(No Model.) 3 Sheets—Sheet 1.

M. F. CONNETT.

MACHINE FOR MAKING WIRE AND PICKET FENCES.

No. 301,806. Patented July 8, 1884.

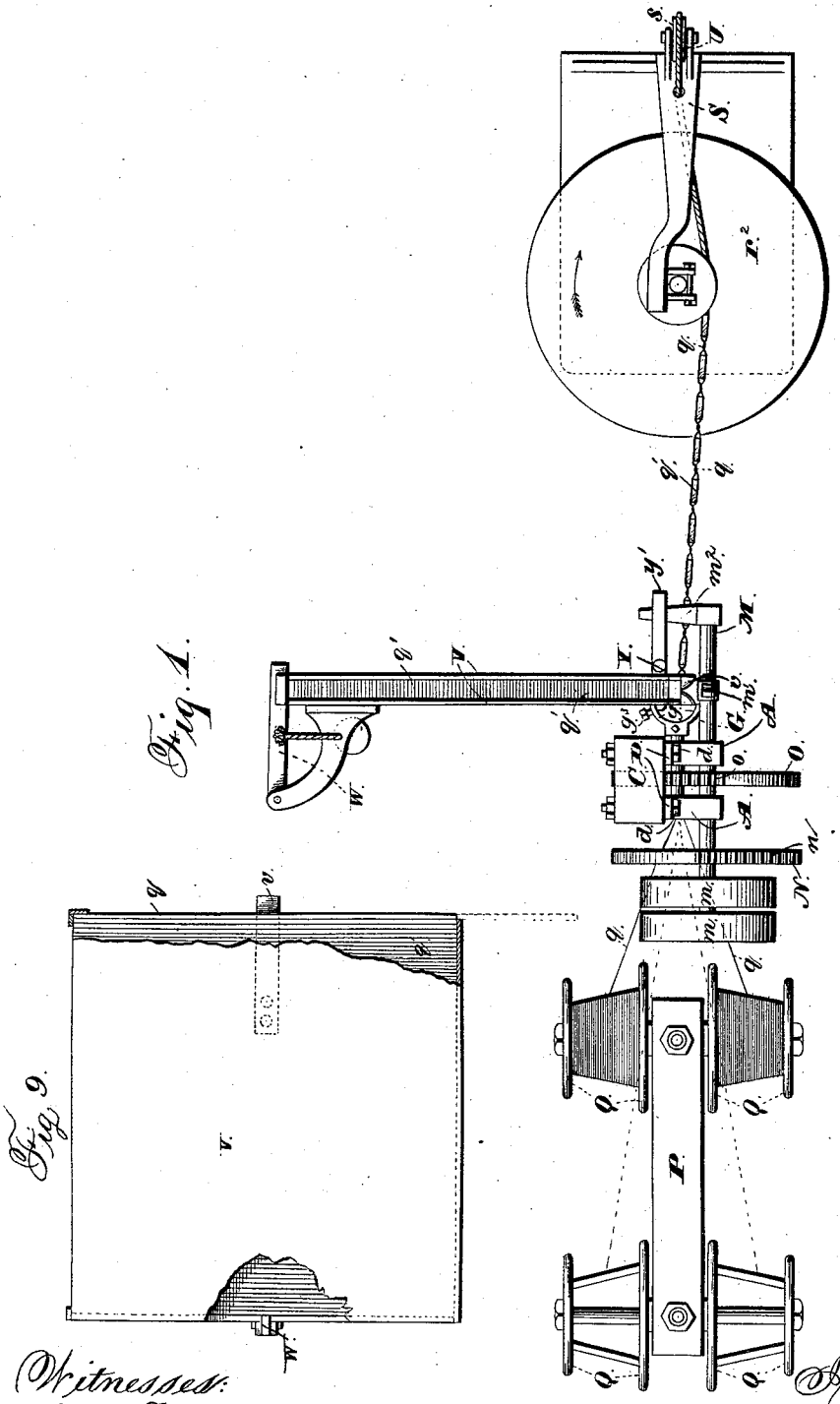

Fig. 1.

