(No Model.) 3 Sheets—Sheet 1.

J. KNIBBS.

WIRE CUTTER.

No. 426,128. Patented Apr. 22, 1890.

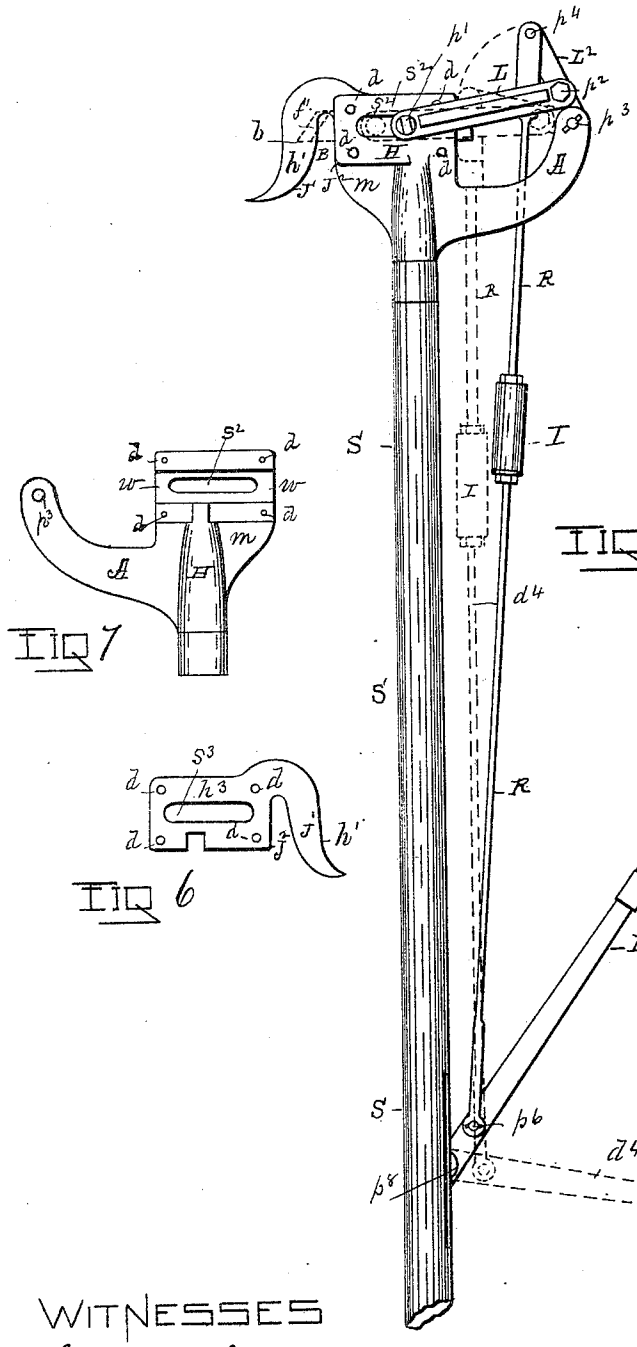


Fig 1

Fig 7

Fig 6

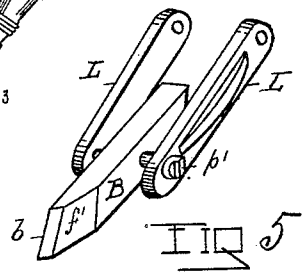


Fig 5

WITNESSES

Charles S. Bruntall

Jas. A. Duxenbury

INVENTOR

James Knibbs

by W. E. Hagan Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

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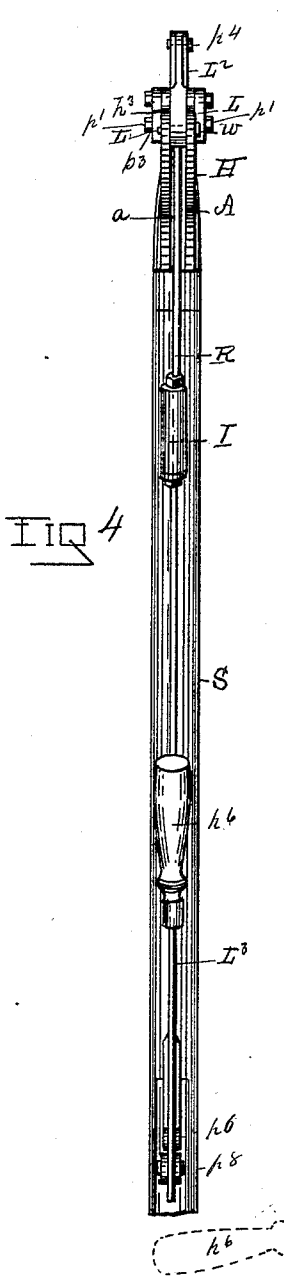


