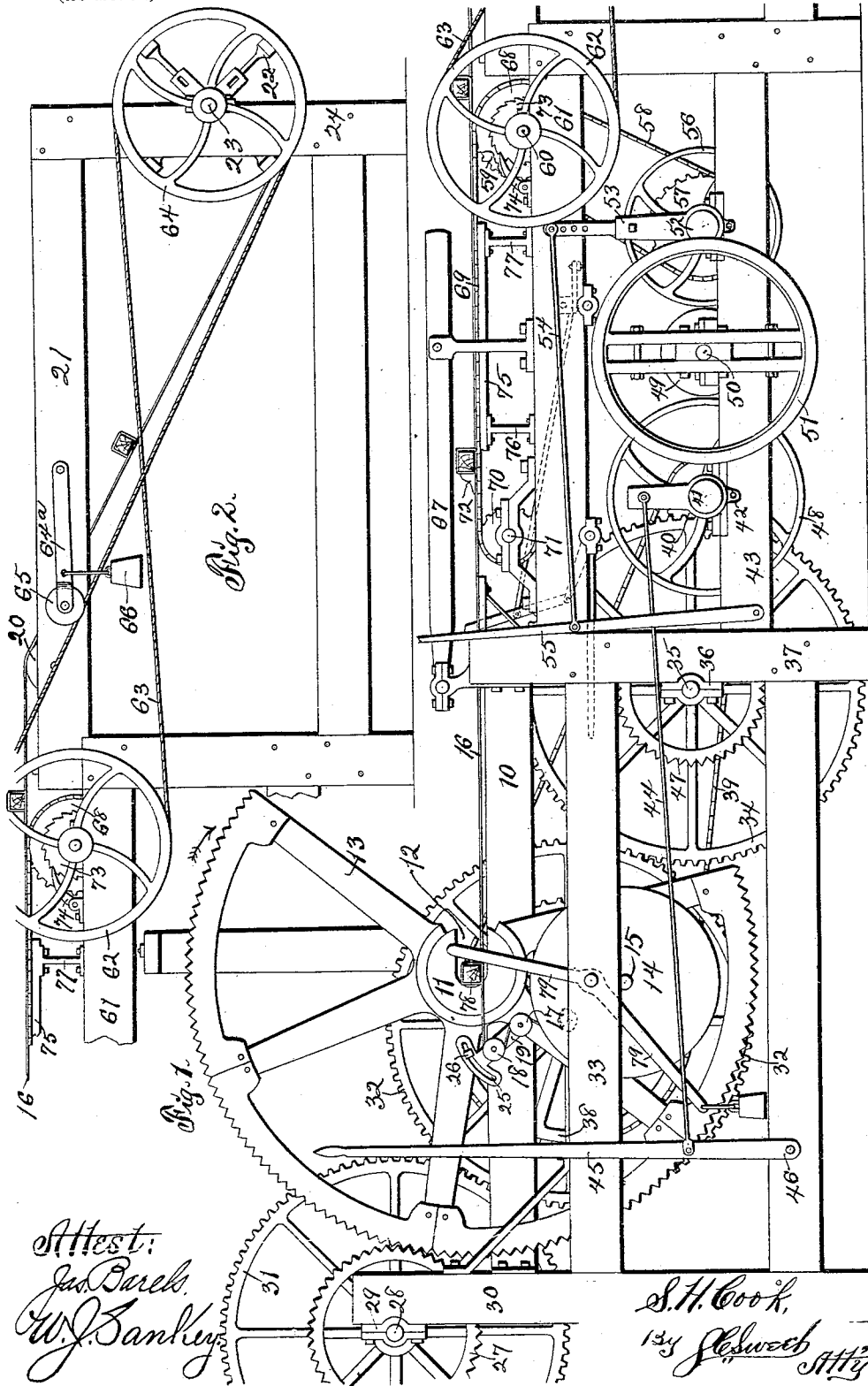


S. H. COOK.
FENCE MACHINE.

(Application filed Dec. 17, 1897.)

