J. W. SNEDEKER.

WIRE FENCE STRETCHER.

APPLICATION FILED DEC. 4, 1913.

1,099,319.

Patented June 9, 1914.

2 SHEETS—SHEET 1.

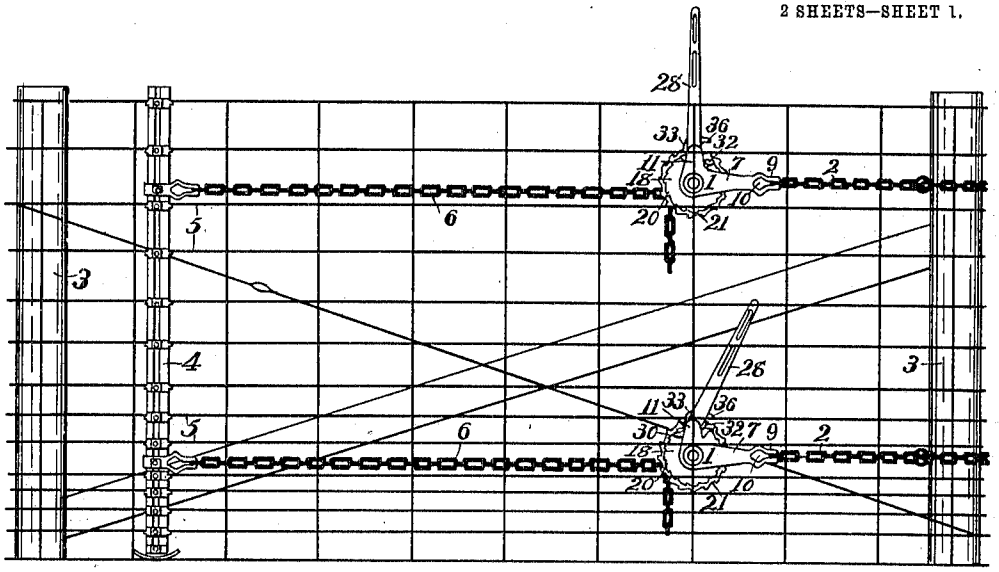


Fig. 1.

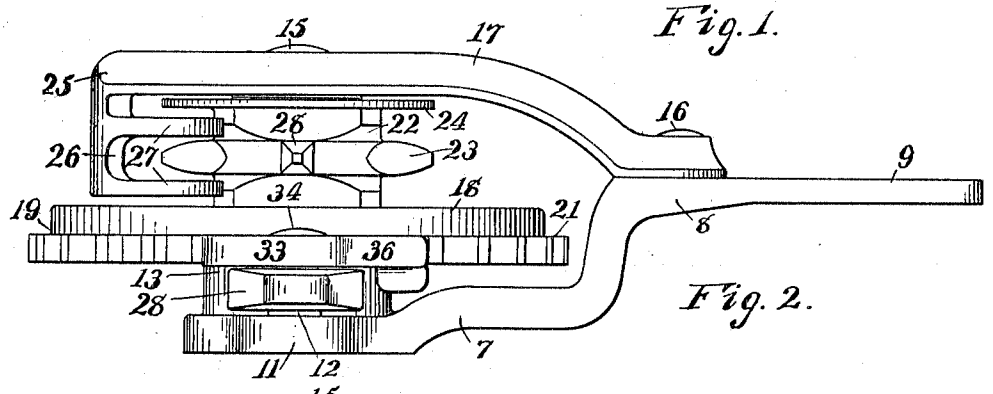


Fig. 2.

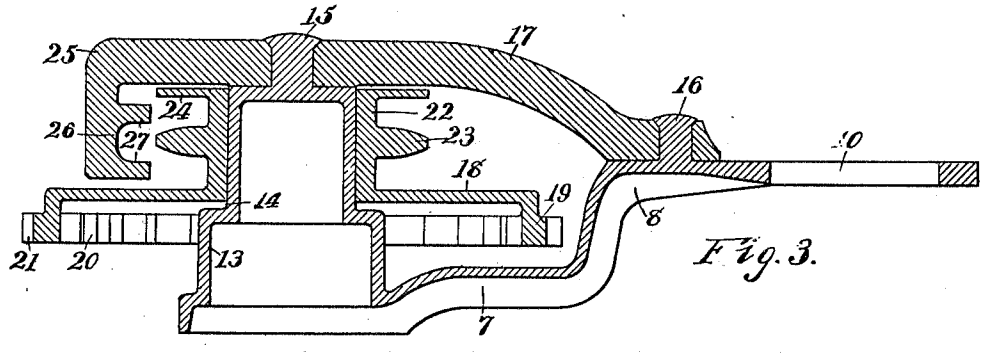


Fig. 3.

