

(No Model.)

E. S. MORGAN.
WIRE WEAVING FENCE MACHINE.

No. 532,240.

Patented Jan. 8, 1895.

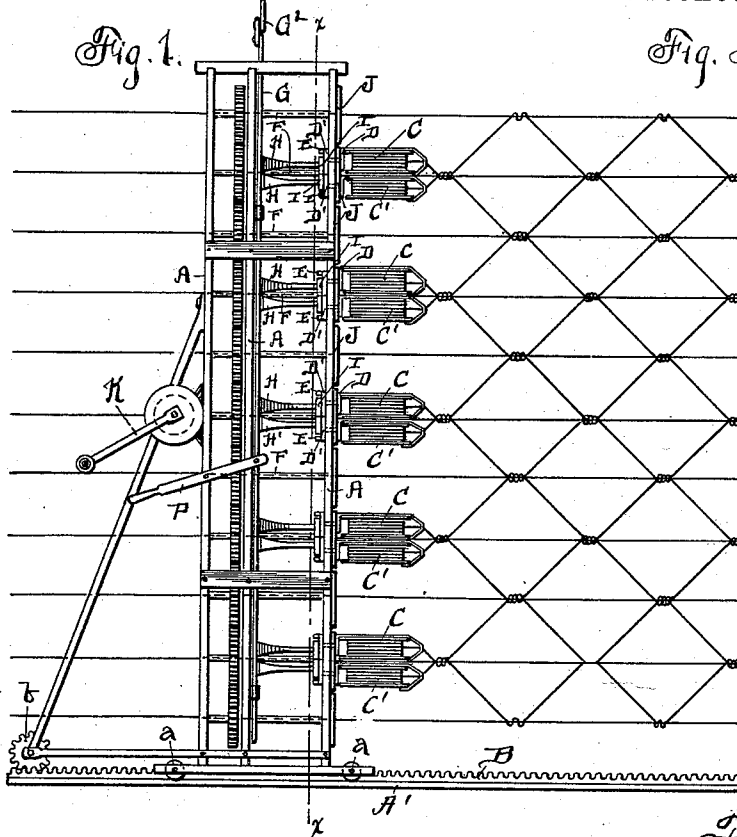


Fig. 2.

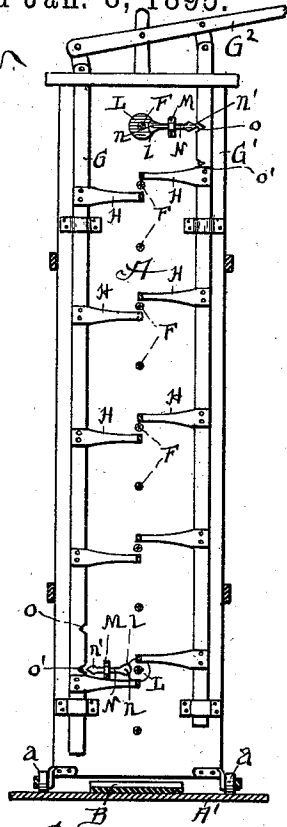


Fig. 3.

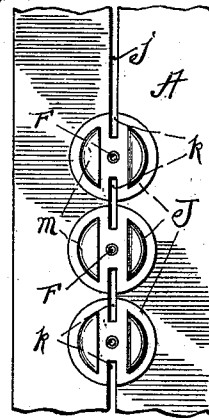


Fig. 5.



Fig. 4.

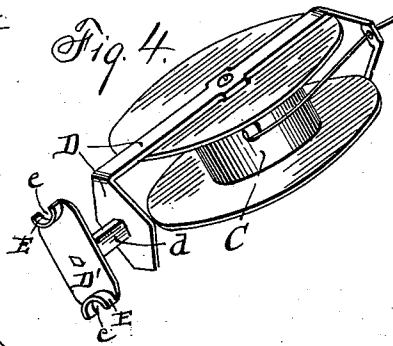


Fig. 6.

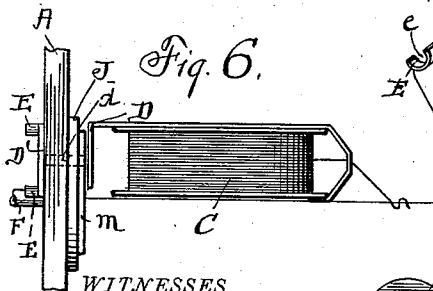
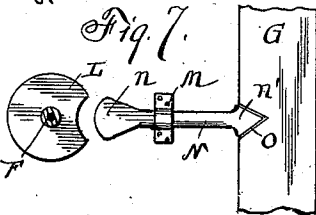


Fig. 7.