2 Sheets—Sheet 1.

(No Model.)



Attest:
Geo. Burek
W. J. Bankey

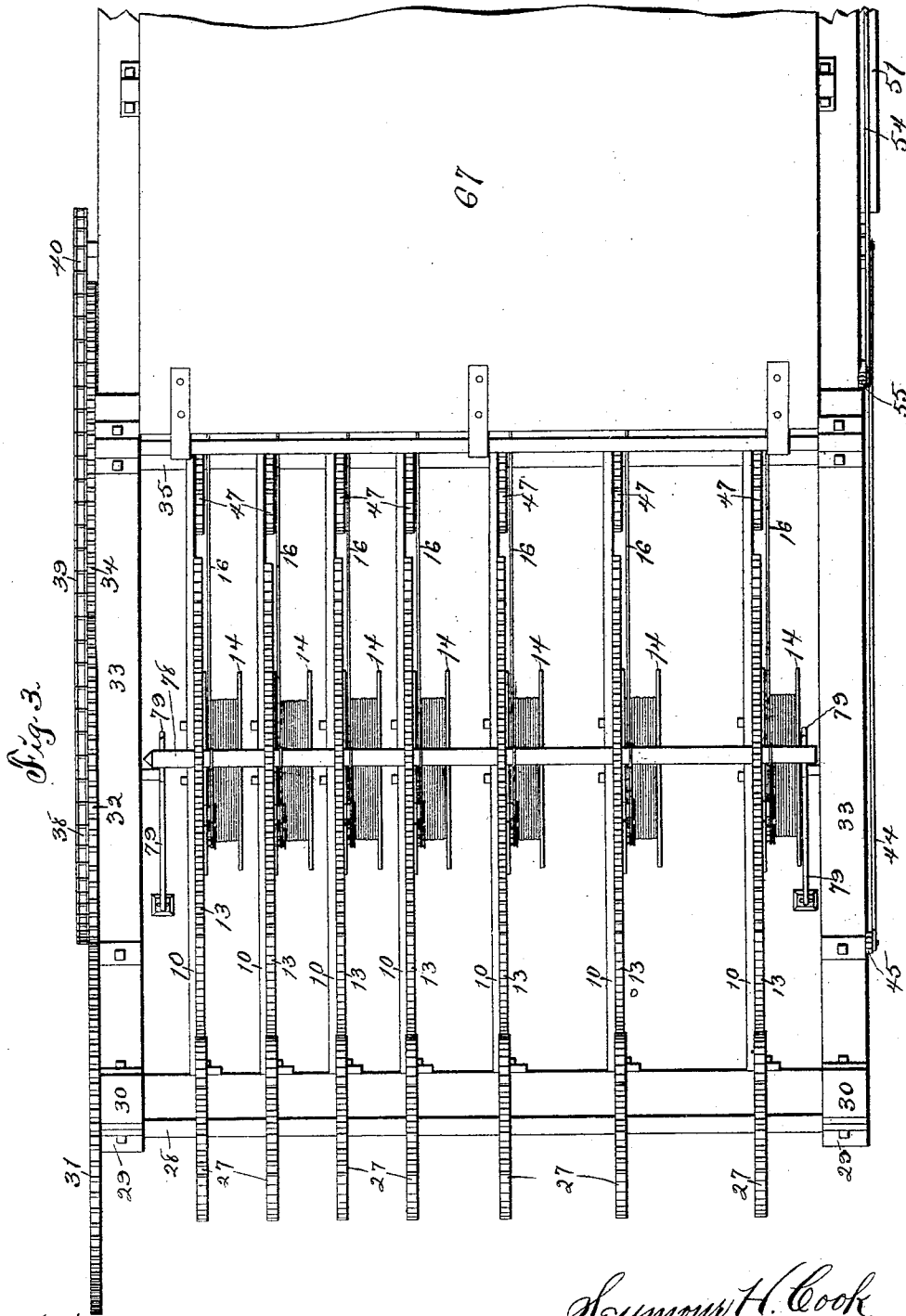
S. H. Cook
134 J. Schwab Atty

S. H. COOK.
FENCE MACHINE.

(Application filed Dec. 17, 1897.)