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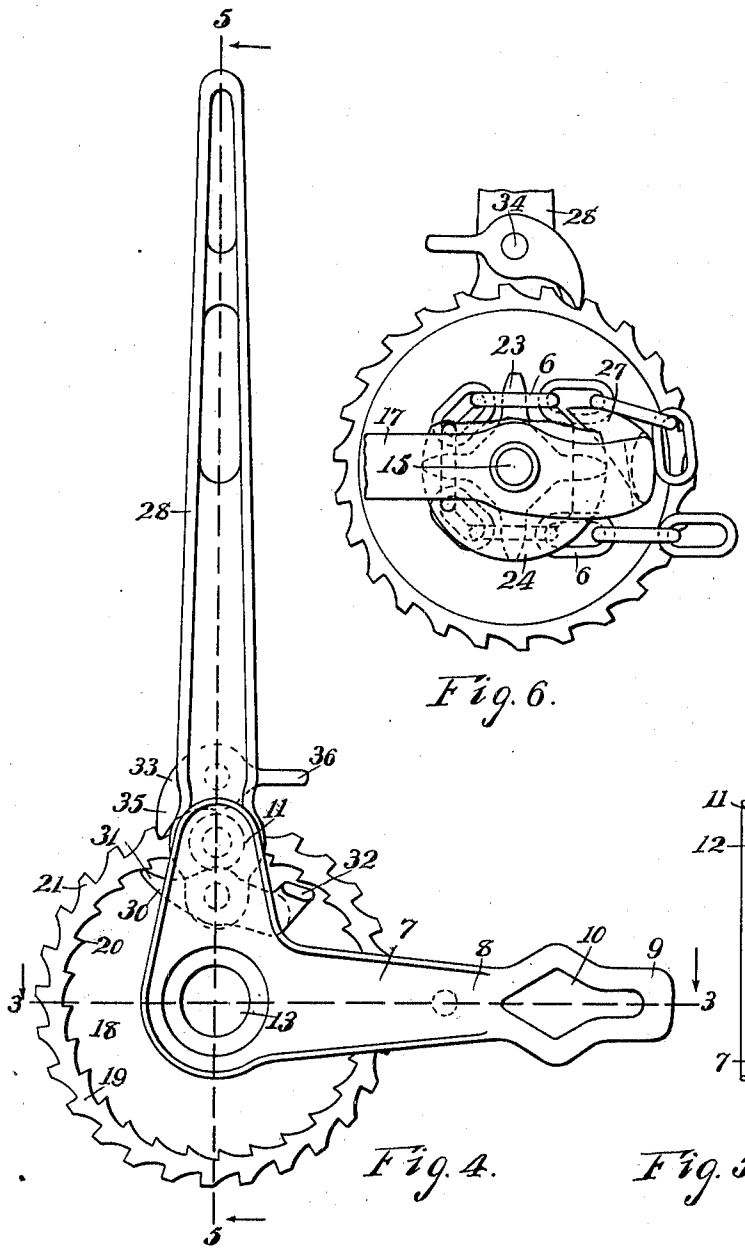


Fig. 6.

Fig. 4.

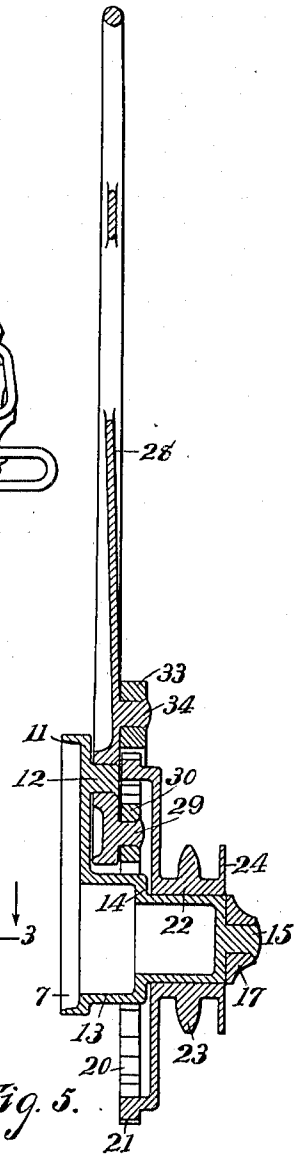


Fig. 5.