Fig 4

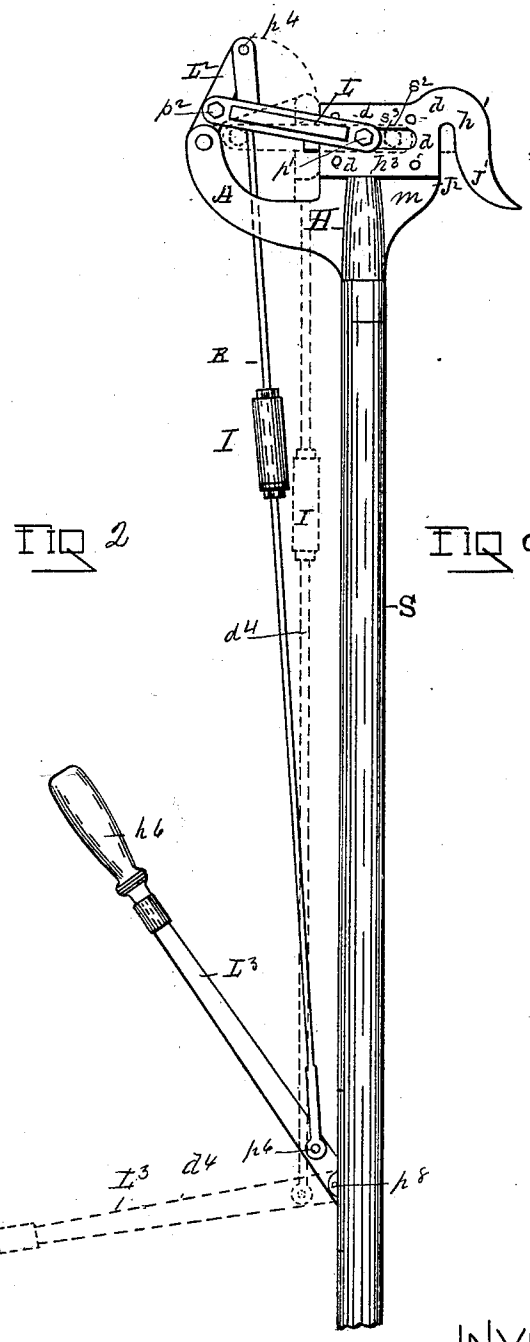


Fig 2

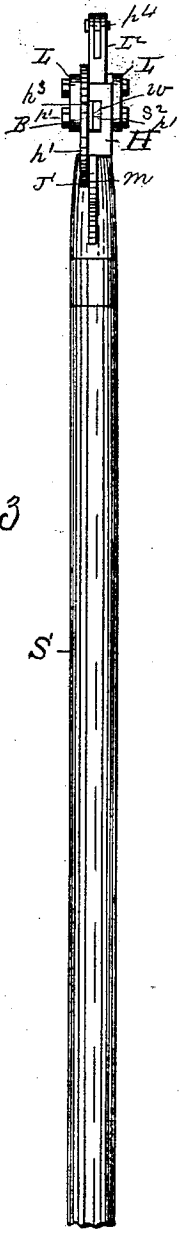


Fig 3

WITNESSES

Charles S. Brintnall

Jas. W. Dunnberry

INVENTOR

James Knibbs

by W. E. Hagan Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

J. KNIBBS.

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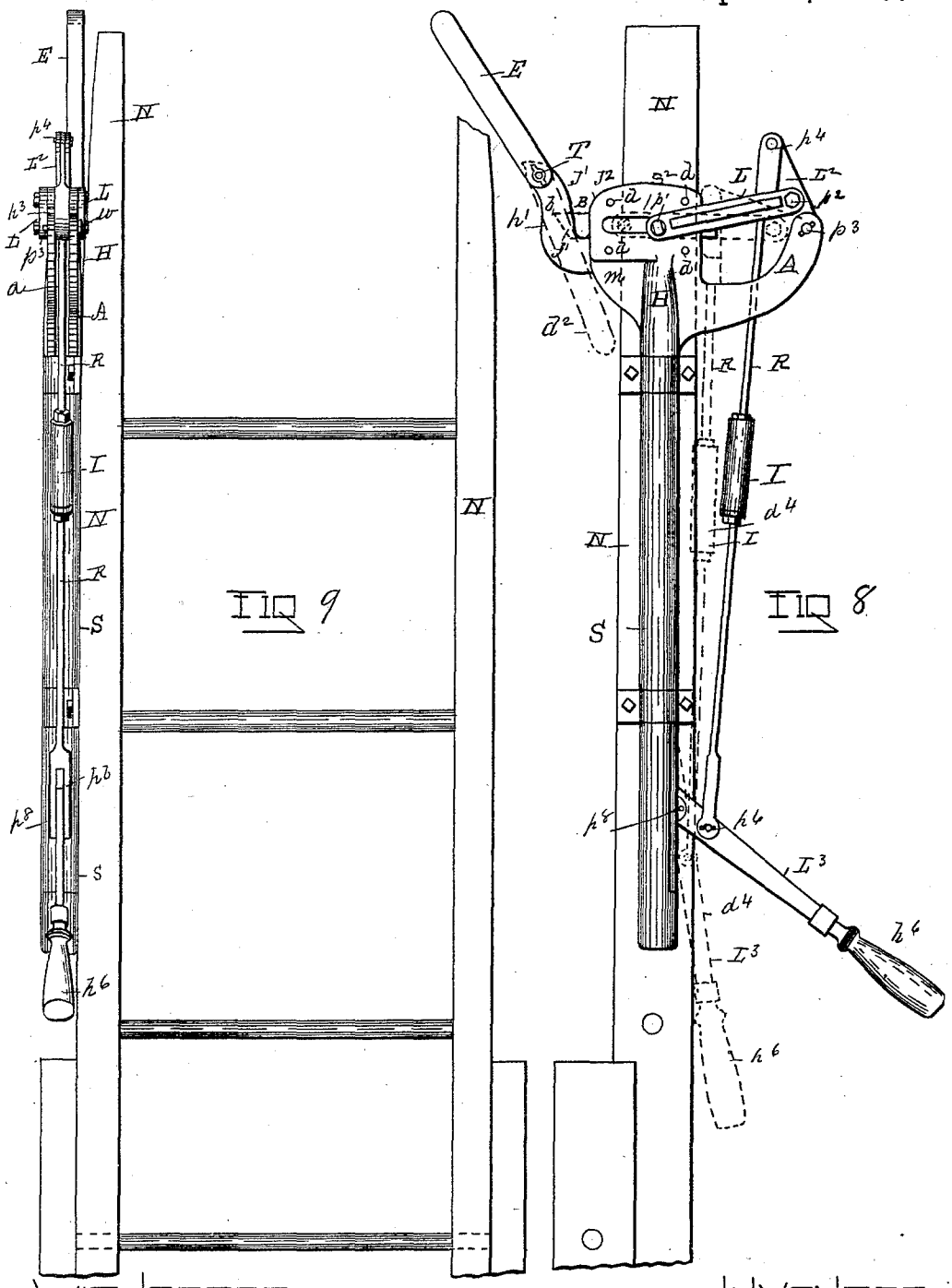


Fig 9

Fig 8

WITNESSES

Charles S. Bintnall

Jas W Dunnberry

INVENTOR

James Knibbs

by W E Hagan atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES KNIBBS, OF TROY, NEW YORK.

WIRE-CUTTER.

SPECIFICATION forming part of Letters Patent No. 426,128, dated April 22, 1890.

Application filed May 1, 1889. Serial No. 309,269. (No model.)

To all whom it may concern:

Be it known that I, JAMES KNIBBS, of the city of Troy, county of Rensselaer, State of New York, have invented new and useful Improvements in Wire-Cutting Devices, of which the following is a specification.

