(No Model.)

J. HUTCHINS.

WIRE TIGHTENER.

No. 438,730. Patented Oct. 21, 1890.

Fig. 1.

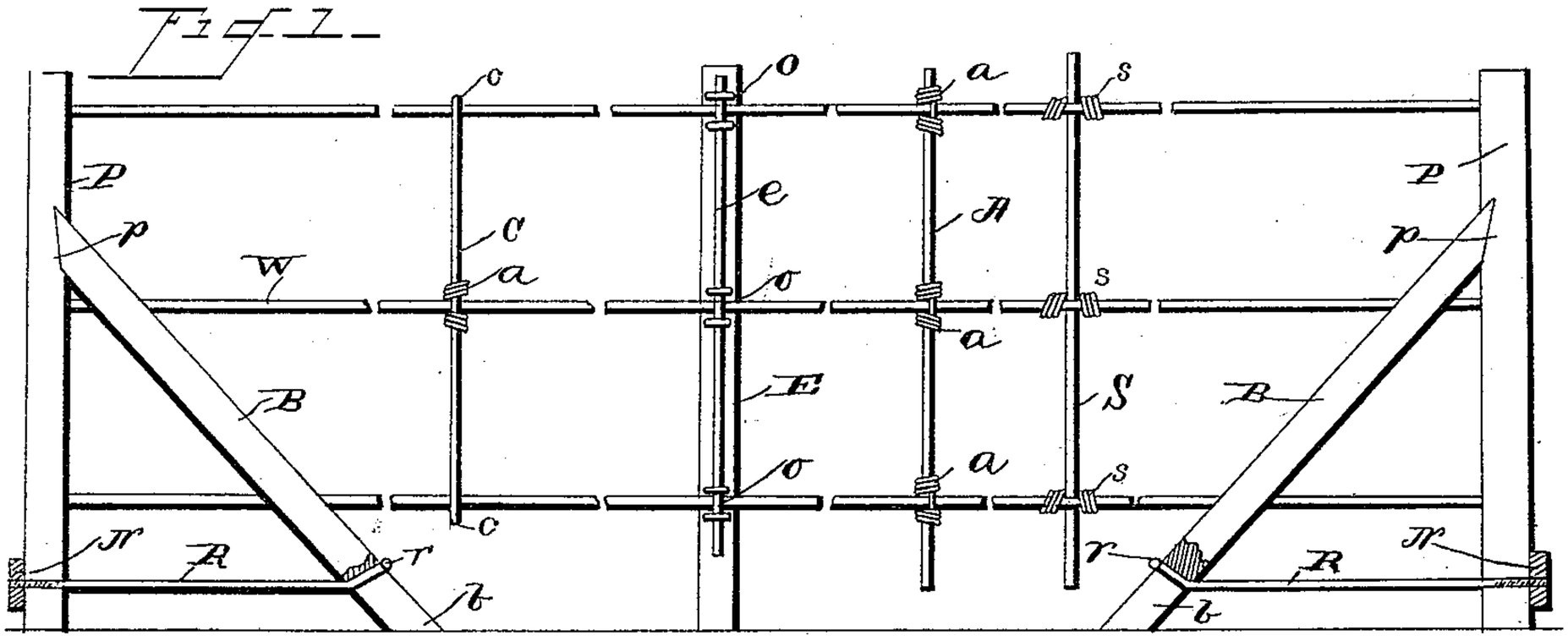


Fig. 2.

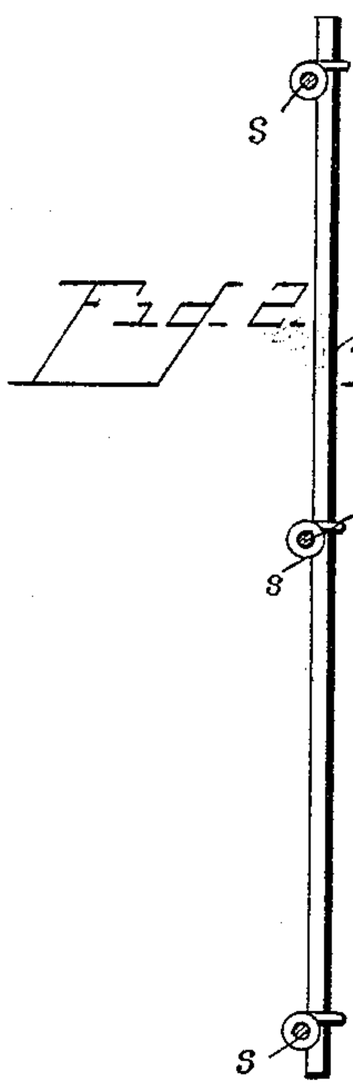


Fig. 3.

