

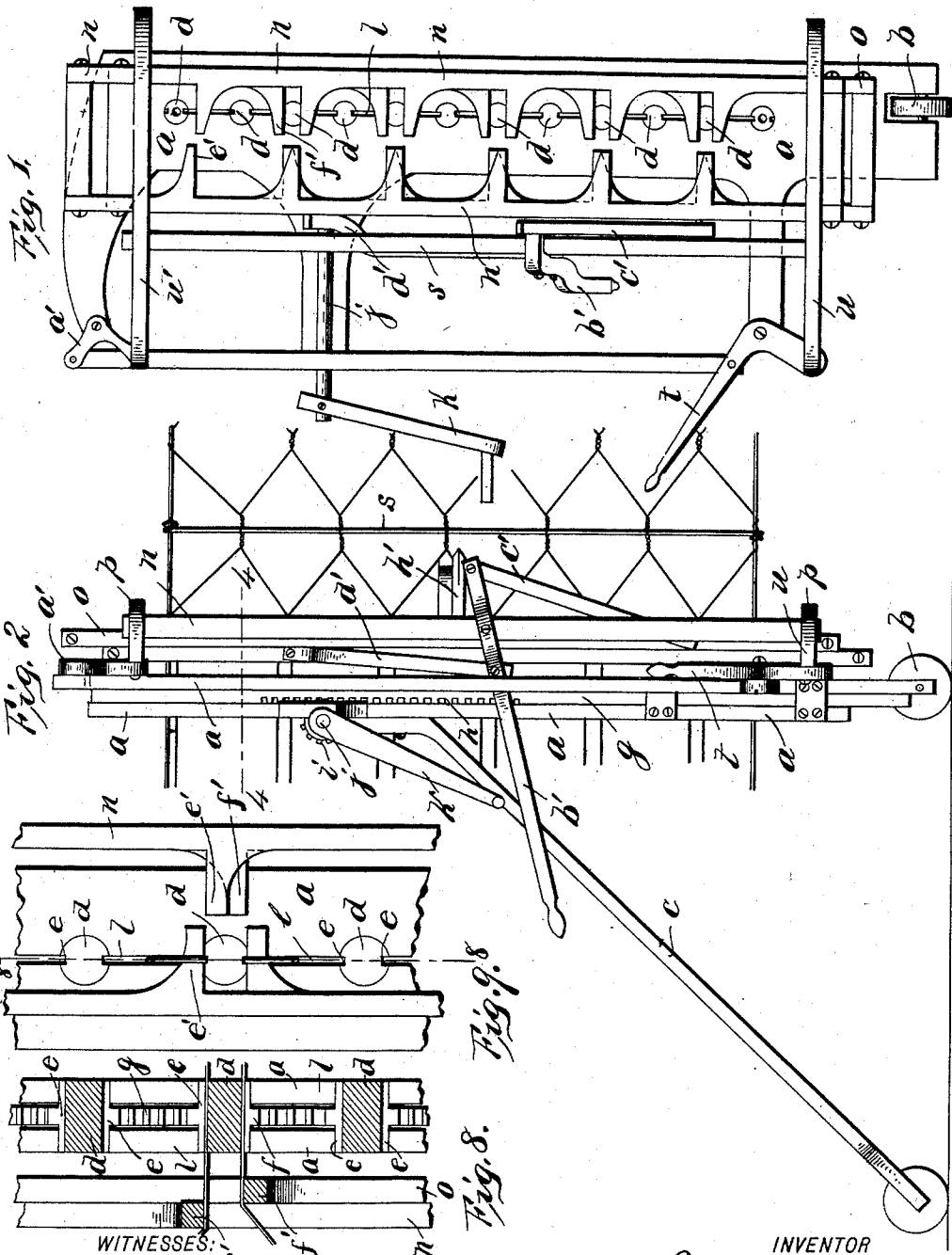
(No Model.)

2 Sheets—Sheet 1.

J. P. HIATT.
WIRE FENCE MACHINE.

No. 522,899.

