(No Model.)

H. W. VAIL, Jr.
WIRE TIGHTENER.

No. 568,056. Patented Sept. 22, 1896.

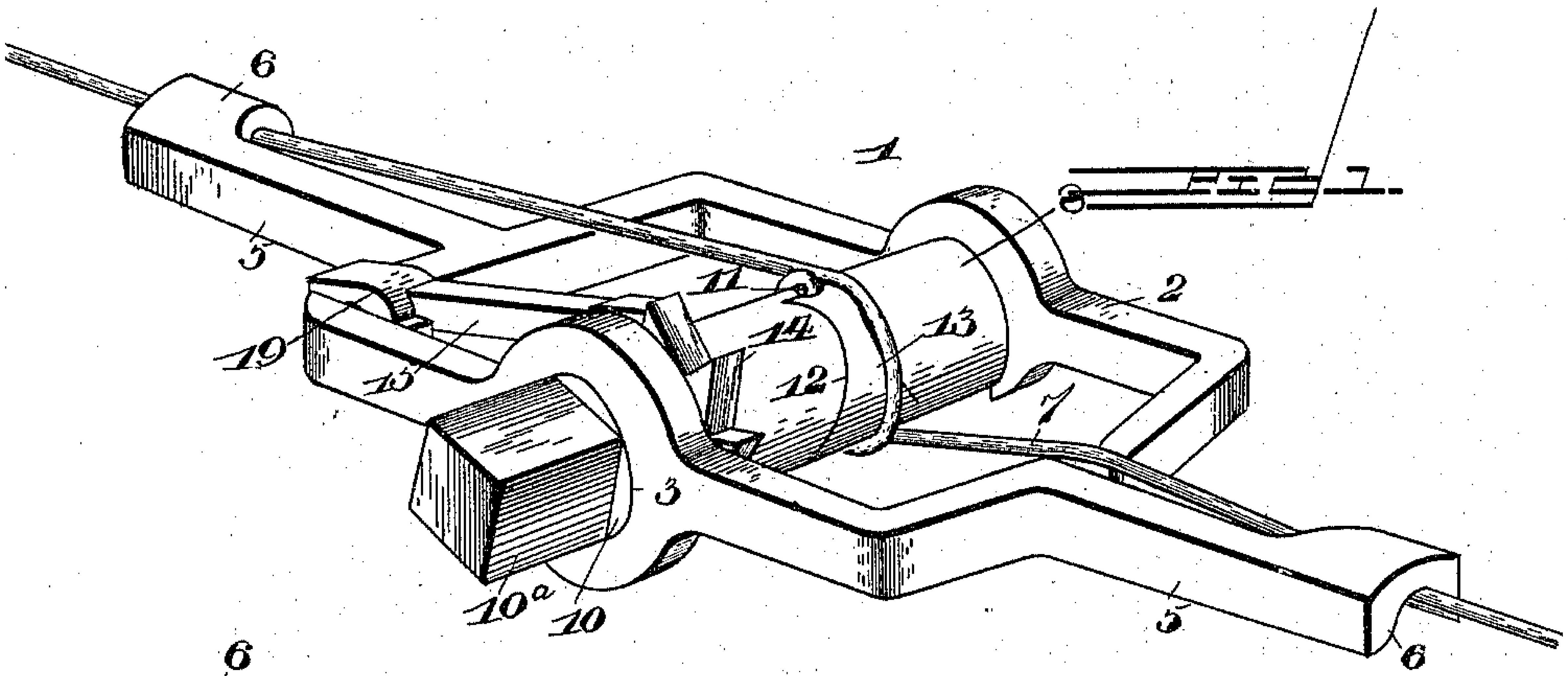

FIG. 1.

