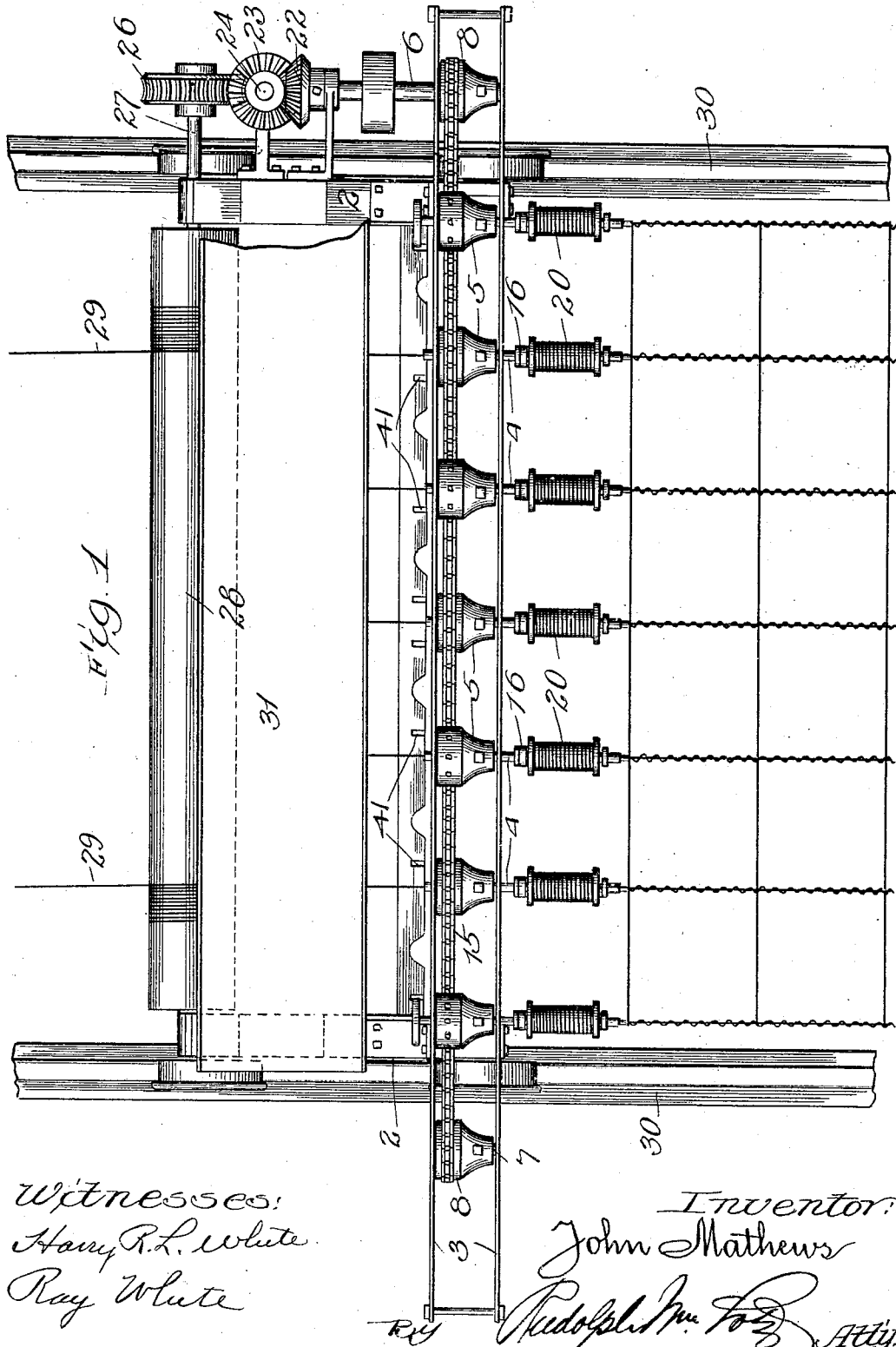


J. MATHEWS.
MACHINE FOR MAKING WIRE NETTING.
APPLICATION FILED APR. 22, 1908.

932,156.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 1.



