

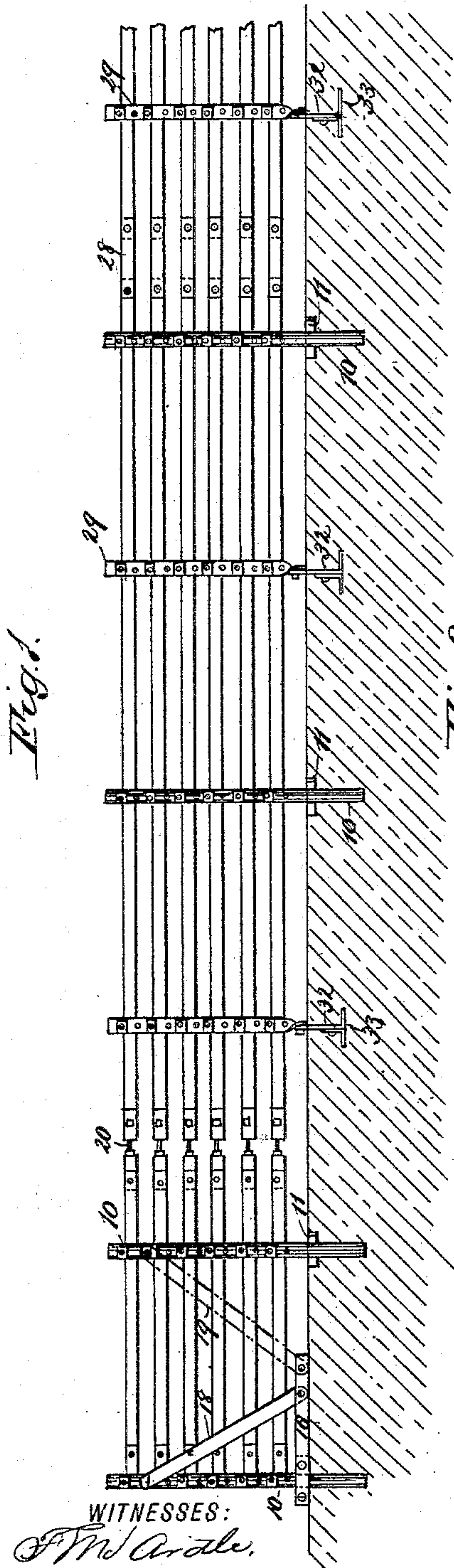
(No Model.)

