(No Model.) 3 Sheets—Sheet 1.

T. V. ALLIS.

Machine for Twisting Barbed Wire for Fences.

No. 241,271. Patented May 10, 1881.

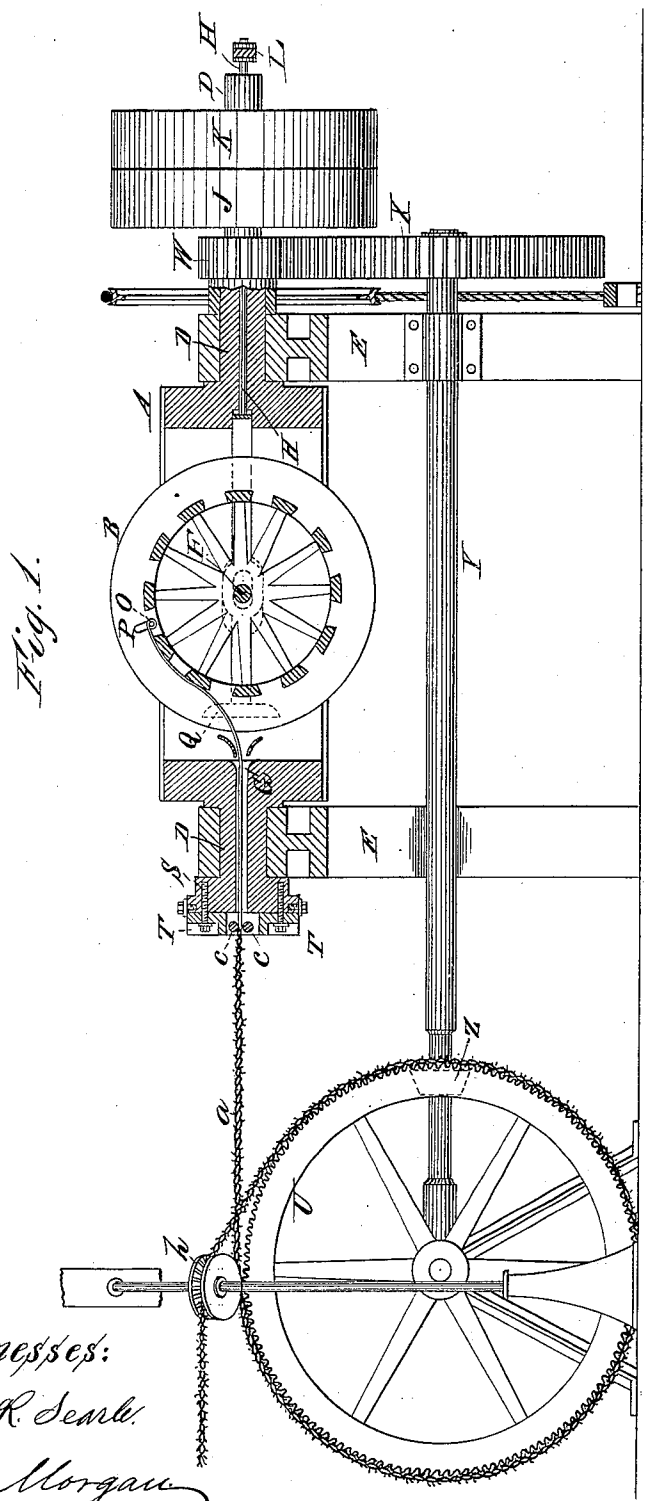


Fig. 1.

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Fig. 2.

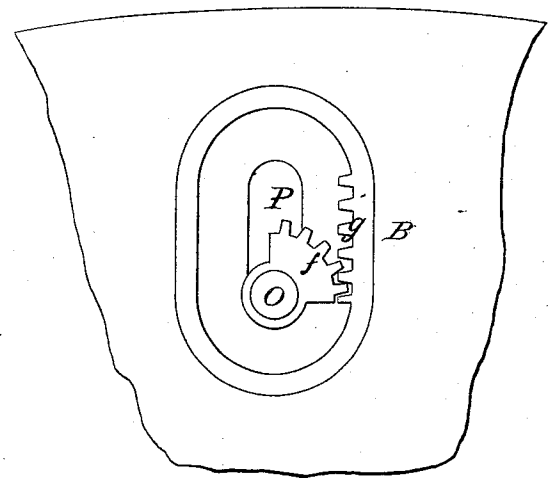


Fig. 4.

