

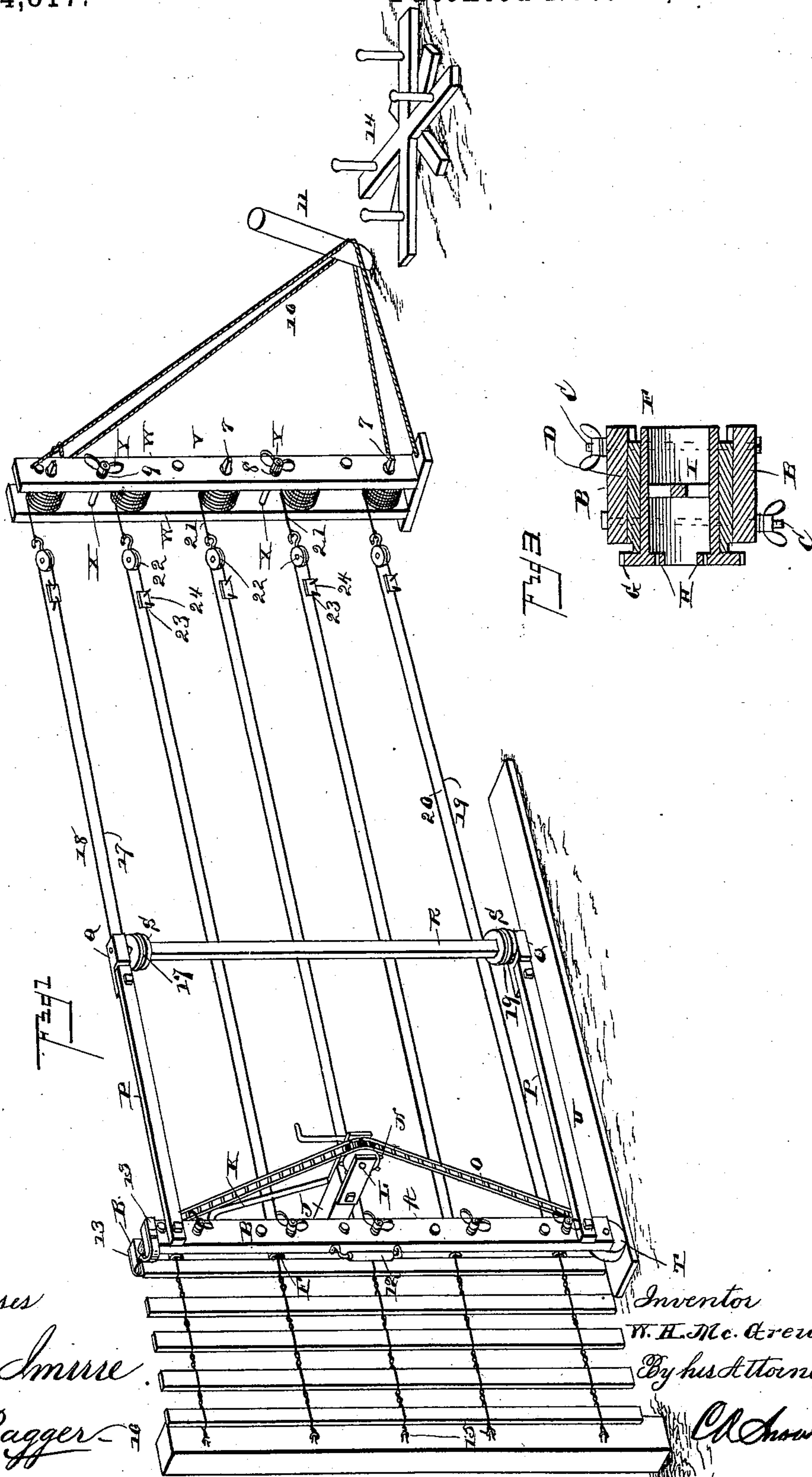
(No Model.)

2 Sheets—Sheet 1.

W. H. McGREW.  
FENCE MACHINE.

No. 414,817.

Patented Nov. 12, 1889.