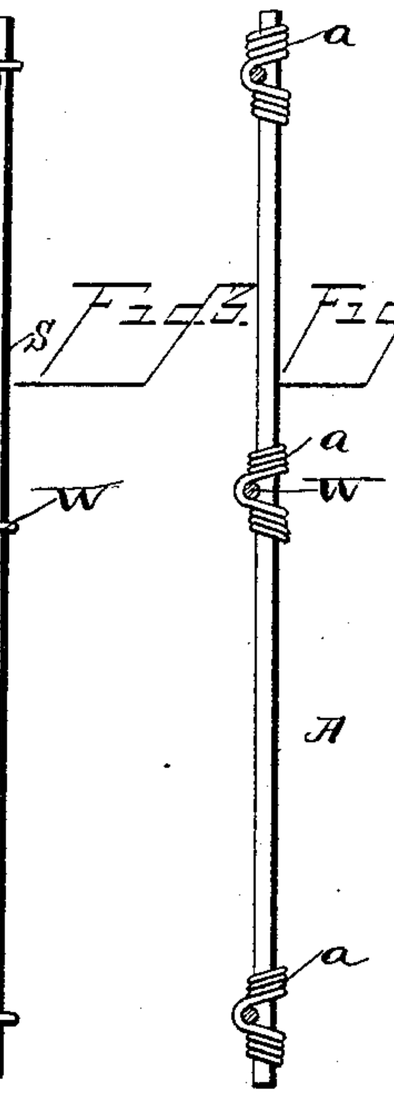


Fig. 4.

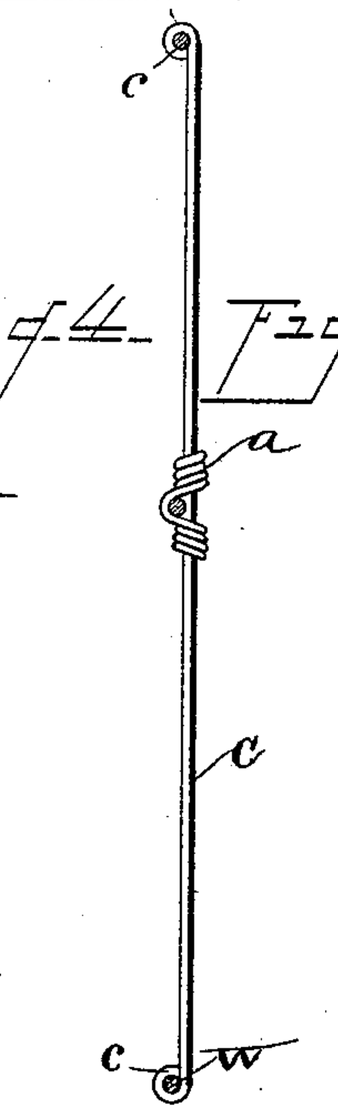


Fig. 5.

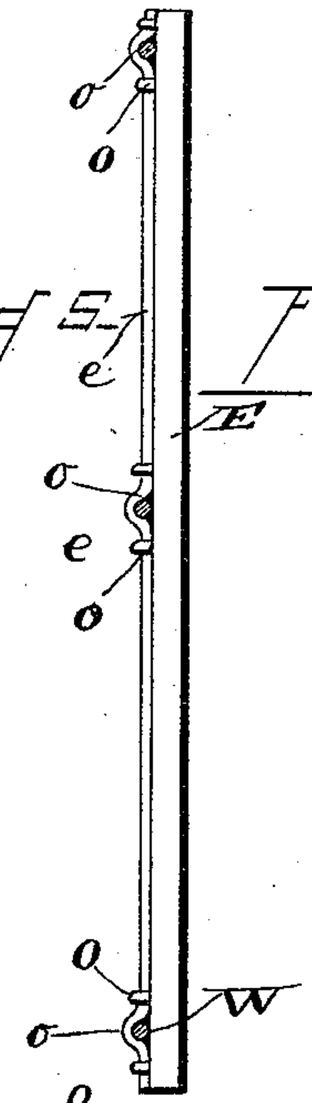


Fig. 8.