2 Sheets—Sheet 1.

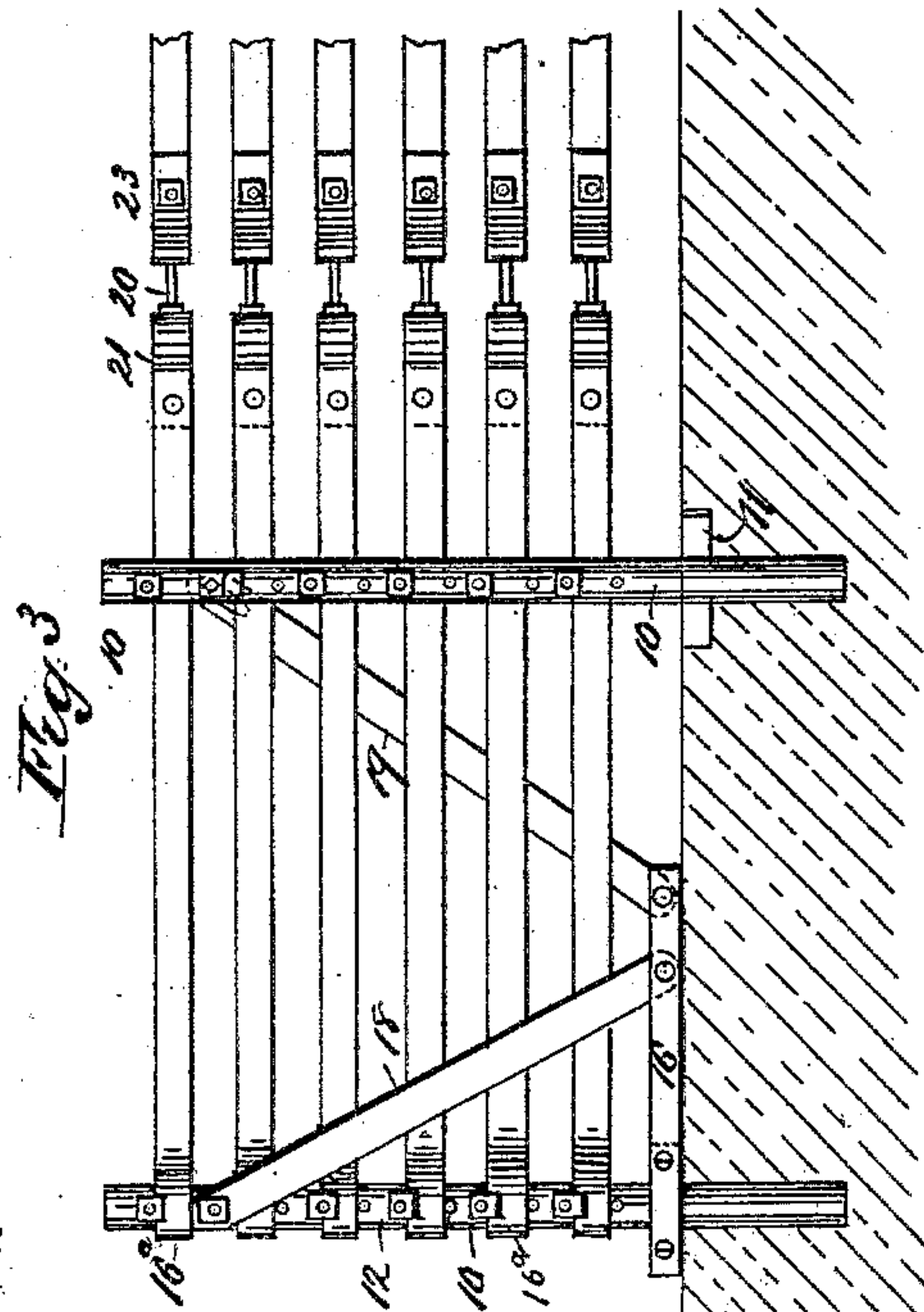
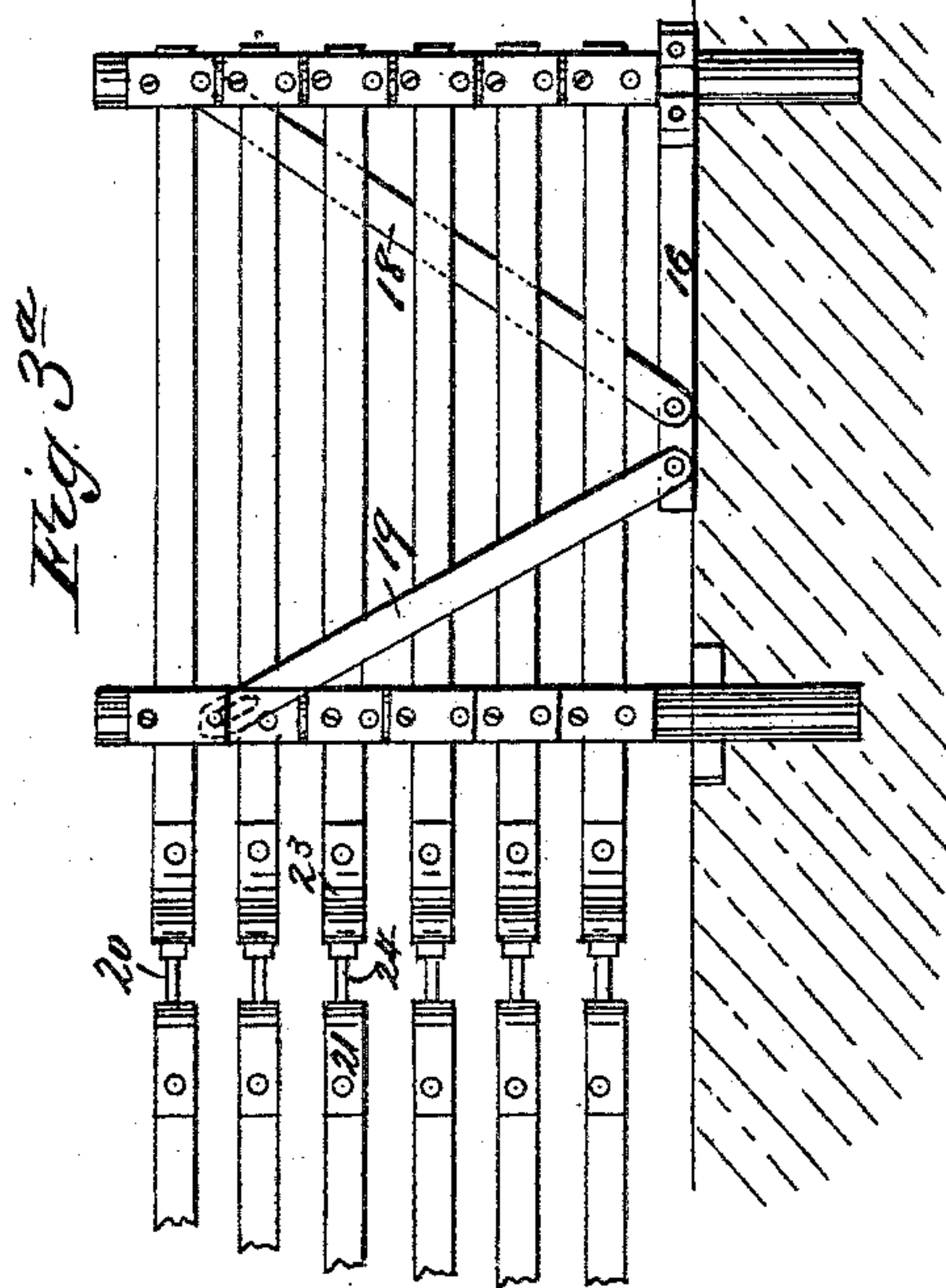
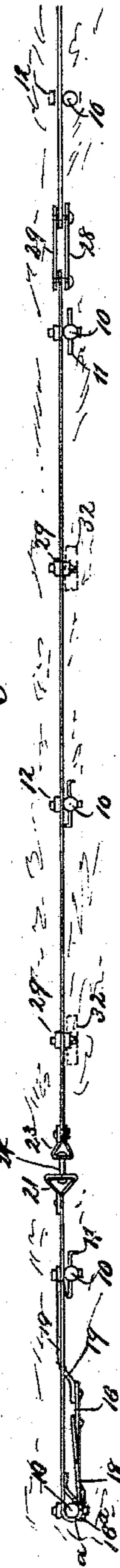
P. MAST.  
FENCE.