Witnesses

John Smirre  
Wm. Bagger

Inventor

W. H. McGrew

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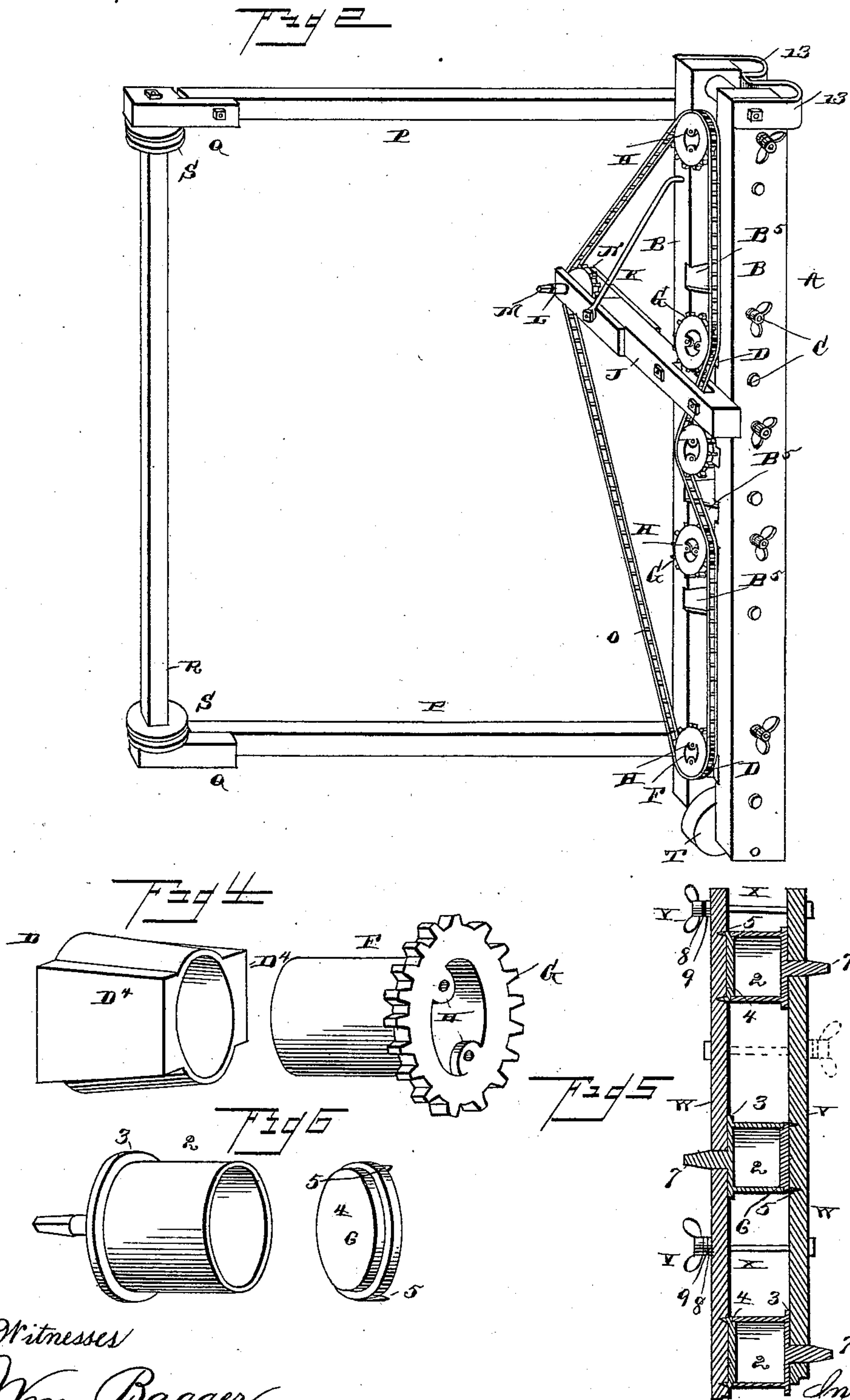
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By his Attorneys C. A. Snow & Co.