Witnesses:
Harry R. L. White
Ray White

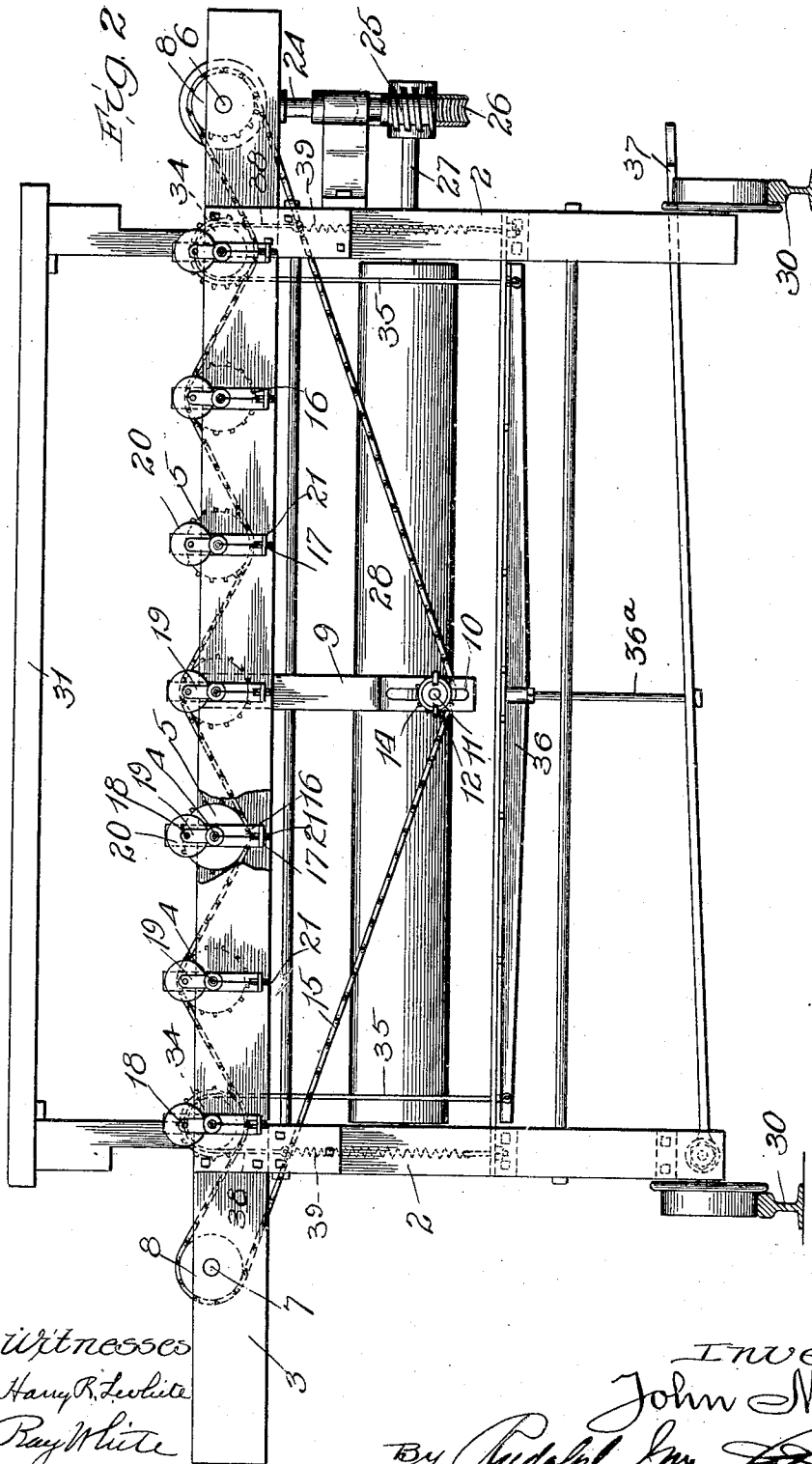
Inventor:
John Mathews
Rudolph M. Fox, Atty.

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By *Rudolph M. [Signature]* Atty

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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

JOHN MATHEWS, OF CHICAGO, ILLINOIS.

MACHINE FOR MAKING WIRE-NETTING.

932,156.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed April 22, 1908. Serial No. 428,588.

To all whom it may concern:

Be it known that I, JOHN MATHEWS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Wire-Netting; and I do hereby 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.