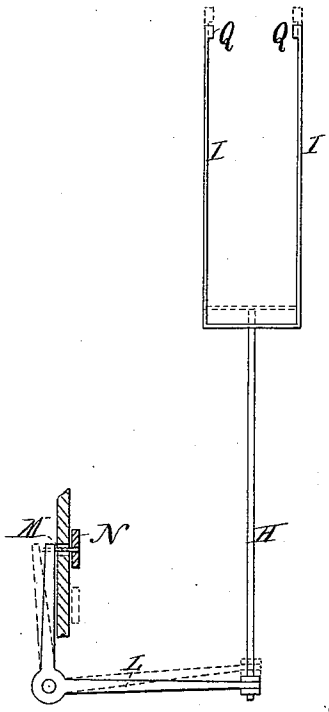


Fig. 7.

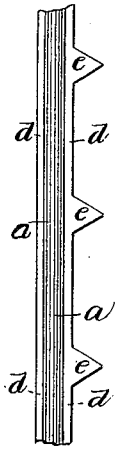


Fig. 3.

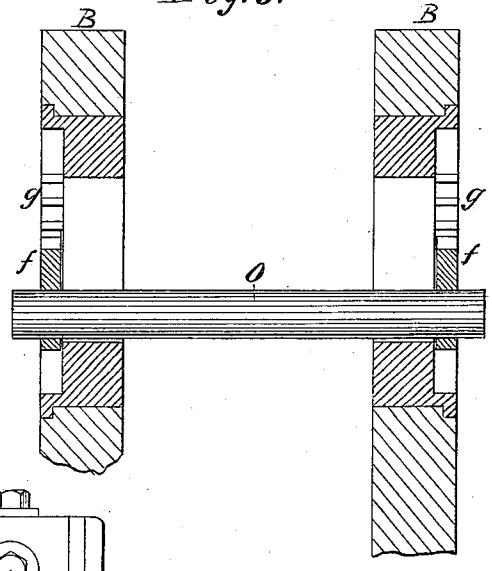


Fig. 5.

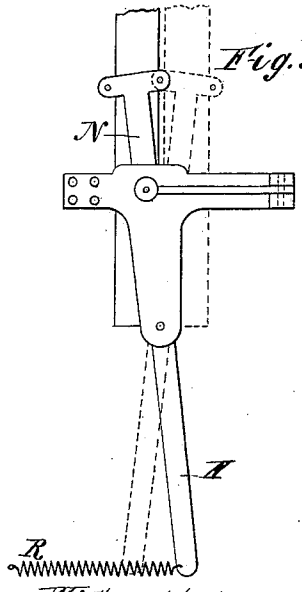


Fig. 8.

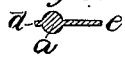
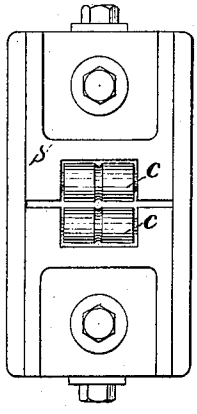


Fig. 6.



