

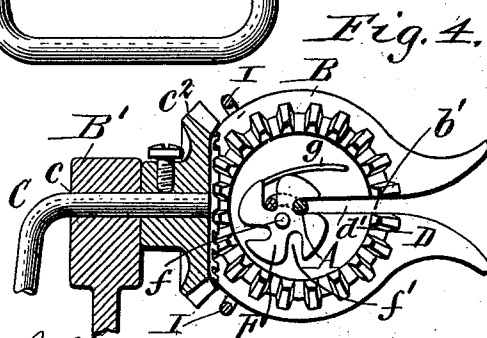
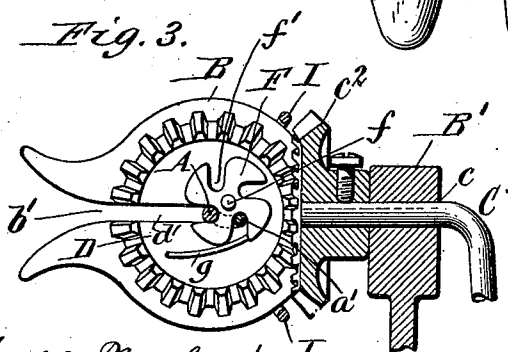
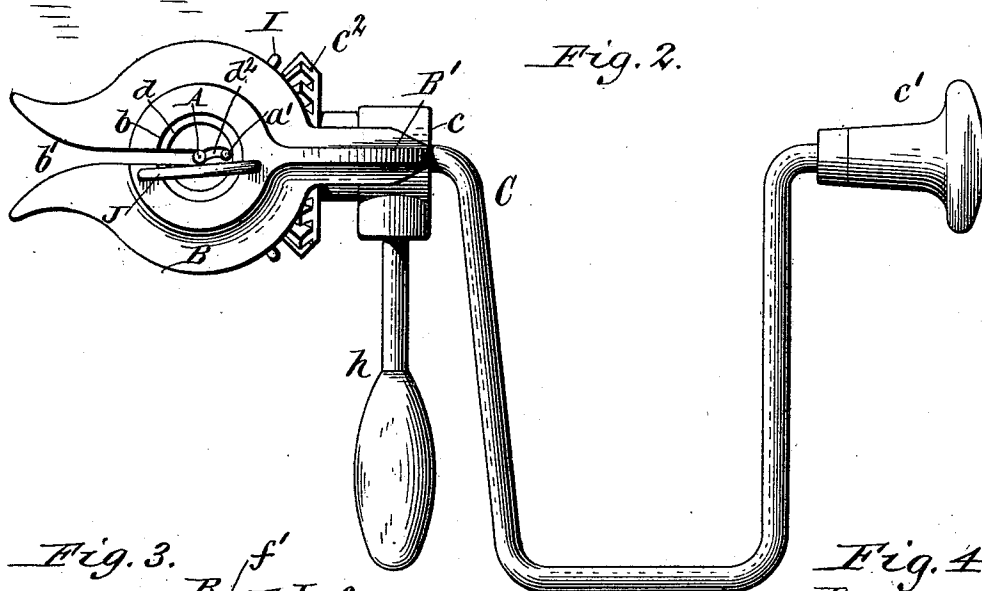
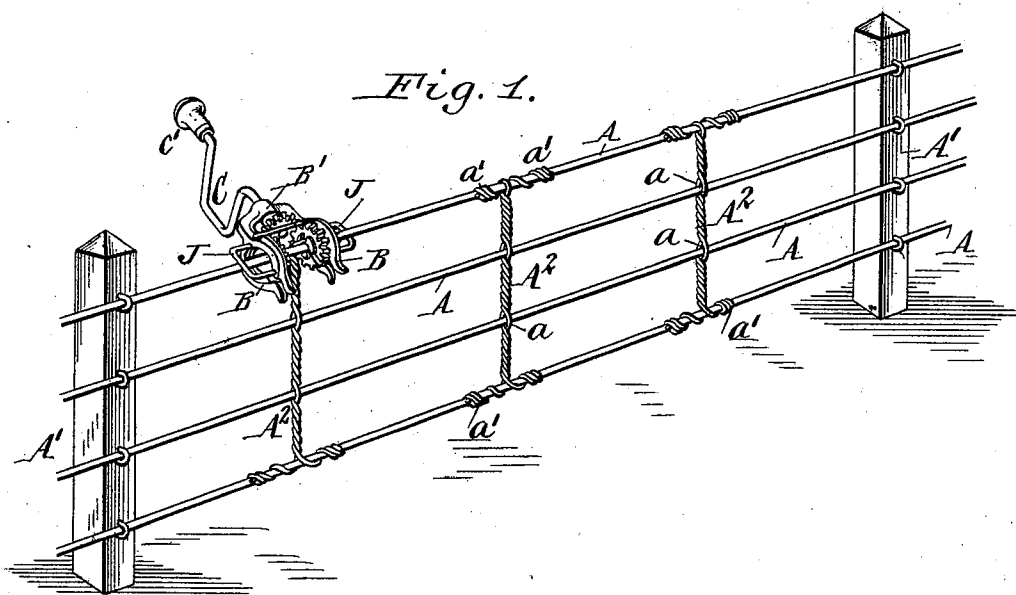
(No Model.)

