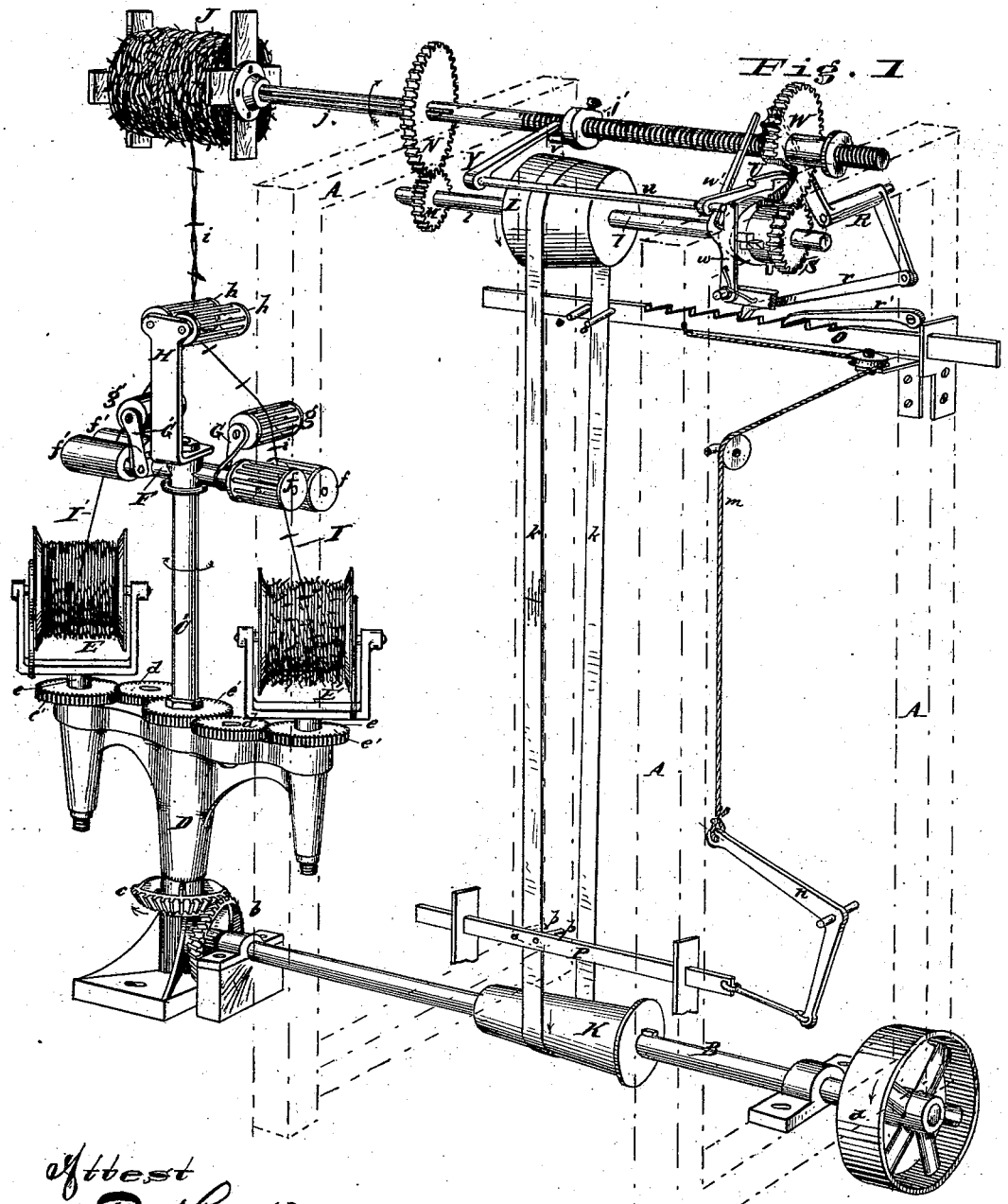
2 Sheets—Sheet 1.

E. P. PEACOCK.

MACHINES FOR TWISTING BARBED-WIRE.