This invention relates to a novel construction in a machine for making wire netting or fencing of heavy wire particularly adapted for use in reinforcing concrete, the object being to provide a simple and efficient machine of this character by means of which the longitudinal and lateral strands of wire are securely fastened to each other, and consists in the features of construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating my invention: Figure 1 is a top plan view of a machine constructed in accordance with my invention. Fig. 2 is a view in elevation of the delivery end of the machine. Fig. 3 is a side elevation of the same. Fig. 4 is a fragmentary plan section through some of the tubes through which the longitudinal strands of wire pass. Fig. 5 is a detail central longitudinal section on the line 5—5 of Fig. 6 showing the means employed for looping the ends of the transverse wires over the outermost longitudinal wires of the netting. Figs. 6 and 7 are detail views in end elevation of the devices employed for bending the ends of the lateral strands around the outermost longitudinal strands, showing said devices in two positions, the parts through which the tube shown is passed being omitted from these figures. Fig. 8 is a fragmentary detail vertical section showing the manner of adjustably mounting the idler by means of which a sprocket chain employed is maintained taut.

My said machine is adapted for the manufacture of that class of wire netting which consists of a plurality of parallel longitudinal strands of heavy wire and transverse strands of similar wire secured at their ends to the outermost longitudinal strands by looping said ends over the latter and which are secured to the inner longitudinal

strands by means of finer wire wound about said longitudinal strands.

The main object of the machine is to provide simple and efficient means for winding upon varying numbers of longitudinal strands, finer wire by means of which the transverse strands are secured and further to provide means whereby the ends of said transverse strands are bent around and clenched upon the outermost longitudinal strands.

To these and other ends my said machine comprises a rectangular frame 1 consisting of skeleton side plates 2 and cross-bars connecting the same. On said frame adjacent one end a pair of plates 3 are mounted in which bearings are provided in which a plurality of horizontal hollow shafts 4 are journaled, each of the latter carrying a sprocket wheel 5 rigid therewith. In the projecting end portions of said plates 3 are bearings in which horizontal shafts 6 and 7 are journaled, the former constituting the drive shaft and being geared in any suitable manner to a source of power. Each of said shafts 6 and 7 carries a sprocket wheel 8 rigid therewith. Secured to said plates 3 about midway between their ends are two depending plates 9 in the free end portions of which are vertical slots 10 through which a shaft 11 having threaded ends receiving thumb screws 12 passes, said shaft carrying a sleeve 13 on which a sprocket wheel 14 is loosely mounted, said sleeve being clamped between said plates 9. A sprocket chain 15 is trained over said sprockets 8 and 14 and over said sprockets 5 in a zig-zag manner so as to drive adjacent ones thereof in opposite directions, said chain being adjusted to maintain the same taut by means of said shaft 11 in a well known manner. Each of said hollow shafts 4 projects outwardly from one end of said machine and carries a cross-head 16 provided at one end with a flange 17 disposed parallel with said shaft. A pin 18 is removably mounted at its ends in one end of said cross-head and in the free end of an arm 19 on said shaft. Said pin 18 is adapted to receive a spool 20 of relatively fine wire which is adapted to be wound about the longitudinal strands passing through said hollow shafts 4 as hereinafter explained. In said flange 17 a sheave 21 is revolubly mounted over which the wire passing from said spool 20 is trained. The

shaft 6 carries a bevel pinion 22 at one end which meshes with a bevel gear 23 on a vertical shaft 24. The latter at its other end carries a worm 25 meshing with a worm wheel 26 on a shaft 27 carrying a reel or drum 28 to which cables 29 are secured at one end. The said frame 1 travels preferably on rails 30 and is drawn by said cables 29, the latter being for this purpose attached to the wall of the building or other fixture at one end of the railway. Said frame 1 also carries a table 31 on which the straight transverse wires of proper length are carried.

