(No Model.) 2 Sheets—Sheet 1.

W. H. JONES.

WIRE COILING MACHINE.

No. 600,790. Patented Mar. 15, 1898.

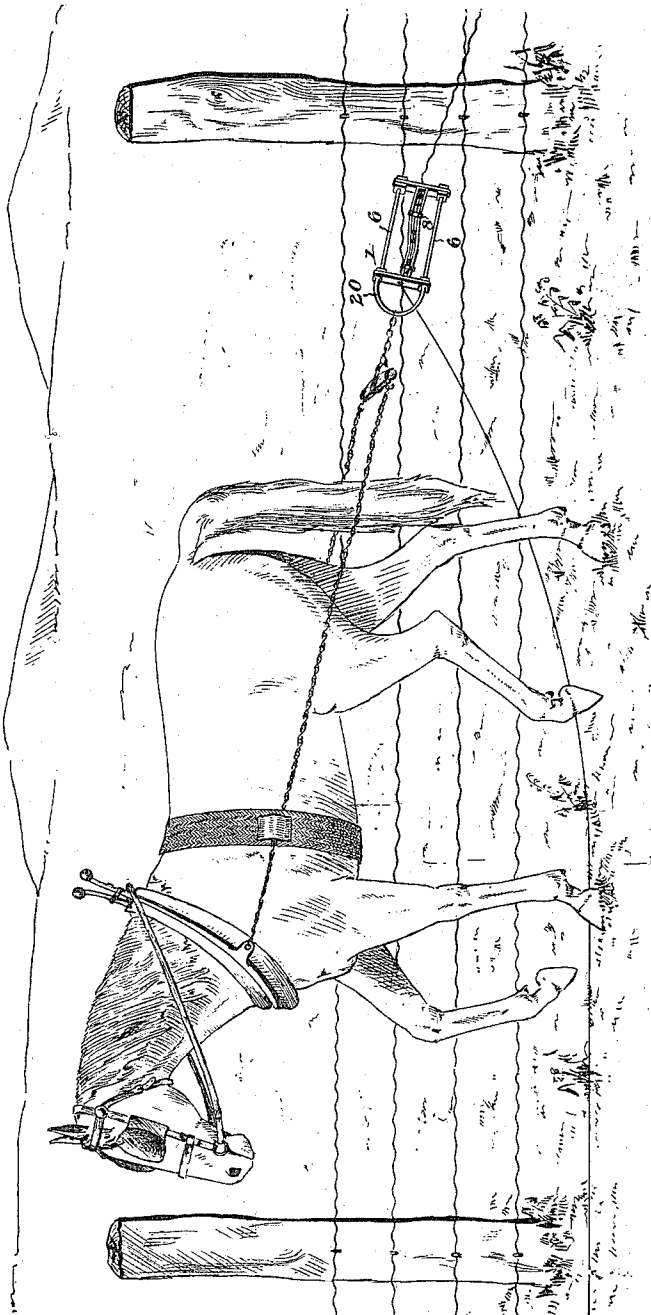


Fig. 1.

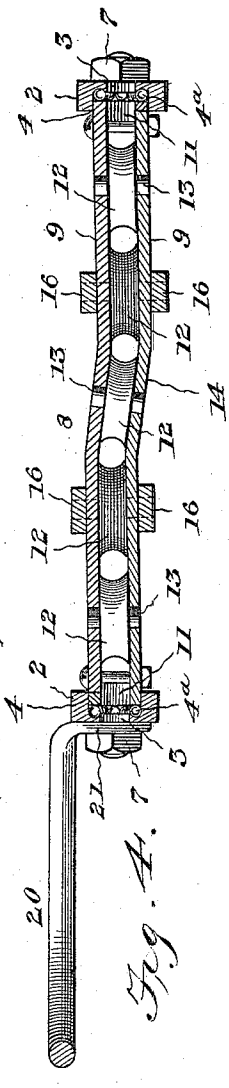


Fig. 4.

Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

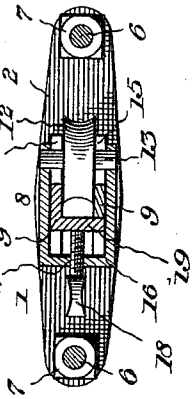


Fig. 3.

