(No Model.) 2 Sheets—Sheet 1.

J. GROSS.

MECHANICAL MOVEMENT.

No. 563,227. Patented June 30, 1896.

Fig. 1.

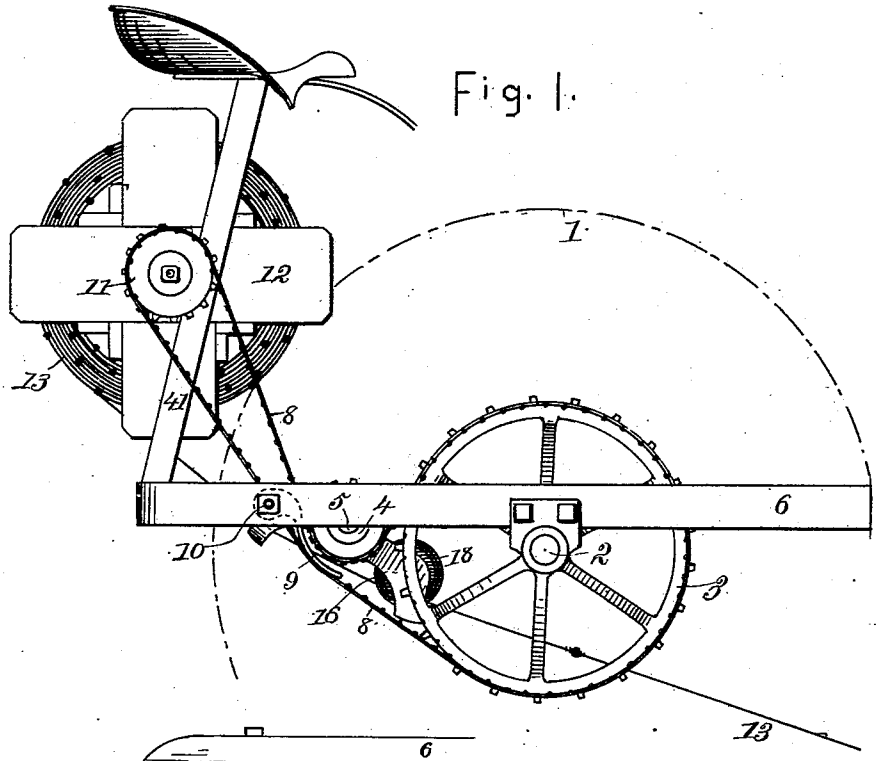
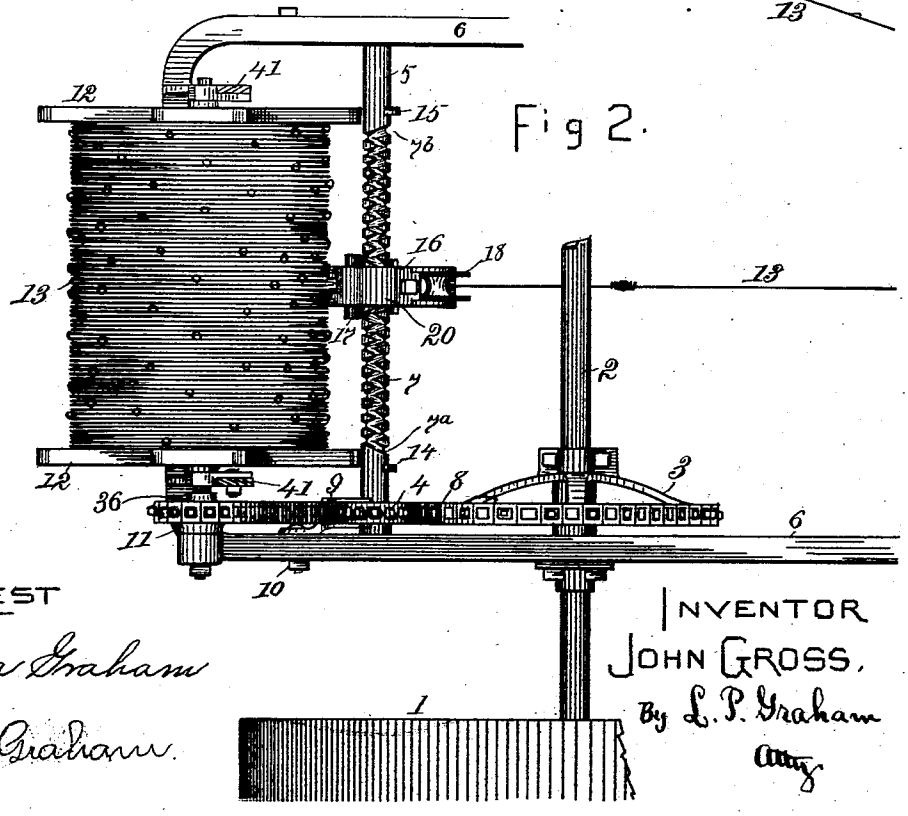


Fig 2.



ATTEST

Lydia Graham

Ina O. Graham.

INVENTOR

JOHN GROSS,

By L. P. Graham

Atty.

ANDREW B. GRAHAM. PHOTO LITHO WASHINGTON, D.C.