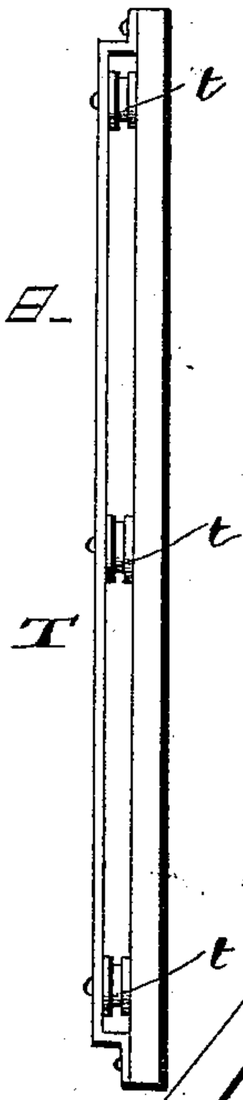


Fig. 6.

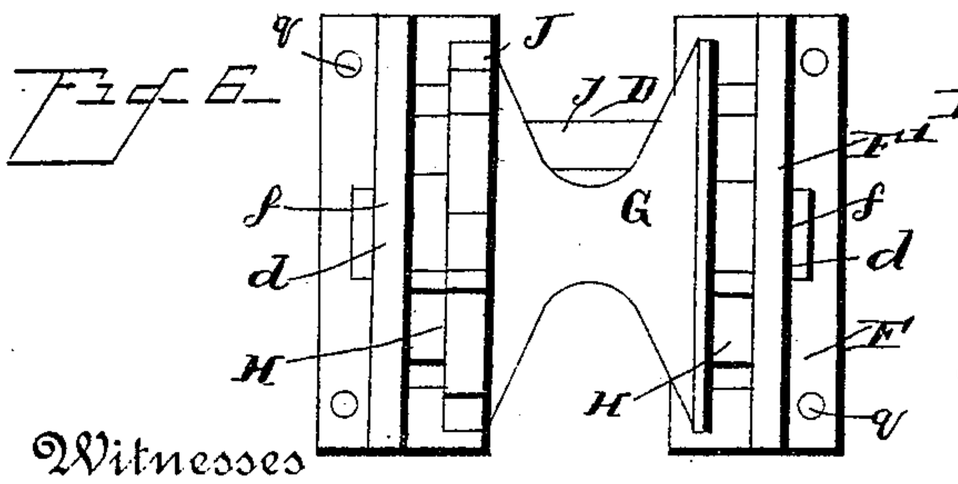
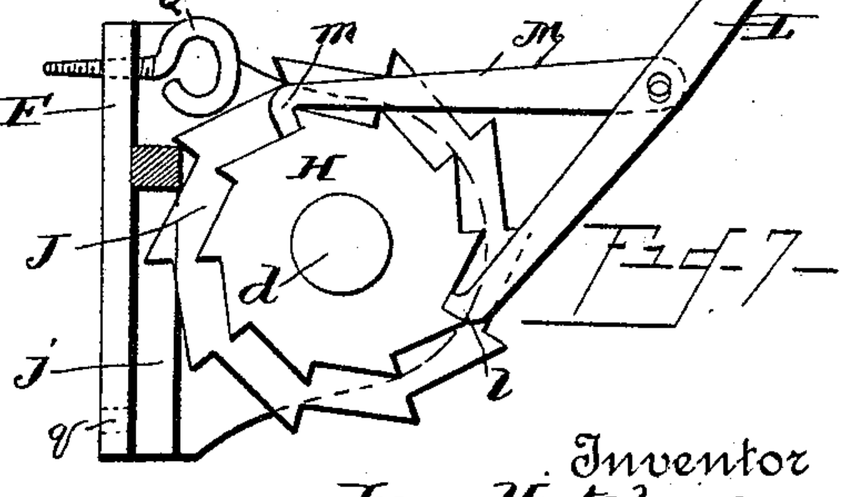


Fig. 7.