No. 187,306. Patented Feb. 13, 1877

Fig. 1



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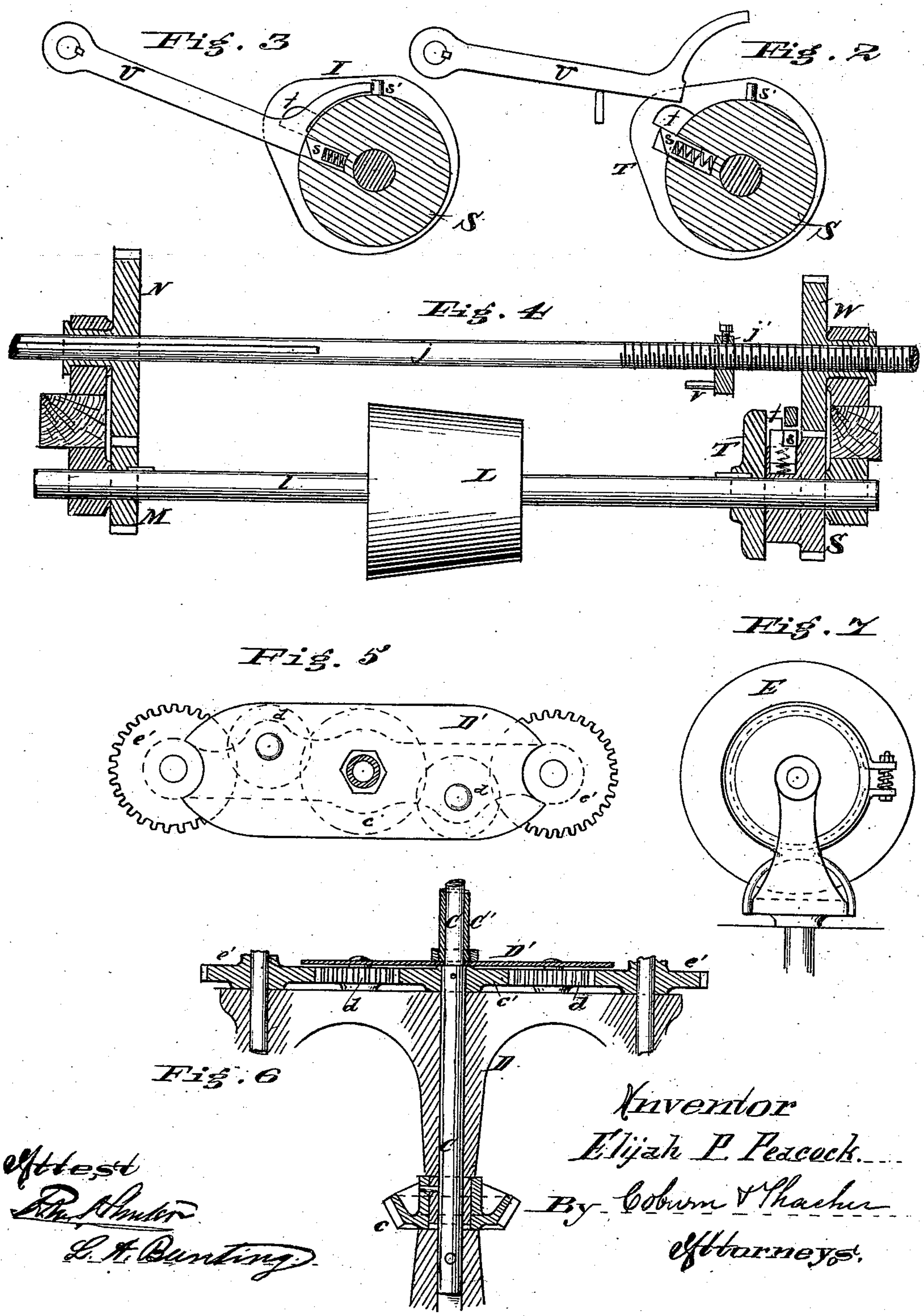

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UNITED STATES PATENT OFFICE.

ELIJAH P. PEACOCK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE THORN WIRE HEDGE COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR TWISTING BARBED WIRE.

Specification forming part of Letters Patent No. **187,306**, dated February 13, 1877; application filed June 5, 1876.

To all whom it may concern:

Be it known that I, ELIJAH P. PEACOCK, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Twisting Barbed Fence-Wires, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of the machine. Figs. 2, 3, and 4, detail views of the mechanism for feeding the reel back and forth, and for shifting the band; Fig. 5, a plan view of the gearing for rotating the spools, and Fig. 6 an end elevation of a spool, showing the method of mounting it upon its bearings.

The object of my invention is to provide a machine for twisting fence-wires together, one or both of which is provided with pointed barbs, so that the two when twisted together will make a barbed cable ready for use in the construction of wire fences.