Patented July 10, 1894.



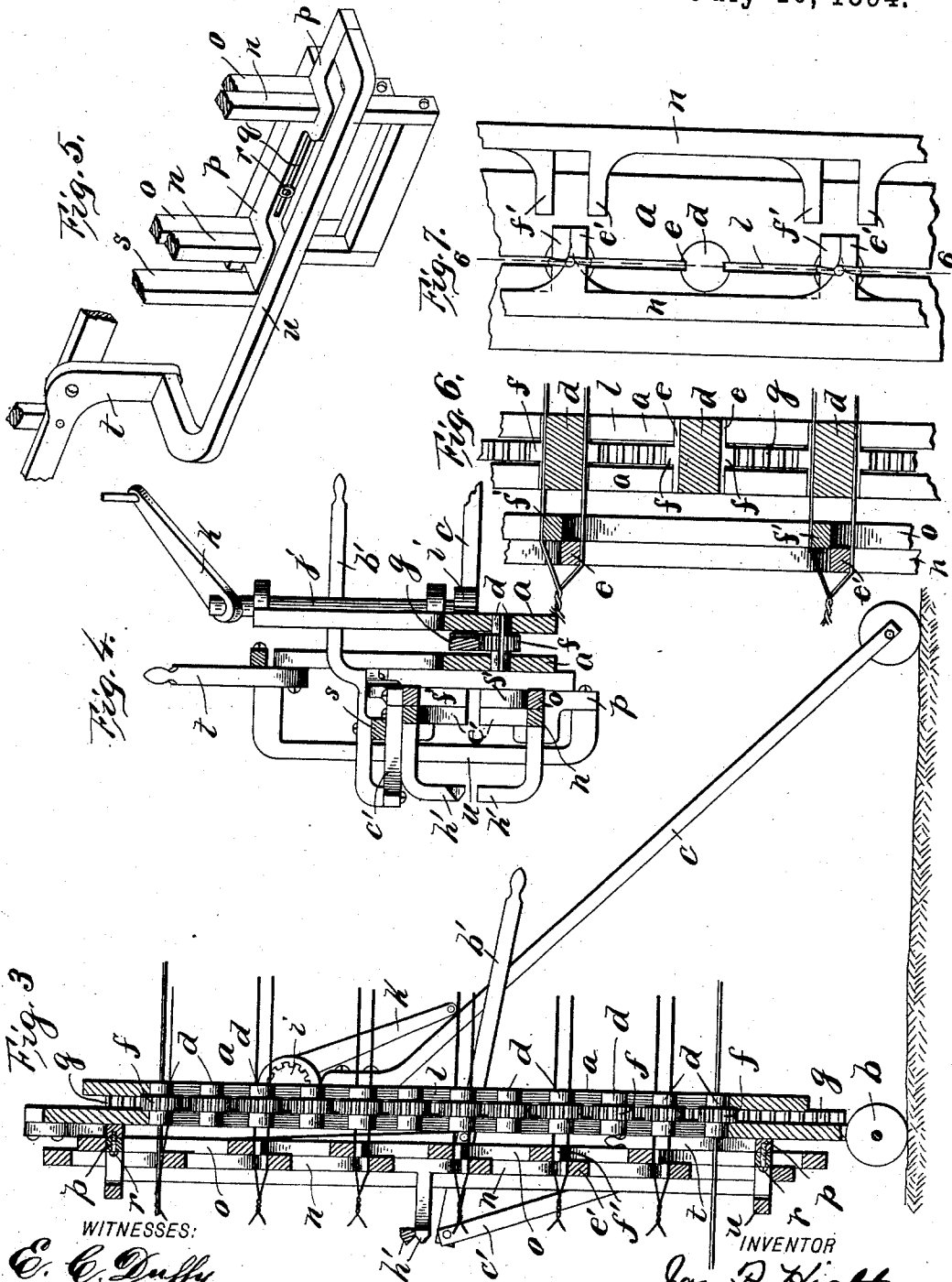
WITNESSES:
E. C. Duffy
Hubert R. Rock

INVENTOR
Jos. P. Hiatt
BY *E. C. Duffy*
ATTORNEY.