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UNITED STATES PATENT OFFICE.

JONAS HUTCHINS, OF KENDALLVILLE, INDIANA.

WIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 438,730, dated October 21, 1890.

Application filed January 31, 1890. Serial No. 338,724. (No model.)

To all whom it may concern:

Be it known that I, JONAS HUTCHINS, a citizen of the United States, residing at Kendallville, in the county of Noble and State of Indiana, have invented a new and useful Fence-Wire Tightener, of which the following is a specification.

This invention relates to the construction of fences; and it consists of certain tools and implements for stretching the wires tightly between the posts.

In constructing this fence and in using the tools referred to the invention also consists in certain details of construction, as hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a section of my improved fence, certain parts being broken away. Figs. 2, 3, 4, and 5 are cross-sections of the fence, showing different forms of wire-stays. Fig. 6 is a side elevation of the wire-tightening drum. Fig. 7 is an end view of said drum with its operating-lever shown in position thereon. Fig. 8 is a side elevation of the guide-stay.

Referring by letter to the said drawings, P designates the posts, which may be mounted upon suitable bases or seated in the ground at any desired intervals throughout the length of the fence, and B are inclined braces seated at their upper ends in notches *p* in the sides of the post and at the lower ends in the ground or against any suitable stop. These braces are always used at the inner sides of end posts, corner-posts, or those posts which are at either side of a gate, a set of bars, or other break in the fence; but if the fence is to be run over a sharp hill or through a sharp gulley or valley, or if it is desired that the finished fence shall possess a great amount of strength, I may use the braces B at either or both sides of any or all of the posts P for giving the latter additional strength and for maintaining them in their proper upright positions. Through the post P near its lower end I pass a brace-rod R, preferably having a T-head *r*, as shown in Fig. 1, and nuts N are screwed upon the outer ends of these rods R and against the faces of the posts for the purpose of drawing the rods through the posts and imparting the desired tension thereto. The said T-head *r* engages a notch *b* in the lower end of the brace B. By this means, when the nuts N are turned and the rods R are drawn upon, the lower ends of the braces will be drawn inwardly toward the lower ends of the posts, and when I use the rods R, I may therefore dispense with stops in the ground against which the lower ends of said braces would strike. The posts P being thus held in rigid vertical position and at suitable distances apart, straight longitudinal fence-wires W are stretched through and between them, and as the said posts P are preferably spaced at considerable distances the fence-wires W must be held in proper relative position to each other and collectively to the ground by suitable intermediate stays, such as shown in Figs. 2, 3, 4, and 5, for instance.

The stay in Fig. 2 consists of a vertical piece S of heavy wire, running from the top to the bottom of the fence and fastened to each of the fence-wires by small pieces of wire *s*, coiled around the fence-wire on either side of the stay and looped at their centers between the coils around the back of the stay-wire. The latter may of course be of wood, if preferred, or of any suitable material, and its lower end may, if desired, be embedded in the ground a short distance, as, indeed, may any of the stays, although none of them are of sufficient weight and strength to serve as posts, their function being merely to hold the wires and space them properly between the posts proper.

The stay shown in Fig. 3 consists of an upright body A, similar to that lettered S, just described, and this body has loops, hooks, or eyes *a*, loosely engaging the fence-wires.

The stay shown in Fig. 4 consists of a vertical body C, having integral eyes formed at its upper and lower ends *c*, and having at its center a looped wire *a*, as shown in Fig. 3. When the stays just described are of wire, their bodies are straight, and I preferably form the integral eyes *c* in the upper and lower ends, as just described.

The stay shown in Fig. 5 is more in the nature of a post. It consists of a wooden upright or body E, preferably seated in or resting on the ground at its lower end, and down one side of this post is passed a wire *e*, provided with bends *o*, embracing each of the fence-wires, and secured to said post E just above and below each of the fence-wires by staples O, driven into said body.

