(No Model.) 3 Sheets—Sheet 1.

J. A. SALZMAN.

MACHINE FOR WIRING FENCE PICKETS.

No. 524,612. Patented Aug. 14, 1894.

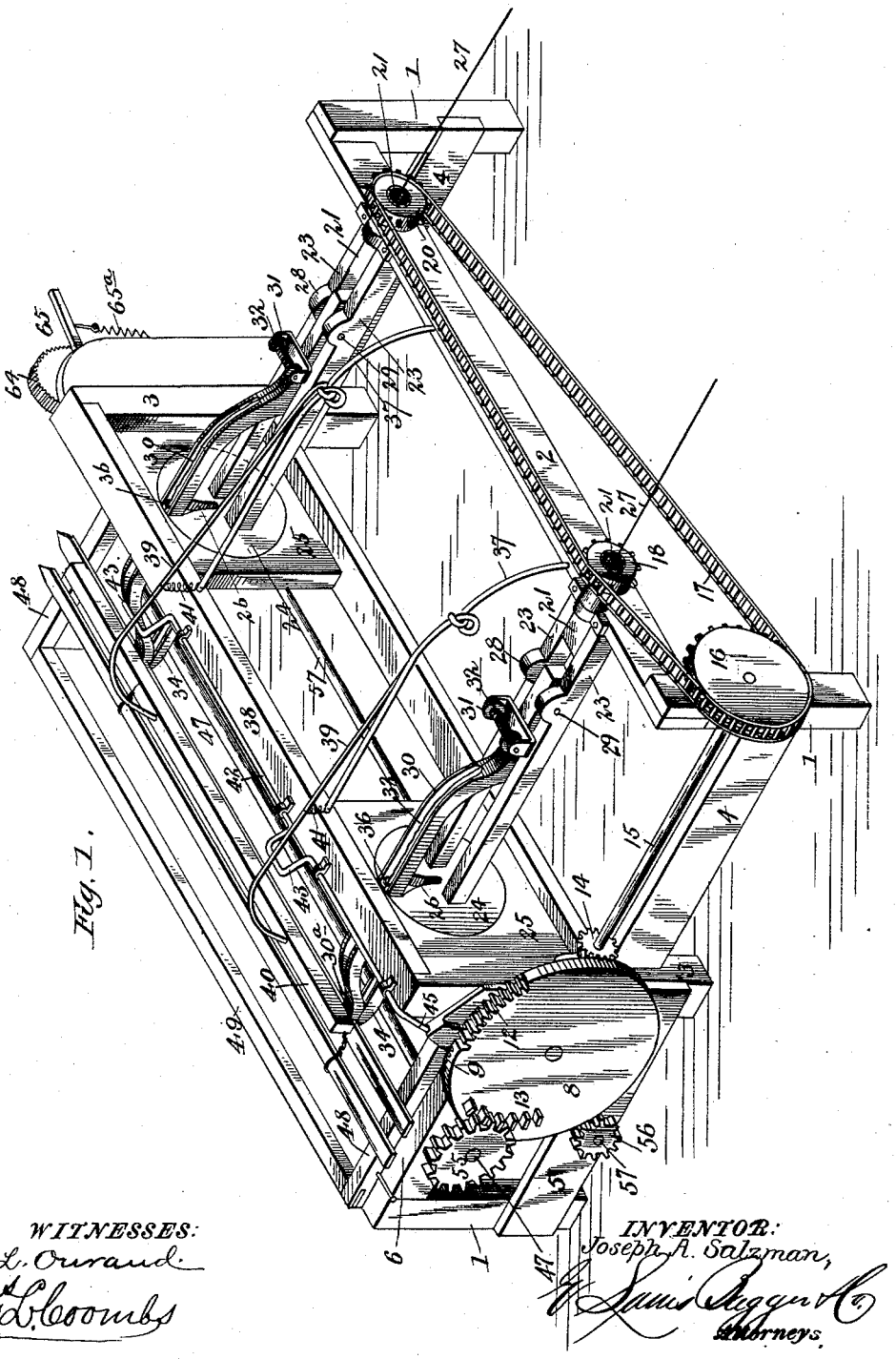


Fig. 1.

