

(No Model.)

3 Sheets—Sheet 1.

O. F. MATTESON.
WIRE AND SLAT WEAVING MACHINE.

No. 563,197.

Patented June 30, 1896.

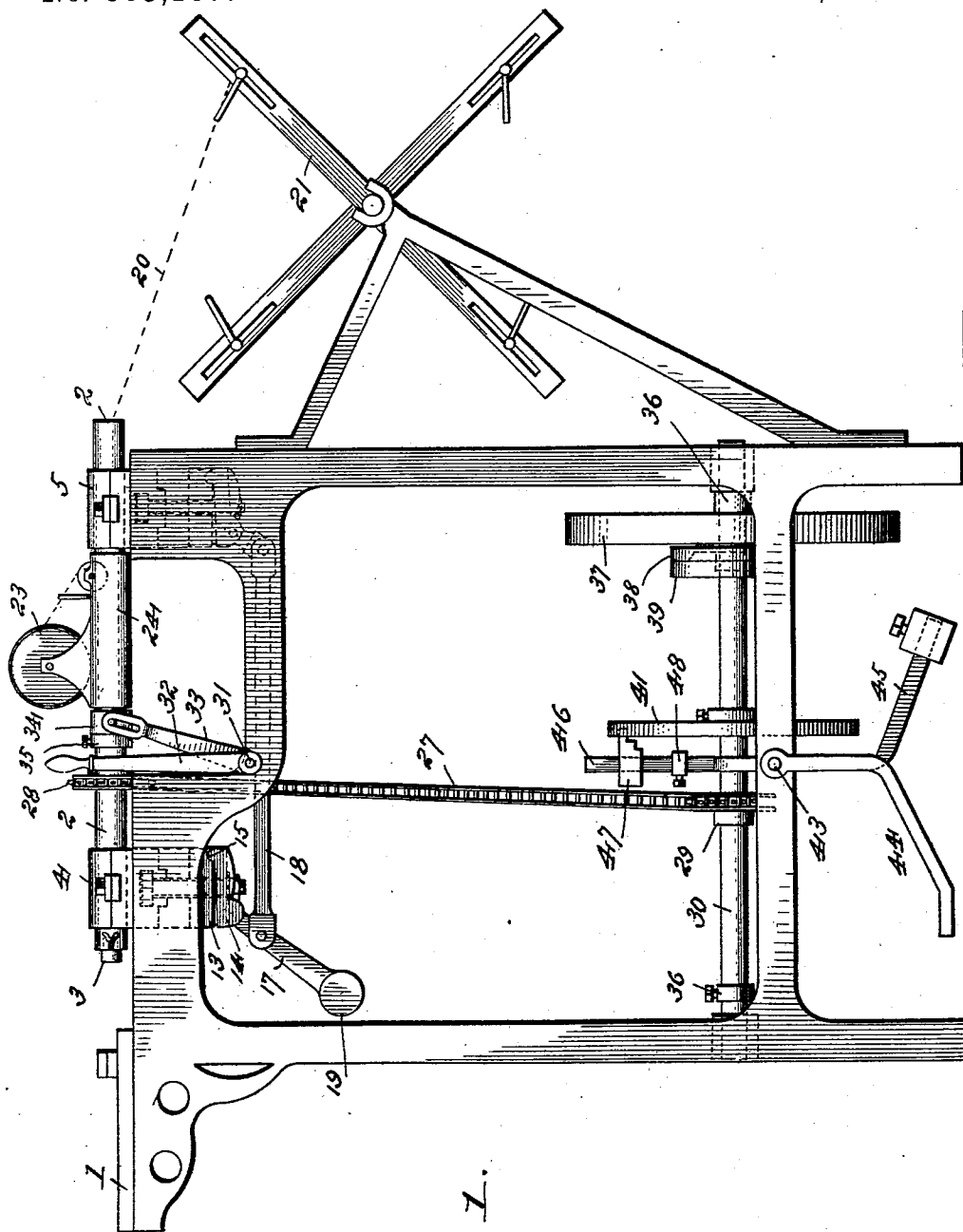


Fig. 1.