WITNESSES

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EDWARD S. MORGAN, OF RICHMOND, INDIANA, ASSIGNOR TO HAGGERT S. COCHRANE, OF CLEVELAND, OHIO, AND GRACE COCHRANE, OF ST. THOMAS, CANADA.

WIRE-WEAVING FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 532,240, dated January 8, 1895.

Application filed November 29, 1892. Serial No. 453,554. (No model.) Patented in Canada July 13, 1892, No. 39,328.

To all whom it may concern:

Be it known that I, EDWARD S. MORGAN, of the city of Richmond, in the county of Wayne, in the State of Indiana, United States of America, have invented certain new and useful Improvements in Wire-Weaving Fence-Machines, (for which I have obtained a patent in the Dominion of Canada, No. 39,328, bearing date July 13, 1892;) and I do hereby declare that the following is a clear, full, and exact description of the same.

Reference is made to the accompanying drawings, in which—

Figure 1 is an elevation showing the invention as in operation. Fig. 2 is a section on the line $x-x$, Fig. 1. Fig. 3 is an elevation of a portion of the side of frame A, showing the disks. Fig. 4 is a perspective view of the wire spool and its carriage. Fig. 5 is a perspective view of the double concave plate L. Fig. 6 is an enlarged elevation of the wire spool and its carriage, showing the frame A partly broken away. Fig. 7 is an enlarged view of the lock for the shifting bars.

This invention has relation to certain new and useful improvements in machines for weaving wire fences, and it consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

The invention is more particularly designed as an improvement in that class of machines described and claimed in my Patent No. 432,951, dated July 22, 1893, and has for an object the provision of improved means for effecting the shifting of the wire-carrying spools or reels, such means consisting of a series of shifting pins, carried by movable bars or slides, and themselves carrying double concave plates, which engage with especially adapted means on the carriages, which carry the said spools or reels.

A further object of the invention is to provide a self-adjusting lock for the purpose of holding the shifting bars immovable while the machine is in the operation of twisting the wires, and also to prevent the said shifting bars from being moved except at such times as the parts are in proper position for

shifting. This lock consists of one or more movable pins adapted to engage with each of the shifting bars and with the operating mechanism, in the manner hereinafter fully described.

Referring to the accompanying drawings, the letter A designates the supporting frame constructed and arranged in substantially the manner set forth in my patent above referred to. Said frame may be supplied with rollers or casters a to enable it to be more readily movable along a base A' , being guided by a pinion b , carried by the said frame and running in a rack B on the said base.

The letters C, C' designate the wire carrying spools or reels, which are arranged in pairs, the upper spools of the pairs being marked C, and the lower spools C'. Each of said spools is carried by a plate or bracket D, which is connected centrally to a second and parallel plate D', by means of a short arm or bar d . These two plates with the connecting arm, form the carriage for the spool.

At its upper and lower portion, each plate D' is cut away as indicated at e , said cut-away portions having, adjacent thereto, each a lug or projection E on that side of the plate farthest from the spool. The opposite but corresponding surfaces of these lugs or projections are rounded or convex, as shown.

The cut-away portions e are made to permit the said plates to partially pass the shafts F of the spool-rotating devices.

G designates the shifting bar for the spools C, and G' the corresponding bar for the spools C'. These bars are made capable of an up and down reciprocating movement in suitable guides in the frame, and are connected to a shifting lever G². As thus far described, the arrangement of these shifting bars is similar to that of my said patent. Connected to each of said shifting bars is a series of arms or shifting pins H, one for each of the spools, the pins of the bar G acting in connection with the spools C, and those of the bar G' acting in connection with the spools C'. Attached to each of said arms H is a double concave plate I, there being a concavity i in both its upper and lower edge portions. These

concavities are adapted to engage with the rounded lugs or projections E of the plates D' in the manner hereinafter described.

J designates a series of disks carried each by a shaft F, said disks being placed at intervals corresponding to the distance between the horizontal wires of the fence, over a vertical slot *j* in the frame or support. The shafts F are all intergeared, and may be driven by crank gear K, or by other suitable means. These disks with their driving gear are substantially the same as in the said patent. The parallel slots *k* in said disks are designed to receive the connecting bars or arms *d* of the spool carriages, as the latter are shifted back and forth.

The operation of the invention as thus far described, is as follows: The machine being set up in the manner shown in Fig. 1, and it being desired to continue the diamond shaped weaving shown in the right hand portion of this figure, the shifting lever G² is actuated, moving the two shifting bars G and G' in opposite directions. Upon such movement, the double concave plates I, carried by the arms of the shifting bar G, engage with the upper convex lugs or projections E of the plates D' of the spools C, raising the carriages and spools of the C series up the slot *j* into engagement with the slots *k* in the disks J next above the respective spools of said series. At the same time the slide G' acts in the same manner upon the spools of the C' series to move them downwardly into engagement with the disks next below. The spools are now revolved by means of the gear therefor, and the twist is made. The shifting lever is then reversed, and this alternative operation is repeated, the entire machine in the meantime being moved bodily along the fence the proper distances. The disks J are shown as being provided with guide flanges *m*.