WITNESSES:
F. L. Ourand.
W. L. Coombs

INVENTOR:
Joseph A. Salzman,
Louis Bagger & Co.
Attorneys.

(No Model.) 3 Sheets—Sheet 2.

J. A. SALZMAN.

MACHINE FOR WIRING FENCE PICKETS.

No. 524,612. Patented Aug. 14, 1894.

Fig. 2.

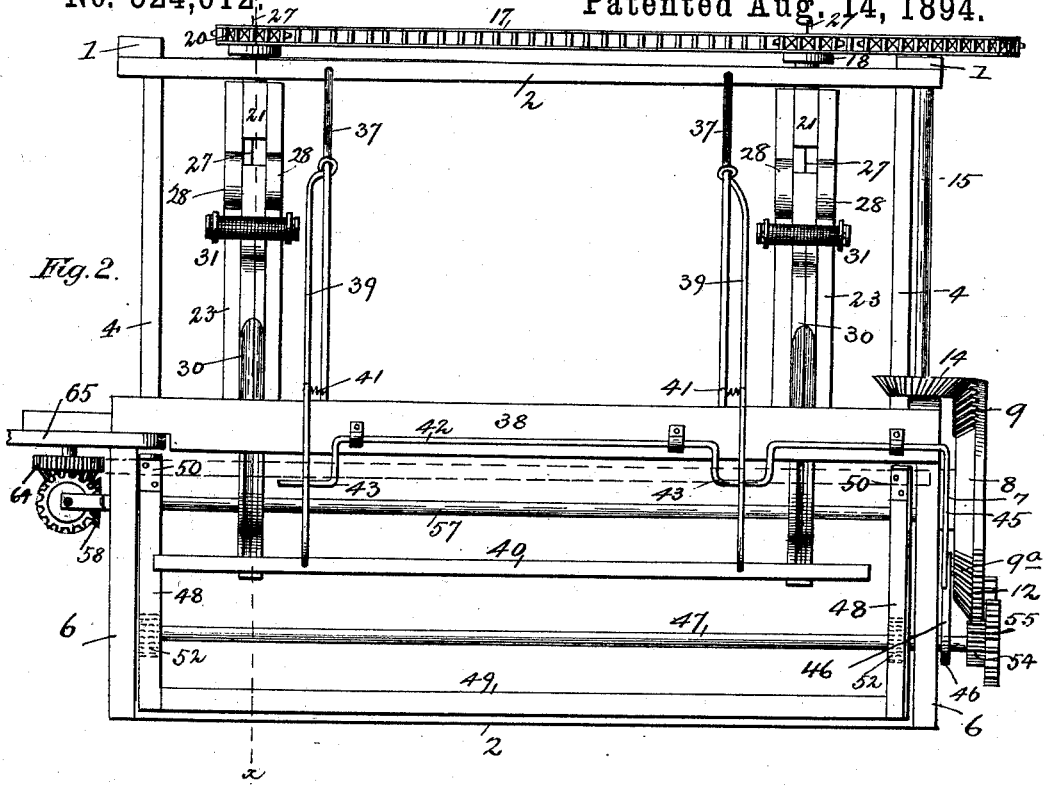
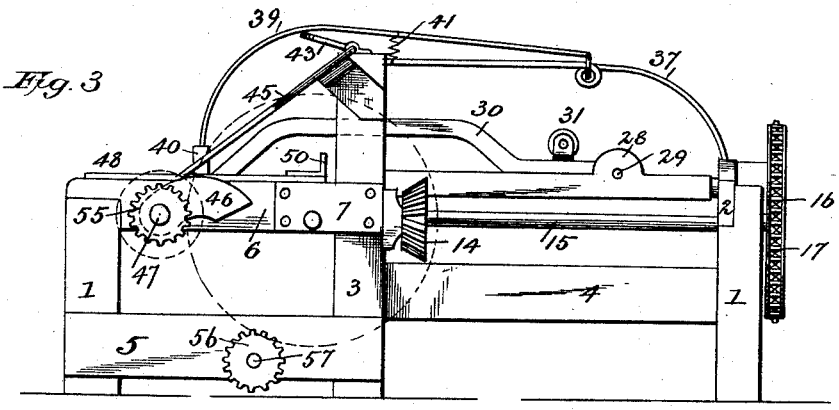


