

W. W. MARSH & C. BERGQVEST.
Wire-Tightener.

No. 208,022.

Patented Sept. 17, 1878.

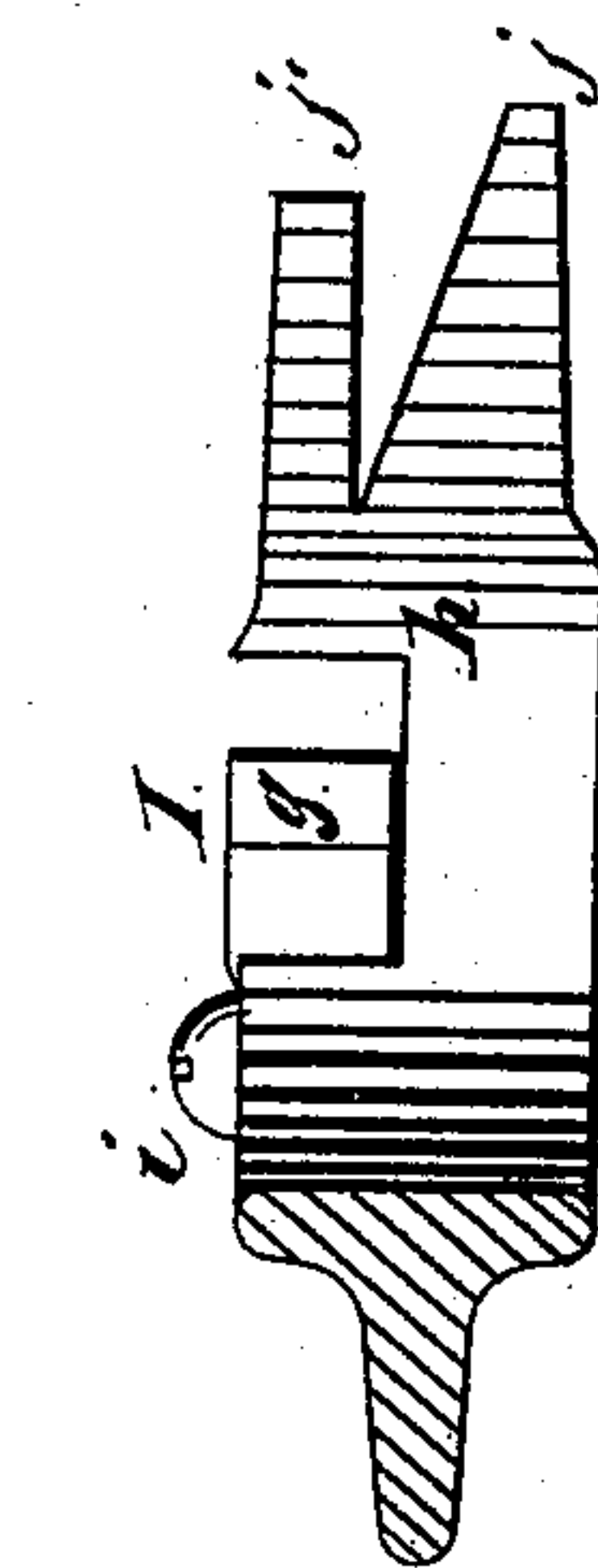


Fig. 1.