Witnesses

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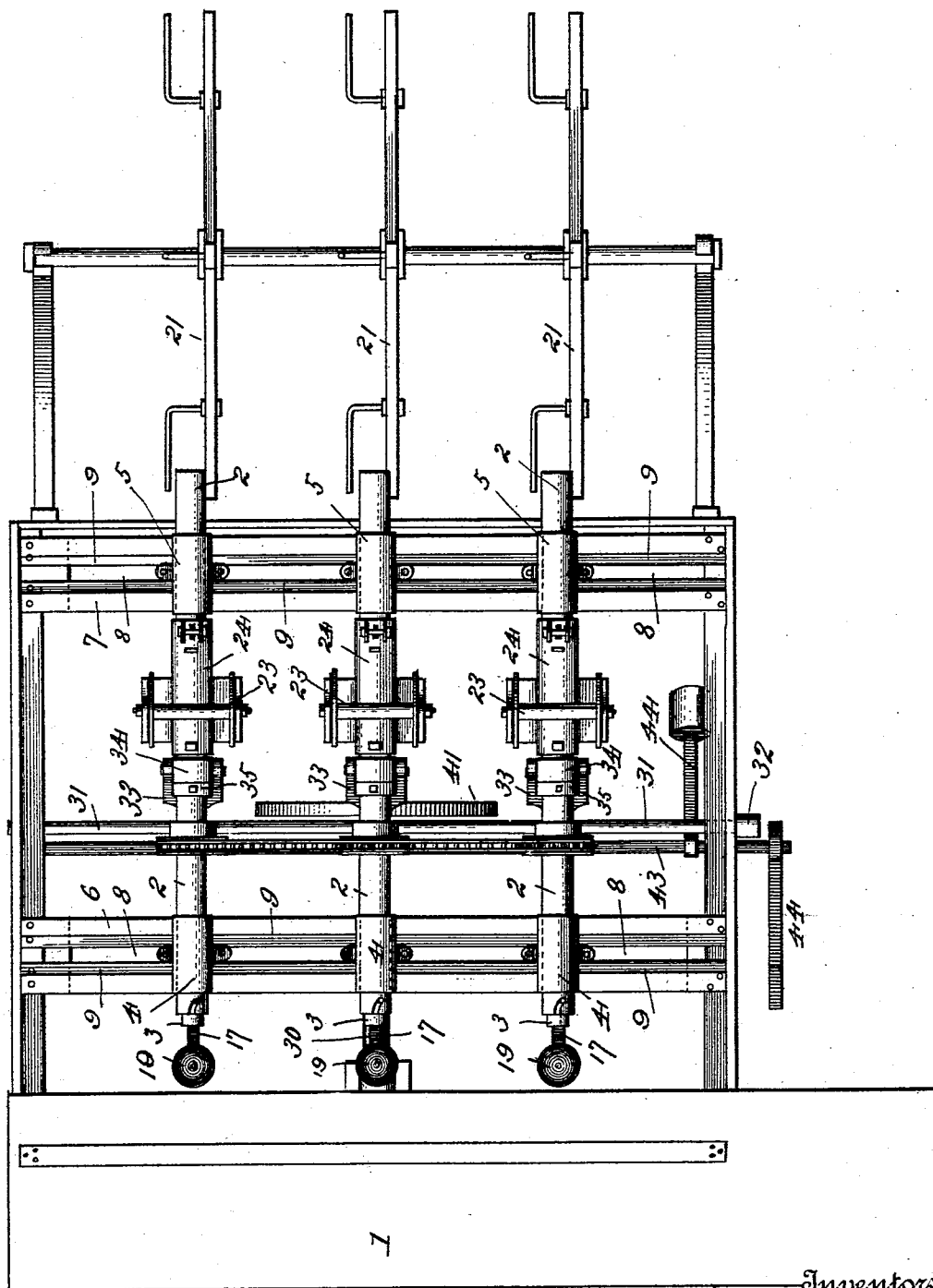
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Fig. 2.