(No Model.)

2 Sheets—Sheet 2.



Attest:
Jan. Bards.
W. L. Orwig.

Symon H. Cook,
 By *J. H. Sweet*
 ATT'Y

UNITED STATES PATENT OFFICE.

SEYMOUR H. COOK, OF CLINTON, IOWA.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 620,643, dated March 7, 1899.

Application filed December 17, 1897. Serial No. 662,352. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR H. COOK, a citizen of the United States of America, and a resident of Clinton, in the county of Clinton and State of Iowa, have invented a new and useful Fence-Machine, of which the following is a specification.

The object of this invention is to provide an improved mechanism for manufacturing fences, and especially the fence described and illustrated in my Patent No. 535,531, granted March 12, 1895.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of my machine. Fig. 2 is a side elevation of the remainder of my machine. Fig. 3 is a plan of a portion of my machine.

Before entering upon a specific description of the construction of the machine and its elements it may be well to state that the machine is designed to be employed in winding strand-wires around cross-stays, which cross-stays are arranged about three feet apart in the completed fence and are engaged by the strand-wires, separated unequal distances ranging from two and a half inches upward, as desired. A plan of the machine would show a plurality of wire carrying and winding devices corresponding in number with the number of strand-wires used in the fence, all of which wire carrying and winding devices are of like construction and are driven by a common mechanism. (Clearly shown in the illustration contained in the drawings.)

In the construction of the machine, as shown, a suitable supporting-frame is employed, the members of which hereinafter will be referred to and indicated by reference-numerals, it being understood that the opposite side of the machine has a frame corresponding in structure with that illustrated. The top bars 10 of the machine have secured thereto by brackets (not shown) mounted thereon a plurality of hubs 11 in alinement with each other transversely of the machine and corresponding in number with the number of strand-wires in the fence to be made on the machine. The hubs 11 are slotted or

notched from the forward portions of their peripheries rearwardly beyond the centers thereof, the notches being indicated by the reference-numeral 12. Each of the hubs 11 is grooved in its periphery and has mounted for revolution thereon a wire carrying and winding wheel 13, which wheel has about one-third of its hub, spokes, and rim removed to admit fence-stays by lateral movement to the centers of the hubs 11 and a tongue in the axial face of its hub bearing in the groove of the periphery of the hub 11. A wire-supply reel 14 is mounted for rotation on a pin 15, seated in the wheel 13 or one of the spokes thereof, which reel comprises a hub and peripheral flanges of common form, and is designed to be loaded with wire to form one of the strands 16 of the fence. The strands 16 of the fence lead from the reels 14 over a grooved wheel 17, pivotally mounted on one of the spokes of the wheel 13 and under a grooved wheel 18, mounted for rotation on a bracket 19, which bracket is pivoted concentric with the grooved wheel 17, and from thence extends over a guide-roller 20, Fig. 2, on the top bars 21 at the right end of the frame and obliquely downwardly from the guide-roller 20 to a reel 22, mounted on a reel-shaft 23 on the right end posts 24 of the machine-frame. The bracket 19 is provided with a segmental slot 25 in its free end to receive a bolt 26, seated in a spoke of the wheel 13, which bolt serves as a set-screw to lock the bracket in a given position and govern the flexure of the strand and provide a tension therefor.