No. 411,995.

Patented Oct. 1, 1889.



WITNESSES:  
*F. M. Arde,*  
*C. Sedgwick*



INVENTOR  
*P. Mast*  
BY  
*Munn & Co*  
ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

P. MAST.  
FENCE.

No. 411,995.

Patented Oct. 1, 1889.

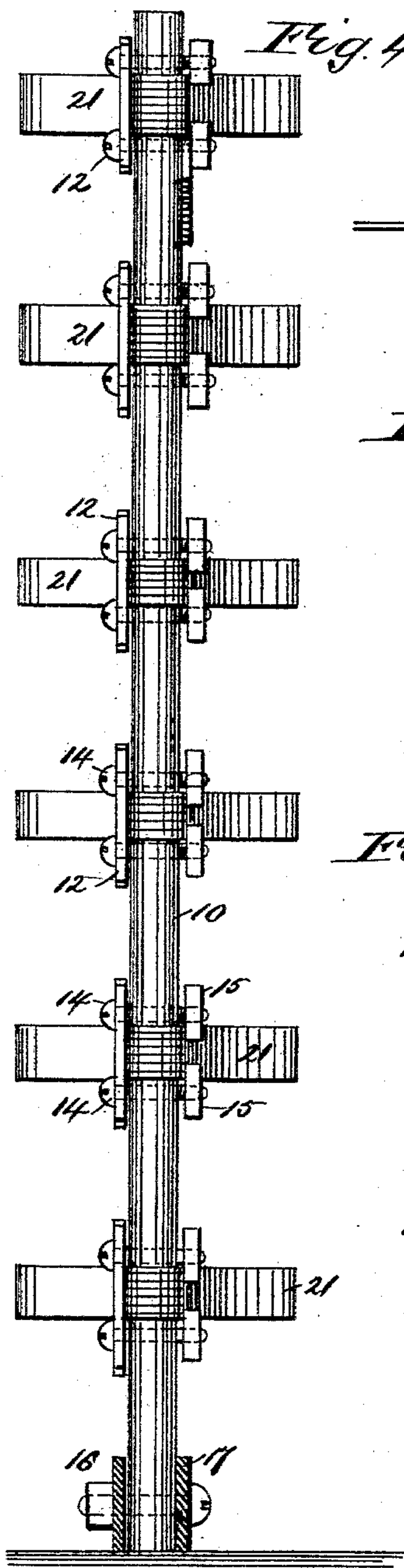


Fig. 4

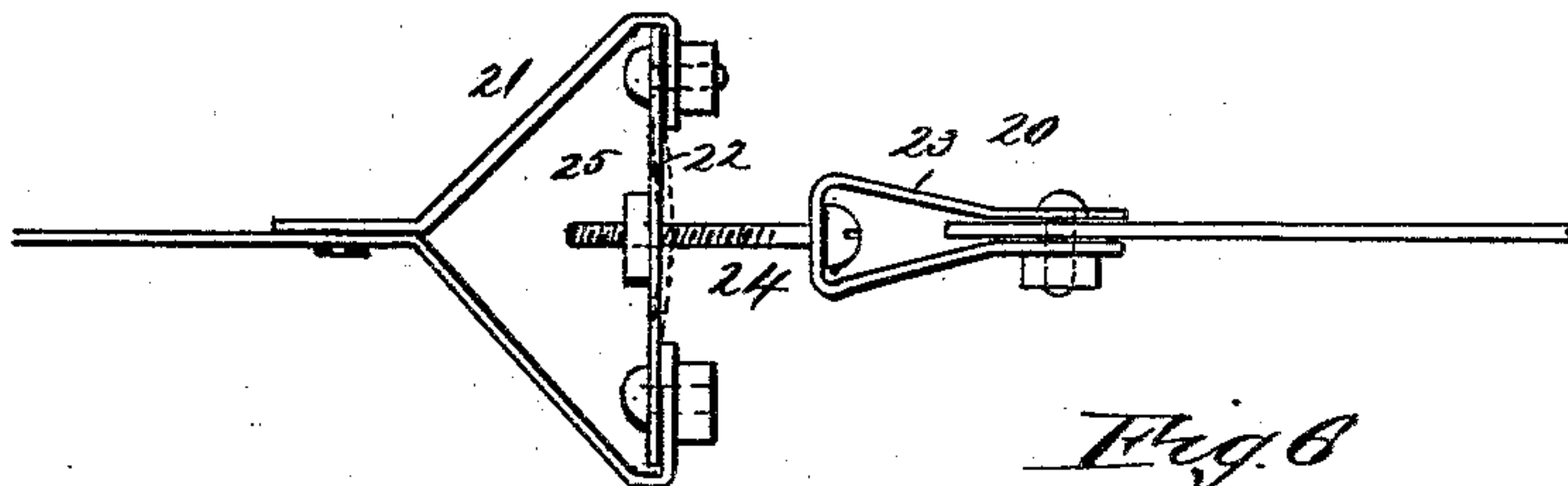


Fig. 5

Fig. 7

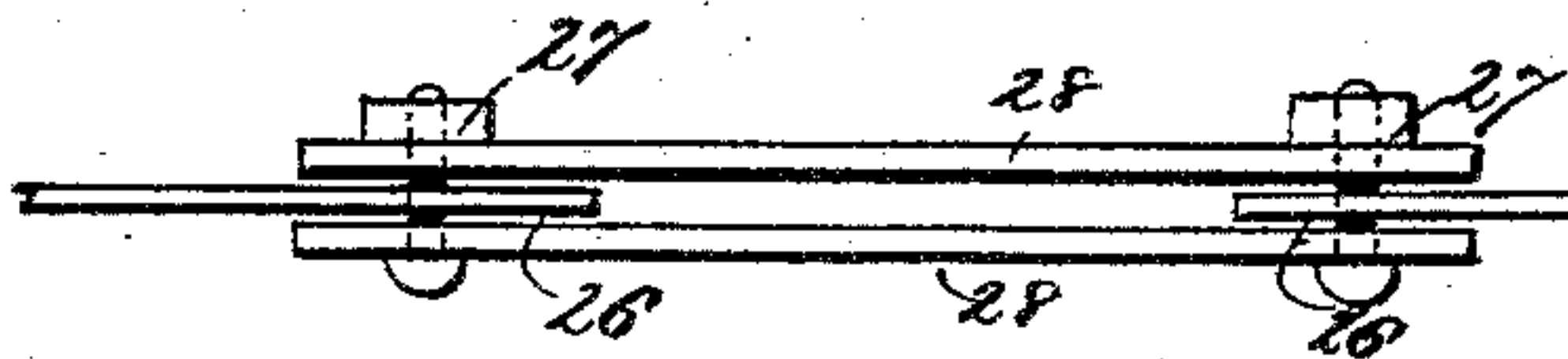
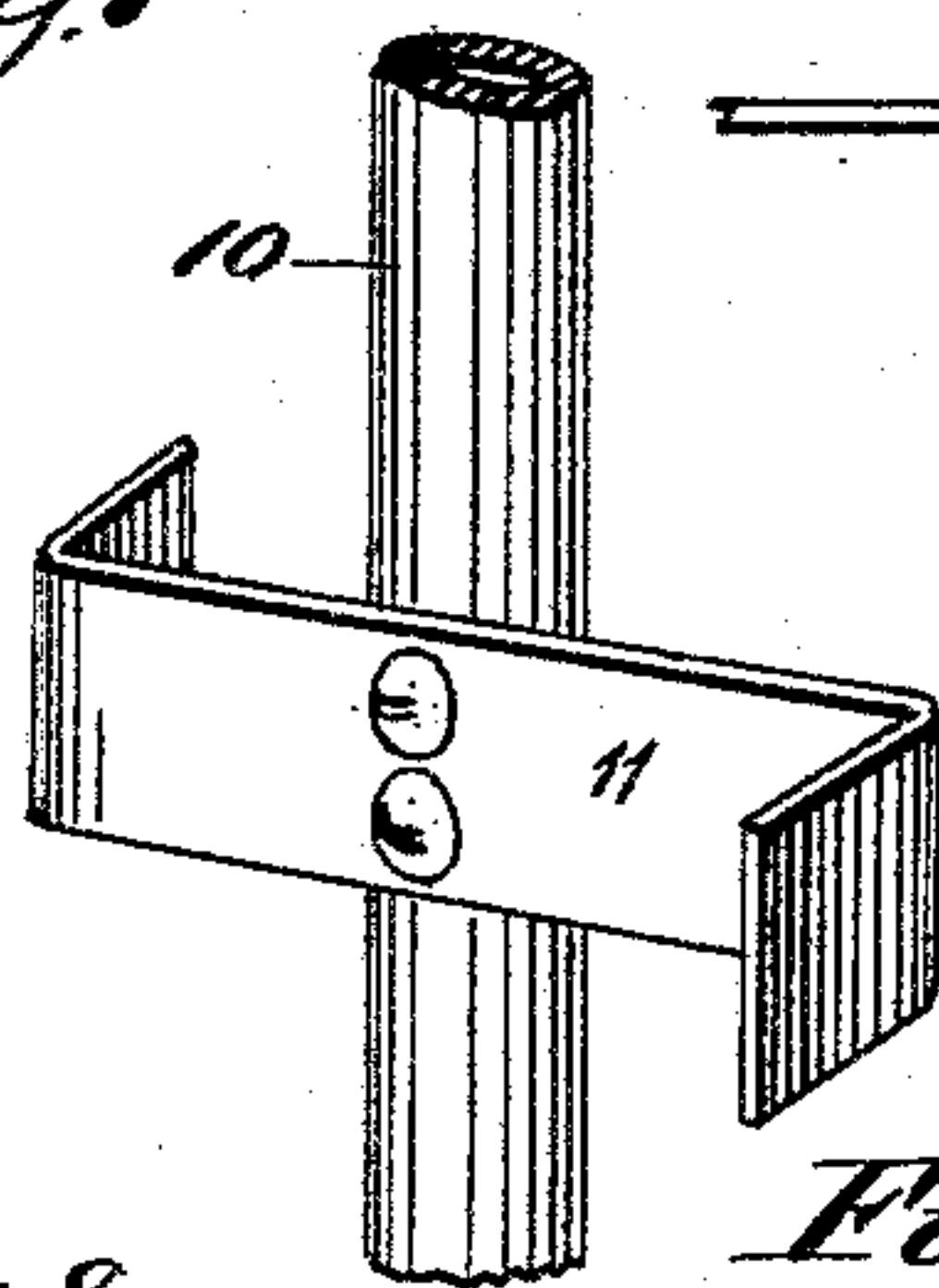


