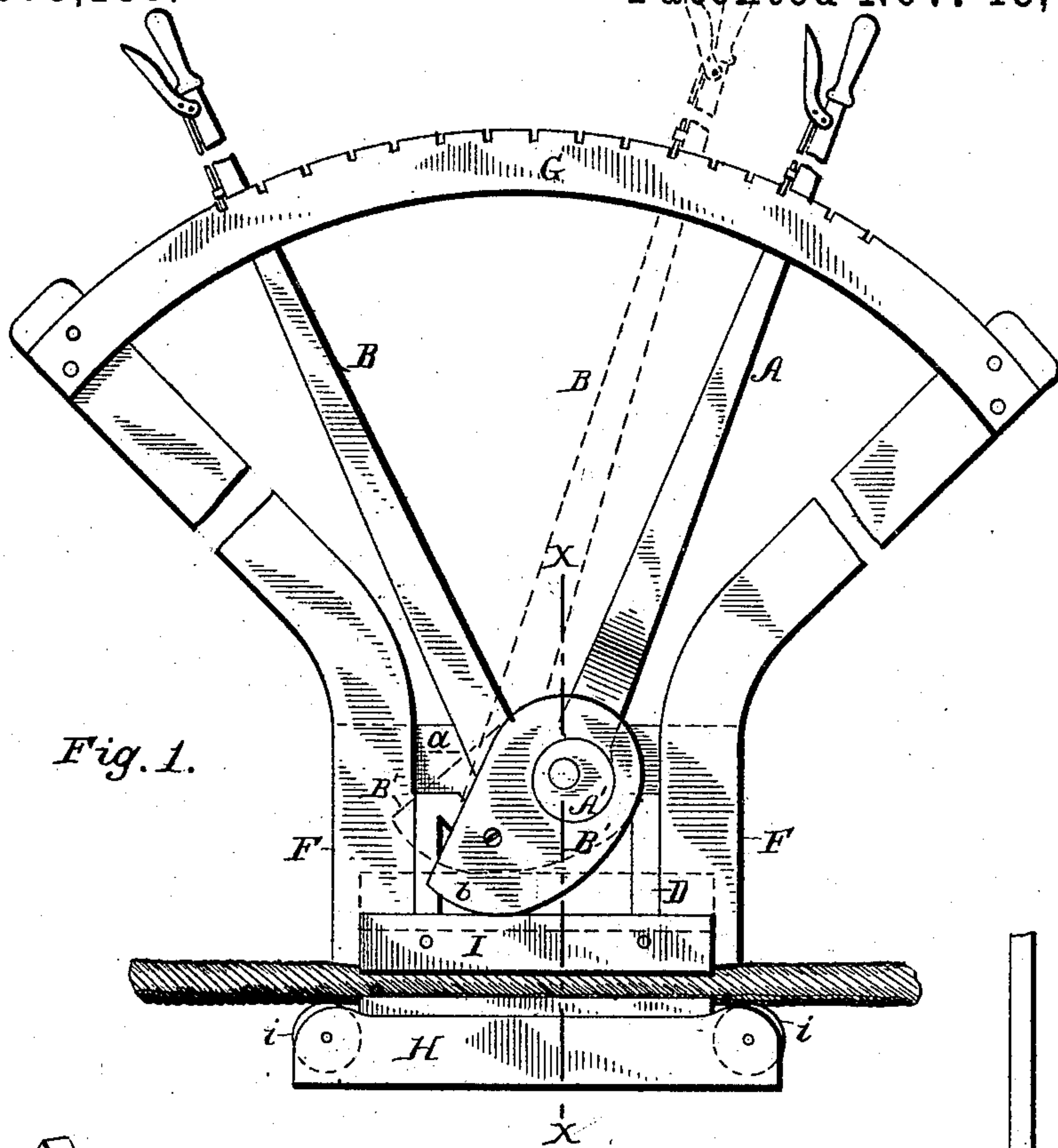


Fig. 1.