The rim of the wheel 13 has a gear on its periphery meshing with a gear or spur wheel 27, rigidly mounted on a shaft 28, journaled in bearings 29 on the left end post 30 of the machine-frame, the shaft 28 being parallel with the axis of the hub 11. There are as many of the gear-wheels 27 on the shaft 28 as there are winding-wheels 13 and hubs 11. A gear-wheel 31 is mounted on the farther end of the shaft 28 and meshes with a gear-wheel 32, mounted on a stub-axle on the farther middle bar 33 of the machine-frame. The gear-wheel 32 meshes with a gear-wheel 34, mounted on a shaft 35, journaled in bearings 36 on the middle posts 37 of the machine-frame. A sprocket-wheel 38 is mounted on

the same shaft with the gear-wheel 32 and is connected by a sprocket-chain 39 to a sprocket-wheel 40, mounted on a shaft 41. The shaft 41 is mounted in rocking bearings 42, fulcrumed on the lower bars 43 at the right end of the machine-frame. One of the rocking bearings 42 is connected by a rod 44 to a hand-lever 45, fulcrumed at its lower end on the lower bar 46 at the left end of the machine-frame. A gear-wheel 47, of about the same diameter as the gear-wheel 27, is mounted on the shaft 35 in the same plane as and arranged to mesh with the mutilated-gear wheel 13. A friction or brush wheel 48 is mounted on the shaft 41 and engages a friction or brush wheel 49 on the main driving-shaft 50 of the machine. The driving-shaft 50 may be geared to any prime mover and is provided with a balance-wheel 51. A shaft 52 is mounted in rocker-bearings 53, fulcrumed on the bars 43 of the machine-frame, and one of said rocker-bearings is connected by a rod 54 to a hand-lever 55, fulcrumed on the bar 43. A brush-wheel 56 is mounted on the shaft 52 and engages at times with the brush-wheel 49 on the main or driving shaft of the machine. A sprocket-wheel 57 is mounted on the shaft 52 and is connected by a sprocket-chain 58 to a sprocket-wheel 59 on a shaft 60, mounted in bearings on the upper middle bars 61 of the machine-frame. A belt-wheel 62 is mounted on the shaft 60 and is connected by a crossed rope belt 63 to a reel-wheel 64, mounted on the fence reel-shaft 23. The rope belt 63 is provided with a tightener 65, held in engagement therewith by a weight 66, the tightener being a grooved wheel carried in a pivoted bracket-arm 64^a. A table 67 is mounted above the frame of the machine and supported thereby. A sprocket-wheel 68 on the shaft 60 and of like diameter with the sprocket-wheel 59 is connected by a sprocket-chain 69 to a sprocket-wheel 70 on a counter-shaft 71, which counter-shaft is mounted in bearings on the bars 61 of the machine-frame. Similar sprocket-wheels to 68 and 70 are mounted on the shafts 60 and 71 and are connected by chains 69, that are not shown in the drawings. All of the chains 69 are provided with some links having lips 72 thereon, which lips project from the orbit of travel of the chain and are so shaped and arranged as to engage the cross-stays of the fence, as shown in Fig. 1, and feed said fence from the winding devices. A ratchet-wheel 73 is mounted on the shaft 60 and engaged by a pawl 74 to prevent an accidental reverse movement of the reel-driving-shaft. A supporting-table 75 is mounted under the upper portions of the chains 69 to sustain said chains and the fence, and said table is carried by standards 76 77, rising from the bars 61 of the machine-frame.