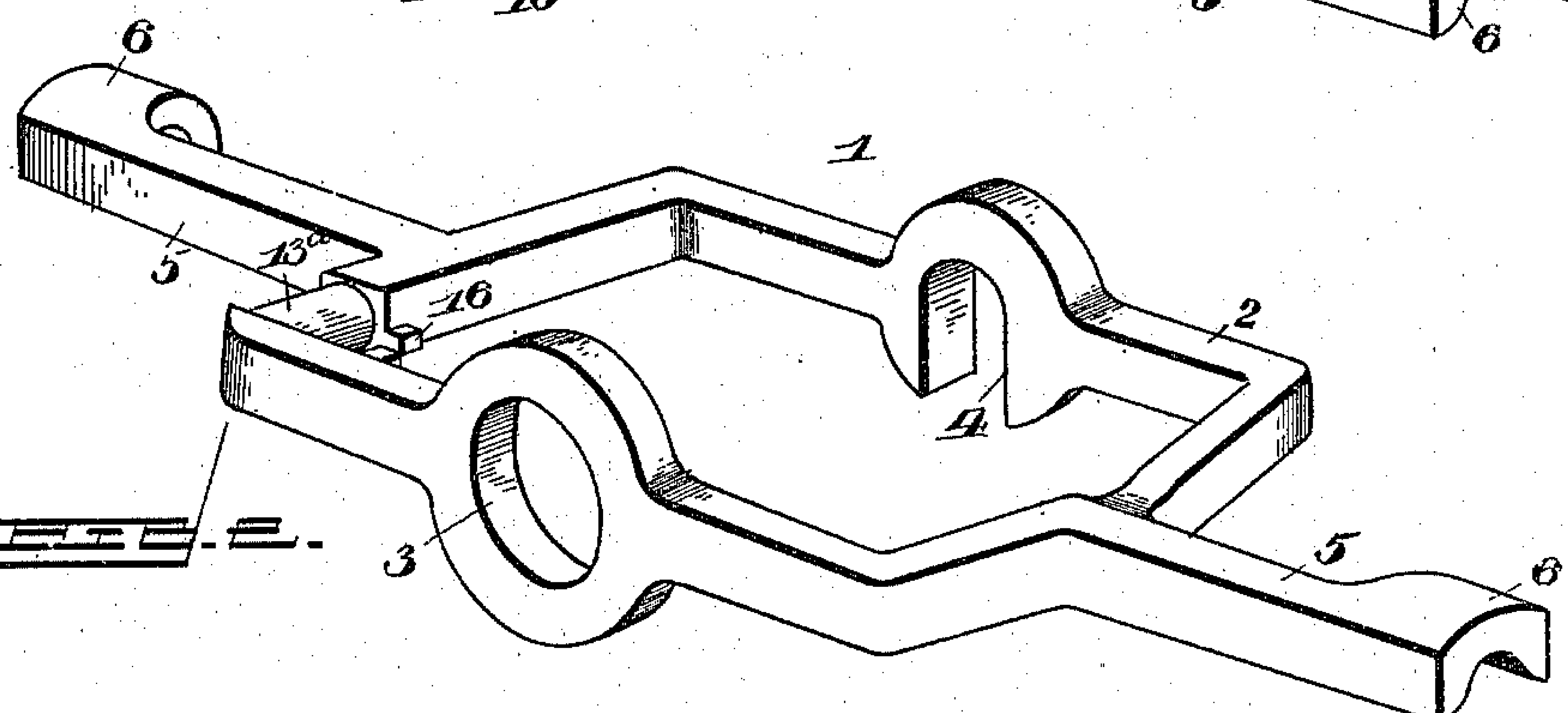

FIG. 2.

FIG. 3.

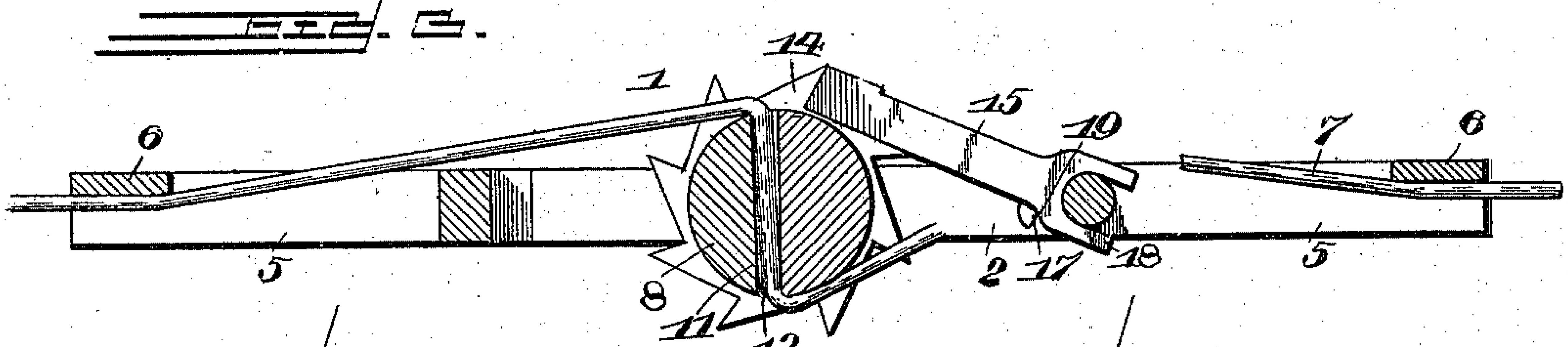

FIG. 5.