The operation of my machine is as follows: Straight longitudinal strands of a length substantially equal to the length of the railway are first inserted at one end through the hollow shafts 4 and said ends then suitably secured to a fixture at the opposite end of the railway from that to which the cables are secured, the frame 1 or carriage being now at said end of said railway. The ends of the fine wire are then wound about said longitudinal wires a sufficient number of turns to give them a hold thereon. The shaft 6 is then rotated thereby causing said frame 1 to be drawn slowly toward the other end of the railway thereby winding the fine wires helically around said longitudinal strands. At regular intervals the machine is stopped and a crosswire is inserted between the longitudinal strands and the fine wires, that is to say, in the angle formed between the same. On the next turn of the shafts 4 the fine wire is looped over the cross-wire and the latter is thus secured. Before this turn is imparted to said shafts 4, however, the ends of the cross-wires are looped over the outermost longitudinal wires, this being accomplished in the following manner. It will be noted that in each of said hollow shafts 4 a sleeve or tube 32 of greater length than said hollow shaft is telescopically inserted and projects beyond the end thereof, the opening in said tubes being only slightly larger than the diameter of the wire, said tubes being provided at one end with suitable stops such as pins 33 to limit their movement in one direction. Two of these tubes carry sheaves 34 at one end which are rigid therewith and to the peripheries of each of which one end of a cable 35 is secured, the other ends of said cables being secured to a bar 36 supported thereby. The said tubes 32 and sheaves 34 are shown in Figs. 6 and 7 from which the parts 4 and 5 are omitted. The said bar 36 is in turn connected midway between its ends by means of a rod 36^a with a foot lever 37 between the ends of the latter, said foot lever being pivotally secured at one end to a part of said frame 1. Cables 38 having springs 39 interposed therein are secured at one end to the peripheries of said

sheaves 34 at substantially the same point as said cables 35 and extend in the opposite direction from the latter, said cables 38 being secured at their other ends to a part of the frame 1 and serving to normally maintain said sheaves in position to hold said tubes to which they are secured in such position that the segmental projections 40 at the other ends are disposed below the longitudinal wires, leaving sufficient space for the insertion of the cross-wires. After the latter have been inserted, the foot lever is depressed at its free end whereupon the said projections 40 will be revolved and bend the ends of the cross-wires around the longitudinal wires, the latter being heavier than said cross-wires and sufficiently supported by said tubes to prevent their yielding to the pressure exerted thereon. The cables 35 rotate the respective sheaves in opposite directions.

While in the instance illustrated the machine travels, I desire it to be understood that my invention includes any suitable means for imparting relative movement to the machine and the longitudinal strands. Where the machine travels it will be most convenient to employ an electric motor carried thereby to drive the same.

In order to vary the speed of travel of the longitudinal wires relatively to the machine, I prefer to employ drums 28 of various diameters but obviously variable gearing of any suitable character may be employed.

The said tubes 32 are interchangeable so that those carrying said sheaves 34 may be placed in any of said hollow shafts. When transferred from one of said hollow shafts to another said wire bending tubes must be connected with the bar 36 at correspondingly varying points. This is most easily effected by providing said bar with recesses 41 into which the ends of said cables 35 are inserted and secured in any suitable manner. The connections of the cables 38 with the frame are similarly varied in any suitable manner.

I claim as my invention:

1. In a machine of the kind specified, the combination with the hollow shafts of winding devices, of tubes telescopically mounted therein and through which the outer longitudinal strands of the netting travel, a projection on one end of each of said tubes extending beyond the adjacent end of the hollow shaft, this construction being adapted to have cross-wires inserted between said projections and the longitudinal strands passing through said tubes, sheaves rigid with said tubes, a foot-lever, and operative connection between said foot-lever and said sheaves to rotate said tubes when said lever is actuated, the said projections engaging the end portions of said cross-wires and

bending the same around said longitudinal strands.

2. In a machine of the kind specified, the combination with the hollow shafts of winding devices, of tubes telescopically mounted therein and through which the outer longitudinal strands of the netting travel, a projection on one end of each of said tubes extending beyond the adjacent end of the hollow shaft, this construction being adapted to have cross-wires inserted between said projections and the longitudinal strands passing through said tubes, sheaves rigid with said tubes, springs operatively engaging said sheaves to normally maintain said projections at the lowest points in their

movement, a foot-lever, and operative connection between said foot-lever and said sheaves to rotate said tubes against the action of said springs when said lever is actuated, the said projections engaging the end portions of said cross-wires and bending the same around said longitudinal strands.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

JOHN MATHEWS.

Witnesses:

RUDOLPH W. M. LOTZ,
RICH. V. COFFIN.