

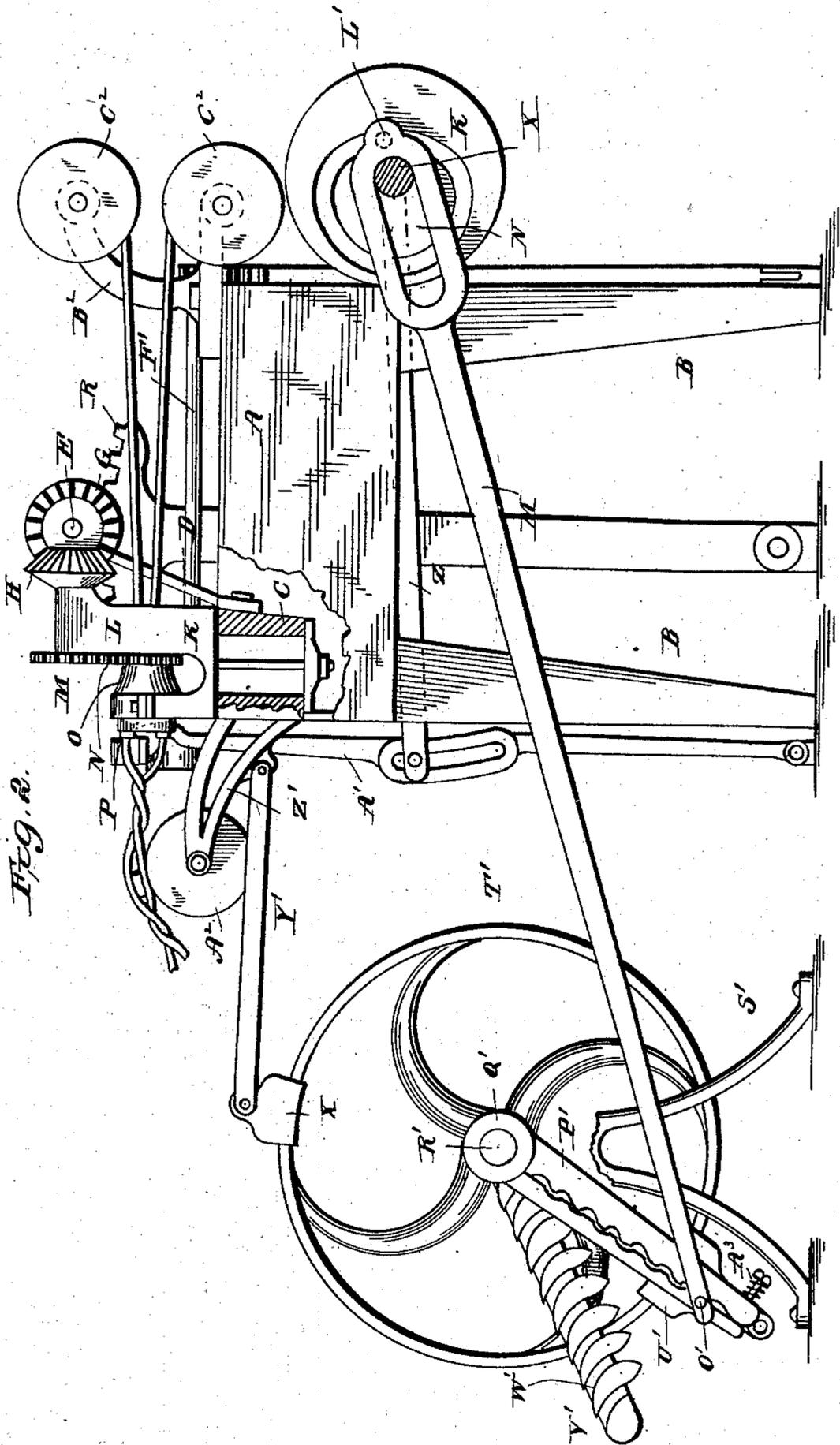
(No Model.)

3 Sheets—Sheet 2.

F. M. COMSTOCK.
FENCE MAKING MACHINE.

No. 284,385.