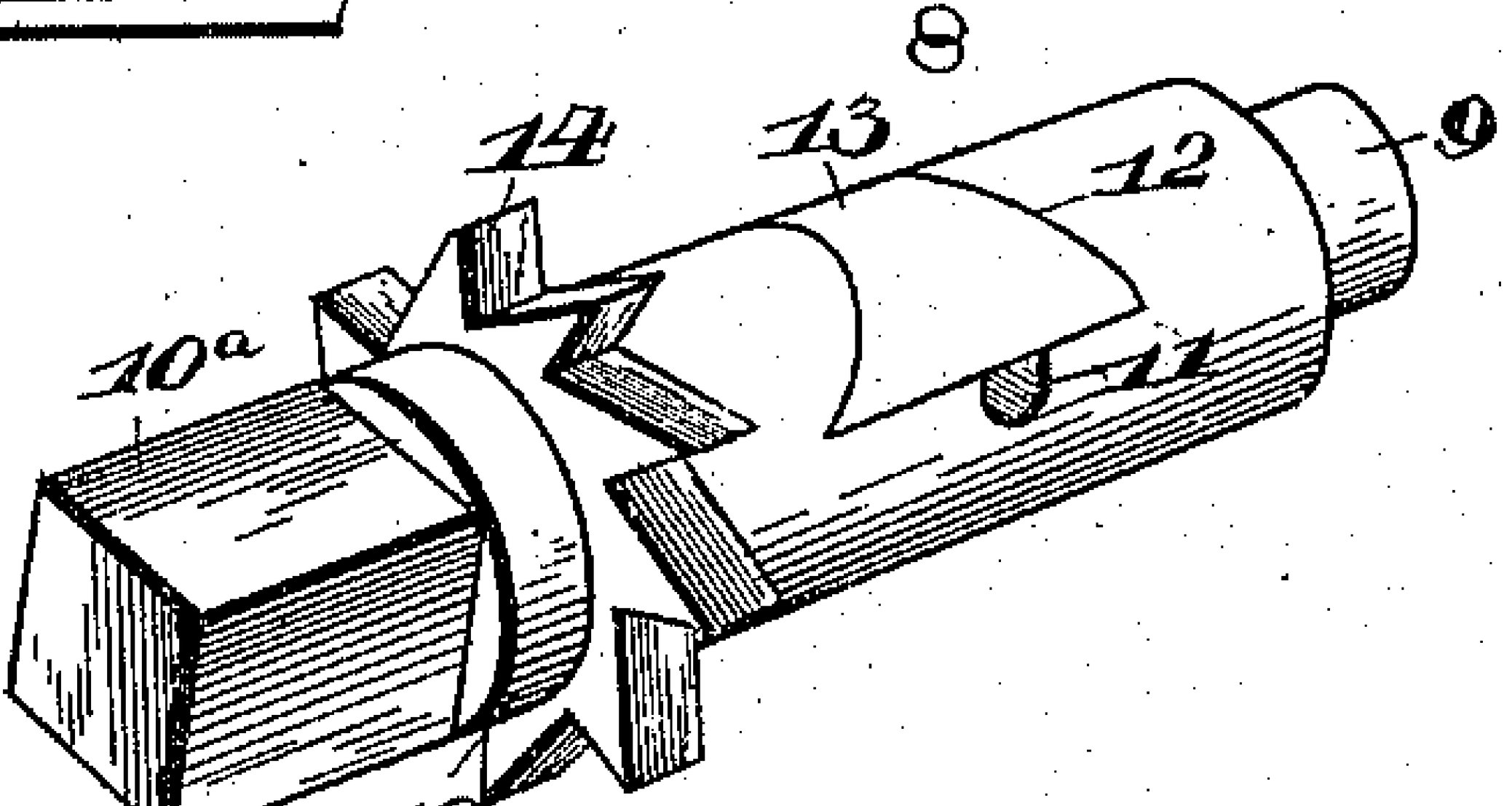

FIG. 4.

Witnesses

Inventor,

Henry W. Vail Jr,

By his Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

HENRY W. VAIL, JR., OF INDUSTRY, ILLINOIS.

WIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 568,056, dated September 22, 1896.

Application filed July 30, 1895. Serial No. 557,616. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. VAIL, Jr., a citizen of the United States, residing at Industry, in the county of McDonough and State of Illinois, have invented a new and useful Wire-Tightener, of which the following is a specification.