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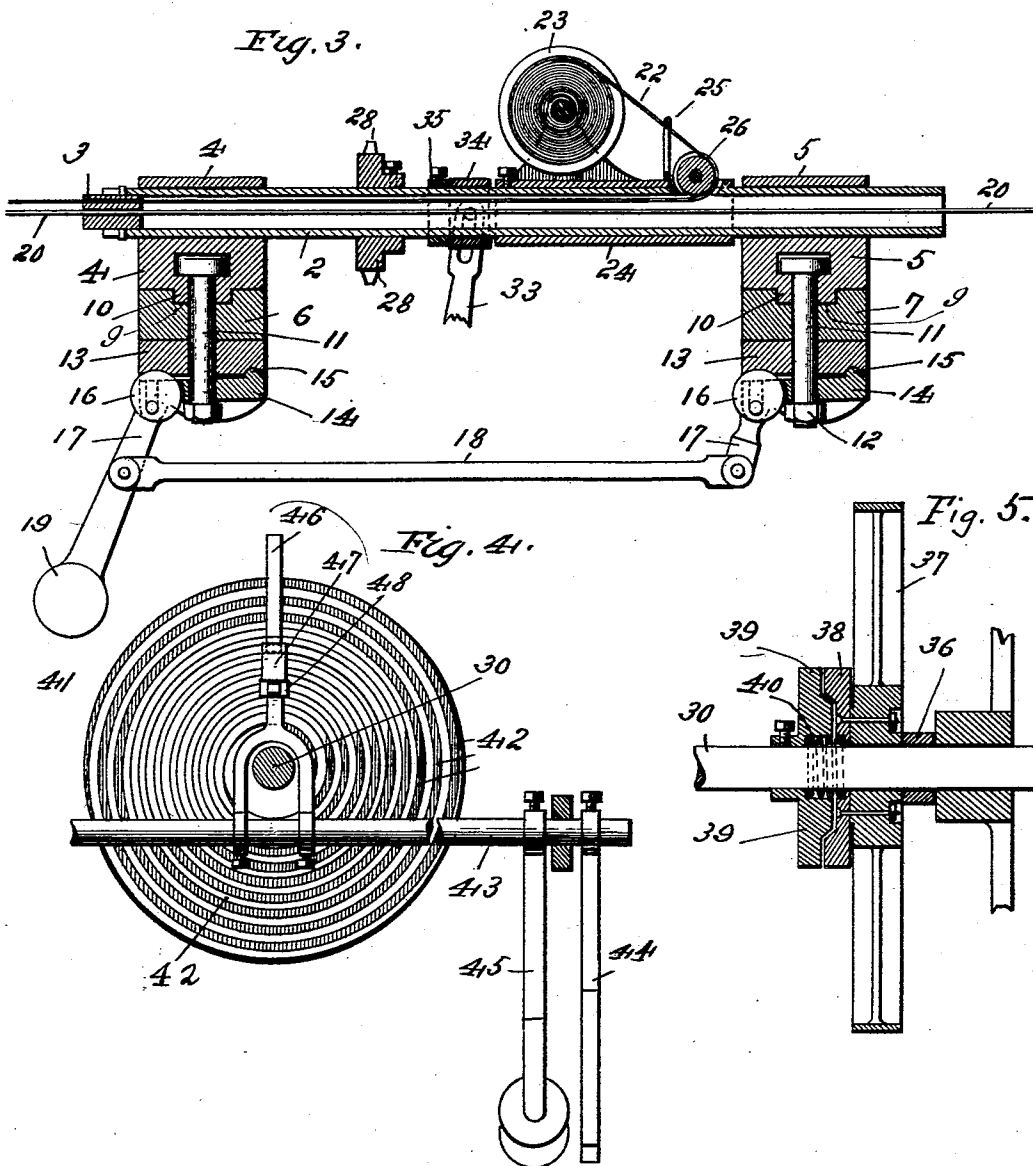
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UNITED STATES PATENT OFFICE.

ORLANDO F. MATTESON, OF DAVENPORT, IOWA.

WIRE-AND-SLAT-WEAVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,197, dated June 30, 1896.

Application filed November 7, 1895. Serial No. 568,174. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO F. MATTESON, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Wire-and-Slat-Weaving Machines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a side elevation of my improved machine; Fig. 2, a plan view thereof; Fig. 3, a vertical sectional view through one of the twisting-tubes; Fig. 4, a detail view showing the spirally-grooved disk for regulating the number of twists of the binding-wire, and Fig. 5 a detail section showing the friction-clutch.

This invention relates to improvements on wire-and-slat-fabric-weaving machines, and its objects are to provide improved means for regulating the number of twists to be given the binding-wires, and also for adjusting the twisting-tubes independently of each other, as is more fully hereinafter described, and particularly pointed out in the claims.

Referring to the drawings by numerals, 1 is the table or plate for the support of the finished fabric, this plate being supported, as usual, upon the upper front end of the machine.