Patented Sept. 4, 1883.



WITNESSES

Edwin L. Jewell
J. J. M. Garth.

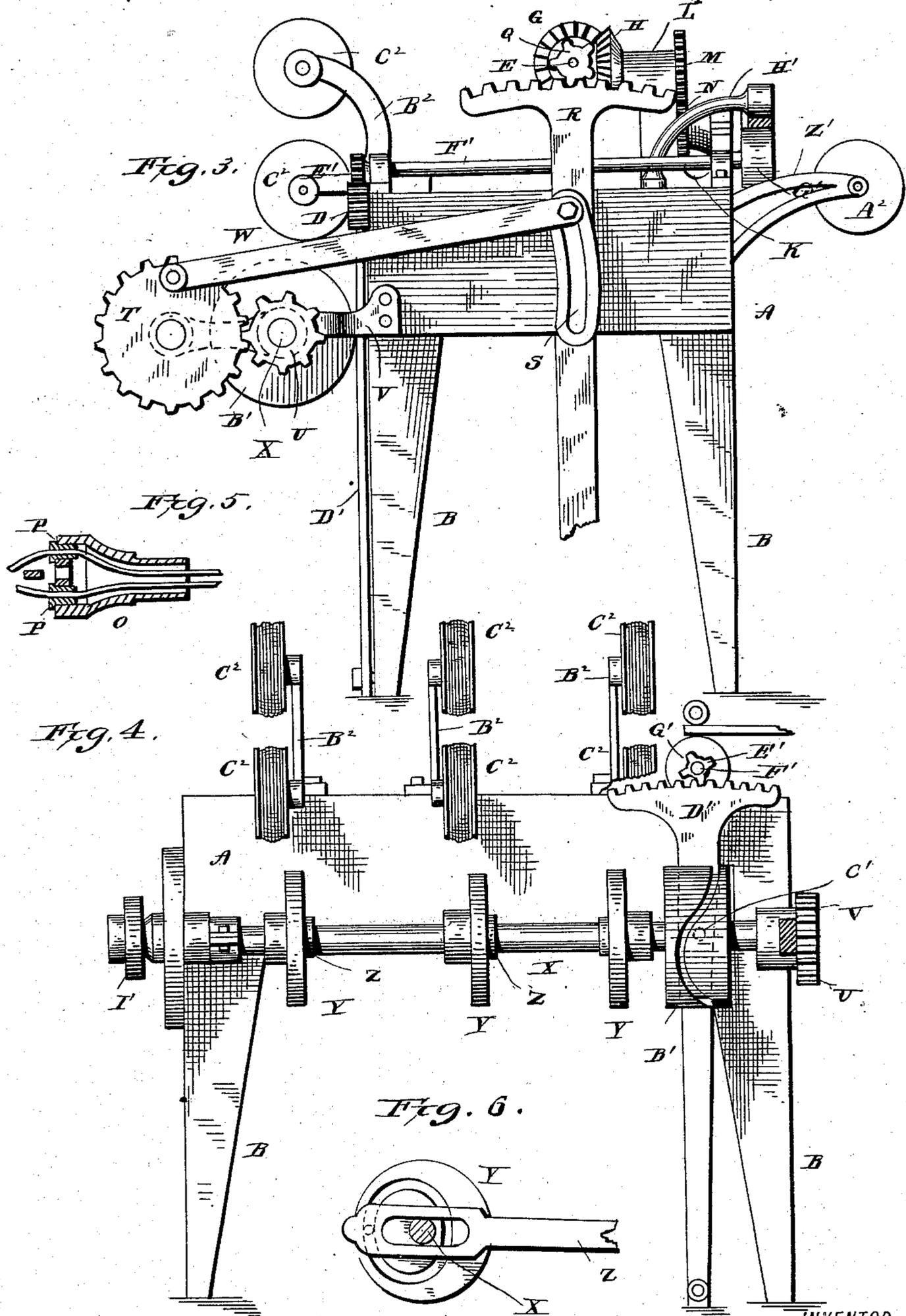
INVENTOR

Francis M. Comstock
By *W. H. Alexander*
Attorney

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 Edw. L. Jewell.
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INVENTOR
 Francis M. Comstock
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 Attorney

UNITED STATES PATENT OFFICE.