In building this fence, after the posts P have been set in the ground and the wires W

have been strung through them the latter are made fast to one end post of the section of fence being built, and my improved stretcher is removably secured by thumb-screws Q to the outer face of the other end post of the section by passing said thumb-screws through the holes *q* in the stretcher and into the post, whereby the wires can be drawn to the desired tension. The stretcher is then removed to tighten the wires of the next fence-section, and is applied detachably to another post in the same manner. The said stretcher consists of a two-part frame F, having holes for the passage of the screws or other fastening devices, and having bearings *f* in its outwardly-projecting arms F′ for receiving the journals *d* of the drum D. I preferably make said frame F in two pieces, in order that it may more easily be attached to the fence-post, and that it may occupy less room when it is packed for transportation or storage. The said drum has an annular groove G, end ratchets H, and a larger ratchet J inside one or both of said end ratchets. A pawl *j*, approximately U-shaped, slides vertically between the inner faces of said outwardly-projecting arms F′, and its body, when the pawl is in its lowermost position, is adapted to engage with said larger ratchet J to prevent the rotation of the drum, which would loosen the tension on the wires, all as will be readily understood. By this construction when the lever (described below) is used to turn the drum its ends will not interfere with the engagement of the larger ratchet with the pawl nor tend to lift the latter accidentally, and the lever may be used at either side of the fence already built by engaging it with the end ratchet at that side of the fence.

Referring now to Fig. 7, L designates a lever having a point *l*, and M designates a pawl pivoted, as shown, to the body of said lever and having a point *m*. The point *l* engages and bears downwardly upon one of the ratchet-teeth H, while the point *m* engages another of said teeth and assists the point *l* in imparting a rotary motion to the drum D. As this drum rotates, one tooth of the ratchet J elevates the pawl *j*, and the latter will drop into engagement with each successive tooth of this ratchet and prevent a retroactive motion of the drum. It will of course be understood that the fence-wires W, passing through the end post, are wound within the groove G of the drum, and as the latter is rotated are drawn to the desired tension.

During the tightening of the fence-wires, as just above described, if the same be stretched through the holes in the post P, as above described, they will bind therein, and perhaps will be broken when they are tightened if the line of the fence be led over a sharp rise in the ground or depression therein. I therefore provide in such cases the guide-stay T, as shown in Fig. 8, which consists of a metallic strap secured at its upper ends to the front faces of the posts, which may stand at points over said rise or through said valley. Between its ends this strap is bent outwardly, and between it and the front face of the post are mounted small grooved rollers *t*, over which or under which the fence-wires W will be passed, according as the surface of the ground where these guide-stays are used is a rising or a depression. By this means it will be understood that when the wires are being tightened, or after they are tightened and the fence is in a finished condition, any longitudinal movement of them through said stays will be facilitated by means of the rollers *t*; but these guide-rollers are not necessary where the fence-wires are stretched along a level piece of ground, in which case the ordinary post P may be employed and the wires strung through lateral holes in them in a manner common in the art and well understood.

Having thus described my invention, what I claim is—

1. In a fence-wire tightener, the combination, with the frame F and the drum D, having journals *d* turning in extensions F′ of said frame and provided with a raised ratchet J upon its face remote from its ends, of the U-shaped pawl *j*, its side arms sliding inside said extensions and its body engaging said ratchet, and means, substantially as described, for turning said drum, as set forth.

2. The combination, with the frame F, having outward projections F′, of the drum D, journaled in said projections, said drum having small end ratchets H and a larger ratchet J between them, an operating-lever L, engaging one of said end ratchets, and a U-shaped pawl whose side arms slide upon the frame inside its projections F′ and whose body engages said larger ratchet J, as and for the purpose set forth.

3. The combination, with the post P, the frame F carried thereby, and the operating-lever L, of the drum D, journaled in the outward projections F′ of said frame, said drum comprising a central groove G for the fence-wire, end ratchets H, to be engaged by said lever, a larger ratchet J, and a retaining-pawl *j*, engaging said larger ratchet, substantially as described.

4. The combination, with the drum D, mounted in suitable bearings and having a peripheral ratchet, of the lever L, having a point *l*, and the pawl M, pivoted to said lever and having the hooked point *m*, both said points simultaneously engaging different teeth on said ratchet, as and for the purpose set forth.

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

JONAS HUTCHINS.

Witnesses:
R. P. BARR,
JOHN W. CHILDS.