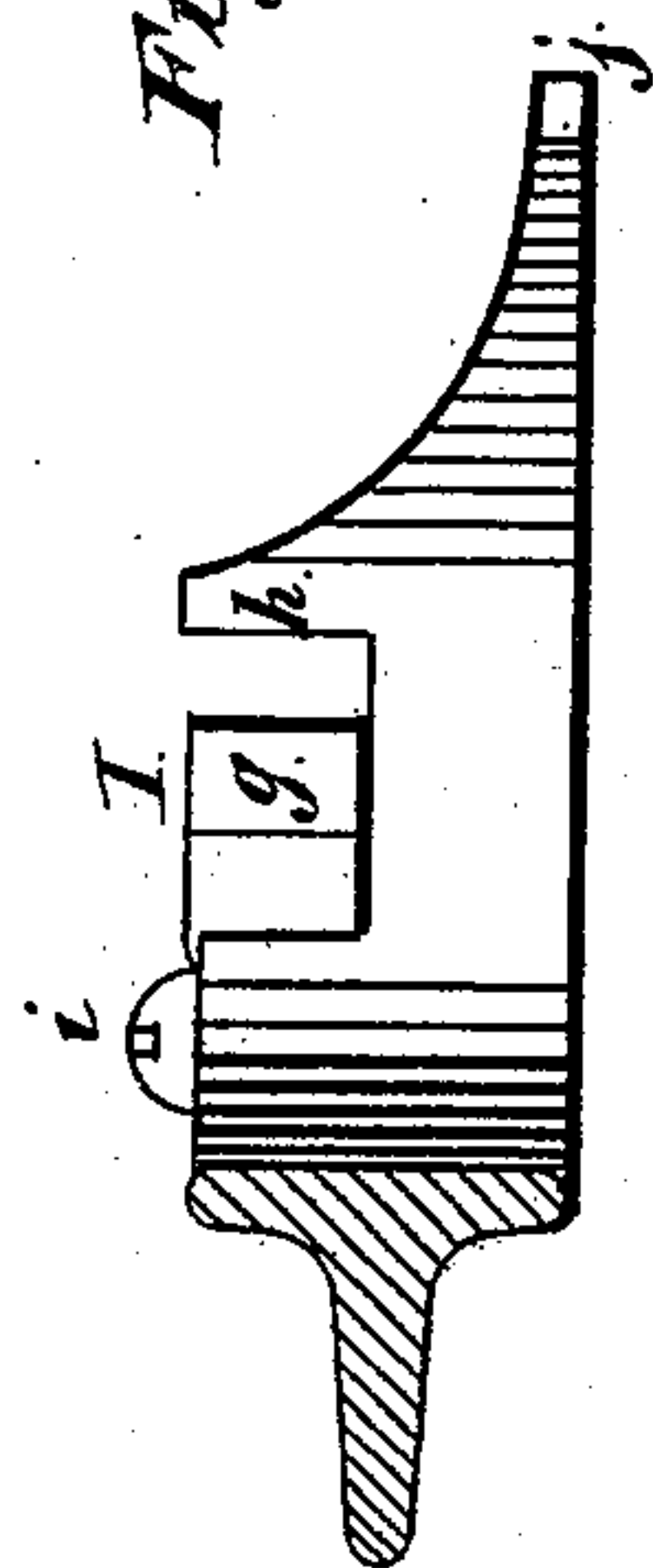


Fig. 2.