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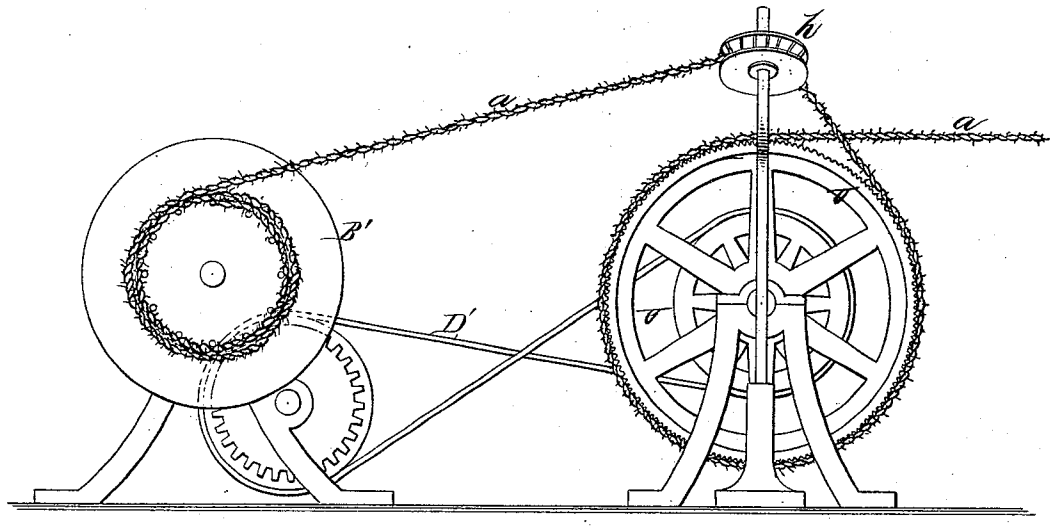
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Fig. 9.



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UNITED STATES PATENT OFFICE.

THOMAS V. ALLIS, OF NEW YORK, N. Y.

MACHINE FOR TWISTING BARBED WIRE FOR FENCES.

SPECIFICATION forming part of Letters Patent No. 241,271, dated May 10, 1881.

Application filed June 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS V. ALLIS, of New York, county and State of New York, have invented a new and useful Improvement in Machinery for Twisting Barbed Metallic Fencing, of which the following is a specification.

This invention consists of a pair of rollers in a guiding-way in the longitudinal axis of a rotating reel-carrier, and interposed between the reel, having the rod to be twisted coiled on it and mounted on said carrier, and another drawing and transmitting reel located so as to receive and draw the rod through the rollers for the purpose of twisting it between said transmitting reel and rollers by the rotation of the latter with the carrier. This drawing and transmitting reel is geared positively with the carrier, so as to run in uniform relation thereto as to speed, for drawing or passing the rod through the machine and determining the pitch of the twist. It transmits the rod, after twisting, to another spooling-reel, having differential or varying speed adapted to the increasing size of the bundle as the coils of the rod multiply thereon. The machine is designed to work independently of the barb-forming machine, in order to avoid the intermittent action necessary when organized therewith, and receiving the rod directly from the barbing mechanism and working consecutively with it. It is therefore organized to receive the rods on the reels upon which they are coiled upon leaving the barbing mechanism, which is wholly independent of this machine. The transmitting-reel is the feeding or carrying device by which the rods are passed through the twisting-machine. The advantages are, first, greater uniformity and perfection of the twist, by reason of the continuous and regular motion of the machine; second, it can work much faster than the intermittent barbing mechanism, and therefore one twisting-machine may twist the rods for several barbing-machines; and, third, it is desirable to galvanize the rods after the barbs are cut, and before the rods are twisted.

The invention also consists of a stop-motion for throwing off the driving-belt, so contrived as to be set in motion by a jerk of the rod being twisted when the last end of the rod escapes from the reel upon the rotating carrier.

Figure 1 is a longitudinal sectional elevation of my improved machine. Figs. 2 and 3 are details of the reel upon which the rod is coiled preparatory to mounting in the revolving carrier for twisting, illustrating the stop mechanism. Fig. 4 is a plan of the yoke and trip device employed in the stop mechanism. Fig. 5 is an elevation of the belt-shifter of the step mechanism. Fig. 6 is a front elevation of the rollers in the end of the revolving carrier. Fig. 7 is a plan of the barbed rod to be twisted. Fig. 8 is a section of the same, and Fig. 9 is a side elevation of the drawing and transmitting reel and the spooling-reel.

A represents the revolving carrier, on which is mounted the reel B, having the rod *a* to be twisted coiled on it, and in the end of which the rollers C, that are employed in the twisting of the rod, are mounted. This carrier consists of a substantial frame mounted on journals D, so as to revolve rapidly upon a suitable stand, E, and having a large longitudinal space opening through it from side to side, suitably for mounting the reel B therein on a pin, F, to reel off the rod through one of the journals, which has an axial bore, G, for the purpose, at the outer end of which the dies are mounted. The other journal of this carrier is also bored through into the reel-space, for the rod H of the stop-motion to pass through it, and along each side of the frame, in suitable grooves in the side walls of the reel-space, the two members of the yoke I are fitted, so as to be shifted forward and backward, as required, for the working of the stop mechanism.