Fig. 9.

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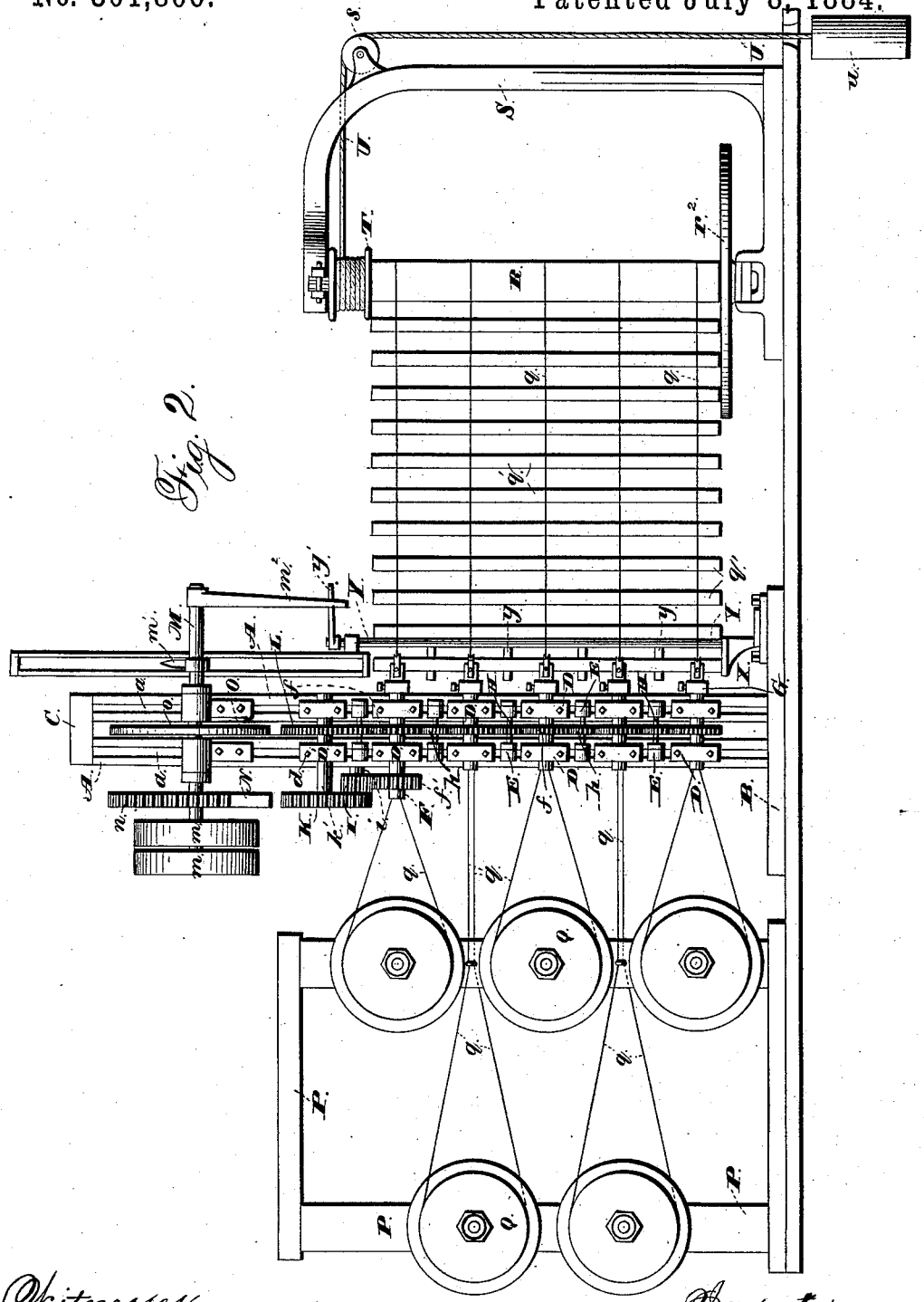