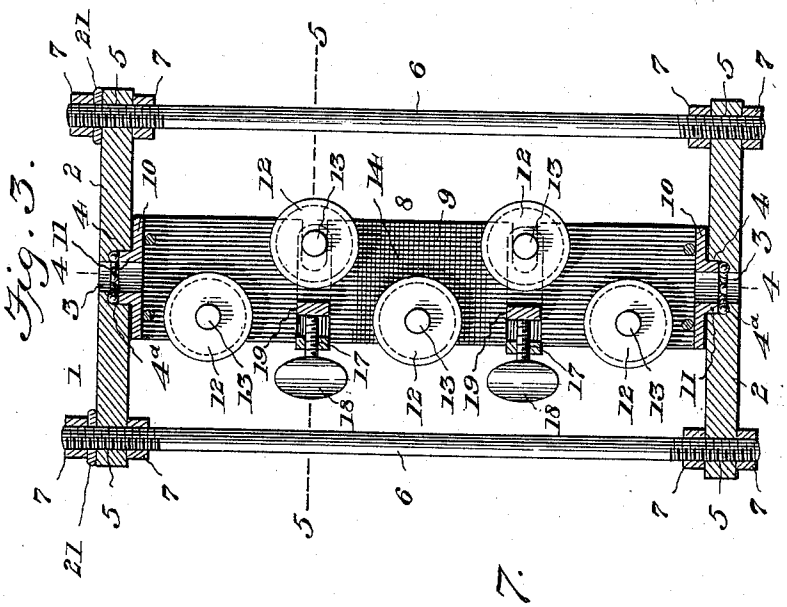


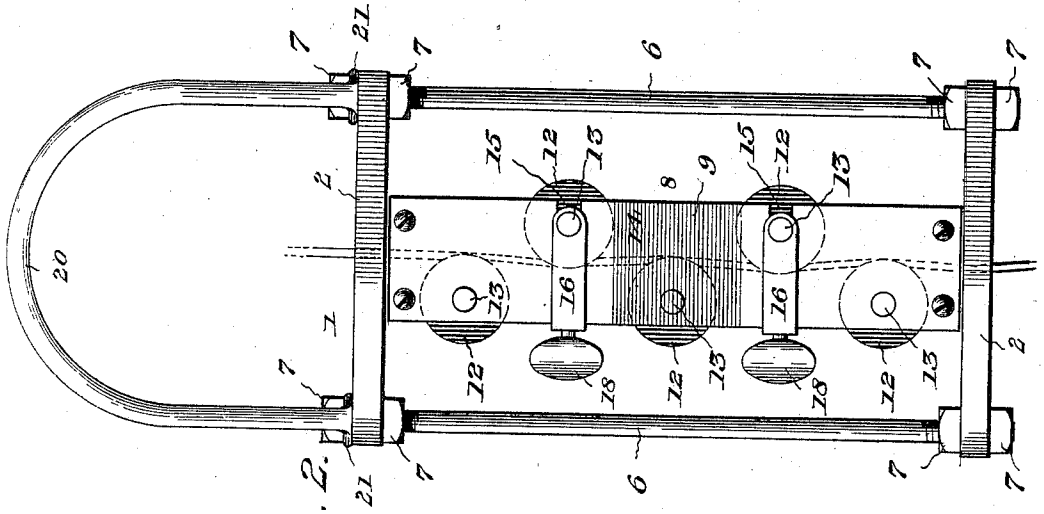
Fig. 6.



Fig. 7.



Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM H. JONES, OF LIBERTY, INDIANA.

WIRE-COILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 600,790, dated March 15, 1898.

Application filed June 22, 1897. Serial No. 641,845. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. JONES, a citizen of the United States, residing at Liberty, in the county of Union and State of Indiana, have invented a new and useful Wire-Coiling Machine, of which the following is a specification.

This invention relates to a new and useful wire-coiling machine adapted for use as a hand, field, or shop machine for coiling fence-wires either before the same are used or as they are being stretched up in the construction of a wire fence.

To this end the invention primarily contemplates a simple and efficient construction of coiler having means for placing a coil of long pitch, especially in wires used for fencing purposes.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a general perspective view showing a wire fence in process of construction and illustrating the manner in which the coiler can be operated as a field-machine by horse-power. Fig. 2 is a plan view of a wire-coiling machine constructed in accordance with this invention. Fig. 3 is a longitudinal sectional view thereof. Fig. 4 is a longitudinal sectional view on the line 4 4 of Fig. 3. Fig. 5 is a cross-sectional view on the line 5 5 of Fig. 3. Fig. 6 is an elevation of a strand of wire, showing the long pitch-coil formed therein by the machine. Fig. 7 is a cross-section of the strand shown in Fig. 6.