2 Sheets—Sheet 1.

J. C. FERRIS.
WIRE FENCE MACHINE.

No. 516,803.

Patented Mar. 20, 1894.



Emil Neuhart
Chas. F. Burkhardt
WITNESSES.

John C. Ferris
By Wilhelm Hornum.
INVENTOR.
ATTORNEYS.

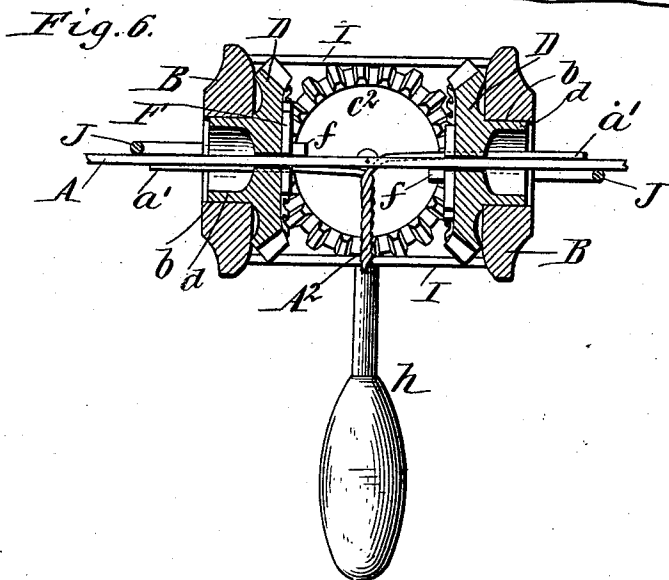
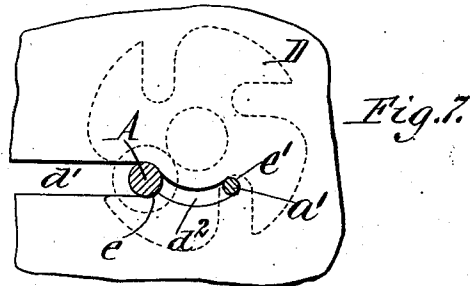
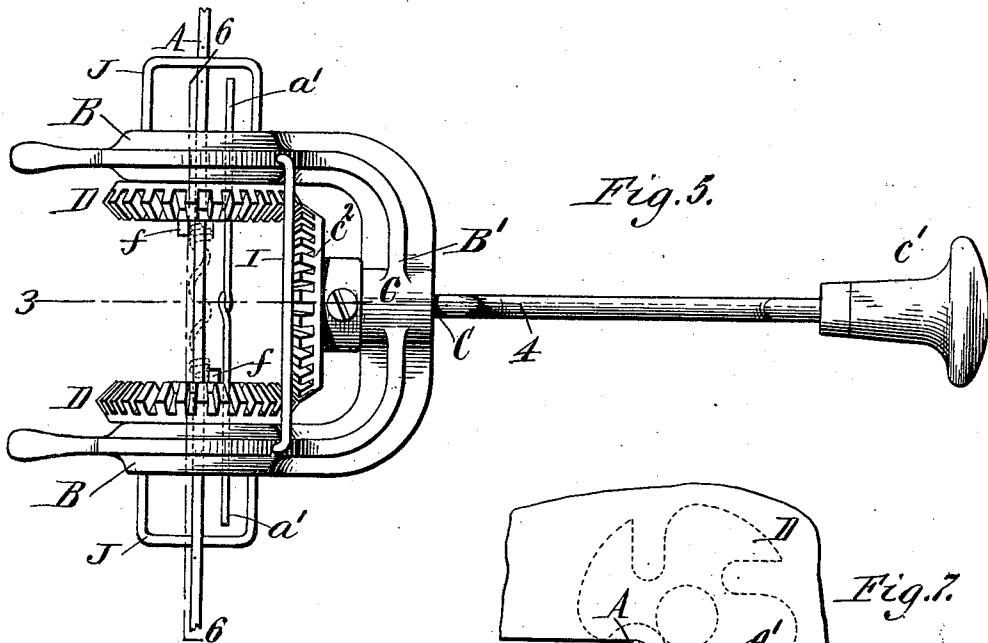
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By Wilhelm Bomer ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN C. FERRIS, OF MILLVILLE, NEW YORK.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 516,803, dated March 20, 1894.