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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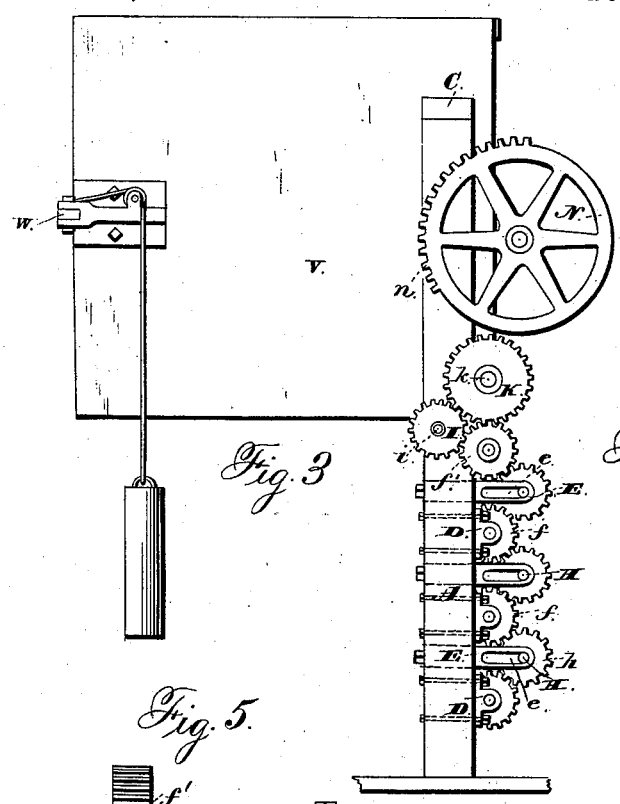


Fig. 3

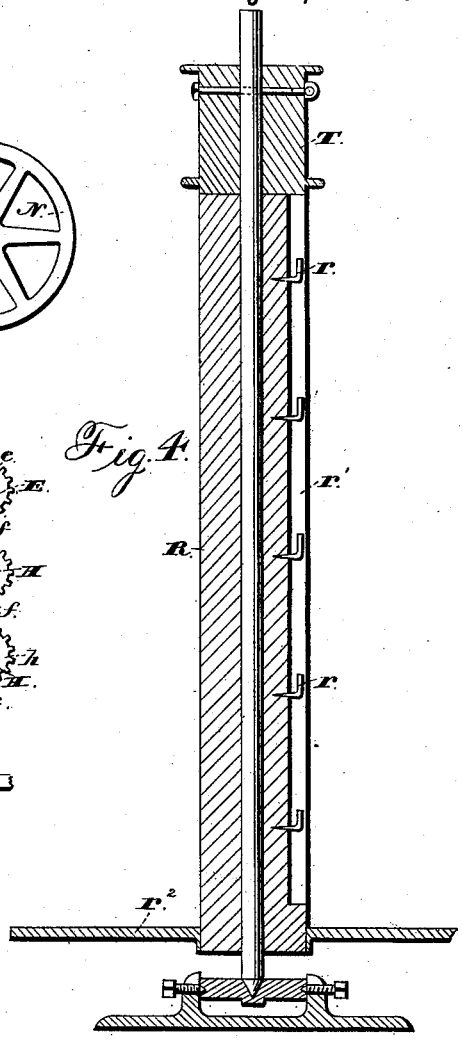


Fig. 4.

Fig. 5.

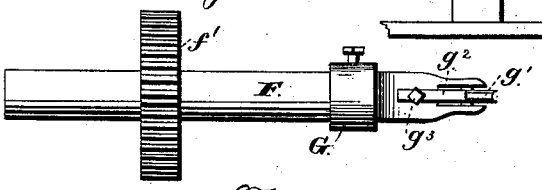


Fig. 6.

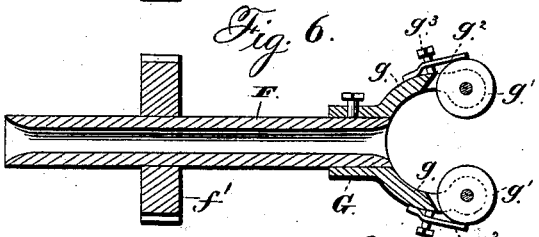


Fig. 7.