(No Model.) 2 Sheets—Sheet 2.

J. GROSS.

MECHANICAL MOVEMENT.

No. 563,227. Patented June 30, 1896.

Fig. 3.

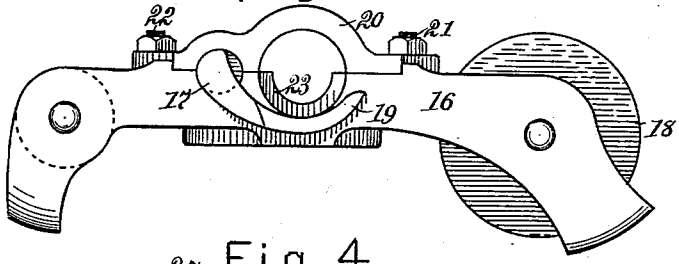


Fig. 4.

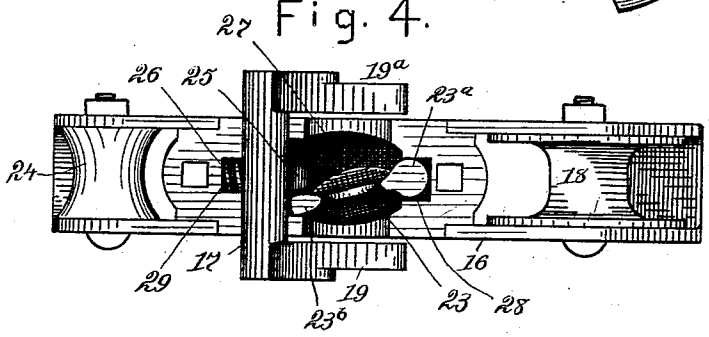


Fig. 5.

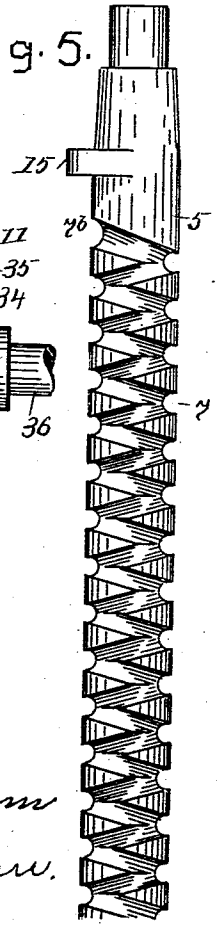


Fig. 6.

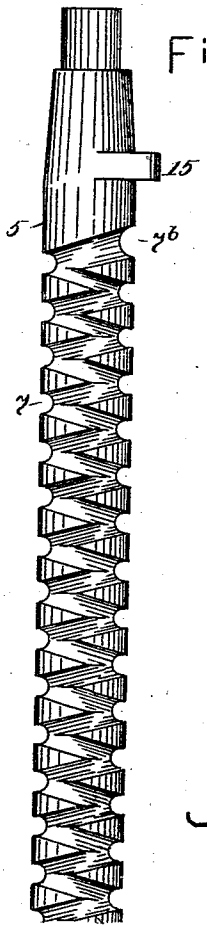


Fig. 8.

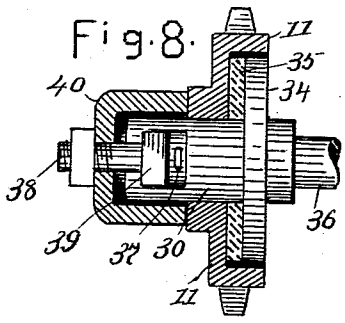
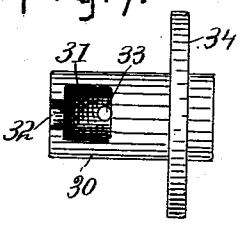


Fig. 7.



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INVENTOR

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Atty.

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UNITED STATES PATENT OFFICE.

JOHN GROSS, OF DECATUR, ILLINOIS, ASSIGNOR TO FELIX B. TAIT, OF SAME PLACE.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 563,227, dated June 30, 1896.

Application filed December 11, 1895. Serial No. 571,763. (No model.)

To all whom it may concern:

Be it known that I, JOHN GROSS, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to a mechanical movement for converting rotary motion into reciprocating motion. It is particularly applicable for use as a wire-guide for check-row-wire reels. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a check-row-wire reel equipped with a movement made in accordance with my invention. Fig. 2 is a plan of the mechanism shown in Fig. 1, less the planter-seat. Fig. 3 is a side elevation of the reciprocating member of the movement. Fig. 4 is a plan of the reciprocating member of the movement with a part of the boxing removed. Fig. 5 is a representation of one of the sides of an end of the rotary member of the movement. Fig. 6 is a representation of the opposite side of the same feature. Figs. 7 and 8 are details of a friction-developer used in connection with a check-row-wire reel, as herein shown.