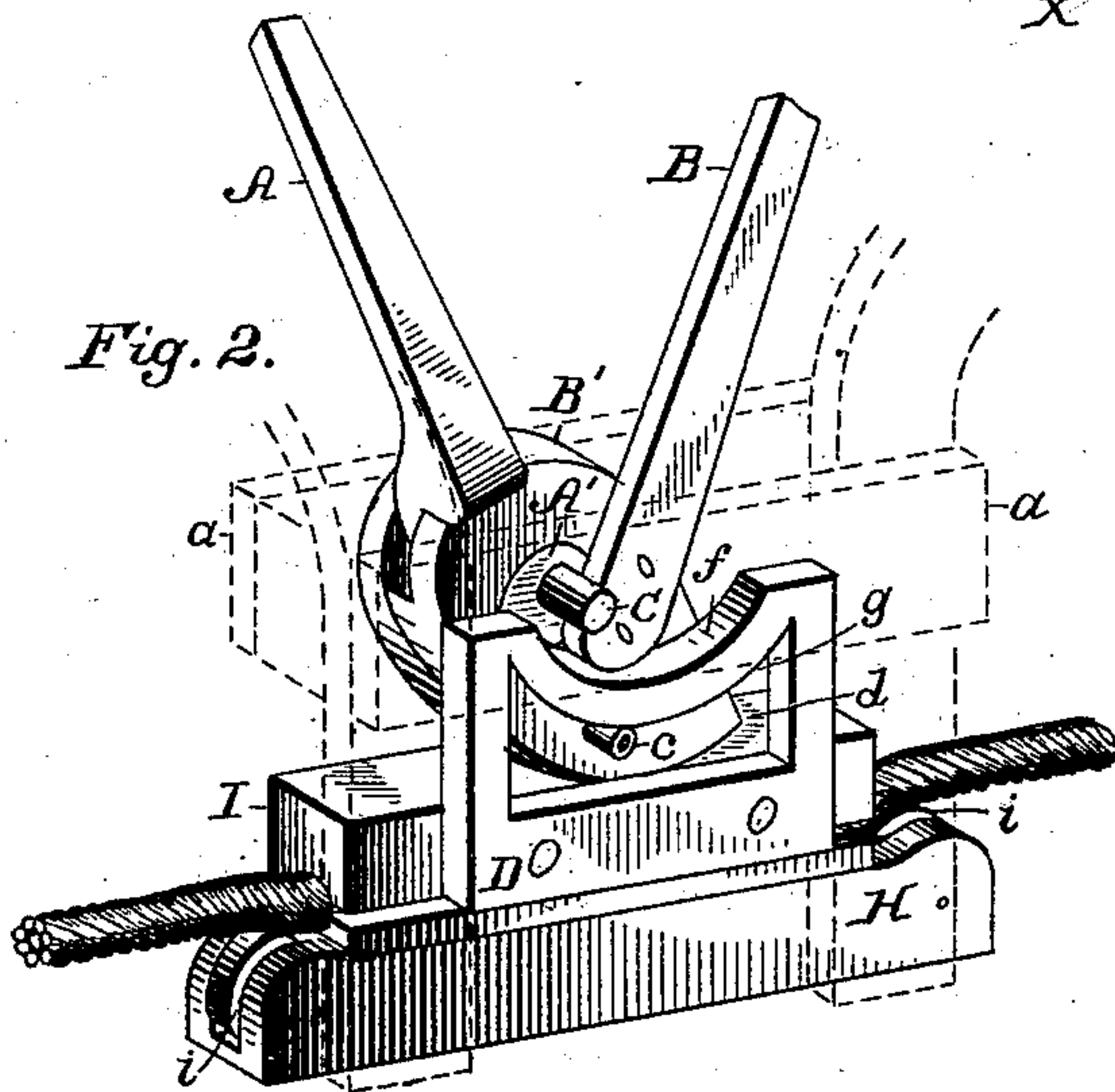


Fig. 2.