In the drawings an upright supporting-frame is represented by the letters A A. In the lower end of this frame is mounted a horizontal driving-shaft, B, on one end of which is a driving-pulley, *a*, and on the other end a beveled gear-wheel, *b*. The gear-wheel *b* meshes with a corresponding wheel, *c*, fixed loosely on a stationary upright shaft, C, which is supported outside of the frame A, either upon a support independent of said frame, or connected therewith, as may be desired. A spool-frame, D, is loosely mounted upon the shaft C, the gear-wheel *c* being connected therewith in any suitable manner. Upon the outer ends of this frame are mounted the spools E, upon independent spindles *e*, which are journaled in the frame D, and are provided with gear-wheels *e'*, rigidly secured to them just below the spools. A gear-wheel, *c'*, is also mounted rigidly upon the shaft C, just above the frame D. This wheel *c'* and the wheels *e'* are of the same size, and have the same number of teeth, and between the latter and the wheel *c'* are transmitting-wheels *d* upon the frame D. From this construction and arrangement of gearing, it will be seen that with every revolution of the frame D, by means of which the spools are carried once around a common center, each spool will be revolved backward once upon its own axis, and thus take the twist out of each wire, which otherwise would be produced by the common revolution of the spools.

A tubular shaft, C', is placed upon the upper part of the shaft C so as to turn readily about the latter. This tubular shaft extends from the top of the stationary shaft C to a plate, D', just above the gear-wheel *c'*. The plate D' is fitted loosely upon the shaft C so as to turn thereon, and is fastened to the spool-frame D by the pivotal bolts which pass through the gear-wheels *d*. It will be seen therefore that the plate D' must revolve with the frame D, and as the tubular shaft C' is rigidly attached by a collar or other suitable device to the plate D', it must also turn with the plate and spool-frame. Upon the top of the shaft C' is attached a cross-bar, F, to each end of which is pivoted a pair of guiding-rollers, *f f* and *f' f'*, arranged in line with the cross-bar. Upon arms G, attached to the cross-bar F, are also mounted rollers *g* and *g'*, arranged at right angles to the rollers *f* and *f'*, respectively, and to the top of a standard, H. Surmounting the shaft C is pivoted still another pair of rollers, *h h*.

The wires I and I' are first wound in a suitable manner upon the spools E E, which are mounted in suitable frames on the shafts *e*, and are readily detached therefrom, so as to be replaced by others when the wires have been reeled off. At least one of these wires, I, is provided with barbs, *i*, fixed upon it, and in order to permit these barbs to pass easily and without bending between the guiding-rollers F, the latter are made of open-work, something like a cage—that is, they are constructed from two circular disks joined together by parallel rods arranged at a little distance apart, as clearly shown in Fig. 1 of the drawings. This construction permits the barbed wire I to pass freely between or over the rollers, as the barbs will enter the spaces between the rods, and therefore present no obstacle to the onward course of the wire. The rollers G and H must also have the same

construction, but if the wire I′ is not barbed the rollers *f′* and *g′* may be of ordinary construction, with continuous smooth surfaces. The wires I I′ are carried up from the spools between the rollers *g g′* and brought together just below the rollers H, which they leave twisted together, in which condition they are carried up to a reel, J, upon a shaft, *j*, mounted upon the upper end of the frame A. The cross-bar with guiding-rollers being attached to the shaft C′, is carried around with said shaft and the spools E.

Motion is communicated to the shaft *j* by means of a drum, K, on the shaft B, band *k*, and drum L, on a shaft, *l*, at the upper end of the frame, on which shaft is a gear-wheel, M, which meshes with a gear-wheel, N, on the shaft *j*. (See Fig. 4.) The shaft *j* has a screw-thread cut upon it at one end, by means of which it is fed back and forth by rotating in a nut, in a way hereafter to be explained, for the purpose of reciprocating the reel J, so as to wind the twisted wire evenly thereon.

As the cylinder of wire is constantly increasing in size upon the reel J, and at the same time decreasing upon the spools E, the feed of the wire will be continually changing, while it should be uniform. To compensate for this change in the feed, the drums K and L are made conical in form, and arranged upon their shafts with the taper in opposite directions.

Slides O and P are attached to the frame A, which are provided respectively with pins *o* and *p*, between which the band *k* passes at its upper and lower portions of the frame A. The slide O is connected to the slide P by means of a cord or chain, *m*, and bell-crank *n*, so that a movement forward of the slide O will effect a corresponding movement of the slide P in the same direction.

The upper edge of the slide-bar O is notched, as shown in Fig. 1, and is set forward at regular intervals, in the following manner: Upon the shaft *j* is a collar, *j′*, which is arranged so that when the shaft is drawn back by the revolution of the screw-nut it will strike against the upper end of a lever, R, which is pivoted to the upper end of the frame A. A pawl, *r*, is pivoted to the lower end of the lever R, the other end resting on the notched edge of the slide O. When the collar *j′* strikes the upper end of the lever R the latter is vibrated, and the slide O is pushed forward one notch by means of the pawl *r*, and by the mechanism described above the slide P will be set forward a corresponding distance in the same direction. The band *k* will thus be moved upon the drums K and L, so that it passes around a smaller circumference of the former and a larger circumference of the latter, thus diminishing the rapidity of the revolution of the drum L, and to a corresponding degree that of the reel J. An independent pawl, *r′*, pivoted to the frame A, holds the bar O from sliding back.