Fig. 3



WITNESSES:
F. L. Durand
J. D. Coombs

INVENTOR:
Joseph A. Salzman,
by Louis Bagger & Co.
Attorneys

(No Model.) 3 Sheets—Sheet 3.

J. A. SALZMAN.

MACHINE FOR WIRING FENCE PICKETS.

No. 524,612. Patented Aug. 14, 1894.

Fig. 4.

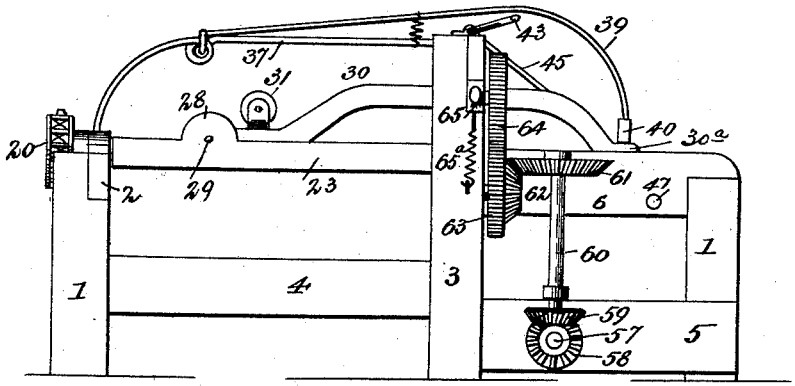


Fig. 5

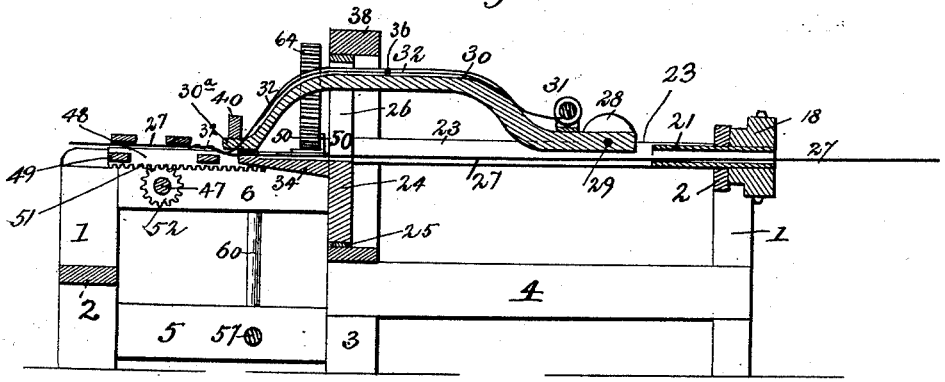


Fig. 6

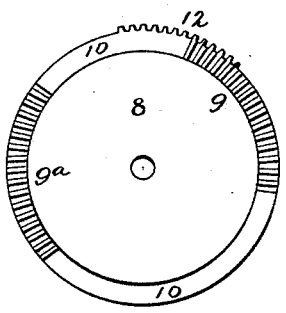
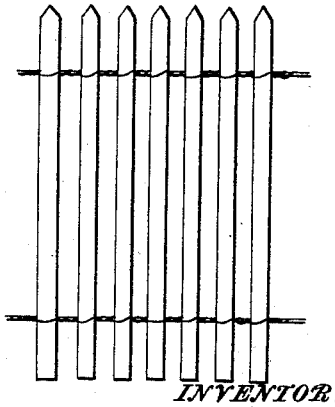


Fig. 7



WITNESSES:
F. L. Ourand.
W. L. Coombs

INVENTOR:
Joseph A. Salzman,
by Louis Bagger & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH A. SALZMAN, OF MERRIMAC, IOWA.