In the practical operation of the machine the fence-stays 78 are received within the slots 12 of the hubs and on top of the wires 16 and are held in said hubs by weighted levers 79, fulcrumed on the bars 33 of the ma-

chine-frame. The lever 45 is operated to move the shaft 41 so that the wheel 48 will engage the wheel 49, whereby power is transmitted from the shaft 50 to the shaft 41, and the motion of the shaft 41 is conveyed through the sprocket-wheel 40 and chain 39 to the sprocket-wheel 38 and stub-shaft thereof. The motion of the sprocket-wheel 38 is communicated to the gear-wheel 32 and through said gear-wheel to the gear-wheel 31, shaft 28, gear-wheel 27, and winding-wheels 13, carrying the winding-wheels about two-thirds of a revolution, the remainder of the revolution of the winding-wheels being maintained by the gear-wheel 47, driven by the shaft 35, on which is the wheel 34, driven by the wheel 32. In the revolution of the winding-wheels 13 the supply-reel of wire is carried bodily around the cross-stays and sufficient of said wire unreels to form loops around the stays. When the machine reaches the position shown in Fig. 1, the power applied to the brush-wheel 48 is disconnected by the lever 45 and the lever 55 is moved to oscillate the bearings 53 and bring the brush-wheel 56 into engagement with the brush-wheel 49, whereat the shaft 52 is rotated and rotates the sprocket-wheel 57, chain 58, and mechanism connected therewith to reel a portion of the fence and at the same time to operate the chains 69 to carry a portion of the fence away from the winding-wheels, the strand-wires unreeling under the tension of the rollers. As the fence is being drawn away from the winding-wheels and before the weighted levers 79 are released from the cross-stay another cross-stay is taken from the table 67 and placed in the slots or notches 12 in the hubs 11 preparatory to a successive operation of the winding-wheels.

I claim as my invention—

1. In a fence-machine, winding-wheels mounted for revolution, hubs radially slotted and stationarily positioned to carry said winding-wheels, means for driving the winding-wheels, wire-supply reels carried by the winding-wheels, tension devices on the winding-wheels, and means for removing the wires from the winding-wheels.

2. In a fence-machine, a plurality of hubs radially slotted and stationarily positioned, a plurality of winding-wheels having approximately one-third of their portions cut away mounted for revolution on the hubs, a train of gearing whereby said winding-wheels are revolved in unison in the same direction, wire-supply reels carried by the winding-wheels, and means for unreeling the wire from said reels.

3. In a fence-machine, a plurality of hubs radially slotted in alinement with each other and stationarily positioned, a plurality of winding-wheels whereby wire is wound around the axis of said hubs, and a plurality of weighted levers arranged to retain cross-stays in the slots of the hubs.

4. In a fence-machine, winding mechanism,

a power-shaft, operated friction mechanism for connecting and disconnecting the winding mechanism and power-shaft, fence reeling mechanism, and operated friction mechanism for connecting and disconnecting the reeling mechanism and power-shaft.

5. In a machine of the class described, the combination of the supporting-frame, the driving-shaft on said frame, the counter-shaft 35 on said frame, the gear 34 on the counter-shaft, the pivoted bearings on the frame, the stud in said bearings, the brush-wheels on the stud and driving-shaft and arranged to engage at times, the gear 32 and the sprocket-wheel 38 thereon, the chain 39 connecting the wheel 38 with a sprocket-wheel on the stud, the shaft 28 mounted on the frame, the gear 31 on the shaft 28 and meshing with the gear 32, the gears 27 on the shaft 28, the winding-wheels in the same plane as and arranged to mesh with the gears 27, the gears 47 on the counter-shaft and in the same plane as and

arranged to mesh at times with the winding-wheels, and the wire-spools carried by the winding-wheels.

6. In a machine of the class described, a winding-wheel provided with a mutilated gear on its periphery, a driving-wheel 27 meshing therewith, a driving-wheel 47 meshing with the winding-wheel, a wire-supply reel on the winding-wheel, and conveying mechanism to remove the wire from the reel.

7. In a machine of the class described, the winding-wheel having a segment cut away and the remainder of its periphery toothed, driving-gears at either side of and arranged to mesh with the driving-wheel, a hub supporting the driving-wheel and slotted radially, and a wire-supply reel carried by the winding-wheel.

SEYMOUR H. COOK.

Witnesses:

FRED. E. WARE,
GEO. F. WOOLEY.