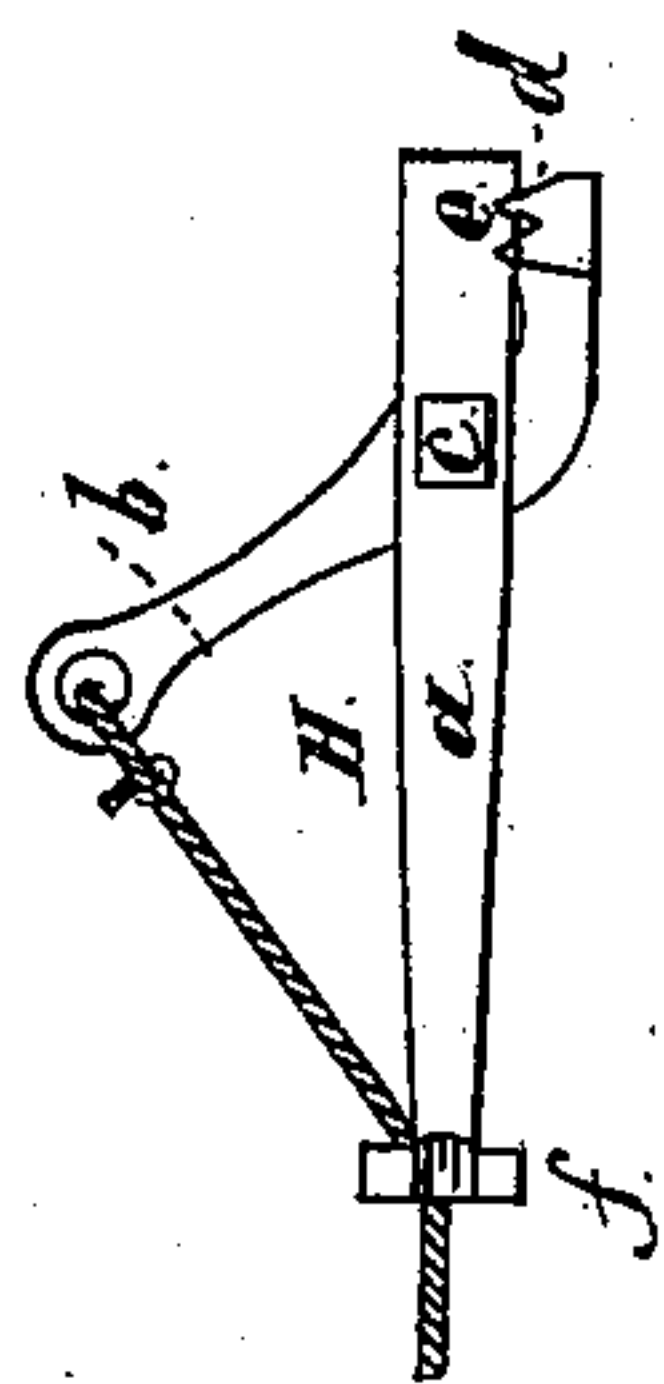


Fig. 3.