My invention relates to improvements upon that class of devices that are most generally used for pruning trees and shrubs; and my improvements have for their object to adapt this class of apparatus to be used for cutting electric light, telegraph, or telephone wires where they are so strung from poles that they interfere with the operations of firemen engaged in the extinguishing of fires in burning buildings.

As heretofore constructed, devices for cutting branches and twigs have been made that opened like shears or as having hook-form grasping ends, with one or two vibrating jaws constructed to receive as sidewise opened such material as they were designed to cut, but which, as made, if applied to cut wires, would, as the cutting parts were operated, tend to force out the wire instead of cutting it. To improve upon this class of devices so as to adapt them to cut electrical circuit-wires, a hook having stationary jaws is used and so arranged upon the staff or support that it may be passed on over the wires or raised up under them to bring the wires within the hook, and constructed with a blade that is operated to be moved across the hook-jaws and at right angles to the staff or support and so as to make a cutting engagement upon one side of the hook-jaws.

Another feature of my improvement consists in the application of an insulated rod connecting at its upper end with a lever which operates said blade and at its lower end connects with a handle-lever which is pivoted to the staff or support.

Accompanying this specification, to form a part of it, there are three plates of drawings containing nine figures illustrating my invention with the same designation of parts by letter reference used in all of them.

Of the illustrations, Figure 1 is a side elevation of my improved wire-cutting device. Fig. 2 is an elevation of the same apparatus, taken from the side which is opposite to that shown at Fig. 1. Fig. 3 is a rear edge view. Fig. 4 is a front edge view of the device. Fig 5 is a perspective of the cutter or blade and its operating-links, with the parts illustrated shown as detached from the other mechanism. Fig. 6 is a side view of the hook and its body part, shown as detached from the rest of the apparatus. Fig. 7 is a side view of the head to which the other parts attach or are operated in with what is the inner face of the head when in position shown as facing the view. Fig. 8 shows a modification of my invention and in which the position of the jaws of the hook are extended upwardly instead of downwardly. as in the other figures, and in this Fig. 8 the device is shown as provided with an adjustable extension-arm upon one of its jaws, and with the modification illustrated as applied to one of the side bars of a fire extension-ladder with the edge of the latter to which the apparatus is attached shown as facing the view. Fig. 9 illustrates the same application of the modification shown at Fig. 8, with the ladder side facing the view.

The several parts of the apparatus thus illustrated are designated by letter reference, and the function of the parts is described as follows:

The letter S designates the staff or standard, to the upper end of which the head to which the hook attaches and in which the blade is operated is secured. This staff or standard may be of such a length as will enable it to be operated from the ground, or of such a length as will adapt it to be attached to an extension fire-ladder or to be operated by a person climbing the pole from which the wires to be cut are strung.

The letter H designates the head of the device, which is attached to what is the upper end of the staff when in use. This head is made with a curved arm A, that is projected upward and laterally from that side of the head which is opposite to that on which the hook is located; and the function of this arm is for a fulcrum, to which pivotally one of the levers co-operating to operate the cutting-blade attaches. This arm A is slotted at *a* for the passage through it of the insulated rod R, the function of which will be described hereinafter.

The letters s^2 designate a slot made in the

head, and *w w* are slideways made at the ends and sides of the slot for the movement of the blade or cutter. The letter *m* designates a wing that is extended from the head on the side opposite to that whereon the arm A is located, this wing forming where thus extended a means for the attachment of the hook-body to the head.

The letter H′ designates the hook proper made with the outer stationary jaw J′ and the inner stationary jaw J^2 and the body part h^3. The outer jaw J′ may be used in connection with a pivoted extension-arm E, that may be turned up thereon and secured by the clamping-screw T, or turned down, as indicated by the dotted line d^2 of Fig. 8, and the hook may be used with or without the extension-arm E. The body part h^3 of the hook is attached to the head H on the inner face of the latter, as indicated at *d*, and is constructed with a slot s^3, arranged to be parallel to the slot s^2 made in the head, and when the hook-body is attached to the head the adjacent face of the latter makes one side of the slideways *w w*. The hook proper extends beyond the head, and so that as the blade is moved out or in through the slideways *w w* the cutting end of the blade makes a shear engagement with the adjacent face of the hook-jaws.