2 are the three twisting-tubes, which are supported, as usual, to the rear of and in line with the plate 1 and parallel to each other, each tube being provided at its forward end with a removable twisting-head 3, and being supported at its forward end by a bearing 4 and at its rear end by a bearing 5. The front bearings 4 are mounted on a transverse bar 6 and the rear bearings are supported on a similar stationary bar 7, each bar being provided with a central longitudinal slot 8 and a central longitudinal groove 9, each of the bearings 4 5 being provided with a transverse projection 10 on its under side adapted to fit and work in said grooves, whereby each of the bearings is adjustable independently on its support. Depending from each slidable bearing is a bolt 11, which passes down through the slot 8 and is provided at its lower extremity with a nut or head 12, its upper end being provided with a head adapted to fit in a T-slot formed in the lower part of the bearing. Sup-

ported on each bolt between its nut 12 and the adjacent rail (6 or 7) is a friction-block 13, bearing against the lower face of the rail, and a plate 14, this plate 14 being provided with a projection 15 at its rear end which rests and works in a rounded recess formed in the under side of the block 13, whereby the plate 14 is permitted to have a limited pivotal motion between said block 13 and the nut 12. Pivoted on the forward end of the plate 14, and normally bearing up against the under side of the adjacent face of the block 13, is an eccentric cam 16, which has connected to it a depending arm 17, whereby the rotation of the cam will cause the friction-block to bear against the rail and clamp the bearing down tightly to its seat on the rail. The depending arms 17 incline downward and forward, and each of the front arms is connected to its corresponding rear arm, pivotally, by means of a rod 18, whereby each set of cams are made to operate in unison. To normally swing the arms 17 rearward and thereby keep the bearings normally clamped in place, the front arms are somewhat extended and provided with weights 19. To adjust any set of bearings laterally upon the rail, it is simply necessary to swing forward the proper weight 19, which lowers the clamping-blocks 13 and leaves the bearings free to be slid along upon their rails. In this manner, it will be seen, the twisting-tubes may be adjusted independently of each other, quickly and without throwing them out of alinement.

The main wires 20 are carried on suitable reels 21, supported at the rear of the machine, and are passed into the tubes through their rear ends. The binding-wire 22 for each tube is carried on a reel 23, carried by a short tube 24, secured on the twisting-tube forward of the rear bearing thereof and adapted to revolve with the twisting-tube, the wire as it is unwound from the spool passing through a guide 25 over a small pulley 26 and into the twisting-tube through a suitable opening in the same, the pulley being journaled partly in said opening. The tubes are rotated simultaneously by means of a sprocket-chain 27, which engages a sprocket-wheel 28 on each of the tubes, and is driven by a sprocket-wheel 29, secured on the driving-shaft 30 in

the lower part of the machine. The twisting-tubes are thrown endwise forward and backward simultaneously by means of a transverse shaft 31, which is provided with a hand-lever 32 at one end and a series of upright arms 33 along its length, each of which arms is bifurcated at its upper end to partly embrace a loose collar 34, carried by one of the twisting-tubes, said collar being provided with lateral pins, adapted to engage vertically-slotted bifurcated parts of the arms, and each of said collars being confined on its tube by means of an adjustable collar 35 and the adjacent end of the tube 24. It will be seen that by simply throwing the lever 32 forward or backward the twisting-tubes may be simultaneously adjusted in the same direction.

The shaft 30 has a limited endwise movement in its bearings, the extent of movement being limited by the adjustable collars 36. On this shaft is mounted the usual driving-wheel 37, which is secured loosely on the shaft, whereby it will rotate independently of the shaft and will have a slight endwise movement thereon. On the inner side of the hub of the driving-wheel is secured one part 38 of a friction-clutch, and on the shaft close to the same is secured the other part 39 of the clutch, a spiral spring 40 being inclosed between the parts of the clutch to normally separate them. Secured on the shaft 30 between the sprocket-wheel 29 and the clutch is a disk 41, which has its face next to the sprocket-wheel provided with a spiral groove 42, which extends from near the center of the disk to its periphery. Extending across the frame below the shaft 30 and between the sprocket-wheel and disk is a rock-shaft 43, which at one end is provided with a forwardly-extending foot-lever 44 and a rearwardly and downwardly extending weighted arm 45. Secured on the shaft 43 directly below the shaft 30 is an upright arm 46, which extends up between the disk and sprocket-wheel and terminates above the former, its lower end being bifurcated to straddle the shaft 30.