I will next proceed to describe the second part of my invention, to wit, the self-adjustable lock for the shifting bars.

On one or more of the shafts F of each series, I form a collar L in which at one side is a concavity or depression *l*. Held loosely in a bracket or clip M of the frame, and capable of an endwise movement, is a pin N, having at one end a head or convexity *n*, and at the other end a V-shaped point *n'*, which is designed to engage with one or the other of two small V-shaped notches *o, o'*, formed one above the other in the edge of the shifting bar, said point engaging the notch *o* when the said bar is at the limit of its movement in one direction, and the notch *o'* when the bar is at its opposite limit. The notch with which the pin is in engagement, is at such time directly opposite the concavity or depression *l* in the collar L, and the said concavity is so situated with relation to the disk J that it will be in position to receive said head only when the slots *k* of all said disks are in perpendicular alignment, or in the proper position for the shifting of the spools from one to the other.

The operation is as follows:—The pin N being in engagement with either notch *o, o'*, the impingement of its head *n* against the collar L will prevent the shifting bar from moving. When however, the parts are in proper position for shifting, the head *n* falls into the concavity or depression *l*. This releases the pin sufficiently to permit the shifting bar to be moved, the point *n'* riding out of one of the notches *o* or *o'*, and into the other of said notches when the movement of the bar is completed. The disk and spool being now rotated to effect the twist, the head *n* rides out of the concavity or depression *l*, and a lock is again effected. It will be understood that one or more of these locks may be applied to each shifting bar.

P designates an auxiliary shifting lever.

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

1. In a wire-weaving fence machine, the combination of a series of spools, their carriages, the vertically movable shifting bars, the arms or shifting pins carried by said bars, and double concaved plates carried by said arms or pins and adapted to engage said carriages, and lugs on said carriages with which said concaved plates impinge to effect the shifting substantially as specified.

2. In a wire-weaving fence machine, the combination of a series of spools, their carriages having the plates D' formed with the convex bearing lugs or projections, the shifting bars, the arms or pins carried thereby, and the plates carried by said arms or pins and having double concavities for alternate engagement with said lugs or projections, substantially as specified.

3. In a wire weaving fence machine, the combination with a series of vertically movable spool-carrying carriages having plates formed with lugs thereon, the oppositely movable shifting levers, and a series of arms carried by each of said shifting levers, one for each of said carriages, and disconnected therefrom, said arms terminating in bearings, which upon movement of the shifting levers play up and down between the plates of the respective carriages with alternate engagement and disengagement therewith, substantially as specified.

4. In a wire weaving fence machine, the combination with a series of rotary disks having slots in their upper and lower edges, of the series of carriage plates D, D', an arm connecting said plates and designed to engage the slots in the respective disks, the shifting levers, the series of arms carried by said levers, the double-concave plates attached to said arms, and lugs on one of said carriage plates of each carriage of the series adapted to be engaged by the concavities of said plates, but disconnected therefrom, substantially as specified.

5. In a wire-weaving fence machine, the combination with a shifting bar, and a shaft

which rotates the spools, of a collar on said shaft, a concavity in said collar, and a locking device adapted to engage the said shifting bar and the collar, substantially as specified.

5 6. In a wire-weaving fence machine, the combination with the revolving shaft of the twisting mechanism, and the shifting bar for the carriages, of a self-adjusting locking pin having a head at one end adapted to engage
10 a collar on the said shaft, and a point at the opposite end adapted to engage the shifting bar, substantially as specified.

15 7. The combination with a shifting bar having two V-shaped notches therein, one above the other, of a movable pin having at one end portion a point adapted to engage with either of said notches, the other end portion of said pin having a head adapted to engage with a shaft of the wire twisting mechanism, sub-
20 stantially as specified.

8. In a wire-weaving fence machine, the

combination with a shifting bar having V-shaped notches therein, one above the other, a pin having a point adapted to engage with either of said notches, a head at the opposite
25 end of said pin, a clip for loosely supporting said pin, of a revolving disk which carries one of the wire spools, its shaft, a collar on said shaft, a concavity or depression in said collar, said concavity or depression being so situated
30 that when the parts of the machine are in position to be shifted, it will receive the head of said pin and thereby release its point from engagement with the said shifting bar, sub-
35 stantially as specified.

Dated St. Thomas, county of Elgin, Ontario, Canada, November 17, 1892.

EDWARD S. MORGAN.

In presence of—

W. T. COCHRANE,
JAMES M. GLENN.