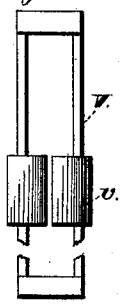
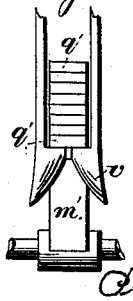


Fig. 8.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
M. F. Connett, by
Dindle & Russell, his
attorneys

UNITED STATES PATENT OFFICE.

MATTHEW F. CONNETT, OF SPRINGFIELD, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO CHAS. A. ORR, OF SAME PLACE.

MACHINE FOR MAKING WIRE AND PICKET FENCE.

SPECIFICATION forming part of Letters Patent No. 301,806, dated July 8, 1884.

Application filed October 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW F. CONNETT, of Springfield, in the county of Sangamon, and in the State of Illinois, have invented certain new and useful Improvements in Machines for Making Wire and Picket Fence; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the upper side of my apparatus. Fig. 2 is a front elevation of the same. Fig. 3 is an end elevation of said apparatus. Fig. 4 is an enlarged vertical central section of the reel. Fig. 5 is an enlarged side elevation of one of the twisting-spindles. Fig. 6 is a central longitudinal section of the same. Fig. 7 is a front elevation of the picket-holder. Fig. 8 is a plan view of the upper side of the same; and Fig. 9 is a view in side elevation of the picket-rack, portions being broken away therefrom.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable combined wire and picket fence to be easily and cheaply made; and to this end said invention consists in the construction, arrangement, and combination of parts, as hereinafter set forth and described, and more specifically pointed out in the claims.

In the annexed drawings, A and A represent two standards, which are secured at their lower ends within a suitable base, B, and from thence extend upward in parallel lines, and have their upper ends connected together by means of a cross-bar, C. Each standard A is provided with a longitudinal slot, *a*, which extends from the base B to the cross-bar C, and receives certain bolts *d*, which pass horizontally through the same, and operate to clamp upon the front side of said standard a series of journal-boxes, D, of ordinary construction. Between each pair of said boxes is a bolt, E, which passes through said slot, and has its front projecting end provided with a longitudinal slot, *e*, as shown in Fig. 3.

Within each box D, and within the corresponding box, D, of the opposite standard, is journaled a hollow spindle, F, which has the ends of its axial opening rounded or flared outward. A small gear-wheel, *f*, is secured to said spindle between the standards A, while upon one end is a head, G, that has the form shown in Figs. 5 and 6, its inner portion being cylindrical and adapted to fit over the end of said spindle, while its outer portion consists of two arms, *g*, which extend in opposite curves outward and forward, and have pivoted within the slotted end of each a grooved roller, *g'*. A flat spring, g^2, is secured at one end to the outer face of each of said arms by means of a screw, g^3, and has its opposite end in contact with the periphery of said roller, where it acts as a tension, for purposes hereinafter named.

Within the slotted projecting ends of each pair of bolts E is journaled a shaft, H, which is provided at its longitudinal center with a small gear-wheel, *h*, that meshes with the gear-wheels *f* of the spindles F immediately above and below, performs the office of an intermediate wheel, and causes the motion of one of said spindles to be communicated to the other spindle. By means of the slots *a* within the standards A the bearings of said spindles F and shafts H may be adjusted vertically, so as to bring their said gear-wheels into proper relative positions for engagement. The upper spindle, F, is provided upon its rear end with a gear-wheel, *f'*, which corresponds in size to the gear-wheel *f*, and meshes with a similar gear-wheel, I, that is journaled upon a stud, *i*, in rear of and somewhat above said gear-wheel *f'*. A third larger gear-wheel, K, meshes with said gear-wheel I, and is secured upon the end of a shaft, *k*, which is journaled in boxes D', as shown in Fig. 2, while a fourth gear-wheel, L, having the size of said gear-wheel K, is journaled upon said shaft *k* and meshes directly with said gear-wheel *f*.