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JAMES W. SNEDEKER, OF ADRIAN, MICHIGAN.

WIRE-FENCE STRETCHER.

1,099,319. Specification of Letters Patent. Patented June 9, 1914.

Application filed December 4, 1913. Serial No. 804,565.

To all whom it may concern:

Be it known that I, JAMES W. SNEDEKER, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Wire-Fence Stretchers; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 characters of reference marked thereon, which form a part of this specification.

This invention relates to a device for stretching wire fence, and consists in the construction and employment of parts as hereinafter fully set forth and pointed out particularly in the claims.

The object of the invention is to provide simple, light and efficient means, for use in connection with anchor chains and a clamp bar, for applying tension to the wires of a fence preparatory to securing the wires to the posts of the fence.

The invention further contemplates such improvements in the structural formation of the stretching means as to simplify the number of parts and lighten and strengthen their formation, to enable the assembling of the operative parts in a manner to obviate the necessity for the employment of bolts and nuts in the structure, in which the parts are so wrought or cast as to be practically self-attaching, so as to reduce to a minimum the cost of production, and to further provide for the application of leverage power with comparative ease to exert ample force for stretching the wires of the fence to any degree of tension desired.

The above object is attained by the construction and employment of the mechanism illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a section of wire fence, showing this invention as applied thereto, in connection with a clamp bar and chains, for stretching the wires of the fence. Fig. 2 is a detached plan view of the stretching device. Fig. 3 is a transverse horizontal section through the stretching device, taken on dotted line 3—3 of Fig. 4. Fig. 4 is an enlarged side elevation of the device as disclosed in Fig. 1. Fig. 5 is a transverse vertical sectional view taken on dotted line 5—5 of Fig. 4. Fig. 6 is a fragmentary view in elevation of the opposite side of the device illustrated in Fig. 4.

Referring to the drawings by the characters of reference marked thereon, 1 indicates in a general way the stretcher or tension applying device, 2 represents anchor chains for securing the stretcher to a post 3 of the fence, 4 designates a clamp bar for attachment to the horizontal wires 5 of the fence, and 6 represents stretcher chains for connecting the clamp bar to the stretcher 1, by means of which tension is applied to the clamp bar to draw said bar longitudinally of the fence and thereby stretch the wires preparatory to securing said wires to the posts 3 of the fence, in a manner similar to that commonly employed for setting up wire fence, as clearly shown in Fig. 1.

The clamp bar carrying a plurality of clamps for attachment to the horizontal wires of the fence herein illustrated, forms the subject matter of a co-pending application, and a description of this particular feature need not be set forth herein, as it is only employed to better illustrate the application of the stretching device when employed in conjunction therewith for stretching wire fence.

The essential features of this invention reside in the construction and association of the operative parts that constitute the means for applying tension to the wires of the fence, and consist in the particular means of forming and uniting the parts in a manner to insure lightness, strength and simplicity in the structure. To this end the invention is carried out as follows: The main arm 7 of the device, upon which the mechanism is supported, is provided with an offset extension 8 terminating in a flattened end 9, in which is formed an angular aperture 10 forming a chain grip yoke for the reception of and locking engagement with a link of the anchor chain 2, by means of which the device is anchored in position, as shown in Fig. 1. Extending in the plane of the arm

7 from one side at right-angle thereto, is a short arm 11, and extending laterally from the face of said arm is a short pivot stud 12. Projecting laterally from the body of the arm 7, at its point of juncture with the arm 11, is a hollow journal 13, the body portion of which is reduced in diameter midway its length, forming a shoulder 14 thereon, while the outermost end of said journal is provided with a centrally projecting riveting stud 15. A second riveting stud 16 is formed on the face of the offset portion 8 of the arm 7, projecting therefrom in a line parallel with the stud 15. All of the parts constituting this member are formed integral therewith, and are preferably made from a casting of malleable iron, the journal being cored out to reduce the weight.

Mounted upon the studs 15 and 16 of the hollow journal and the offset portion of the main arm respectively, is an offset side arm 17, which is secured rigidly thereon and to the corresponding members of said main arm by riveting over the heads of said studs upon the outer face of said side arm, as clearly shown in Figs. 2 and 3.