Application filed December 6, 1893. Serial No. 492,939. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. FERRIS, a citizen of the United States, residing at Millville, in the county of Orleans and State of New York, have invented new and useful Improvements in Wire-Fence Machines, of which the following is a specification.

This invention relates to a machine designed more especially for use in the construction of fences which are composed of longitudinal main wires and vertical stays or connecting portions having splice wires or extensions which are twisted around the main wires.

My invention has for its principal object to so construct the twisting devices that the machine can be conveniently used for fastening such stays to the main wires.

The invention has the further object to improve the construction of the machine in several details.

In the accompanying drawings consisting of two sheets:—Figure 1 is a perspective view of a wire fence showing my improved machine in position for twisting the ends of a wire stay around the upper main wire. Fig. 2 is a side elevation of my machine. Figs. 3 and 4 are longitudinal sections in line 3—4, Fig. 5, looking in opposite directions. Fig. 5 is a top plan view thereof. Fig. 6 is a cross section in line 6—6, Fig. 5. Fig. 7 is a fragmentary side elevation, on an enlarged scale, of one of the twister wheels showing the main and auxiliary slots for the main and splice wires.

Like letters of reference indicate like parts in the several figures.

A represents the longitudinal main wires which are supported at intervals upon posts A', and A² are the vertical stays which connect the several main wires. Each of these stays consists of two strands of wire of smaller diameter than the main wires twisted together and forming loops a through which the intermediate main wires pass, and two angular splicing wires or extensions a' at both ends of the stay, whereby the latter is fastened to the uppermost and the lowermost of the main wires.

The frame of the machine is U shaped and composed of two arms B B connected at one end by a cross bar or yoke B'.

C represents a crank brace or crank shaft journaled in a bearing c formed in the cross bar of the main frame and provided at its outer end with a button or breast piece c' and at its inner end with a bevel driving gear wheel c², which latter is arranged between the arms of the main frame.

D D represent twister wheels whereby the splicing wires of the stay are twisted or wound around the upper and lower side wires. These twister wheels are arranged axially in line with each other, on the inner sides of the arms of the main frame, and are provided with bevel gear rims which mesh with opposite sides of the driving wheel. The twister wheels are provided on their outer sides with hubs d which are journaled in bearings b formed in the adjacent portions of the frame arms. Each of the frame arms is provided with a slot b' extending from the outer end thereof to the bore of the bearing in which the hub of the twister wheel is journaled as shown in Figs. 2, 3 and 4. Each of the twister wheels is provided with a main slot d' extending radially from its peripheral edge to its center and a short auxiliary slot d² forming a continuation of the main slot and extending from the inner end of the latter toward the opposite side of the twister wheel. This auxiliary slot is preferably narrower than the main slot as clearly shown in Figs. 2 and 7, so as to form a central shoulder or seat e at the junction of the main and auxiliary slots, against which the main wire is adapted to bear. The closed end of the auxiliary slot forms a seat e' which is arranged eccentrically with reference to the axis of the twister wheel and which is adapted to receive one of the splicing wires of the stay.

F represents locking wheels whereby the splicing wires of the stays are held in the eccentric seats e' of the twister wheels. These locking wheels are pivoted upon studs f secured eccentrically to the inner sides of the twister wheels and each locking wheel is provided with a number of tangential slots f', preferably four, which extend inwardly from the periphery of the wheel and are adapted to register successively with the main slot of the twister wheel. The locking wheels are free to turn forwardly, but are prevented from moving backwardly by detent springs g,

secured with one end to the twister wheels and adapted to bear with their free ends against shoulders formed by the abrupt advancing edges of the slots of the locking wheels. When the parts are in position for use, the main slot of each twister wheel and one of the tangential slots of its locking wheel are in register, as shown in Figs. 2, 3 and 4. Preparatory to fastening the stay to the main wires, the splicing wires or end portions thereof are bent at right angles thereto and in opposite directions, as shown in Figs. 5 and 6. One end of the stay is then placed between the twister wheels and its splicing wires are passed transversely into the slots of the frame arms, the main slots of the twister wheels and the tangential slots of the locking wheels. The splicing wires, striking the inner ends of these tangential slots, turn the locking wheels forwardly, whereby such wires are carried into the auxiliary slots of the twister wheels and caused to bear against the eccentric seats e' . The splicing wires are thus confined in the auxiliary slots between the closed ends of the latter and the adjacent portions of the locking wheels. By the time that the splicing wires have reached the eccentric seats e' , the locking wheels will have been turned sufficiently to bring the next following tangential slot thereof in line with the main slots of the twister wheels and those of the frame arms B. In order to permit the splicing wires of the stay to pass through the auxiliary slots without binding, these slots are curved concentrically with the pivots of the locking wheels. The splicing wire being thus inserted one of the main wires is now passed into the slots of the frame arms, the main slots of the twister wheels and the tangential slots of the locking wheels until it bears against the shoulders e , whereby the inward movement of the main wire is arrested at the axes of the twister wheels. Upon turning the crank shaft, in this position of the parts, the twister wheels are rotated in opposite directions through the medium of the driving wheel, which causes the splicing wires to be wound around the stationary main wire owing to their eccentric arrangement. As the splicing wires are wound around the main wire they are drawn out of their eccentric seats and upon leaving the auxiliary slots their end portions are twisted around the main wire by the eccentrically arranged studs f of the locking wheels which project inwardly a sufficient distance for this purpose, as shown in Figs. 5 and 6. While twisting the splicing wires around the main wires the frame of the machine is steadied and held against turning on the main wire by a depending handle h secured to the frame.