The letter B designates the cutter or blade, which has a cutting end edge that is made obliquely to its sides and so as to have an angular point *b*, and upon the face of this obliquely-made cutting-edge the blade is made with a chisel-form face *f*′. This blade is arranged within the slideways *w w* in such a manner with relation to the hook-jaws that the point of the blade shall be on the outside of the wire or wires within the hook when the blade commences to cut. The operation of this blade or cutter is as follows:

The letter L designates links, of which there is one pivoted to the blade or cutter at each side of the latter by the pivot-pin *p*′, which at each side of the blade extends through the slots made in the hook-body and the head for connection with the links thereat. The upper ends of each of these links are pivoted to the short arm of the lever L^2 at each of the opposite sides thereof at p^2, with the lower and fulcrum end of the lever L^2 pivoted to the arm A at p^3 within the slot thereof.

The letter R designates a connecting-rod, which is insulated at I, is passed up through the slot *a* made in the arm A and pivoted at p^4 to the long arm of the lever L^2, the lower end of this rod R being pivoted at p^6 to the short arm of the handle-lever L^3, with the said handle-lever L^3 having its pivotal fulcrum p^8 in the staff S. This handle-lever L^3 has a handle h^6 made of non-conducting material.

With the parts thus constructed and arranged, when the apparatus is put on over or pushed up from beneath the wire or wires to be cut and so as to bring them within the jaws of the hook, and the hand-lever L^3 is pulled down into the position indicated by the dotted line d^4 of Figs. 1, 2, and 8, the cutter or blade, by the combined action of the rod R, the lever L^2, and the links L, is forced outwardly to make a shear engagement with the face of the jaws J′ J^2 and to cut off the wires, the latter being firmly held in the hook by the advancing point of the cutting-blade. The insultation of the rod R at I fully protects the operator from the dangerous effect of an electric-light current, and by first cutting the wires off from one pole to ground them and then cutting them off from the other pole, from whence they are grounded, a clear way is made for the use of ladders and other fire-department apparatus. When used upon an extension-ladder N, the latter is raised up under the wires, so as to have the wires enter the upturned hook, (shown at Figs. 8 and 9,) and the lever L^3 is operated by a person ascending the ladder on the ladder-rungs.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a hook having stationary jaws adapted to receive electric wires and arranged upon a staff or support, substantially as described, of a cutting-blade constructed and arranged to make a shear engagement with one side of the hook-jaws and to be moved at right angles to the staff or support, links pivotally connecting said blade with a pivoted lever, and an insulated rod pivotally connecting said lever with a handle-lever, the latter having a pivoted fulcrum connecting it with the staff or support, substantially in the manner as and for the purposes set forth.

2. The combination, with the hook *h*′, made and arranged substantially as described, of the blade E, having an obliquely-cutting and chisel-form edge, said blade being adapted to move in slideways in the head and to make a shear engagement with the adjacent hook-face, the links L, pivotally connected to said blade, the lever L^2 at its short arm pivoted to said links and at its fulcrum end pivoted to a supporting-head, the insulated rod R, pivoted to the long arm of said lever L^2 at its upper end and at its lower end pivoted to the short arm of the hand-lever L^3, and the said hand-lever having a pivotal fulcrum in the staff or standard supporting the mechanism, substantially as and for the purposes set forth.

3. The combination, with the hook *h*′, made with the stationary jaws J′ J^2 and having the body part h^3 made with a slot s^3, of the head H, made with the slots s^2 and slideways *w w* and attached to a staff or support, and the blade B, made with the chisel-form end *f*′, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

4. The combination, with the hook *h*′, having the stationary jaws J′ J^2, and made with the body part h^3, having the slot s^3, of the head H, made with the slots s^2, slideways *w*

w, and arm A, and attached to a staff or support, of the blade B, made with the chisel-form end, cutting-edge *f'*, links L, pivoted to said blade, the lever L^2, pivoted to said links and to the arm A, the connecting-rod R, insulated at I, with its upper end pivoted to said lever L^2, and the handle-lever L^3, having its fulcrum end pivoted to the staff or support and to the lower end of the rod R, substantially in the manner as and for the purposes set forth.

Signed at Troy, New York, this 11th day of March, 1889, in the presence of the two witnesses whose names are hereto written.

JAMES KNIBBS.

Witnesses:

CHARLES S. BRINTNALL,

W. E. HAGAN.