On the shaft *l* is a loose pinion, S, the body of which is extended upon the inside, and recessed to receive a spring-stop, S. On the same shaft, inside of the pinion, S is rigidly fixed a collar, T, which has a stop or pin, *t*, projecting from its side toward the pinion S, so as to engage with the spring-stop *s* when it is projected from its recess, and thus turn the pinion S with the shaft *l*. The spring-stop *s* is held within its recess, so as not to engage with the pin *t*, by an arm, U, which is attached to a rock-shaft, *u*, mounted in suitable supports on the main frame. The shaft *u* turns freely, so that the weight of the arm U will cause it to fall upon the pinion S, unless held up by some positive force. When the the arm U drops upon the pinion S, the latter continues to revolve until the stop *s* is brought round against the end of the arm, U, when the end of the stop being beveled, the latter will be forced into its recess, and the end of the arm U, being in line therewith, will hold it securely in place, as shown in Fig. 3 of the drawings. The stop being thus disengaged from the collar T, the pinion S will cease to revolve. The outer end of the arm U is curved, as shown in Figs. 2 and 3 of the drawings, and rests against a pin, *s′*, on the pinion S, so as to prevent the raising of the arm until the proper time. On the other end of the rock-shaft *u* is attached a lever, Y, which projects towards the shaft *j*. As the collar *j′* is carried forward by the forward motion of the shaft *j*, heretofore described, a pin, *v*, attached to it will finally be brought into contact with the outer end of the lever Y, so that, by the revolution of the collar, the lever Y will be lifted, thereby turning the rock-shaft, and lifting the arm U from the pinion S. The spring-stop *s* speedily engages with the pin T, and the pinion S is caused to revolve. This pinion engages with a gear-wheel, W, attached to the nut through which the threaded portion of the shaft *j* runs, and by the revolution of the pinion S the nut is revolved in its bearings, and thus the shaft *j* drawn backward. (See Fig. 4.) When the arm U is lifted, a pivoted stop, *w*, is forced under it by a spring, so as to hold it in its raised position. This stop has an arm, *w′*, extending forward to the shaft *j*, and as said shaft is drawn back by the revolution of its nut, the collar *j* will strike against the arm *w′*, and thus force the stop *w* from underneath the arm U, allowing the latter to fall, and stop the revolution of the pinion S, as heretofore described.

It will thus be seen that by wheels M, N, S, and W, of varying diameters, a regular reciprocal motion is given to the shaft *j*, and so to the reel J, for the purpose of winding the wire uniformly upon the latter.

By the use of my machine the labor of twisting wires together to form a barbed fence-cable is greatly reduced, and the expense lessened. The action of the machine is exceedingly rapid, so that large quantities of

wire can be twisted in a single day, and, as there is no twisting of the wires independently of each other, they are as strong when twisted together as before, and the cable is consequently correspondingly strong and durable.

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

1. The combination of a revolving frame, D, spools of wire E, mounted on spindles turning independently in said frame, gear-wheels e' on the spindles, and c' on the shaft C, transmitting gear-wheels d, an open work or skeleton guide-rollers f and g, supported on the shaft C′, substantially as and for the purpose set forth.

2. The combination of the spools E, rotating on independent axes, mounted on a revolving frame, guide-rollers f, f', g, g', and h, and the reel J, substantially as described.

3. The combination of the stationary shaft C, tubular shaft C′, carrying the rollers for guiding the wires, spool-frame D, and plate D′, substantially as described.

4. The combination of the slides O [illegible] oted levers n R, cord m, and pawl r, substantially as and for the purpose set forth.

5. The combination of the collar j' on the reciprocating screw-shaft j, pivoted lever R, pawl r, and notched slide O, substantially as and for the purposes set forth.

6. The combination of the shaft l, loose pinion S, provided with a spring-stop, s, fixed collar T, having a stop, t, and vibrating arm U, substantially as and for the purpose set forth.

7. The combination of the collar j' on the reciprocating shaft J, lever Y, rock-shaft u, vibrating arm U, loose pinion S, and spring-stop s, substantially as and for the purpose set forth.

Witness my hand this 9th day of May, 1876, in the presence of two witnesses.

ELIJAH P. PEACOCK.

Witnesses:
L. A. BUNTING.
W. S. BAKER.