I represents guard bars, whereby the stays are prevented from interfering with the driving and twister wheels. These bars are arranged in front of the upper and lower portions of the driving wheel and are secured at their ends to the arms of the main frame.

J represents retaining loops which assist in preventing the machine from turning or tipping while securing the stay to the main wires. These loops project from the outer sides of the frame arms, and one of them is adapted to bear against the under side of the main wire and the other against the upper side of the same as represented in Figs. 1, 5 and 6.

My improved fence machine while especially desirable for the purpose described can also be used for twisting a separate splice wire around a stay and main wire.

I claim as my invention—

1. The combination with the frame, of a twister wheel journaled in said frame and provided with a slot extending from its peripheral edge inwardly beyond its center and adapted to receive a main wire and a splicing wire, and a locking device, whereby the splicing wire is confined in that portion of said slot between its closed inner end and the axis of the twister wheel, substantially as set forth.

2. The combination with the frame, of a twister wheel journaled in said frame and provided with a main slot extending from its peripheral edge to its center, and an auxiliary narrower slot extending from the inner end of the main slot toward the opposite side of the twister wheel, forming a stop or shoulder at the junction of the main and auxiliary slots, substantially as set forth.

3. The combination with a frame, of a twister wheel journaled in the frame and provided with a main slot extending from its peripheral edge to its center and adapted to receive a main fence wire, and an auxiliary slot extending from the inner end of the main slot toward the opposite side of the wheel, and a locking wheel adapted to hold the splice wire in the auxiliary slot, substantially as set forth.

4. The combination with a frame, of a twister wheel journaled in the frame and provided with a main slot extending from its peripheral edge to its center and adapted to receive a main fence wire, and an auxiliary slot or continuation extending from the inner end of the main slot toward the opposite side of the wheel, and a slotted locking wheel journaled on the twister wheel and adapted to confine the splice wire in the auxiliary slot, substantially as set forth.

5. The combination with the frame, of a twister wheel journaled in the frame and provided with a main slot extending from its peripheral edge to its center and adapted to receive a main fence wire, and an auxiliary slot extending from the inner end of the main slot toward the opposite side of the wheel, and a slotted locking wheel pivoted eccentrically to the twister wheel, substantially as set forth.

6. The combination with a frame, of a twister wheel journaled in the frame and provided with a main slot extending from its peripheral edge to its center and adapted to receive a main fence wire, and an auxiliary slot

extending from the inner end of the main slot toward the opposite side of the wheel, a slotted locking wheel journaled on the twister wheel and adapted to confine the splice wire in the auxiliary slot, and a detent spring which prevents retrograde movement of the locking wheel, substantially as set forth.

7. The combination with the frame, of a twister wheel journaled in the frame and provided with a main slot extending from the periphery to the center of the wheel and adapted to receive a main fence wire, and an auxiliary slot extending from the inner end of the main slot toward the opposite side of the wheel, a locking wheel adapted to confine the splice wire in the auxiliary slot, and a projection or stud arranged eccentrically upon the twister wheel and projecting beyond the locking wheel, whereby the end portion of the splice wire is twisted around the main wire, substantially as set forth.

8. The combination with the frame consisting of two arms connected at one end by a yoke or cross bar, of a driving wheel jour-

naled in said cross bar, twister wheels journaled in said arms and meshing with opposite sides of the driving wheel, and guard bars secured to the frame in front of the upper and lower portions of the driving wheel, substantially as set forth.

9. The combination with the frame consisting of two arms connected at one end by a cross bar, of a driving wheel journaled in said cross bar, twister wheels journaled in said arms and meshing with opposite sides of the driving wheel, and retaining loops secured to the outer sides of said arms, one of said loops being adapted to bear against the upper side of the main wire and the other loop against the under side of the main wire, substantially as set forth.

Witness my hand this 24th day of November, 1893.

JOHN C. FERRIS.

Witnesses:

THEO. L. POPP,
CARL F. GEYER.