Referring to the accompanying drawings, the numeral 1 designates the frame of the machine having the opposite parallel end frame-bars 2, provided centrally between their ends with the wire-openings 3 and having formed in their inner sides bearing-sockets 4, which sockets form ball-cups for a series of antifriction bearing-balls 4^a. The oppositely-located end bars 2 of the frame are provided in their opposite ends with rod-openings 5 to receive therein the threaded extremities of the frame tie-rods 6, which adjustably connect the bars 2 at their ends and have fitted on their threaded extremities, at opposite sides of the bars 2, the clamping-nuts 7, which provide means for tightly securing the bars 2 and rods 6 together to complete the frame of the machine, while at the same time permitting of the relative adjustment of the frame-bars 2 and the taking apart of the frame should it be desired to remove for any purpose the elongated wheel-boxing 8.

The wheel-boxing 8 is of a rectangular form and essentially comprises parallel side plates 9 and the end webs 10, connecting the plates 9 together at their ends and provided with short offstanding pivot-studs 11, loosely working in the bearing-socket 4 of the frame-bars 2 to provide for the swiveled or rotatable support of the wheel-boxing within the frame of the machine, and it will be observed at this point that the ball-bearings 4^a at the ends of the wheel-boxing 8 serve to ease the end thrust of the latter and permit the same to freely rotate while the machine is in operation and at the same time permit the boxing 8 to be reversed in the event of the bearings becoming unevenly woven.

The wheel-boxing 8 has arranged between the parallel side plates 9 thereof a plurality or series of peripherally-grooved die-wheels 12, mounted on short wheel-spindles 13, the extremities of which work in openings formed in the opposite side plates 9 of the boxing. The said peripherally-grooved die-wheels 12 are arranged alternately at opposite sides of the longitudinal center of the boxing 9, whereby the peripheries of the wheels at the inner sides of the spindles 13 thereof project at one side of the longitudinal center of the boxing, and said boxing intermediate its ends is laterally deflected, as at 14, to dispose the central die-wheel 12 at an inclination or obliquely to the plane in which the remaining die-wheels 12 are arranged, which disposition or inclination of the central die-wheel is necessary to give the coil or twist to the wire which extends longitudinally through the boxing and alternately back and forth around the inner portions of the wheels within the boxing.

Certain of the die-wheels 12, and preferably those wheels which are arranged at one side of the longitudinal center of the boxing, have their spindle extremities work in slots 15, formed in opposite sides 9 of the boxing and

are journaled in the opposite side portions of U-shaped adjusting-yokes 16. Each U-shaped adjusting-yoke 16 loosely embraces the swiveled wheel-boxing 8 and is provided in the cross-bar thereof with a threaded opening 17, receiving therein a set-screw 18, bearing at its inner end against a fixed stop-piece 19, connecting the two sides 9 of the wheel-boxing. By manipulating the set-screws 18 the adjustable wheels 12 can be adjusted inward or outward, according to the pressure which it is desired to place on the wire or according to the amplitude of the bend to be given the same.

To provide for conveniently operating the machine, a handle-bail 20, of an inverted-U form, is employed, said handle-bail being formed at its extremities with attaching-feet 21, which may be conveniently bolted on one end of the opposite rods 6 against the outer side of one of the end frame-bars 2. The said handle-bail 20 is deflected laterally at one side of the central longitudinal center of the machine, so as to be readily grasped and out of the way of the wire along which the machine is pulled.

In operating the machine as a hand-machine in connection with a fence-wire the wire is strung through the boxing around the inner portions of the wheels 12 in the manner illustrated in Fig. 2 of the drawings, after which the wire is fastened to the posts of the fence. By now grasping the handle-bail 20 the machine may be pulled along the wire, compelling the wire to follow the alternate arrangement of the die-wheels 12, thereby producing a regular series of symmetrical bends, and by reason of the inclination or obliquity of the central die-wheel the wire is necessarily given a slight torsional twist, which imparts thereto a coil of long pitch, wires which are provided with a coil of this character being especially desirable for fencing purposes by reason of maintaining the stretch thereof at all times by compensating for contraction and expansion.

An important feature in connection with the operation of the machine when drawn along the wire in the manner just described is the fact that the forward movement of the machine causes the swiveled boxing carrying the die-wheels to revolve on its bearings, so that the obliquely disposed or inclined central die-wheel will give an even regular coil to the wire.