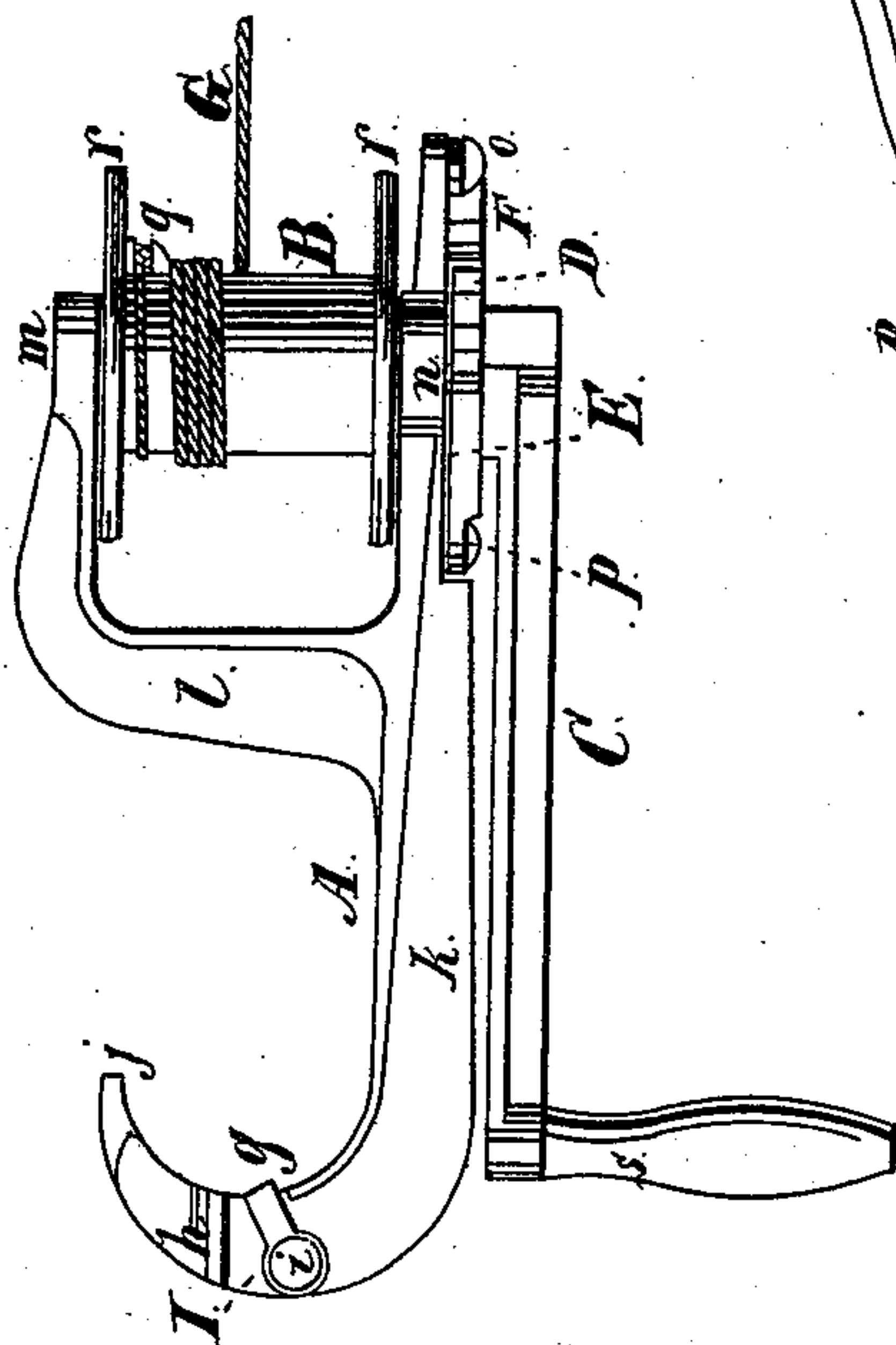


Fig. 4.

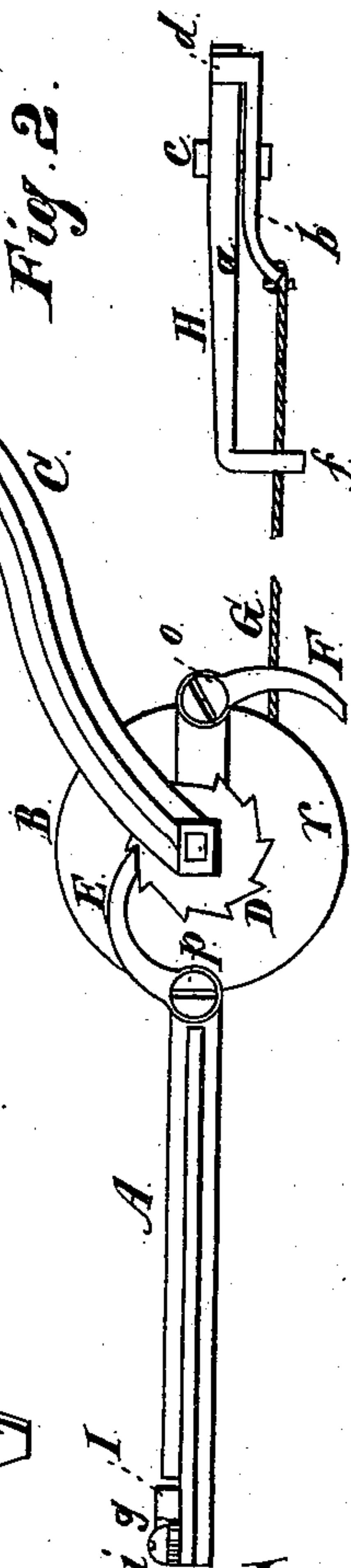


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM W. MARSH AND CHARLES BERGQVEST, OF SYCAMORE, ASSIGNORS
TO SAID MARSH, CHARLES W. MARSH, AND ARTHUR M. STARK, OF SAME
PLACE, AND CHARLES W. MOSHER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN WIRE-TIGHTENERS.

Specification forming part of Letters Patent No. **208,022**, dated September 17, 1878; application filed
November 30, 1877.

To all whom it may concern:

Be it known that we, WILLIAM W. MARSH and CHARLES BERGQVEST, of Sycamore, in the county of De Kalb and State of Illinois, have invented certain new and useful Improvements in Wire-Tighteners; and we do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a plan view; Fig. 2, a side elevation; Fig. 3, a detail showing the latch or grab on the frame-hook and the claw or staple-drawer; Fig. 4, a modification of the staple-drawer.