Inventor  
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# UNITED STATES PATENT OFFICE.

WILLIAM H. MCGREW, OF PERU, INDIANA.

## FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,817, dated November 12, 1889.

Application filed May 31, 1889. Serial No. 312,707. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. MCGREW, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented a new and useful Fence-Machine, of which the following is a specification.

This invention relates to machines for constructing that class of fences which are made of slats and wire; and it has for its object to construct a machine by the use of which the slats may be maintained in a perpendicular position while the construction of the fence is in progress, by means of which the tension of the wires may be equalized and regulated, and which may be readily converted so as to weave or construct a fence with any desired number of strands of wire.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view showing my improved fence-machine in the process of constructing a fence. Fig. 2 is a detail perspective view of the twisting mechanism and supporting-frame. Fig. 3 is a horizontal transverse sectional view taken through one of the twisting-heads and the frame. Fig. 4 is a detail perspective view of one of the twisting-heads and the boxing for the same removed from the frame. Fig. 5 is a vertical sectional view of the tension mechanism. Fig. 6 is a detail perspective view of one of the drums or cylinders and one of the washers that form a part of the tension mechanism.

The same letters refer to the same parts in all the figures of the drawings.

A designates a vertical frame composed of two side pieces B B, connected by means of bolts C C, having thumb-nuts, by means of which the said side pieces may be conveniently clamped or tightened, so as to retain in position a series of boxes D D, in which the twisting-heads E E are journaled in such a manner as to be capable of revolving freely. The sides of the boxes D D are provided with wedge-shaped flanges D<sup>4</sup>, and the inner sides of the frame-pieces B B are provided with corresponding wedge-shaped re-

cesses B<sup>5</sup>, located at various distances apart to receive said flanged boxes, which may thus be adjusted to enable the fence to be constructed with different numbers of strands of wires at different distances apart. The wide ends of the wedge-shaped flanges face in the direction of the starting end of the fence and serve to prevent the boxes from being displaced by contact with the pickets during the process of construction.

The twisting-heads consist of the cylindrical sleeves F, provided at their front ends with annular flanges, which are toothed, so as to form sprocket-wheels G. The front ends of the cylindrical sleeves are provided with inwardly-extending perforated lugs H, and about midway of their lengths the said sleeves are provided with transverse braces I, serving to separate the wires which are to be threaded through the perforations in the lugs H. The twisting-heads are mounted by their cylindrical sleeves F, so as to revolve freely in the boxes D.

The frame A is provided with a laterally-extending arm or bracket J, which may be connected with one of the side pieces of said frame by means of a brace K, and at the outer end of which is journaled a shaft L, having a squared post M, upon which an operating-crank may be adjusted, and carrying a sprocket-wheel N.

O is a chain passing over the sprocket-wheel N and over the sprocket-wheels G at the front ends of the twisting-heads, all of which may be simultaneously operated by the operation of the wheel N, which is effected by means of the crank or handle adjustable upon the shaft L. The sprocket-chain will also serve to retain the twisting-heads in alignment and to prevent their withdrawal from their respective boxes or bearings. Other simple well-known means may, however, when desired, be employed in addition to retain the said twisting-heads securely in their bearings.

Hinged or pivotally connected to the upper and lower ends of one of the side pieces of the frame A are two forwardly-extending arms P P, the outer ends of which have pivoted blocks QQ, in which are journaled the upper and lower ends of a vertical shaft R, which is provided near its upper and lower ends, and on a level with the upper and lower twisting-heads, with



grooved wheels or pulleys S S. The lower end of the frame A is provided with a supporting-wheel T, adapted to travel upon a plank or track U, which is placed loosely upon the ground in the path of the machine as the latter progresses during operation. It will be seen that the arms P P, with the pivoted blocks Q Q, will readily adjust themselves to any inequality in the ground while the machine progresses, thus enabling the main frame A, as well as the shaft R, to be readily maintained in a true vertical position, thus causing the pickets to be woven vertically into the fence without sagging on account of any inequalities in the ground.