MACHINE FOR WIRING FENCE-PICKETS.

SPECIFICATION forming part of Letters Patent No. 524,612, dated August 14, 1894.

Application filed January 12, 1894. Serial No. 496,587. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. SALZMAN, a citizen of the United States, and a resident of Merrimac, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Machines for Wiring Fence-Pickets; 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, which form a part of this specification.

My invention relates to improvements in machines for wiring fence pickets, by means of which a very strong and durable fence may be constructed in a rapid and efficient manner.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a perspective view of a fence machine constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation. Fig. 4 is a similar view looking from the opposite side. Fig. 5 is a longitudinal section on the line *x*—*x*, Fig. 2. Fig. 6 is an inner face view of the main driving wheel. Fig. 7 is a view of a section of a fence constructed in accordance with my invention.

In the said drawings the reference numeral 1, designates four uprights connected together by end cross bars 2; and 3 designates two intermediate uprights connected with said end uprights by side bars 4 and 5, and also connected with the front uprights by side bars 6. Journaled in a bearing 7, secured to one of said uprights 3 and bars 6, is a main driving mutilated gear wheel 8, provided on its inner face with two series of beveled cogs or teeth 9, 9^a, having mutilated portions 10, 10. The periphery of said wheel is also mutilated leaving a series of cogs or teeth 12. On its outer face the wheel is provided with a series of pins 13. The purpose of these cogs and pins will be hereinafter described.

Meshing with the mutilated beveled cogs on the inner face of said wheel is a beveled pinion 14 fixed to the front end of a horizontal shaft 15, journaled in one of said intermediate and end uprights. The rear end of this shaft is provided with a sprocket wheel 16, around which passes a sprocket chain 17, engaging with a smaller sprocket wheel 18 connected with a twisting device. This latter sprocket wheel is connected by said chain with a similar sprocket wheel 20 of another twister. Two of these twisters are illustrated in the present instance, although more may be employed, if desired, and as they are exact duplicates of each other a description of one will suffice for both.

The numeral 21 denotes a short hollow shaft journaled in a bearing secured to the rear end cross bar 2. The front or inner end of this shaft is squared and to it is secured two forwardly extending arms 23, the front ends of which are secured to a disk 24, which is seated and rotatable in a vertical plate or head 25. This disk is provided with a radial slot 36, which widens out into a peripheral recess, through which the main cable 27 passes, which cable also passes through the hollow shaft, and is wound upon a reel, not shown. The main cables support the pickets which are wired thereto as hereinafter set forth. The arms 23, intermediate of their ends are formed with lugs 28, through which passes a rod 29, on which is journaled or pivoted the rear end of a forwardly extending twister arm 30, provided near said end with a reel 31, upon which is wound the twisting wire 32. This wire is much lighter or smaller than the main cables. This twisting arm is of peculiar shape, extending upwardly a short distance in front of the reel, then forwardly in a horizontal line, through a square slot in the disk 24, projecting a short distance in front thereof, and then extending downwardly forming a lug 30^a with an aperture for the passage of the wire. This lug engages with the front end of a horizontal arm 34, secured to the disk 24, and having a groove on one side in line with the center of the disk. The main cable rests in this groove. The twister arm is formed with a groove on its outer side to receive the twisting wire which also passes through an eye 36, secured to said arm, by which it is retained in the groove.

Secured to the rear cross bar 2 are two forwardly extending rods 37, the front ends of which are secured to a cross bar 38, secured to the intermediate uprights 3. Pivoted to

each of these rods is a forwardly extending bent arm 39, to the front ends of which is secured a transverse bar 40. Springs 41 are secured to these arms for forcing them and the bar 40 down upon the front ends of the twister arms. Journaled or pivoted on the upper side of cross bar 38, is a crank shaft 42, provided with cranks 43, which engage under the bent arms 39. One end of this shaft is bent at a right angle forming an arm 45, which engages with a cam 46 on a transverse shaft 47, journaled in the side bars 6, by the rotation of which, as hereinafter described, said bar 40 is elevated.