Fig. 6

Fig. 8

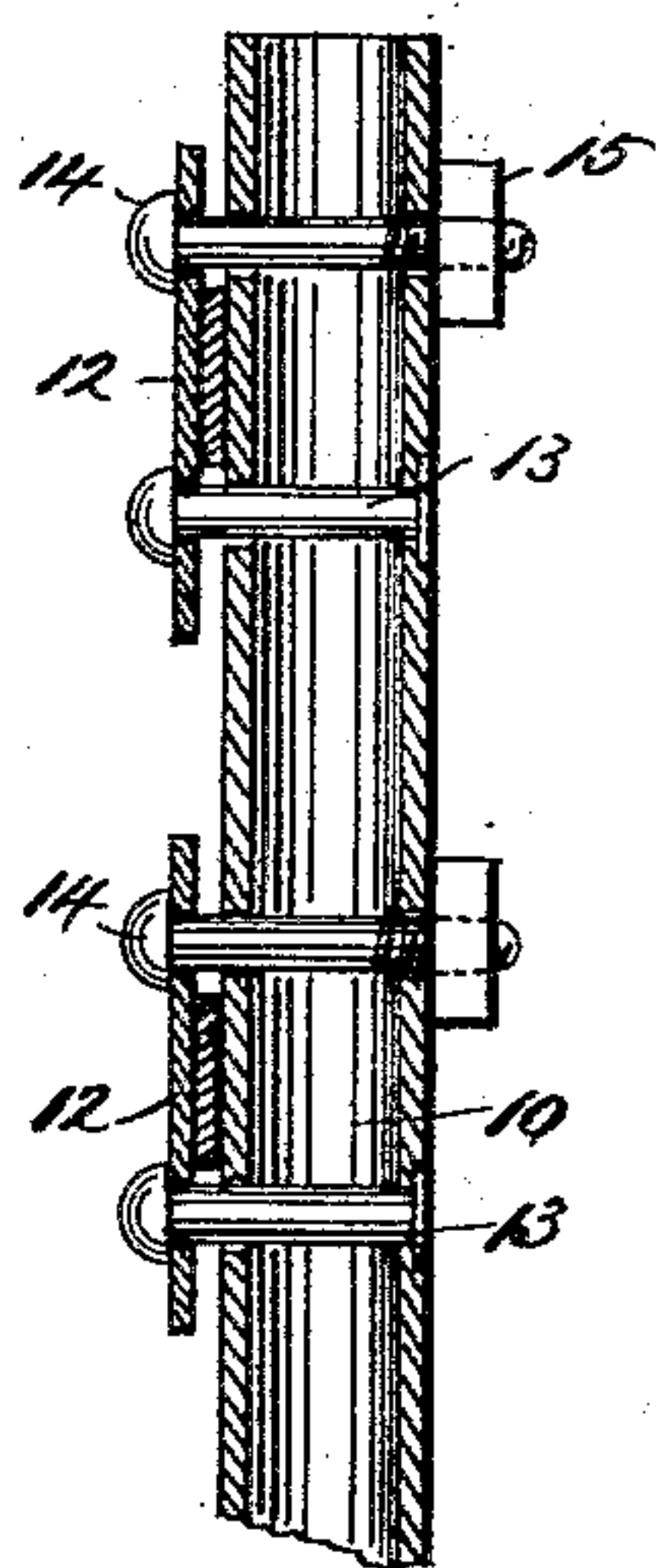


Fig. 10

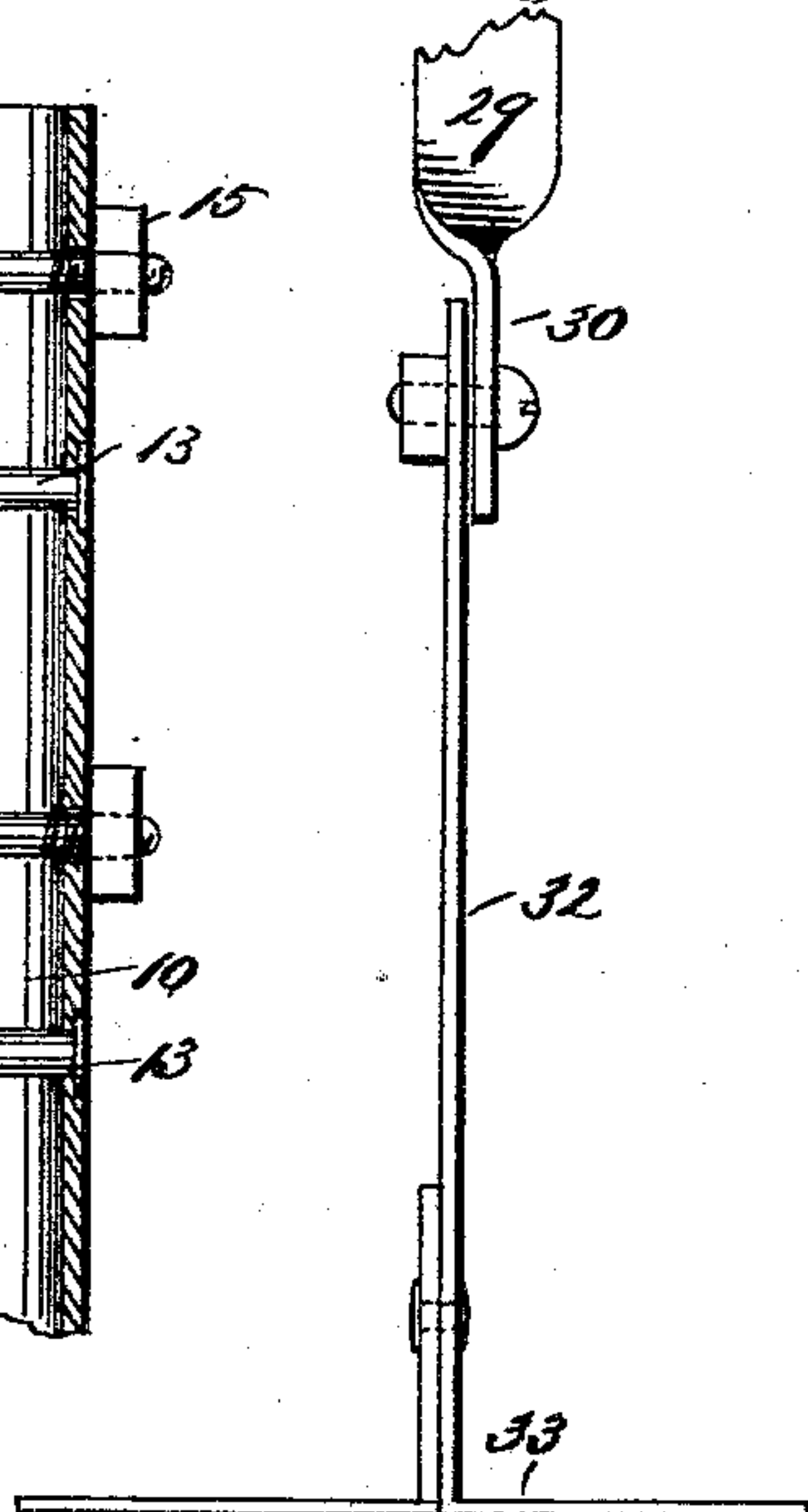
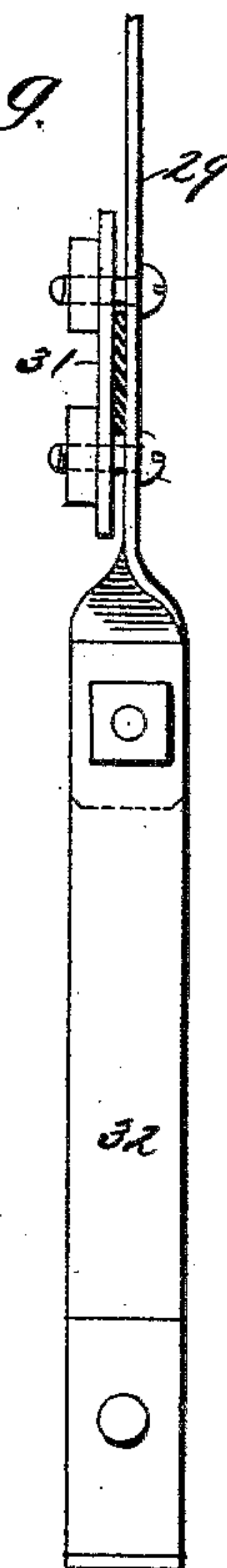


Fig. 9



WITNESSES:

*F. McArdle,*  
*C. Sedgwick*

BY

INVENTOR

*P. Mast*

*Munn & Co*

ATTORNEY



# UNITED STATES PATENT OFFICE.

PETER MAST, OF WATERVILLE, OHIO.

## FENCE.

SPECIFICATION forming part of Letters Patent No. 411,995, dated October 1, 1889.

Application filed March 5, 1889. Serial No. 301,929. (No model.)

*To all whom it may concern:*

Be it known that I, PETER MAST, of Waterville, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Fences, of which the following is a full, clear, and exact description.

My invention relates to that class of fences known as "wire fences," and has for its object to provide a fence of minimum cost capable of being erected in sections, and a further object of the invention is to provide a spring-tightener of simple and durable construction and ready manipulation capable of uniting the several sections of the fence.

Another object of the invention is to provide a means whereby the center of the several panels of the fence may be supported from the ground. I also aim to provide a means whereby the end sections of the fence may be rigidly braced and strengthened against lateral forces, and also to provide a simple means for uniting the several strands or strips employed in the construction of the fence.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter more fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a portion of the fence erected. Fig. 2 is a plan view of the same. Fig. 3 represents a side elevation of the end sections of the fence. Fig. 4 is an end view of one of the end posts of the fence. Fig. 5 is a plan view of the spring turn-buckle. Fig. 6 is a plan view of the device employed in connecting the strands of wire. Fig. 7 is a perspective view of the lower end of a fence-post, illustrating the application thereto of the horizontal stay or brace. Fig. 8 is a partial longitudinal section through one of the intermediate posts. Fig. 9 is a partial edge view of the central tie and a side view of the attached anchor, and Fig. 10 is a partial side view of the tie and an edge view of the anchor.