The rotary member of the mechanical movement is shown at 5, and it consists of a shaft having a spiral groove, as 7, that extends along the shaft a distance depending on the extent of reciprocation to be attained, and then reverses its travel and extends the same distance in the opposite direction. The groove forms a continuous guideway back and forth along the shaft, and its turns of reversal are shown, one at 7^a and the other at 7^b, in Fig. 2, at which points the groove is somewhat widened. Other characteristics of the shaft are the cam-like projections 14 and 15, near the turns of reversal of the groove and on the same side of the shaft therewith.

The reciprocating member of the movement comprises a box adapted to embrace the shaft and supplied with a swingable follower adapted to fit in the groove of the shaft. The box consists of two parts 16 and 20, each forming one-half of the opening that receives the shaft, and the two parts are suitably secured together, as, for instance, by bolts 21 and 22. In one part of the box (in this case part 16) is a recess divided into three compartments (designated, respectively, by 27, 28, and 29.) The compartment 28 acts as a bearing for the pivot end 23^a of the groove-follower 23, the compartment 27 provides for the swing of the follower, and the compartment 29 contains a spring 26, and provides for movement in a lock-stud, as will be hereinafter explained. A short shaft 17 journals transversely in the box near the swinging end 23^b of the groove-follower. It has a lock-stud 25, that extends downward into the recess in line with compartment 29, and it has on its ends fingers 19 and 19^a, adapted to bear against the shaft. The spring 26 tends to force the stud into compartment 27, alongside the swinging end of the follower, and in so doing it forces the fingers against the shaft.

In operation the follower rests in one of the runs of the groove, being locked at the proper angle by the stud and the spring. The box is held against rotation, and, as the shaft turns, is carried toward one end or the other of the shaft by the screw-like action of the groove. As a reversal turn of the groove is neared a cam-like projection, 14 or 15 as the case may be, engages one of the fingers, depressing it against the resistance of the spring, and swinging the lock-stud clear of the swingable end of the follower. Then as the follower rides into the reversing turn of the groove it is free to change its angle to conform to the change of direction of the groove, and the free end is swung, by the action of the groove, to the opposite side of the lock-stud. As the box starts on its return motion the finger passes from contact with the cam, the spring throws the lock-stud into the path of the swingable end, and the motion is so continued back and forth indefinitely. The reversal turns of the groove are widened in order that the follower may have room to swing from one angle to the other.

Under favorable circumstances, as when the groove is accurately formed, the follower nicely adapted thereto, and the device is used under conditions that do not permit much jar, the lock may be dispensed with; but for uses analogous to winding check-row wire on

a planter-reel, where the device must be cheap in order to be commercially available, the lock becomes, if not an absolute necessity, at least a very desirable adjunct.

In applying the movement to this and closely-allied uses the box is supplied with pulleys, as 18 and 24, through which the line to be wound, as, for instance, the check-row wire 13, is made to run. The pulleys being one at each end of the box and some distance apart act on the wire to prevent the box from turning with the shaft; but in different cases other means may be employed to prevent such rotation.

In this particular case the spiral guide for the follower is a depression; but it is not impossible that it should be a rib or thread, and in the broader sense of my invention I do not confine myself to a groove.

To show one practical application of the device, a check-row-wire reel is described herein as follows: A part of a planter-frame is shown at 6, a shaft journaled therein at 2, and a wheel at 1. A sprocket-wheel 3 is fixed on the planter-shaft. Another sprocket-wheel is fixed on the shaft 7 of the movement, which is suitably journaled in the planter-frame. A chain 8 runs around the wheel 3, under wheel 4, and around the sprocket-wheel 11 of the reel 12. A shoe 9 is connected with a bar of the frame at 10 and it provides a bearing for the under run of the chain.

The reel is supported by brackets fastened to seat-supporting frame 41, and its shaft 36 is turned by wheel 11 through the intervention of friction-developing mechanism, to be hereinafter described.

A thimble 30 is provided with a flange 34, with a recess 31, having a bolt-slot 32, and with a pin-hole 33. It is fastened to the reel-shaft by pin 37. A disk 35 of leather or other similar material is slipped over the thimble against the flange. The sprocket-wheel 15 is placed on the thimble against the disk. A cap 40 is placed against the wheel. A bolt 38 is placed with its head 39 in the recess of the thimble and its threaded end extended through a hole in the end of the cap, and a nut is tightened on the protruding end of the bolt to develop the desired degree of friction between the sprocket-wheel and the disk.

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

1. A mechanical movement comprising a rotary shaft having a continuous spiral guideway and cam projections at the turns of reversal of the guideway, a non-rotating box mounted on the shaft and having a swingable follower, and a lock for the follower having fingers extended adjacent to the shaft, and adapted to engage the cam projections thereof, substantially as set forth.

2. A mechanical movement consisting in the combination of a rotary shaft having a continuous spiral guideway and cam projections at the turns of reversal of the guideway; a non-rotating box mounted on the shaft and having a swingable follower for the guideway; a lock-shaft journaled transversely in the box near the swingable end of the follower; a stud extending from the lock-shaft into the path of said swingable end; a spring to hold the stud in the path of the follower; and fingers on the end of the lock-shaft extending adjacent to the rotary shaft and adapted to engage the cam projections thereof, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

JOHN GROSS.

Attest:

EDWARD C. BASSEY,

LEVI P. GRAHAM.