Located in front of the twisters is a slide, consisting of the side bars 48 and transverse bar 49. The inner or rear ends of these side bars 48 are provided, with hooks 50, while the under side of the transverse bars are formed with rack bars 51, with which engage pinions 52, on the shaft 47.

Secured to the shaft 47, is a pinion 54, which is engaged by the teeth or cogs 12, of the peripherally mutilated gear-wheel 8. Also fixed to said shaft is a gear wheel 55, with which the pinions 13 on said wheel engage.

The numeral 56 designates a pinion which meshes with the peripheral teeth or cogs on wheel 8, secured to a transverse shaft 57, journaled in the side bars 5, of the machine frame. At the opposite end said shaft is provided with a bevel pinion 58, which meshes with a similar pinion 59 on the lower end of a vertical shaft 60, the upper end of which shaft is provided with a pinion 61, which engages with bevel cogs 62 on a feed-wheel 63. Above this feed-wheel 63 is another wheel 64, which is journaled in a pivoted arm 65, connected with the intermediate upright at the end of the machine. Connected with this arm is a coiled spring 65^a, which serves to force said latter wheel toward feed-wheel 63. The object of these wheels is to feed the pickets to the machine.

The operation is as follows: The main cable wires are carried from their reels to the hollow twister shafts through which they are passed and then carried through the slots in the disks 24 to the grooved arms in front thereof, and then secured to a picket. The twisting wires are also carried to the picket and secured thereto. The twisters are then operated to twist the twisting wires around the picket. After this has been done, the work of wiring proceeds as follows: A new picket is inserted between the feed-wheels 63 and 64, and the wheel 8 is rotated by hand or otherwise. This, through the medium of the gear and connection, will cause said feed-wheels to be rotated, and the picket to be fed across the machine, just in front of the hooks on the slide. As said wheel 8 continues to rotate the mutilated peripheral teeth 12 will engage with the cog-wheel or pinion 54. This will cause the shaft 47 to be rotated and the pinions 52 to engage with the rack bars 51, causing the slide to be moved forward, and the hooks thereof engaging with the picket will move it correspondingly forward to the front of the twisters. By this time the mutilated bevel gear 9, will engage with the pinion 14, and through its shaft and connections will rotate the twisters and twist the twisting wires around the cables. After being thus twisted said gear will pass out of engagement with the pinion, and the pins 13 will engage with pinions 55 of shaft 47, rotating the latter and forcing the slide and the wired picket still farther forward whereby the spacing is effected. The slide will be returned to normal position by means of a spring (not shown), ready to receive another picket, and the bevel gear 9^a, coming into engagement with pinion 14 will cause the twisters to be again rotated, and the twisting of the wires to be completed. While the pickets are being wired, the bar 40, will be pressed upon the twisting arms holding them down against the arms on which the cables rest. After the twisting has been completed and a new picket has been inserted in the machine, the cam 46, will engage with arm 45, of crank shaft rotating the latter, which by means of its crank 43, will elevate rod 40, allowing the twister arms to rise, so that the picket can be drawn forward by the slide. It will be noted that the pinion 56 for operating the feed wheels is engaged by the mutilated gear in advance of the engagement by said gear with the pinion which operates the slides. After a suitable or desired number of pickets have been thus wired the cables are secured to posts in any ordinary or convenient manner, with the pickets in a vertical position, making a very strong and durable fence.

From the above it will be seen that the main or supporting cables are not twisted at all, as the arm secured to the front of the twisting disks on which the cables rest revolves around the cables. The other arms of the twisters, however in their rotation twist the twisting wires around the cables. Thus it will be seen that I produce a fence comprising continuous supporting cables and pickets secured thereto by twisting continuous wires around said cables.

A fence thus made is very strong and is not liable to sag, and as the twisting wires only connect the pickets to the supporting cables, said wires can be made very light, thus making a great saving in cost and weight.