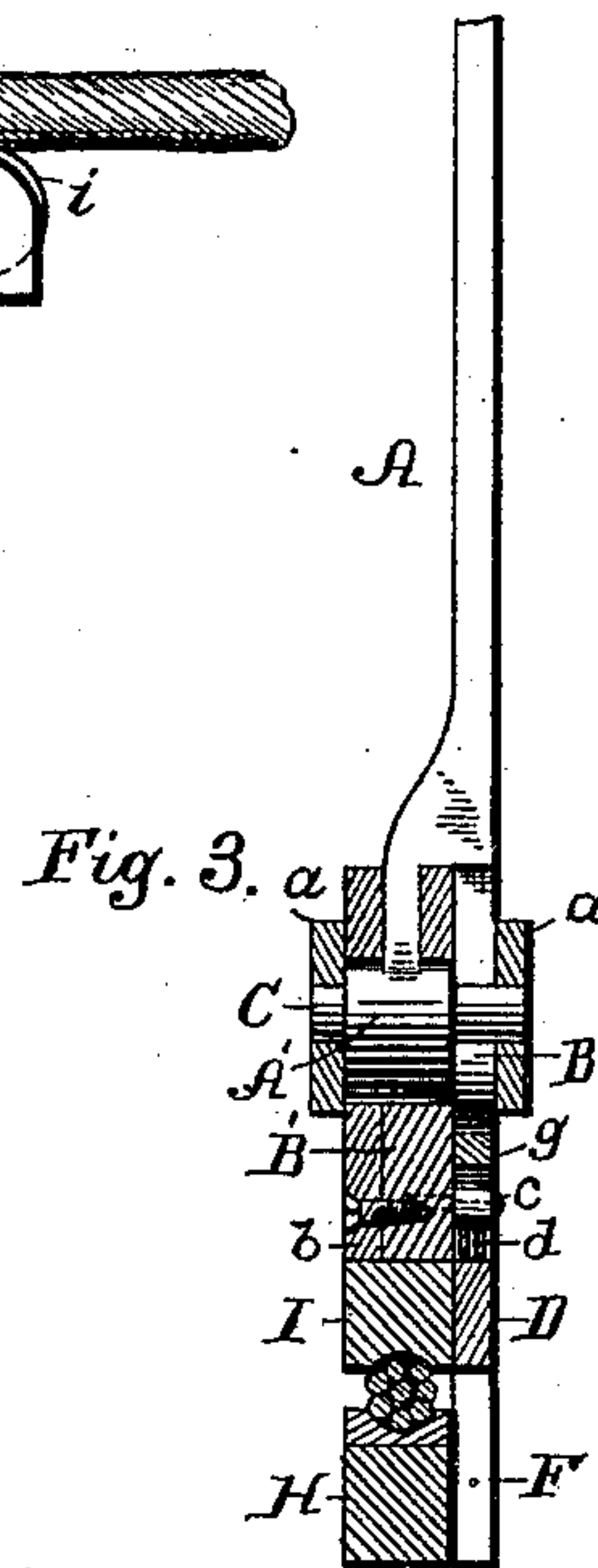


Fig. 3.

WITNESSES

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# UNITED STATES PATENT OFFICE.

LEON D. LIBBEY, OF WYANDOTTE, KANSAS.

## CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 373,188, dated November 15, 1887.

Application filed May 28, 1887. Serial No. 239,653. (No model.)

*To all whom it may concern:*

Be it known that I, LEON D. LIBBEY, of Wyandotte, Wyandotte county, State of Kansas, have invented a certain new and useful Improvement in Cable-Grips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

The object of this invention is to provide a grip that will be more powerful and positive in action than those heretofore used; and it may be said to consist in the devices and combination and arrangement of devices hereinafter set forth, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my improved grip. Fig. 2 is a detail view of the jaw-operating devices in perspective; and Fig. 3 is a section through the gripping-jaws and the framing of the grip on line *x x*, Fig. 1.

The frame of the grip may be of any ordinary construction, and it may consist of the vertical bars *F*, carrying a notched bar, *G*, at their upper ends. The movable jaw *I* is carried by a lifting frame or bar, *D*, which is adapted to be raised and lowered by the action of the operating-levers.

The lifting-frame *D* is guided in its vertical movements by the bars *F*, between which it operates, and it is adapted to be lifted by a pin or roller, *c*, projecting from one side of an adjusting-cam, *B'*.

The stationary jaw *H* is provided with supporting-rollers *i*, in the usual manner. The lifting-frame *D* is provided with a longitudinal slot, *d*, within which the roller *c* moves back and forth during the operation of the grip.