Journaled to rotate upon the hollow journal 13 is a flanged wheel or disk 18, having formed in the inner perimeter of its flange 19 a series of internal ratchet teeth 20, and upon the periphery of said flange a series of external ratchet teeth 21. Projecting laterally from the face of said disk, concentric therewith, is a hub 22 carrying sprocket teeth 23 disposed centrally thereon and projecting radially therefrom, said hub being also provided with a guide flange 24 formed concentrically on the outer end thereof. All of said parts are formed integral by casting with the use of cores for forming the interior and overhanging portions. The body of the hub is embraced upon the hollow journal 13 between the shoulder 14 thereof and the inner face of the side arm 17, and is held against lateral movement by said members. The purpose of the flange 24 of the sprocket toothed hub is to serve as a guide in directing the links of the chain onto the sprocket teeth of the hub and prevent the chain fouling the side arm 17. The free end 25 of said side arm is turned inwardly at right angle to the body portion and terminates in a fork 26, having stripping fingers 27 between which the sprocket teeth 23 of the hub 22 are adapted to pass, as clearly shown in Figs. 2 and 6.

Fulcrumed upon the stud 12 of the arm 11, and held for disengagement therewith by riveting over the head of said stud, is an actuating lever 28, the lower end of which extends below the fulcrum of said lever, and to which is pivoted centrally upon a stud 29, a ratchet pawl 30. One end of said ratchet pawl is provided with a tooth 31 adapted to engage the internal ratchet teeth 20 of the disk 18. The opposite end of the pawl is provided with a finger-lift 32 which serves as a means for rocking said pawl upon its pivot to disengage its tooth from a tooth of the disk, and also serves as a weight to overbalance said pawl to normally hold its tooth in engagement with said ratchet teeth. A second ratchet pawl 33 is pivoted upon a stud 34 projecting from the face of the lever 28, at a point above the fulcrum of said lever and in a parallel line with the stud 29 thereof. Said pawl is also provided at one end with a tooth 35 adapted to engage the ratchet teeth 21 in the periphery of the disk 18. The opposite end of said pawl is provided with a finger-lift 36 by which said pawl may be rocked upon its pivot to disengage its tooth with a ratchet tooth 21 of said disk. The toothed end 35 of the pawl 33 overbalances the opposite end of said pawl and normally lies in engagement with its corresponding ratchet tooth of the disk 18, whereby, as the lever is swung in either direction upon its fulcrum with the arm 11, the ratchet pawls carried thereon will be caused to alternately engage and disengage the corresponding and succeeding ratchet teeth of the disk, and thereby intermittently impart a rotary movement to said disk and sprocket toothed hub.

The stretcher chain 6 attached at one end to the stretcher bar 4 is wound at its opposite end about the hub 22 in a manner to cause the alternate horizontal links of the chain to register with and engage the sprocket teeth 23 thereon, and as said chain is drawn about said hub through its rotation by the actuation of the lever and ratchet pawls, the oncoming horizontal links of the chain are engaged by the sprocket teeth, while the outgoing horizontal links of said chain are stripped from the sprocket teeth through their engagement with the forked fingers 27 of the side arm 17, whereby the chain is discharged from the sprocket teeth upon one side of the hub as said chain feeds onto the sprocket teeth upon the opposite side of said hub, as tension is applied thereto in the operation of drawing the stretcher bar in stretching the wires of the fence (see Fig. 6). The pawls dropping automatically into engagement with the ratchet teeth of the disk hold said disk against a reverse movement due to the tension of the chain, and when desirous of relieving this tension the pawls may be disengaged from the ratchet teeth by moving the finger-lifts on the ends thereof toward each other, either simultaneously or alternately, to release the tension at once, or by degrees, as may be desired through manipulation of the pawls accordingly.

It will be seen by referring to Fig. 4 that the intervals of spacing of the exterior ratchet teeth are interposed by the interior

ratchet teeth of the flange, thus alternating the shoulders of the teeth with relation to each other throughout the circumference of the flange. By this arrangement a double number of intervals of engagement are provided for alternate service with the opposed pawls, whereby, through a short swinging movement of the lever said pawls will be caused to engage alternately with each succeeding tooth, and thereby impart rotary movement to the disk to the extent only of the length of the ratchet tooth with each movement of the lever, thus affording a gradual application of power to rotate the disk with the greatest leverage force at a time when the tightening of the chain shall offer the greatest resistance, while a movement of the lever to its limit of a throw in either direction will cause said pawls to pass over a number of the teeth on their respective sides of the flange, and when finally engaging a tooth upon the return movement of the lever will cause said disk to rotate a correspondingly greater degree with the throw of the lever, thus rotating more rapidly the disk and its sprocket hub, as in taking up the slack of the chain to the point of bringing it under the stress of the load.