My invention relates to wire stretching or tightening devices, and has for its object to provide a simple, inexpensive, and efficient tightener adapted to be applied to an intermediate point of the wire to be stretched, whereby the strain is in opposite directions and is counterbalanced; and, furthermore, to provide means whereby the tightener may be readily applied to the wire, where it is allowed to remain for subsequent use, when necessary.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a wire-tightening device constructed in accordance with my invention applied in the operative position to a fence-wire. Fig. 2 is a detail view of the frame with the spool omitted. Fig. 3 is a longitudinal section. Fig. 4 is a detail view of the pawl. Fig. 5 is a detail view of the spool detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a frame comprising a rectangular body portion 2, provided at the center of one longitudinal side with a closed bearing 3 and at the center of the opposite side with an open bearing 4. At the extremities of the frame are arranged integral extensions forming longitudinal arms 5, terminating in wire-holders 6, consisting of seats for the reception of a fence-wire 7, as shown in Fig. 1.

Supported by said frame is a spool 8, provided at one end with a trunnion 9 to fit in the open bearing at one side of the frame and at the other end with a trunnion 10, which is mounted in the closed bearing at the opposite side of the frame and is extended to form a cross-sectionally angular wrench or key seat 10^a, by which the spool may be turned. This spool is provided with a transverse seat 11, formed in the bottom or floor of a cross-sectionally dovetailed and longitudinally-tapered groove 12, and in this groove is fitted a retaining-block 13, which closes the outer side of the seat to hold the wire to which the tightener is applied. This block is so constructed as to correspond with and continue the surface of the spool, whereby when in place the spool is provided with a practically unbroken surface for the pressure of the wire in winding.

It will be seen that by the construction described the wire may be inserted transversely into the seat, and subsequently the block may be inserted to complete the spool, and after the first turn of the spool said block will be held securely in place by the tension of the wire.

Backward movement of the spool during the winding operation is prevented by a clutch mechanism consisting of a ratchet 14, formed near one end of the spool, and a pawl 15 to engage said ratchet, said pawl being slotted at one end and seated at 13^a upon one of the end portions of the frame between a stop-lug 16 and the side of the frame. The stop-lug 16 is formed integral with the end of the frame contiguous to the pawl, and the pawl is provided with a stud 18 to engage the stop-lug 16 and limit the backward movement of the pawl to prevent it from being turned back beyond a vertical position. A guide-lug 17 engages a rounded shoulder 19 of the pawl and prevents movement of the pawl to disengage its slot from the end bar of the frame.

In applying the tightener to a fence-wire the frame is arranged below the wire and an intermediate portion of the latter is drawn down within the frame and engaged with the seat, and the wire-holders at the extremities of the longitudinal arms of the frame are engaged over the fence-wire. This secures the frame firmly in place upon the fence-wire, and the subsequent turning of the spool to take up slack winds the fence-wire until the desired tension is attained, the pawl-and-ratchet mechanism maintaining the parts in their adjusted positions by preventing backward rotation of the spool. By stretching the wire in opposite directions from an intermediate point strain upon the device is avoided, that in one direction being counterbalanced by the

corresponding strain in the opposite direction.

The spool is removably mounted in its bearings in order to provide for its detachment to remove a coil from the spool after the winding has been completed, it being obvious that to dismount the spool, as mentioned, it is necessary simply to disengage the wire from the extremities of the arms 5 and deflect the spool sufficiently to remove its trunnion from the open-sided bearing.

It will be understood that in practice various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a wire-stretcher, the combination of an open frame provided at the centers of its ends with longitudinally-extended arms 5 terminating in downwardly-concaved wire-holders 6 adapted to extend over and bear upon a wire which extends over the ends of the frame, said frame being provided in its sides with alined bearings one of which is open-sided with the mouth or open side at its lower side, and a spool having its trunnions mounted in said bearings and provided with a seat for engagement with a fence-wire between the points of contact of said wire with the ends of the frame, whereby the upward strain upon the said intermediate portion of the wire due to the stretching thereof holds the spool in its bearings, substantially as specified.

2. In a wire-tightener, the combination of a frame provided at one side with a closed and at the other side with an open bearing, and provided at its ends with arms which terminate in wire-holders, a spool mounted in said bearings at the opposite sides of the frame and provided with means for engaging a fence-wire, a pawl having a bifurcated end mounted upon a rounded portion of one of the end bars of the frame and adapted to engage a ratchet on the spool, a stop-lug on the end bar to engage a lug 18 on the pawl, and a guide-lug 17 on the side of the frame to engage a rounded shoulder 19 on the pawl, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY W. VAIL, JR.

Witnesses:
T. J. KINNEY,
A. L. VAIL.