The journal D of one end of the revolving carrier is prolonged suitably for the application of the driving-pulley J and the loose pulley K; and the rod H, passing through the central bore of this extension, connects with one arm of the bell-crank L, whose pin M in the other arm retains the belt-shifter N in the position to guide the belt on the fast pulley while the rod is reeling off from the reel B until the end of said rod escapes; but said end, being bent or hooked around the short roller O, located near the periphery of the reel B, and fixed loosely in radial slots P, so as to be jerked outward therein, pulls roller O violently against the head-pieces Q of the yoke, and shifts the yoke so as to trip the shifter N and allow

spring R to shift the driving-belt onto the loose pulley, as indicated by the dotted lines, Fig. 5. When the belt is shifted back onto the fast pulley, at starting, the yoke is shifted back and the stop-pin engaged with the belt-shifter. The roller O is geared at each end by a toothed sector, *f*, with a rack, *g*, to insure like movement at each end and prevent catching and binding by shifting out of line. The other journal of the revolving carrier has a head, S, overhanging the bearing-frame E, to carry the rollers C, which are mounted on the end of said head by any suitable attaching blocks or devices T, so as to meet at the hollow axis of the carrier and gripe the barbed rod *a* between them powerfully as it passes from reel B to another reel, U, located a short distance from the delivery end of the carrier A, so as to receive the rod *a* therefrom and draw it with such tension that, by the rotation of the dies with the carrier, said rod is twisted between the dies and the reel U. The tension is caused by the gripe of the rollers and resistance of reel B. The dies holding the rod firmly make a regular and uniform twist, which is governed by the number of turns of the reel-carrier A while a given point on the barbed rod is passing from the rollers to the point where it binds on the reel U. From reel B to the rollers the rod *a* is prevented by the dies from twisting, and thereby it reels off from reel B to better advantage than it would without them, for it would kink and entangle with the coils and twist very irregularly were it attempted to run it directly from one reel to the other without the dies.

The dies C are here represented as rollers; but they may be flat and fixed dies, on which the rod *a* may slide or slip in passing through, if preferred. They are only grooved for the core *b* of the rod, and are adjusted a little apart from each other for space for the fins *d* and barbs *e*. These fins and barbs afford the leverage by which the dies are enabled to overcome the torsional resistance of the rod and twist it by revolving with the carrier.

The reel U is toothed or corrugated on its face, to allow the barbs to engage it and insure the requisite tension, and it is geared with the driving-pulley J by the pinion W, wheel X, shaft Y, and the bevel-pinion Z, (dotted,) whereby its speed and that of the carrier A is made to correspond to the pitch required for the twist. After one or two turns of the rod upon reel U it passes over a guide-roller, *h*, and to another reel, B′, whereon it is coiled for market. This latter spooling-reel B′ is driven by a belt, D′, that is permitted to slip on the pulley as the bundle on the reel increases in size.

The reel B is removable, by taking out the pin F, for receiving the coils from another machine, in which the barbs are cut before the rods are galvanized prior to being twisted.

I claim—

1. In an independent and continuously-running rod-twisting machine, the guide-rolls C, mounted on the axially-bored revolving reel-carrier A, and the delivery-reel B, also mounted on said carrier and having on it the coiled rod to be twisted, in combination with the drawing and transmitting reel U, arranged in stationary bearings between the rolls C of said carrier and the spooling-reel, said reel U being positively geared and given such speed, regard being had to the speed of the carrier, as shall insure uniformity of twist.

2. The roller O, fixed in radially-elongated bearings in reel B, combined with the T-headed yoke I Q, arranged to slide in the carrier A, and connected by rod H, extending through the hollow journal of the carrier with the tripping-lever L, arranged with the belt-shifter, as described.

3. The tripping-roller O, combined with the reel B, and fixed in radially-elongated bearings, with gears to regulate its action, substantially as specified.

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