Any tendency of the twisting-frame to tilt or sag will be resisted by the arms P, having the pivoted blocks Q, and the spacing-bar R, having the pulleys S, engaging the fence-wires, which have been stretched sufficiently taut to prevent sagging.

It is evident that by the construction described any tendency of the twisting-frame to tilt would draw the top and bottom wires of the fence toward each other, and the wires, being stretched and held taut, will, in connection with the devices described, steady the twisting-frame and maintain it in a vertical position.

V designates the tension-frame, which is composed of a pair of side pieces W W, connected by bolts X, provided at their outer ends with thumb-nuts Y. The side pieces W are provided with bearings for the shafts or spindles X, having cylindrical drums 2, which are provided at their inner ends with flanges 3. Washers 4, having laterally-extending lugs 5, are secured by means of the said lugs to the side pieces W at the outer ends of the drums 2, which latter are mounted revolvably upon the circular flanges or projections 6, formed upon the faces of the washers 4. The outer ends of the shafts or spindles X, which are formed integrally with the drums, are squared, as shown at 7, so as to afford seats for a crank or handle by means of which the said drums may be conveniently rotated. Under the thumb-nuts Y are placed washers 8 and 9, one of which is made of metal, while the other is of leather, rubber, or other elastic material. It will thus be seen that by tightening the thumb-nuts Y the tension upon the drums 2 may be adjusted and regulated to any desired extent.

The tension-frame is in practice connected by means of twisted wire bails 10 with a stake 11, driven into the ground at a suitable point somewhat beyond the end of the proposed line of fence.

The twisting-frame A is provided with a suitably-arranged handle 12, by means of which it may be conveniently grasped and manipulated during operation, and it is provided at its upper end, on its rear side, with a suitably-constructed spring 13, forming a seat for the upper end of the picket which is being operated upon.

14 designates a suitably-constructed reel adapted to hold an ordinary bale of wire from which the material for constructing the fence is to be taken. The said reel is to be placed upon the ground closely adjacent to the tension-frame, and the wire is taken from said bale, carried along the line of the fence until the twisting-frame is reached, and one turn of the wire is then taken around the grooved wheel or pulley S at the upper end of the vertical shaft R. The wire is then threaded through the upper twisting-head, and is finally secured by stapling, as shown at 15, to the upper end of the first post 16 of the fence. The wire is then cut at a point close to the bale, and a second strand is carried along the line of the fence, threaded through the uppermost twisting-head, and secured by stapling to post 16. The two top strands of wire, which are designated by 17 and 18, having thus been placed in position, the two bottom strands 19 and 20 are similarly adjusted, a single turn of the strand 19 being taken around the groove-wheel S at the bottom of the vertical shaft R before the said wire is threaded through the lowermost twisting-head and secured to the post.

Upon the drums 2 of the tension-frame are coiled the wires 21, the free ends of which extend in a forward direction and have the blocks or pulleys 22 suitably attached thereto. It is obvious that the drums 2 should correspond in number and arrangement with that of the twisting-heads in the frame A. After the uppermost strands of wires 17 and 18 have been placed in position, as described, one of said wires is passed around the uppermost pulley 22, and the extreme ends of the said wires are then passed through perforations 23 in the ends of a plate or link 24 and bent or twisted, the ends of the wires 17 and 18 being thus temporarily connected. In like manner one of the bottom wires 19 or 20 is passed around the lowermost pulley 22, and their ends connected by means of a link or plate 24. The intermediate pairs of strands of wires are next placed in position in a precisely similar manner, said intermediate strands being, however, threaded directly through the twisting-heads, no grooved pulleys being provided upon the vertical shaft R for the said intermediate strands. It will be seen that the top and bottom wires, which are passed around the pulleys S S, tend to maintain the twisting-frame in a true vertical position without impeding the progress of said frame over the ground in the process of constructing the fence. It will also be seen that the arms P, being connected pivotally or by means of hinge-joints to the frame A, will adjust themselves automatically to any inequalities in the ground, and that the shaft R, being mounted in pivoted bearings, will likewise adjust itself automatically.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my inven-