Above the shaft *k* is journaled a driving-shaft, M, which at one end is provided with belt-pulleys *m*, and at points directly above the gear-wheels K and L has secured two wheels, N and O, each of which has one-third of its periphery provided with teeth *n* and *o*, respectively, which are relatively arranged

upon opposite sides of their respective wheels. As thus arranged, it will be seen that if the shaft M is caused to rotate continuously in one direction the toothed portion *n* of the wheel N will engage with the gear-wheel K, and through the wheels I and *f'* cause the spindle F to revolve while such engagement lasts. A period of rest equal in time to one-sixth of a revolution of said spindle will then ensue, and then the toothed portion *o* of the wheel O will engage with the wheel L, and through the same cause said spindle to revolve in a direction directly opposite to that before produced.

Pivoted upon opposite sides of a suitable frame, P, in a line with the spindles F, are two series of reels or spools, Q, for holding wire, which spools are arranged in pairs, and each pair so located vertically as to permit the wires *q* from the same to pass forward through the axial opening of one of said spindles. From the front end of said axial opening each wire *q* passes outward and forward around one of the rollers *g'* beneath the spring *g²*, and from thence forward to a reel, R, where its end is secured upon a hook, *r*, that is placed within a groove, *r'*, which extends lengthwise of the periphery of said windlass. The reel R is journaled vertically within a frame, S, and is provided at its lower end with a broad radial flange, *r²*, and at its upper end with a pulley, T, to the periphery of which pulley is secured one end of a cord, U, which from thence passes horizontally to a grooved wheel, *s*, that is journaled within said frame S. The outer lower end of said cord is provided with a weight, *u*, which, through said pulley T and cord U, operates to revolve said windlass in the direction shown by the arrows of Fig. 1 when said cord has been wound upon said pulley.

Situated in a line with the front end of the head G is a rack, V, for holding pickets *q'*, which rack has such interior width as to enable said pickets to be loosely contained therein, and such dimensions from front to rear as to permit of the insertion therein of any desired number of such pickets standing upon end. The front side of the rack V is open, and at or near its vertical center is provided with two spring-clamps, *v*, which have the form in plan view shown in Fig. 8, and operate to clamp the front picket, *q'*, and hold the same in position. An arm, W, operated by weight W', and located at the rear side of said rack, presses against the rear picket and holds the contents of said rack with a yielding pressure against said clamps *v*. The bottom of the rack V is removed at the front side sufficiently to permit the front picket, *q'*, to drop downward when not confined by the clamps, and the latter are opened at the proper moment by means of an arm, *m'*, which extends radially from the shaft M, and has its end adapted to pass between the outwardly-curving ends of said clamps at each revolution of said shaft.

The operating mechanism of the spindles F is so arranged that at each period of rest of each spindle the arms *g* of the head G occupy the position shown in Fig. 1, and the wires *q* at such point are separated horizontally a distance equal to the space between the outer portions of the peripheries of the rollers *g'*, and such separation is immediately beneath the front picket, *q'*, and occurs at the instant that said picket is released from its clamps *v*. When the picket *q'* is released, it drops downward between the wires *q*, issuing from the arms of each spindle F, and rests upon a stop, X, on the frame, directly below the discharge end of the picket-holding rack.

By arranging the machine vertically, as shown and described, and so placing the rack that the successive pickets can be allowed to drop into place between the wires by the action of their own weight, I avoid entirely the necessity of any of the mechanism or devices heretofore used for pushing or forcing the pickets endwise into position to have the wires twisted about them. As each picket drops down into position it is forced forward against the twists in the wires *q*, behind the preceding picket, and is held firmly in place by the radial arms *y* on the vertical shaft Y. This shaft is given a partial rotation to cause the arms *y* to strike against and force forward the picket by a radial arm, *m²*, on the end of shaft M, engaging a similar arm, *y'*, upon the upper end of shaft Y at each revolution of such shaft M. The shaft Y can be caused to rotate back again to its first position after being partially rotated, as described, by a weight and cord or any other desired means.

Any particular means need not be described herein, as devices for this purpose are very common and well known, requiring merely mechanical skill to adapt them to suit any particular case.