FRANCIS M. COMSTOCK, OF KEOKUK, IOWA.

FENCE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 284,385, dated September 4, 1883.

Application filed July 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. COMSTOCK, a citizen of the United States, residing at Keokuk, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Fence-Making Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in fence-making machines; and it has for its objects to provide means whereby a visible fence can be made consisting of wires for stringers and wooden or metal pickets for uprights. These objects I attain by means illustrated in the accompanying drawings, in which—

Figure 1 illustrates a top view of my improved fence-making machine; Fig. 2, a side elevation of my device, part being broken away to show the method of securing or holding the twisting heads to the bed or frame; Fig. 3, a view of the opposite side to Fig. 2 of the machine; Fig. 4, an end view of the same, the gear-wheels being removed; and Fig. 5, a sectional view of one of the twisting heads, showing the thimbles therein and the fence-wire passing through them. Fig. 6 represents a side view of one of the cams detached and the operating-bar working in connection therewith.

In the drawings, the letter A indicates the main frame of the machine, having suitable legs, B, the top of this frame being open, and extending across said open space is a beam, C, on one side of which is secured a bracket, D, which forms a bearing for one end of a shaft, E, the other end having a bearing in a journal-box, F, secured to the top of one side of the frame.

Secured on the shaft E at intervals are bevel cog-wheels G, which intermesh with bevel cog-wheels H, mounted on the ends of short shafts which turn in bearings L of bifurcated brackets or double bearing-blocks K, which are secured to the frame by long bolts extending down between the beam C and one side of the main frame, and passing through metallic bars on the under side of said beams and secured by nuts. On the other ends of the said short shafts are secured cog-wheels M, which intermesh

with similar cog-wheels, N, on the lower side. These cog-wheels are secured to the twisting heads O, which have bearings in the boxes on the other side of the bifurcated brackets K. These twisting heads are provided with thimbles P, through which the wire passes, which wire comes from reels mounted on two armed brackets or bearings, B², secured to one end and on top of the machine.

On one end of the shaft E is secured a pinion, Q, which intermeshes with a segment, R, on the top of a lever which is hinged to the floor, this serving to give a reversible rotating motion to the twisting heads through the bevel-cogs. Above the center of the extension of the lever R is a link-slot, S, which, with a suitable bolt, connects a bar, W, to the slot, and the other end being secured to the face of a spur-wheel, T, which intermeshes with a pinion, U, of half-size, having bearing in a bracket, V. The bar W, working in connection with the slot S, has for its object to decrease or increase the leverage, so as to increase or decrease the revolutions of the shaft E.

The pinion U is mounted on one end of a transverse shaft, X, which shaft at intervals has secured thereon grooved cam-wheels Y, in the grooves of which operate small rollers on short shafts secured to one end of the bars Z, the other end being fastened in a slot (by any means) of the rest-guides A', which guides are hinged near the floor, so that, when the picket has been fed to the rest-guides at the proper time, the cam-wheels Y operate the bars Z, secured thereto, which in turn give the rest-guides a forward motion, carrying the picket with them and placing it in the crotch of the twisting wires. The slot in the rest-guides serves for the purpose of regulating the reciprocating motion of the said guides by moving the fastening device up and down in the slot.

Secured near one end of the shaft X is a large cam-wheel, B', grooved for the reception of a small roller, C', which rolls on a short shaft secured to the lever D', hinged near the floor. This segment gears with a pinion, E', secured on the end of a longitudinal shaft, F', journaled in a box on top of the main frame. On the other end of this shaft F' is secured a driving feed-roller, G, which operates in connection with a small pressure-roller, which

turns on the end of an upwardly-extending bracket, H'. The two rollers feed the pickets to the rest-guides at the proper time.