tion will be readily understood by those skilled in the art to which it appertains. It will be noted that, owing to the peculiar construction of the twisting-heads, the strands of wire of each pair will be held sufficiently apart to admit of the convenient insertion of the picket. By operating the shaft L by means of its crank or handle the wires may then be twisted in front of said picket, so as to retain it securely in position. The twisting-frame is then moved in a forward direction, so as to admit of the insertion of the next picket into the bites of the wires, after which the twisting-frame is jerked forcibly in a rearward direction, so as to ram the picket into position, the spring at the upper end of the twisting-frame affording a seat for the upper end of the picket. The shaft L is now operated in the reverse direction, thus twisting the wires in a direction opposite to that in which they were formerly twisted and causing the strands between the twisting-frame and the tension-frame to reassume a parallel position. The number of twists to the wires and the distance between the pickets may be regulated by the number of revolutions given to the shaft L. As the machine progresses, the tension upon the wires may be regulated by tightening the thumb-nuts Y upon the tension-frame to any desired extent, and it will be seen that the wires of each pair are always evenly strained, owing to the arrangement of the equalizing-pulleys 22. The construction of my improved fence-machine is simple and inexpensive, and it may be rapidly and successfully operated by one man.

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

1. In a fence-machine, the twisting-frame comprising a pair of vertical side bars connected by transverse clamping-bolts and having wedge-shaped recesses, in combination with the beveled or wedge-shaped boxes mounted adjustably between said side pieces and the twisting-heads journaled in said boxes, substantially as and for the purpose set forth.

2. In a fence-machine, the herein-described twisting-frame, comprising the side pieces connected by clamping-bolts and the vertically-adjustable boxes having the twisting-heads journaled revolvably therein, in combination with a spring connecting the upper ends of said side pieces and affording a seat for the picket which is being operated upon, substantially as set forth.

3. In a fence-machine, the combination, with the twisting-frame, of the laterally-extending pivoted arms and the vertical shaft journaled at the outer ends of said arms and provided with grooved wheels, substantially as and for the purpose set forth.

4. In a fence-machine, the combination,

with the twisting-frame, of the laterally-extending arms hinged or pivoted to the upper and lower ends of said frame, the blocks hinged or pivoted to the outer ends of said arms, and a vertical shaft journaled in said blocks or boxes and provided with grooved wheels or pulleys near its upper and lower ends, substantially as herein set forth.

5. In a fence-machine, the herein-described tension device, comprising a pair of vertical bars or side pieces, clamping-bolts connecting the same and provided with thumb-nuts at their outer ends, the drums or cylinders provided at their inner ends with annular flanges and having integral shafts or spindles, and the washers having laterally-extending lugs and provided on their faces with circular flanges or projections forming bearings for the outer ends of the cylindrical drums, all arranged and operating substantially as and for the purpose set forth.

6. The combination of the tension-frame, the clamping-bolts having thumb-nuts, the metallic and the elastic washers interposed between said thumb-nuts and the adjacent side piece of the frame, the drums or cylinders having integral shafts or spindles, and the plates or washers adapted to be mounted upon the inner sides of the side pieces of the tension-frame and affording bearings for the outer ends of the drums or cylinders, substantially as and for the purpose herein set forth.

7. In a fence-machine, the combination of the twisting-frame having hinged arms, a vertical shaft journaled at the outer ends of said arms and provided with grooved wheels or pulleys, the equalizing-pulleys arranged to support the free ends of each pair of fence-wires, and the links or plates connecting the free ends of each pair of wires, substantially as and for the purpose set forth.

8. The combination of the twisting-frame having hinged arms at its upper and lower ends, the vertical shaft journaled at the outer ends of said arms and having grooved wheels, the tension device comprising a set or series of single wires and means for regulating the tension upon the same, the equalizing-pulleys, attached to the outer ends of said single wires and adapted to support the free ends of each pair of fence-wires, and the links or plates connecting the free ends of said fence-wires, all arranged and operating substantially as and for the purpose herein shown and specified.

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

WILLIAM H. MCGREW.

Witnesses:

H. F. UNDERWOOD,

STEPHEN D. CARPENTER.