In carrying out the invention the fence-posts 10 consist of a length of tubing, either

wrought or cast, provided near the lower end with a transversely-attached essentially Z-shaped brace 11, (best illustrated in Fig. 7,) which brace is also formed of metal and is so secured to the post that it will project outward therefrom at each side. Thus when the post is driven in the ground, which is readily accomplished by reason of its tubular formation, the horizontal brace 11, entering the ground, as illustrated in Figs. 1 and 2, serves to effectually sustain the post in a perpendicular position.

The intermediate posts of the fence are provided with a series of clamp-plates 12, attached to one side, the number of plates corresponding to the number of strands or strips to be used in the construction of the fence. The preferred manner of attaching the plates to the intermediate posts is illustrated in Fig. 8, in which it will be observed that the lower end of each plate is secured by means of a rivet 13, so attached that the plate, when desired, may be turned upon the said rivet. After the strand has been made to contact with the post above the rivet of the several plates, the plates are brought to a perpendicular position parallel with the longitudinal axis of the post, and their upper ends are secured through the medium of a bolt 14, provided with a suitable nut 15.

In the end posts I preferably secure the clamping or binding plates thereto by means of two bolts 14, as best illustrated in Fig. 4, both of which bolts are provided with suitable nuts; but the fastenings for the binding-plates may be the same in all the posts. The several strands are attached to the end posts by forming a loop 16<sup>a</sup> in the extremities of the strands, and passing the said loop downward over the post to a contact with the lower bolt of the clamp or binding-plate, whereupon the plate is brought to the perpendicular position referred to and shown in Fig. 8, and is held in such position by the upper bolt. This attachment of the strand to the end posts is fully illustrated in Figs. 2 and 4.

It will be observed by reference to the foregoing description and the figures referred to therein that the plates 12 will securely and rigidly bind the several strands of wire to the posts. This is absolutely necessary in the construction of a wire fence, as when the



strand is brought to a loose contact with the posts undue strain is brought to bear upon the end posts, and also the strands have a tendency to buckle and wear by reason of chafing against the posts; but when each undivided strand is fast to each post the tension is divided throughout the length of the fence.

One of the great difficulties experienced heretofore in the construction of wire fences has been to provide a means whereby the end sections of the fence shall be braced and strengthened to effectually sustain the strain brought to bear upon them by taking up the wire at the intermediate sections. This difficulty I have sought to remove by the form of brace illustrated in Figs. 1 and 2.

The brace consists of a horizontal bar attached to the end post, which bar is made to project, preferably, just above the surface of the ground in the direction of the opposed or next post of the fence. The said bar is usually secured to the post by causing the bar to engage with one side of the end post, a short plate 17 being made to contact with the opposite side, and the said plate and bar are rigidly connected by a bolt passed through the same at each side of the post, or equivalent locking devices may be used. A brace-bar 18 is rigidly bolted at the upper end to one side of the end post, at or near the top, the said brace-bar being carried downward and inward to a rigid connection with the horizontal base-bar 16, between the center and the inner end of the same. A draw-bar 19, constituting a second piece, is attached to the inner extremity of the base-bar 16, the other end of which draw-bar is slotted and carried upward to a contact with the intermediate post next to the end post, and is attached to the said intermediate post by means of a suitable bolt. The draw-bar 19 is located at one side of the wire strands and the brace-bar 18 at the opposite side.

By way of explanation of this system of bracing, I will state that in wire fences as now built all the strain is sustained by the extreme or end posts. By means of my improvement the tension of the wire not sustained by the intermediate posts is borne by the two extreme posts at each end.

In constructing a fence I attach the strands to the end post in the manner heretofore described, then carry them to the next post and securely attach them thereto, leaving the strands slightly slackened between posts 1 and 2—that is, the end post and the post next thereto. By having the strands thus slackened when tension is exerted upon them they will naturally draw No. 2 post forward, whereupon, by reason of the braces described, which draw in the contrary direction, the slack between posts 1 and 2 is taken up and said posts made to brace one another. The slot is provided in the draw-rod 19 in order that should the base-bar become loosened in any manner

the slack may be taken up by loosening the nut of the bolt attaching the draw-bar to the intermediate post and drawing the said draw-bar upward. It will thus be observed, by reference to Figs. 2 and 3, that each end section of the fence is strengthened by an essentially V-shaped brace, and a horizontal base-bar uniting the angle of the V with the extreme outer post.

I propose to construct my improved fence in sections, and to unite, for instance, the adjacent ends of the several strands of every other section by a spring turn-buckle 20. (Illustrated in detail in Fig. 5.) Each section of the fence may comprise as many posts as I deem fit, but preferably the sections are made about six rods in length, and a turn-buckle is placed every eight to twelve rods in the length of the fence.