Having thus described my invention, what I claim is—

1. In a fence picket wiring machine, the combination with the twisters, the sprocket wheels and chains connected therewith, the main sprocket wheel, and its shaft and beveled pinion, of the mutilated gear driving wheel having two series of beveled cogs on its inner face engaging with said pinion and having peripheral cogs, the transverse shaft provided with pinions one of which engages with said peripheral cogs, the slide having rack bars with which the other pinions on

said transverse shaft engage, and the hooks on said slide; substantially as described.

2. In a fence picket wiring machine, the combination with the twisters, of the mutilated gear-wheel having pins upon its outer face, the transverse shaft having a pinion engaging with said mutilated gear, and a gear wheel with which said pins engage, the slide having rack-bars which engage with pinions on said shaft, and the hooks on said slide; substantially as described.

3. In a fence picket wiring machine, the combination with the mutilated gear wheel having a series of peripheral teeth, the pinion 56 engaging therewith, the transverse shaft 57 to which said pinion is secured, the pinion 58 on the opposite end of said shaft, the vertical shaft 60 having beveled pinions 59 and 61, the beveled pinion 62, and feed wheels 63 and 64, of the slide having hooks at its rear end, and means substantially as described for actuating said slide.

4. In a fence picket wiring machine, the combination with the mutilated gear wheel having peripheral cogs, the pinion 56 engaging therewith, the transverse shaft 57 to which said pinion is secured, the pinion 58 on the opposite end of said shaft, the vertical shaft 60 having beveled pinions 59 and 61, the beveled pinions 62, and feed wheels 63 and 64, of the slide having hooks at its rear ends, and racks on its under side, the transverse shaft 47 having pinions engaging therewith and having also a pinion engaging with said mutilated gear; substantially as and for the purpose specified.

5. In a fence picket wiring machine, the combination with the mutilated gear having peripheral cogs and a series of pins on its outer face, the pinion 56 engaging with said cogs, the transverse shaft 57 to which said pinion is secured, the pinion 58 on the opposite end of said shaft, the vertical shaft 60 having beveled pinions 59 and 61, the beveled pinions 62, and the feed wheels 63 and 64 of the slide having hooks at its rear end and racks on its under side, the transverse shaft 47 having pinions engaging therewith, and having also a pinion engaging with said mutilated gear and a pinion or gear wheel engaging with the pins on said gear; substantially as described.

6. In a fence picket wiring machine, the combination with the frame, of the head mounted therein, the rotatable disk having a radial slot, the arm having a groove in which the supporting cable rests, the rearwardly extending horizontal arms, the hollow shaft secured thereto through which said cable passes, the bent twisting arm pivoted to said horizontal arms and passing through the recess in the disk, and the reel mounted upon said twisting arm; substantially as and for the purpose specified.

7. In a fence picket wiring machine, the combination with the frame and the head carried thereby, of the rotatable disk seated therein having a radial slot, the grooved arm secured to the front of said disk, the rearwardly extending horizontal arms secured to said disk, the hollow shaft secured to said rearwardly extending arms, the grooved and bent twisting arm pivoted to said horizontal arms, passing through the recess in the disk and formed with a hollow lug at its front end, the reel mounted on said twisting arm, the bar for holding said twisting arm down, and the spring-actuated curved and pivoted bars to which said bar is secured; substantially as described.

8. In a fence picket wiring machine, the combination with the frame, and the heads carried thereby, of the rotatable disks seated therein having radial slots and peripheral recesses, the grooved arms secured to the front of said disks, the horizontal arms secured to the rear sides of said disks, the hollow shafts secured to said horizontal arms, the grooved and bent twisting arms pivoted to said horizontal arms passing through said recesses in the disks and formed with hollow lugs at their front ends, the reels mounted on said twisting arms, the bar for holding the twisting arms down, the spring actuated curved and pivoted bars to which said bar is secured, the oscillating shaft having cranks adapted to engage with said bar and a crank arm at one end, and the transverse rotatable bar having a cam adapted to engage with said crank arm; substantially as described.

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

JOSEPH A. SALZMAN.

Witnesses:
JOS. G. BARTON,
W. S. LESSENGER.