The objects of this invention are to so construct a wire-tightener that it can be reversed and operate equally well to draw the wire either from the right or left, as desired; to so arrange the hooks or grabs that the machine can be used to splice broken wires, and can be fastened to the fence-wire back of a post; to enable a staple to be driven back of a barb; and to so form the frame-hook that it will serve the purpose of a staple-puller; and its nature consists in locating one of the grabs or latches in the frame-hook, to enable the machine to be fastened to a wire back of a post; in providing the end of the frame-hook with a claw or point, so as to permit of its insertion beneath the wire or staple for the purpose of withdrawing the staple; in providing pawls arranged to operate on opposite sides of a ratchet, to enable the windlass to be operated in either direction; and in the several parts and combination of parts hereinafter set forth as new.

In the drawings, A represents the frame; B, the windlass; C, the crank; D, the ratchet; E F, the pawls; G, the cord; H, the cord hook or grab; I, the frame hook or grab; *a*, the stationary jaw of the cord hook or grab; *b*, the movable jaw of the cord hook or grab; *c*, the pivot; *d*, the projection on *b*; *e*, the notches in *a*; *f*, cord-guide on *a*; *g*, the head or engag-

ing portion of the frame-hook grab; *h*, the projection or stop on the frame-hook; *i*, the screw or pivot; *j*, the lower claw or point of the frame-hook; *j'*, the upper claw or point of the frame-hook; *k*, the frame-hook; *l*, the connecting-piece; *m n*, the arms or supports for the windlass; *o p*, the screws or pivots of the pawls; *q*, the clutch for the cord; *r*, the disks or flanges of the windlass.

The frame A is made from cast metal or other suitable material, the parts *k l m n* being cast together. These parts *k l m n* may be of any form suitable for the purpose of forming a frame to support the windlass, and to enable the device to be attached to a post or other object, for the purpose of operating the machine. In the form shown, *k* is formed into a hook to enable the machine to be attached to a post or other object.

The windlass B may be of any suitable construction. As shown, it is provided with a disk or flange, *r*, on each side, between which the cord is wound, the flanges *r* preventing the cord from getting between the ends of the windlass and the frame. This windlass is located between the arms or parts *m n* of the frame, and is provided at each end with a shaft or axle, which are supported in suitable bearing in the arms *m n*. The shaft for the end of the windlass, which is supported in the arm *n*, extends some distance beyond the side of the arm.

The crank C is permanently secured at one end to the projecting shaft or axle of the windlass, and is provided at the other end with a suitable handle, *p*, by means of which it is operated.

The ratchet D, as shown, is cast with or formed on the end of the crank, which is secured to the shaft or axle of the windlass, so that when the crank is attached the ratchet will be between it and the arm *n* of the frame and will be rotated with the windlass as the crank is carried around.

The pawl E is pivoted to the outside of the frame A, just forward of the cross-bar *l*, by the pivot or screw *p*, and the pawl F is pivoted to the outer end of the arm *n* by the pivot or

screw *o*, and these pawls are so arranged in relation to the ratchet *D* that when *E* is engaged therewith *F* will be disengaged, and vice versa.

The cord *G* is secured at one end to the windlass by means of the clutch *g*, or other suitable device, and at the other end is secured to the latch or grab *H*, as hereinafter described.

The grab or hook *H* consists of a stationary jaw, *a*, and a movable jaw, *b*, pivoted together at *c*. The outer end or head of the jaw *b* is provided with a projection or tooth, *b*, and the outer end or head of the jaw *a* is provided with recesses *e*, so arranged that the tooth *d* will engage with the outer one thereof. The inner end, *f*, of the jaw *a* is turned up, and is provided with a suitable opening, through which the cord *G* passes, the end of the cord, after passing through this guide *f*, being secured in any suitable manner to the inner end or arm of the jaw *b*, so that as the cord *G* is wound around the windlass it will cause the jaw *b* to close on the jaw *a* and hold the wire securely between the two jaws.

The stationary jaw *a*, as shown, tapers gradually from the pivot *c* to its inner end, but may be made straight its whole length, if desired, or in other suitable form. The movable jaw *b* is so formed that when closed its head will be parallel with the head of the jaw *a*, and its arm is bent or curved so as to cross the jaw *a* and bring its inner end some distance forward of the end and to the side of the jaw *a*, as shown in Fig. 1.