On the arm 46 above the shaft 30 is a sliding dog 47, whose rear end is kept normally in the spiral groove 42 by the action of the weighted arm 45, and which is limited in its downward movement on the arm by means of an adjustable stop 48. The object of the grooved disk and clutch and coacting parts is to regulate the number of twists given to the binding-wires, and their operation is as follows: The shaft 30 is, as usual, revolved continuously, and the spiral spring 40 normally tends to press the part 39 of the clutch away from its complementary part, and the movable part 39 being secured on the shaft, said shaft and the disk will also be normally pressed endwise in the same direction. When the twisting-tubes are not rotating, the dog 47 is at the upper end of the arm 46 and has its rear end resting loosely on the periphery of the disk, and the action of the spring 40

separates the parts of the clutch, so that the shaft 30 and the disk do not receive rotation. While the dog thus rests on the periphery of the disk, the weighted arm is prevented from causing the dog to exert a pressure against the disk by said weighted arm coming in contact with the floor or some other convenient stop, whereby the spring 40 will be free to keep the parts of the clutch separated. When the operator desires to start the twisting-tubes, he places his foot upon the lever 44 and swings the arm 46 far enough forward to release the dog from the disk and permit it to slide down to the stop 48. Then by releasing the foot-lever the weight causes the dog to enter the spiral groove and press against the disk with sufficient force to press the parts of the clutch into engagement, whereupon the rotation of the belt-wheel will be communicated to the shaft and disk and sprockets. As the disk rotates, the spiral form of the groove will cause the dog to automatically slide upward until it passes out of the spiral groove onto the periphery of the disk, whereupon the parts of the clutch will be automatically separated by the interposed spring and the twisting operation will be stopped.

It will be observed that by adjusting the stop 48 nearer to or farther from the center of the disk the number of twists may be increased or diminished. Thus by adjusting the stop so that the dog will be thrown into engagement with the fifth spiral, (counting from the edge inward,) the twisting-tubes will be rotated five times.

Having thus fully described my invention, what I claim is—

1. In a wire-and-slat-weaving machine, the combination of a frame, a twisting tube or tubes, a driving-shaft, a two-part clutch thereon, a disk on said shaft, said disk being provided on one of its faces with a spiral groove, a movable arm supported adjacent to said spiral groove and provided with an adjustable stop, a movable dog on said arm adapted to engage said spiral groove, and means for normally pressing the disk and dog together, as and for the purposes herein set forth.

2. In a wire-twisting machine, the combination of a frame, a twisting tube or tubes, a drive-shaft connected thereto, a drive-wheel and two-part clutch on the shaft, a spring normally pressing the parts of the clutch apart, a spirally-grooved disk on the shaft, a rock-shaft carrying an upright arm adjacent to said spiral groove, an adjustable stop on said arm, a slidable dog on said arm adapted to engage said spiral groove, means for pressing said arm and dog toward the disk, and means for swinging said arm and dog away from the disk, substantially as described.

3. In a wire-and-slat-weaving machine, the combination of a frame, a series of twisting-tubes, means for supporting the main wires, said main wires being adapted to pass into the rear ends of the tubes, means for driving

the tubes, a sleeve 24 mounted rigidly on each tube, a reel or spool for the binding-wire carried by each tube, and a pulley journaled at the opening in the twisting-tube, substantially as described.

4. In a wire-and-slat-weaving machine, the combination of a frame, a series of twisting-tubes mounted slidably in said frame, a loose collar 34 on each tube, a series of upright arms engaging said collars, and a rock-shaft carrying said arms and an operating-lever, whereby the tubes may be shifted endwise simultaneously, substantially as described.

5. In a wire-and-slat-weaving machine, the combination of a frame, a series of twisting-tubes and means for rotating them, a pair of bearings 4 and 5 supporting each tube, a transverse rail supporting the front bearings and a similar rail supporting the rear bearings, the bearings being slidable on the rail, and means connecting each set of bearings so that they shall slide together, said means being adapted to simultaneously lock the two bearings of each set in their adjusted position, substantially as described.

6. In a wire-and-slat-weaving machine, the combination of a frame, a series of longitudinal twisting-tubes and means for rotating them, a set of bearings for each tube, transverse rails supporting the front and rear bearings, a bolt depending from each bearing, a friction-block and movable plate carried by each bolt, an eccentric cam journaled between the plate and block, and a rod connecting each set of eccentric cams, as and for the purposes set forth.

7. In a wire-and-slat-weaving machine, the combination of a frame, a series of twisting-tubes and means for rotating them, bearings for the tubes, slotted rails supporting said bearings, a bolt or pin depending from each bearing, a friction-block on each bolt, a swinging plate below each friction-block, a cam pivoted on each swinging plate and provided with a depending arm, and a rod connecting each pair of said depending arms, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ORLANDO F. MATTESON.

Witnesses:

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GEO. E. HUBBELL.