The roller *c* is mounted on a pin projecting from one side of cam *B'*. In some cases I may dispense with said roller and use a simple pin in place of it. Said roller is adapted to engage a cam-surface, *g*, forming the upper side of the slot *d* in the lifting-frame *D*. A curved depression, *f*, is formed in the upper edge of the lifting-frame *D*, to permit the said frame rising sufficiently high to release the cable without coming in contact with the lower end of the lever *B*.

In this grip I provide two levers—a raising and a lowering lever, *B*, and a power or grip-

ping lever, *A*. The lever *A* is provided at its upper end with the ordinary devices for holding it at any desired point of adjustment, and its lower end is rigidly attached to the power-cam *A'*, while the lifting-lever *B* is also provided with devices at its upper end for holding it in any desired position, and its lower end is rigidly attached to the exterior cam, *B'*. The cam *B'* is adapted to engage the upper surface of jaw *I* to press it down upon the cable, and the interior cam, *A'*, is mounted on a journal, *C*, carried by opposite cross-bars, *a*. The exterior cam, *B'*, is mounted upon and carried by the interior cam, both cams being carried by and operated upon a journal that is common to both. This arrangement may be termed "a cam within a cam," the interior cam forming the journal for the exterior cam.

The adjusting-lever *B* may be attached to the cam *B'* in any desired way. When the lever *A* is formed integral with the cam *A'*, as shown, it will be necessary to form cam *B'* in two pieces, so that the interior cam may be placed in position within the exterior cam, and for such purpose I make one side of cam *B'* in the form of a movable plate, *b*, and attach it to the main body of the cam by means of screws, rivets, or bolts.

With this construction the operation of the invention will be about as follows: To pick up the cable the levers are to be both thrown toward the right hand in the drawings, which raises the movable upper jaw, *I*, so that the cable can be caught, after which both levers will be thrown back a sufficient distance to press the jaw *I* upon the cable. Then the power-lever *A* is again thrown toward the right hand, rotating the interior cam, *A'*, and pressing the exterior one forcibly against the upper side of the movable jaw *I*, and causing the latter to force the cable down upon the lower jaw, thus imparting a very powerful pressure to the cable. Throwing the adjusting-lever *B* toward the right hand at any time, without altering the position of the other lever, will release the cable or remove the gripping-power therefrom and permit it to pass freely through the jaws. Sufficient power for pulling the cars on a level track will be given by simply operating the adjusting-lever; but on



steep hills an additional power may be applied to the cable by the lever A.

It will be understood that the cam B' is arranged to operate the jaw I, which, of course, may be done in various ways that need not be described here.

In operating both levers at once to drop the cable, or for any other purpose, the cams do not change their relative position, but turn with the journal C.

The gripping-jaws and the jaw-operating devices can either be operated below the surface of the ground in the conduit or from above the slot-rails, as may be desired. In either case the operation of the invention will be substantially the same.

When the adjusting-lever B is thrown toward the right hand in Fig. 2, the cable cannot escape and be dropped inadvertently. At the same time the cable will be permitted to run loosely through the gripping-jaws.

In Fig. 1 one of the side bars is removed for exhibiting the position of the cams. Fig. 2 shows the side of the grip that is opposite the side shown in Fig. 1.

By my invention I provide a cable-grip that is operated by the joint action of two levers—an adjusting-lever and a power-lever—as described.

Having thus described my invention, what I claim is—

1. The combination of the jaws, the framing of the grip, an adjusting-cam and a lever for operating said cam, and an additional lever for imparting increased pressure to the jaws, substantially as set forth.

2. The combination, with the jaws and the framing of the grip, of a cam mounted in said framing, another cam mounted upon the first-mentioned cam, and operating-levers, substantially as set forth.

3. The combination, with the jaws and the framing of the grip, of an interior cam journaled in said framing, and an exterior cam mounted upon the interior cam, both cams being carried by and operated upon a common axis, and operating-levers, substantially as described.

4. The combination, with the jaws and the framing of the grip, of interior cam, A', journaled in said framing, exterior cam, B', mounted on said interior cam, the lifting-frame D, provided with the cam-surface g, a pin or roller projecting from one side of cam B' and adapted to engage said cam-surface, and operating-levers, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LEON D. LIBBEY.

Witnesses:

A. SAVAGE,

F. G. FISCHER.