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WIRE FENCE MACHINE.

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WITNESSES:

E. C. Duff
Hubert Peck

INVENTOR

Jan. P. Hiatt
BY *E. C. Duff*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH P. HIATT, OF RICHMOND, INDIANA.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 522,899, dated July 10, 1894.

Application filed March 8, 1894. Serial No. 502,822. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. HIATT, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Fence-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in fence weaving machines.

The object of the invention is to provide an improved machine for constructing or weaving fences composed of wire netting, exceedingly simple and durable in construction and composed of a minimum number of parts and which can be easily and quickly operated without requiring the services of a skilled mechanic.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly described and pointed out hereinafter.

Referring to the accompanying drawings;—Figure 1 is an elevation of the rear face of the machine showing the shifting frames swung to the left with the right hand fingers arranged on opposite sides of the weft wires with the parts in the position they assume just after the twist has been formed. Fig. 2 is a side elevation with the parts in the same positions. Fig. 3 is a vertical central longitudinal sectional view, the frames being shown shifted to the right, with the left hand fingers between the pairs of wires after the twist has been made by the parts arranged as in Figs. 1 and 2, and the machine moved forward. Fig. 4 is a cross sectional view on the line 4—4, Fig. 2. Fig. 5 is a detail perspective showing the lower carrier of the shifting frames, also showing portions of said frames and adjacent parts. Fig. 6 is a detail vertical section enlarged taken on the lines 6—6, Fig. 7, showing the parts in the same positions as shown in Fig. 3. Fig. 7 is a detail rear elevation showing the parts in the positions shown in Fig. 6, wherein the left

hand fingers have just been shifted to the right and passed between the wires twisted between the right-hand fingers, this figure showing the parts in the position before the shifting frames have been thrown in opposite vertical directions to separate the wires and carry to adjacent twist-ers. Fig. 8 is a detail vertical section, enlarged, taken on the lines 8—8, Fig. 9, showing the parts after the frames have been shifted vertically in opposite directions, so that the left-hand fingers separate the wires and carry them through the slots in the frame into the adjacent twist-ers. Fig. 9 is a detail rear elevation showing the parts in the position of Fig. 8.

In the drawings the reference letter *a* indicates a vertical frame usually having a roller *b*, at the lower end thereof to run on the ground, and a forwardly extending brace *c*, from the upper portion thereof provided with a roller to travel on the ground and assisting in supporting the device and removing the strain from the wires. This frame preferably consists of two upright longitudinal parallel plates secured together a suitable distance apart.

d, are the wire twist-ers journaled transversely in said plates in aligned round apertures extending through the plates. Each twister preferably consists of a round block or cylinder having two longitudinal wire receiving grooves or notches *e e*, extending the length thereof on diametrically opposite sides of each twist-er. Each twister at or about its center is also provided with the exterior gear wheel *f*, fitted between the plates of the frame.

All of the twist-ers are simultaneously revolved by means of the rack bar *g*, slidably confined between the plates and meshing with the gears of all the twist-ers. On its rear side this rack bar is provided with the gearing *h*, with which the pinion *i*, meshes. This pinion is rigid on the horizontal drive shaft *j* extending laterally to one side of the machine and mounted in a suitable bracket from the upright frame. The outer end of this shaft can be provided with a suitable handle *k*, whereby the shaft can be rotated in opposite directions to raise and lower the rack bar and thereby revolve the twist-ers in opposite directions.

A suitable number of horizontal twist-
ers are employed in a vertical series, and the two
plates composing the upright frame are pro-
vided with vertical slots 1, between the open-
ings containing the twist-ers so that the wire
receiving notches in the twist-ers can register
with said slots and the wires can be passed
through the slots between adjacent twist-ers
for the purpose hereinafter described.