To provide for backing up to relieve the tension on the chain, the teeth of the pawls are of such length with relation to each other and the intervals of spacing of the respective teeth of the flange 19, that when the upper pawl 33 is in engagement with an external tooth of said flange, the tooth of the lower pawl 30 will be free from engagement with the shoulder of an internal tooth of said flange; thus to relieve the upper pawl from engagement, a slight movement of the lever to the left (see Fig. 4) will cause a rotation of the disk sufficient to allow the tooth of the lower pawl to engage a shoulder of an internal tooth, when by releasing the lever the load will be transferred to the lower pawl; the upper pawl may then be rocked by pressure on the finger lift 36 to raise its toothed end 35 clear of the external teeth of the flange. A further movement of the lever to the left will place the tooth of said pawl in engagement with the next succeeding external tooth, and by exerting tension upon the lever in a slightly farther forward direction the toothed end of the lower pawl may then be freed from engagement with an internal tooth by raising its opposite end through the finger-lift 32 thereon. The lever may then be returned with the backward rotation of the disk until the lower pawl is again engaged with another internal tooth, when the operation above described may be repeated by alternately manipulating the pawls to disengage them and permit a backward travel of the disk and sprocket hub in slacking tension on the chain.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. A wire fence stretching device comprising a forked supporting arm adapted for attachment to an anchor chain, a journal bearing on said arm, a ratchet disk having external and internal ratchet teeth and a hub with sprocket teeth thereon journaled on said bearing to dispose said sprocket teeth within the fork of said supporting arm, a lever fulcrumed to said supporting arm and having ratchet pawls pivoted thereto upon opposite sides of its fulcrum bearing adapted to engage the ratchet teeth of said disk.

2. A wire fence stretching device comprising a main arm having a journal thereon, a side arm rigidly secured to said main arm and to the end of said journal, an internal and external ratchet toothed disk having a sprocket toothed hub mounted to rotate on said journal between said main and side arms, a lever fulcrumed near one end to said main arm, ratchet pawls pivoted to said lever upon opposite sides of its fulcrum bearing and adapted to engage the ratchet teeth respectively of said disk.

3. A wire fence stretching device comprising a main arm adapted for attachment to an anchor chain, an extended portion at one end of said arm and a journal extending laterally from the face thereof, a side arm rigidly attached to said main arm and to the end of said journal, the free end of said side arm having an inwardly projecting forked extension, a flanged disk having internal and external ratchet teeth formed in the flange thereof, a flanged hub on said disk having sprocket teeth, said hub mounted to rotate on said journal to cause said sprocket teeth to pass within the forked extension of said side arm, a lever fulcrumed near one end to the extended portion of said main arm, a ratchet pawl pivoted to said lever and adapted to engage the external ratchet teeth of said flange, a second ratchet pawl pivoted to said lever and adapted to engage the internal ratchet teeth of said flange.

4. A wire fence stretching device comprising a main arm having an extended body portion and adapted for attachment to an anchor chain, a hollow journal formed integral with said arm upon one side thereof, integral studs projecting from the face of said arm and the end of said journal, a side arm engaging said studs and rigidly secured thereby to said main arm and journal, a forked extension formed integral with the end of said side arm and extending inwardly parallel with said side arm, a flanged disk having external and internal ratchet teeth and a flanged hub with sprocket teeth formed integral thereon, mounted to rotate on said journal to cause said sprocket teeth

to pass between the sides of said forked extension, a lever fulcrumed upon an integral stud of said main arm extension and having integral studs thereon, a ratchet pawl pivoted upon a stud of said lever and adapted to engage the external ratchet teeth of said disk, a ratchet pawl pivoted upon a stud of said lever and adapted to engage the internal ratchet teeth of said disk, and finger-lifts on the ends of said pawls for disengaging said pawls from the ratchet teeth of said disk.

In testimony whereof, I sign this specification in the presence of two witnesses.

JAMES W. SNEDEKER.

Witnesses:

EDNA CULVER,

F. E. OSGOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."