While a specific explanation has been given regarding the use of the machine as a hand-machine adapted to be pulled along the wires as the same are being stretched up for use as fence-wires, it is to be further observed that, if so desired, when very heavy wire is employed the machine may be operated by horse-power in the manner illustrated in Fig. 1 of the drawings, in which a horse is illustrated as being hitched to the bail 20 of the machine and drawing the latter along a length of wire which may be secured fast at one end in any manner. (Not shown.) Although the machine is capable of being used as a field-machine drawn by a horse, still it is not necessary to even resort to this expedient, as the ball-bearings for the wheel-boxing make it possible to operate the machine by hand in connection with nearly all sizes of wire.

In addition to using the machine in the manner referred to it is to be further observed at this point that the same may be used as a shop-machine for coiling wire in the shop or factory. In such use of the machine the same may be held stationary in any manner and wire drawn through the boxing carrying the die-wheels, or, of course, the machine may be drawn along the wire in the manner already explained.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a wire-coiling machine, the frame, a rotatable boxing arranged within the frame, and a plurality of formers or dies mounted within the boxing and carried therewith about the wire, said formers or dies being arranged at opposite sides of the longitudinal center of the boxing and set in planes providing for the bending of a coil in the wire as it passes through the boxing, substantially as set forth.

2. A wire-coiling machine having a frame carrying a plurality of dies, one of which dies is arranged obliquely, substantially as set forth.

3. A wire-coiling machine having a rotatable die-holder carrying a plurality of dies, one of which dies is arranged obliquely, substantially as set forth.

4. In a wire-coiling machine, a portable frame carrying a plurality of dies arranged alternately at opposite sides of the longitudinal center thereof, the central of which dies is disposed obliquely with respect to the remaining dies, substantially as set forth.

5. In a wire-coiling machine, a portable frame carrying a plurality of rotatable die-wheels arranged alternately at opposite sides of the longitudinal center thereof, the central of which wheels is disposed obliquely with respect to the remaining wheels, substantially as set forth.

6. In a wire-coiling machine, a portable frame, a wheel-boxing swiveled within said frame and arranged longitudinally thereof, and a plurality of rotatable die-wheels journaled in said boxing and arranged alternately at opposite sides of the longitudinal center thereof, substantially as set forth.

7. In a wire-coiling machine, a portable frame essentially comprising opposite parallel end frame-bars and tie-rods adjustably connecting said frame-bars, a handle-bail fitted to one end of the frame, and a wheel-

boxing swiveled longitudinally within the frame on the end bars thereof, and carrying a plurality of die-wheels arranged alternately at opposite sides of the longitudinal center thereof, substantially as set forth.

8. In a wire-coiling machine, a portable frame having oppositely-located end bars provided with central wire-openings and central bearing-sockets, an elongated wheel-boxing having tubular studs at its ends swiveled in the oppositely-located bearing-sockets and provided intermediate its ends with a lateral deflection, and a plurality of rotatable die-wheels journaled in the boxing and arranged alternately at opposite sides of the longitudinal center thereof, the central one of said die-wheels being disposed, by the deflection of the boxing, at an inclination or obliquely with respect to the remaining wheels, substantially as set forth.

9. In a wire-coiling machine, a portable frame, an elongated wheel-boxing swiveled within said frame and arranged longitudinally thereof, a plurality of rotatable die-wheels journaled in the boxing and arranged alternately at opposite sides of the longitudinal center thereof, certain of said die-wheels being movable and having their spindle extremities extended through slots in the sides of the boxing, and screw-adjusted yokes embracing the boxing and receiving the spindle extremities of the movable die-wheels, substantially as set forth.

10. In a wire-coiling machine, a frame, and a rotatable boxing swiveled within the frame and carrying a plurality of formers or dies arranged alternately at opposite sides of the longitudinal center of the boxing, one of said formers or dies being set obliquely substantially as set forth.

11. In a wire-coiling machine, a frame, a rotatable boxing having a ball-bearing support within said frame, and a plurality of formers or dies arranged within the boxing alternately at opposite sides of the longitudinal center thereof, and one of which formers or dies is set obliquely substantially as set forth.

12. In a wire-coiling machine, the frame, and a rotatable boxing swiveled within the frame and carrying a plurality of formers or dies arranged alternately at opposite sides of the longitudinal center of the boxing, one of said formers or dies being set obliquely, and certain other of said formers or dies, at opposite sides of the obliquely-set former or die, being adjustable toward and away from the longitudinal center of the boxing, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. JONES.

Witnesses:
J. M. CLARK,
G. M. CLARK.