The present machine is designed to weave
a fence composed of wire netting on top and
bottom selvage wires. The top and bottom
twist-ers of the series of twist-ers d have each
a central concentric bore for the passage of
the selvage wire. This wire netting is formed
from a series of parallel wires stretched be-
tween and parallel with the selvage wires so
that a single wire is located between each
twister and the adjacent twist-ers.

Suitable means are provided to shift the
wires between the twist-ers in forming the
meshes of the wire netting. These means
preferably consist of two frames n, o , arranged
at the rear side of the machine. These frames
are laterally shiftable together and vertically
movable in opposite directions and the frames
are arranged longitudinally of the main frame
and opposite the rear ends of the twist-ers
therein. Each shifting frame consists of the
two parallel vertical bars arranged on oppo-
site sides of the vertical plane in which the
twist-ers are located and extending above and
below the series of twist-ers and connected at
their ends by cross bars. The two frames are
preferably of the same dimensions and are
arranged close together so that their side bars
slide one on the other.

The two frames are held in position by the
upper and horizontally arranged carriers p, p ,
having the transverse openings in which the
sides of the frame are confined to slide verti-
cally. These carriers slide horizontally to
shift the frames together. The main upright
frame can be provided with ways for the car-
riers, and the carriers can have elongated slots
 q , through which headed pins r , rigid with the
frame extend. These two carriers can be
rigidly secured by means of a vertical rod s .

Suitable means are provided for shifting
the frames laterally such as a vertically rock-
ing hand lever t , fulcrumed to a lateral ex-
tension from the upright frame and provided
with a lateral end pivotally connected with
the lower carrier by a link u . A bell crank
lever a' is mounted on a rigid extension from
the upper end of the frame and one arm of
said lever is connected to the said lever t , on
the opposite side of the fulcrum from link u ,
and the other arm of said bell crank lever is
connected by the link u' with the upper car-
rier. It will thus be observed that when the
hand lever is swung up the two carriers and
their frames will be swung to the left and when
the said lever is swung down the two shifter
frames will be swung to the right.

Any suitable means can be provided to
move the two frames vertically in opposite

directions, such as a vertically swinging hand
lever b' extending forwardly and between its
ends fulcrumed on the bar s , and pivotally
connected from points on opposite sides of
its fulcrum with the two frames by the links
 $c' d'$ so that when said hand lever b' is swung
the two frames will be moved in opposite di-
rections.

The outer frame n , is provided with the fin-
gers e' extending inwardly from its side bars.
The inner frame is also provided with corre-
sponding series of fingers f' . The distance
between the fingers is usually the same as the
distance between two twist-ers, and each finger
does not extend beyond a line passing through
the longitudinal center of the two frames.

The fingers on opposite sides of each frame
are arranged approximately opposite each
other so that their straight sides will be ap-
proximately in the same plane. The fingers
on the same side of a frame face in the same
direction while those on the opposite side of
the same frame face in the opposite direction.
The fingers in adjacent sides of the two
frames also face in opposite directions.

At or about the central portion of the outer
frame n , the two gages $h' h'$ project outwardly
from opposite sides thereof and have inturned
ends. These gages are formed to gage the
size of the mesh and are so arranged that the
one in action always comes opposite an idle
twister. Each gage is equal in length to one
half the length of a completed mesh, and in
using the present device wherein twelve
twist-ers are employed eleven weft wires
should be strung an equal distance apart and
between the two selvage wires. The machine
is placed on these wires with the two selvage
wires passing through the top and the bottom
twist-ers and the weft wires passing between
the twelve twist-ers. The machine is now
moved up to the end post until one of the
gages h' engages the post or other support at
which the fence is to begin, the parts being
arranged in the position shown in Fig. 1 with
the shifting frames thrown to the left and the
weft wires in opposite sides of every alter-
nate twister. Each pair of weft wires pass
between the flat face of a pair of fingers on
the right hand side of the shifting frames.
The fingers on the opposite side of the frame
are arranged one over the other and opposite
the space between the opposite separated fin-
gers and opposite the center of each twister
containing wires. The twist-ers are now op-
erated to twist the weft wires together form-
ing in this instance a vertical series of six
twists as shown. The twist at one end being
around one of the selvage wires. The machine
is now moved forward a short distance and
the hand lever controlling the side shift of
the frames is thrown down thereby throwing
the left hand fingers that are closed together
between each pair of weft wires while the
right hand fingers pass to the right beyond
the plane of the same. This movement brings
the left hand gage into the plane of the wires.