By this construction it will be seen that the jaw *a* is simply held upon the cord *G* by the guide *f* while the jaw *b* is acted upon by the cord, so that when the cord *G* is wound upon the roller or windlass *B* it will draw the arm or inner end of the jaw *b* toward the jaw *a*, forcing the two heads of the jaws together, and that the stronger the power applied to the windlass the firmer will be the grasp of the jaws upon the wire.

By constructing a hook or grab in this manner it will be seen that any wire caught between the two jaws will be firmly held, and that the grab or hook will retain its grasp upon the wire as long as any power is applied to the windlass.

The clutch or grab *I* is secured to the hook of the frame by the screw or pivot *i*. The head *g* of this hook is cut or formed so that there will be sharp corners at the end, and it is so pivoted to the frame that one of these corners will strike against the ledge or projection *h*, which is formed on the frame-hook. This hook is so arranged that when the wire is caught between the sharp corner of *g* and the face of the ledge *h* the corner will bear against the wire and bite or gripe it, as the power exerted at the windlass will act to draw the sharp corner of *g* toward the ledge *h*, and hug or bite the wire firmer.

By this arrangement wire of any size and in any condition can be grabbed by the latch

or grab *I*, and be firmly held, as the tendency of the power exerted at the windlass is to draw the latch against the wire and bite it, and the stronger the power the stronger will be the bite or gripe of the latch on the wire.

The face of the ledge *h* should be parallel with the line of the biting-corner of *g*. On the outer end of the frame-hook *k* is formed a claw, consisting of two points, *j j'*, as shown in Figs. 1 and 3. By making the end of the hook in the form shown it enables the claws to be forced under the wire on each side of a staple, so that by prying on the wire the staple can be pulled. The machine can thus be used as a device for withdrawing staples.

The claw or point *j* is somewhat longer than the claw or point *j'*, which permits the point to be inserted under the head of the staple and the staple withdrawn by the use of the point *j*. The end of the hook might be formed with a single point or claw, *j*, as shown in Fig. 4, the upper point, *j'*, being removed, in which case the device could be used by slipping the point or claw *j* under the head of the staple.

In operation, the frame-hook *k* is caught on a fence-post or other suitable object, and the wire is caught between the jaws of the latch or hook *H*, as before described, the cord *G* being unwound from the windlass; then the windlass *B* is revolved by means of the crank *C*, winding the cord *G* thereon and drawing the wire held by the grab or latch *H* taut, and when the wire is taut one of the pawls *E F* is made to engage with the ratchet *D* and hold the wire taut until it can be fastened to a post by means of a staple or other device.

The machine can be attached to a wire, and operated by having the hook or grab *I* catch and bite the wire in one direction, and having the latch or hook *H* catch and hold the wire in the opposite direction, the cord *G* being unwound from the windlass *B*, and the wire being drawn taut by the winding of the cord *G* on the windlass. By this means the operator can fasten the machine onto the wire just back of a post and draw the wire to a position to enable a staple to be driven back of a barb, and it also enables the wire to be spliced in case it is broken, one end of the wire being caught by the hook or grab *I* and the other by the latch *H*, and the two ends being drawn together, so that they can be spliced by winding the cord *G* on the windlass.

By thus using a double grab, one at each end of the frame, the machine can be made to operate in either direction, as, in case the machine is reversed, it will hold the wire by one of the latches or grabs, and it also enables the machine to be so attached to the wire that it can be operated to draw the wire for driving a staple back of a barb, and also for splicing broken wire; and by using the peculiar kind of grab or hook on the frame-hook it enables any kind of wire to be gripped or clasped, no matter in what condition the wire may be.

The grab or hook *I* might be arranged on a separate piece connected with the frame, and

operate in the same manner, the support for the grab or hook being provided with a suitable stop or face to enable the grab to bite against the wire.

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

1. The frame A, having the hook I, adapted to be attached to a post or to a wire, and windlass B, in combination with the tongs *a b*, all constructed and operating substantially as specified.

2. The pawls E F, in combination with the

ratchet-wheel D, windlass B, and frame A, arranged for operating the device either side up, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 13th day of November, 1877.

WILLIAM W. MARSH.
CHARLES BERGQVEST.

Witnesses:

A. M. STARK,
GEO. H. COOK.