The spring turn-buckle referred to as connecting the several fence-sections consists, essentially, of a V-shaped metal yoke 21, the members of which are connected at their outer ends by a centrally-apertured spring-bar 22. A yoke is provided at the end of each wire employed in the formation of one fence-section in such manner that the apertured connecting-bar 22 of the yoke will occupy a horizontal position, or a position at a right angle to the length of the wire. This yoke is formed by bending the end of the strand at an acute angle and then inwardly at a right angle and riveting the inner end of a similarly-shaped angle-piece 21 to the wire, as shown in Fig. 5. To the inwardly-extending ends of the yoke thus formed the ends of a centrally-apertured spring-bar 22 are bolted or riveted. The several yokes of a section of the fence will occupy horizontal positions in vertical alignment, so that a section of fence may be removed, if desired. An obvious modification of the yoke would be to form it of two plates 21 and rivet or bolt them together with the end of a strand between them.

Upon the extremity of each of the strands of the fence-section to be connected with the section carrying the yoke a loop 23 is secured, provided with a threaded bolt 24, projected from the outer end. In uniting the fence-sections the bolt 24 of one section is passed through the aperture in the connecting-rod of the yoke of the opposed section, and the end of the said bolt extending into the said yoke is provided with a lock or adjusting nut 25. Thus a turn-buckle is essentially constructed, which serves in the dual capacity of a connection for the sections and a take-up for the same. When serving in the latter capacity, it is adapted for use to take up the slack of the wire. This is conveniently accomplished by screwing the nut 25 upon the bolt 24. Thus the loop 23 is made to approach the yoke-connecting bar 22, thereby exerting considerable tension upon the connected strands. As the transverse or connecting bar 22 of the yoke is formed of spring



metal, ample provision is made for the expansion and contraction of the wire that may take place.

If it is desired to connect the ends of broken strands or to piece out the strands, I accomplish the same by forming an aperture 26 in the opposed ends to be connected, and passing a bolt 27 through the apertures, which bolts are also respectively passed through the ends of two spaced parallel plates 28, as best illustrated in Fig. 6. Thus the strands are connected without the opposed ends of the united strands being actually brought in contact. This mode of uniting short strands to make great lengths is especially adapted for use with plain or barbed wire; but where round wire is used the ends of the strands to be connected will be looped for the passage of the bolts 27.

In order to sustain the strands between two given posts when said posts are removed quite a distance from each other, I provide a stay-rod 29, (illustrated in detail in Fig. 9 and in Fig. 10,) which stay consists of a flat piece of metal having the lower end 30 twisted to stand at a right angle to the body, as clearly shown in Fig. 9, and upon the face of the rod constituting the body of the stay a series of clamp or binding plates 31 are secured in similar manner to the equivalent plates 12 of the end and intermediate posts, the number of the plates employed corresponding with the number of strands in the fence. Each plate 31 is adapted to hold in position one of the wire strands, and consequently the plates of the stay and the plates upon the posts are in horizontal alignment. The stay is of sufficient length to extend from the ground upward a suitable distance above the upper strand. To the lower twisted end of the stay a T-bar 32 is pivoted in such manner that the head 33 will form the lower end of the stay. This T-bar 32 constitutes an anchor and is buried in the ground, as illustrated in Fig. 1, whereby the stay 29 is given a more rigid and firm support than by bearing upon the ground only.

I desire it to be distinctly understood that I do not confine myself to any particular style of wire in the construction of the fence, and that while specific construction has been shown and described, other equivalent construction may be employed without departing from the spirit of the invention.

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

1. The combination, with a fence constructed in sections, of a spring turn-buckle uniting the several strands of the sections, substantially as shown and described.

2. The combination, with the sections of a fence, of a V-shaped yoke at the ends of each of the strands of one section, apertured spring-plates connecting the diverging ends of the yokes, loops secured to the strands of the next section, bolts passed through the cross-pieces of the loops and through the apertures in the spring-plates, and nuts on the projecting ends of the bolts, substantially as set forth.

3. The combination, in a fence, of a strand having its extremity bent at an acute angle and inwardly at a right angle, an angle piece or plate 21, shaped to correspond to said end and riveted at its inner end to the strand, a spring-plate secured at its ends to the inwardly-projecting ends of the yoke formed by the said plate and bent end of the strand with another strand having a loop at its end, and a bolt passed through the cross-bar of the loop and through the aperture in the spring-plate, substantially as set forth.

4. In a fence, the series of strands and their supporting-posts, in combination with the intermediate supporting-bars 29, twisted axially, as at 30, into a plane at right angles to the upper part, and a L-shaped anchor bolted at the upper end of its vertical arm to said end 30, substantially as set forth.

5. The combination, in a fence, with a post, of a vertically-aligned series of clamping-plates arranged longitudinally of the post, pivoted at one end thereto, and clamping-bolts passing through the post and opposite ends of said plates, the strands being clamped under the plates and between the pivots and clamping bolts, substantially as set forth.

6. The combination, with the end sections of a fence, consisting of two spaced posts and strands uniting the same, of a horizontal rod secured at its outer end to the outer post near the base, a brace-rod secured at its lower end to the horizontal rod near the inner end thereof, and its upper end to the upper end of the outer post, and a draw-rod secured at its lower end to the inner end of the brace-rod and adjustably attached at its upper end to the inner post, substantially as shown and described.

PETER MAST.

Witnesses:

GEO. I. COOPER,  
ELLA COOPER.