The hand lever controlling the separating movements of the frame is then thrown up thereby throwing the two frames in opposite directions approximately the distance between the centers of the two twisters, thereby spreading the wires and moving the wires of each pair in opposite directions through the slots in the upright frame into the wire receiving notches of the adjacent twisters which were idle in the previous twisting operation. In this position the pairs of wires are located between the straight adjoining edges of the left hand fingers and the right hand fingers are arranged in pairs one on the other and opposite the left hand separated fingers in the reverse position from that previously described. The machine is now moved back until the left hand gage rests in the corner of a mesh made in the previous operation and in a plane a distance equal to the distance between two twisters above or below the mesh previously engaged by the right hand gage, the gage being properly spaced. The twist-ers are then operated to twist the wires in the opposite direction to the twist previously made. The machine is then moved forward a suitable distance and the frames shifted to the right to throw the weft wires onto the opposite sides of the pairs of overlapping fingers which are then separated vertically to spread the wires into the adjacent twisters as before described.

This machine is particularly adapted for weaving a netting fence having the vertical stay rods connected at their ends to the selvage wires and woven into the netting, the weft being twisted in one direction on one side of each rod and then twisted in the opposite direction on the other side of each rod. A stay rod *s*, is seen in such position in Fig. 2. By this arrangement the weft wires do not become unduly twisted in front of the machine and a fence of great strength is produced and one that is very economical and durable in construction and very easily and quickly constructed with my machine. It should also be noted that this machine does not have to carry spools or coils of weft wires and that it is light and simple in construction and easily handled and composed of a minimum number of parts for the purpose intended.

It is evident that various changes might be made in the forms, constructions, and arrangements of parts described without departing from the spirit and scope of my invention, hence I do not wish to limit myself to the exact construction herein set forth.

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

1. The portable fence weaving machine having adjacent twisters, provided with the oppo-

site notches, the frame having the vertical slots between the twisters extending completely through the frame to receive the line wires passing through the machine and permit shifting thereof between the twisters, and means substantially as described, independent of the twisters in the frame and arranged at the rear side of the machine to shift the line wires between the twisters, for the purposes set forth.

2. A fence weaving machine having a series of twisters, a frame containing the twisters and provided with slots between the twisters through which the line wires pass, and whereby they can be spread and moved between the twisters, and a series of shifters arranged behind the twisters and independent thereof to directly engage the line wires and shift the wires from one set of twisters to another set, as described.

3. In a fence weaving machine, the combination of an upright frame, twisters therein, and the two laterally and vertically movable shifting frames at the rear side of said frame independent of the twisters and having fingers to directly engage and separate and shift the wires, substantially as described.

4. A fence weaving machine having the series of wire spreading fingers arranged to directly engage and spread the wires and movable laterally in the same direction and vertically in opposite directions, and vertically and laterally movable carriers for said fingers provided with operating means, substantially as described.

5. A fence weaving machine having the laterally and vertically movable carriers provided with wire spreading fingers arranged to directly engage and spread the wires, and means, substantially as described, for moving said carriers laterally in the same direction and vertically in opposite directions.

6. A fence weaving machine having the movable wire shifting frames, independent of the twisters, each frame having a rearwardly and inwardly extending mesh gage as set forth.

7. A fence weaving machine having the two parallel shifting frames, each provided with the fingers extending inwardly from opposite sides, substantially as described, laterally movable carriers for said frames in which they are vertically movable in opposite directions, and levers for moving said frames in opposite directions, and for moving the carriers laterally.

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

JOSEPH P. HIATT.

Witnesses:

HUBERT E. PECK,
C. M. WERLE.