The gearing for driving the twisting-spindles is so timed and constructed that as soon as the picket has been pushed forward into place the spindles will be caused to revolve to twist the wires together behind it. The revolution of the spindles is in one direction to twist the wires behind one picket, and in the opposite direction to twist them behind the next one. The picket, as it is forced forward by the arms *y*, pushes the completed fence before it. As it is pushed forward it is wound upon the reel already described herein, the weight on the cord passing around the pulley on the reel-shaft, exerting just sufficient force to cause the reel to revolve and take up the slack of the fence as it is pushed on, as described.

In fence-making machines as heretofore constructed the fence is pulled forward by the reel, which, by means of levers and pawl and ratchet mechanisms, is caused to be partially revolved through a distance equal to the desired space needed between the pickets for each twist. A picket is then inserted between the wires, and a twist is made in them behind it. It has been impossible to adjust the ten-

sion of the wires in such machines so that the tension on those acted upon by one end spindle should be equal to that on those twisted by the spindle at the other end of the series. One end of the picket last fastened in place by the twisting of the wires behind it will then be pulled farther forward as the fence is drawn along by the reel than the other. The next picket will then not be parallel with the preceding one. A variation from the desired parallelism, slight at first, will be increased and multiplied as the process of making the fence goes on. In my machine the wires are pulled out through the spindles by the lath itself moving forward before the twist is made in the wires behind it. As the picket is always carried forward into position exactly parallel to the vertical line through the series of spindles, it will, when fixed in place by the twisting of the wires, stand at right angles or perpendicular to the lines of the fastening-wires, its position being determined independently of that of any of the preceding pickets.

In consequence of the construction of the standards A and the journal-boxes D, the spindles F may be set at any required distance apart, and a fence produced which has any desired number of wires.

The fence as constructed is automatically wound upon the reel, and the operation of the machine may be continued as long as the supply of wire and pickets lasts.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. An upright machine for constructing fence from wires and pickets, provided with a suitable rack for holding the pickets vertically, means for feeding them along in the rack, and means for allowing them successively to drop by force of gravity vertically into place between the wires to be twisted, substantially as shown and described.

2. In a fence-machine having the vertical series of wire-twisting spindles, means for feeding along the pickets and allowing them to drop by gravity successively into position between the two wires issuing from the end of each spindle, substantially as shown and described.

3. In combination with the vertical picket holder or receptacle having its discharge end so situated that a picket can drop therefrom into place between the wires issuing from the twister-spindles, means for holding the end picket from dropping, and means for causing the picket-holder to release it and allow it to drop into place between the wires, substantially as shown and described.

4. In combination with the vertical picket-holder having its discharge-opening over and in front of the upright series of twister-spindles, spring-jaws adapted to arrest and clamp the end picket, and means for opening the jaws to allow the picket to drop into place between the two wires issuing from the arms on each spindle, substantially as shown and described.

5. In combination with the wire-twisting and picket-feeding mechanism, the shaft Y, provided with the radial arms y and y', and adapted through the action of the shaft M and arm m^2 to engage with and hold a picket, q', in position for engagement by the wires q, substantially as and for the purpose shown.

6. In combination with the fence-constructing mechanism, the reel R, provided with the hooks r within the groove r', and pulley T, and the cord U, secured at one end to said pulley, and having at its opposite end the weight u, whereby the fence is wound in a roll as it passes from the machine, substantially as shown and described.

7. As a means for constructing fence from wires q and pickets q', the journaled hollow spindles F, provided each with a gear-wheel, f, the head G, having the arms g, rollers g', and tension-springs g^2, the intermediate gear-wheels, h, the gear-wheels f' and I, the shaft k, provided with the gear-wheels K and L, the shaft M, having the radial arms m' and m^2, and the partial gear-wheels N and O, the spools Q, adapted to contain and deliver said wire q, the reel R, the picket-rack V, provided with the spring-clamps v, the weight-operated arm W, and the shaft Y, having the radial arms y and y', all constructed and combined to operate substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of September, 1883.

MATTHEW F. CONNETT.

Witnesses:
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SOL. HESS.