At the opposite end of the shaft X, to which is secured the pinion U, is secured a pulley, I', which can be operated by any power, by means of belts or otherwise, which operates the machine. Near the said pulley I' is secured another cam-wheel, K', grooved on its face, in which groove works or plays a small roller, L', secured on a bar, M', having a slot, N', at one end, which straddles the shaft X. On the other end of this lever M' is a lug or projection, O', which rests in a notch on the notched arm P', which turns on the end of the shaft R' of the winding reel or roller Q'. This shaft is held in its position by suitable legs or floor-brackets, S'.

Secured on the shaft R' is a fly-wheel, T', on the rim of which is a friction-clutch, U', which, through the motion of the bar M', slides on the rim of the fly-wheel on the backward motion, and biting the rim on its forward motion, carrying the fly-wheel with it, which turns the winding-roller a certain distance, which spaces the pickets as the fence is being made.

As will be seen, in winding the woven fence, at each revolution of the reel the diameter of the roller, with the woven fence on it, increases. To preserve the set distances between the pickets, it becomes necessary to decrease the leverage that actuates the reel or the distances between the pickets would gradually increase. This is accomplished by the notches in the arm P', in which the stud rests and projects beyond the other side. Secured to the fly-wheel, or on the shaft between the fly-wheel and the arm P, is another arm, V', having a series of projections formed on its face, with curved grooves between each one. This arm turning with the fly-wheel, one of the projections, W', (shown in the drawings,) will strike the lug O', carrying it into the curved groove, which lifts it out of the notch it now rests in and deposits it in the notch below, and with it the end of the arm M', thereby securing the desired result.

To keep the strain upon the wire so that the reel always has full action, there is a clutch, X', on the rim of the wheel, which is held in place by the rod Y', one end of which is secured to an ear on a bracket, Z', which has a shaft journaled in its end, the said shaft extending transversely across the front of the machine, and the other end being journaled in a similar bracket secured to the front of the machine. On this shaft is mounted a roller, A², which helps to carry and support the fence on its way to the winding-reel.

The arm P' has working in connection with it a narrower arm, which serves to hold the lug O' in the notches, and is held in its normal position by means of a spring, A³.

At the end of the machine across which turns the shaft X, on the top of the machine, are secured bifurcated brackets B². On the end of each arm of this bracket are short shafts on which turn the feed-wire reels C².

This ending the description of the different parts of my machine, the operation is as follows: Three-fourths of a revolution of the main shaft twists the wires two or more turns, as may be desired. At this point the reel begins to operate, going abruptly forward the distance between the pickets. Just at this moment the end of the picket being fed to the feed-rollers, they carry it rapidly to its place between the wires on the rest-guides. These rest-guides now start and carry the picket to the crotch of the twisted wire, and then return to their normal position. Then during the last quarter of the revolution of the main shaft the reel is winding up the proper length of fence, then the twisting is quickly done again, and so on *ad infinitum*.

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

1. In combination with main driving-shaft on which is secured a grooved cam-wheel, a lever having a segment at its top, and a small roller secured to the lever, a pinion mounted on a shaft, on the other end of which is secured a feeding-roller, as and for the purposes set forth.

2. In combination with the driving-shaft having a grooved cam-wheel secured thereon, a lever with a toothed segment and roller, a shaft with pinion and feed-roller thereon, and an upwardly-curved bracket having a pressure-roller mounted thereon, substantially as described.

3. In combination with the driving-shaft having a series of grooved cam-wheels mounted thereon, a series of slotted levers having seats at their upper ends connected to said cam-wheels by means of suitable rods or bars, for the purposes set forth.

4. In combination with the driving-shaft having a grooved cam-wheel mounted thereon, a shaft mounted in bearings, and having secured thereon a roller and a fly-wheel, and a grooved arm rigidly secured to the fly-wheel, a notched lever loosely mounted on the shaft, and having a clutch secured thereto which operates on the rim of the fly-wheel, a slotted arm provided with a projecting pin, and roller adapted to operate said bar and the wire-reel, all arranged to operate substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS M. COMSTOCK.

Witnesses:

F. B. COLE,
BERNARD A. DOLAN.