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C. S. WYCKOFF & P. B. WILKES.

REELING MACHINE.

APPLICATION FILED MAY 26, 1904.

Fig. 1.

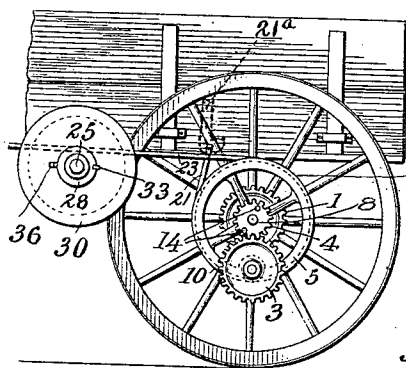


Fig. 3.

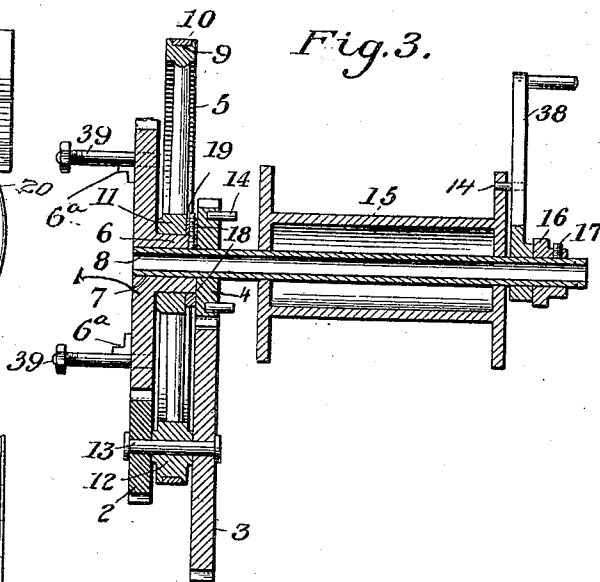


Fig. 2.

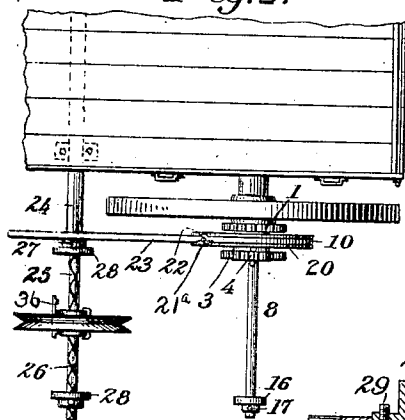


Fig. 4.

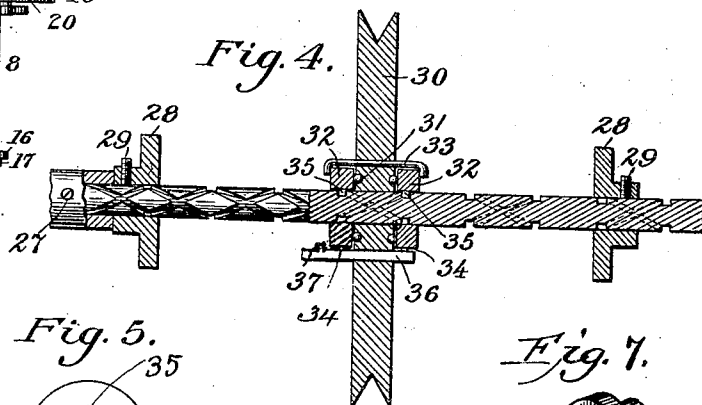


Fig. 5.

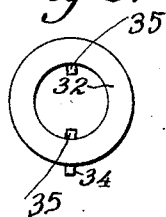


Fig. 7.

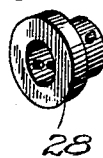
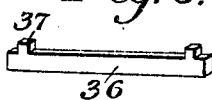


Fig. 6.



Witnesses:
Chas. J. Treubing.
Plummers, H. Woods.

Inventors:
Charles S. Wyckoff
Purley B. Wilkes.

UNITED STATES PATENT OFFICE.

CHARLES S. WYCKOFF AND PURLEY B. WILKES, OF CENTERVILLE, IOWA.

REELING-MACHINE.

No. 808,424.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed May 26, 1904. Serial No. 209,985.

To all whom it may concern:

Be it known that we, CHARLES S. WYCKOFF and PURLEY B. WILKES, citizens of the United States, residing at Centerville, county of Appanoose, State of Iowa, have invented a new and useful Reeling-Machine, of which the following is a specification.

This invention relates to certain new and useful improvements in reeling mechanisms.

Among the numerous objects in view is the construction of a mechanism which will take up, second lay down, third stretch and tighten, and fourth distribute automatically and uniformly upon a spool pliable strands, as rope, wire, twine, &c.

Another object of the invention is the provision of brake means for controlling the movement of the gearing employed for operating a spool.

A further object of the invention is the provision of a planetary gearing carried by a movable support, brake means, and a surface suitable for the winding of a strand thereon cooperating with said gearing carried by the support.

A still further object of the invention is the provision of a distributing device coacting with a mechanism for receiving or distributing strands.

With these and other objects in view the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the claims hereto appended.

In the drawings, Figure 1 is a fragmentary view of a wagon constituting a movable support and a mechanism constructed in accordance with the present invention secured thereto, a portion of the spool-supporting shaft being removed and the wagon and mechanism being shown in side elevation. Fig. 2 is a top plan view of the structure depicted in Fig. 1 except that the spool-supporting shaft in this figure is completely illustrated. Fig. 3 is a vertical transverse sectional view of the planetary gearing, brake-wheel, and spool illustrated in Figs. 1 and 2. Fig. 4 is an elevated front view of a worm-shaft and its support, partly shown in longitudinal section and showing a sheave-wheel and its coacting parts mounted upon said shaft and in transverse section. Fig. 5 is a view in side elevation of a collar employed in the construction of a distributing device of

the mechanism. Fig. 6 is a perspective view of a slidable member employed in the construction of the distributing device. Fig. 7 is a perspective view of one of the sleeves or collars employed in the construction of a distributing device of the present mechanism.

Like numerals of reference designate corresponding parts throughout all the figures of the drawings.

In carrying out the present invention a planetary gearing provided with a coacting brake-wheel is mounted upon a movable support, the gearing comprising a primary cog-wheel 1, which is provided with hub-engaging notched shoulders 6^a, a primary pinion 2, meshing with said cog-wheel 1, an auxiliary cog-wheel 3, and an auxiliary pinion 4, meshing with cog-wheel 3. The gearing is provided with a brake member or wheel 5. Bolts 39 pass through cog-wheel 1 and engage the movable support for fixedly securing said cog-wheel carrying the gearing to said support.

The primary cog-wheel 1 is provided with a hub 6, which extends laterally from one side thereof. The hub 6 provides a bearing, upon which the brake-wheel 5 is loosely journaled. The hub portion 6 is provided with a central apertured portion 7, within which is fixed a tubing 8, which constitutes a shaft, by means of screw 19. The brake-wheel 5 is provided with hub portions 11 and 12. The hub portion 12 is provided with an apertured portion, in which is journaled shaft 13. Secured in a fixed position to shaft 13 and upon opposite sides of the wheel 5 are primary pinion 2 and auxiliary cog-wheel 3. The brake-wheel is provided with a peripheral groove portion 9, in which is positioned brake member 10. The brake member 10 comprises a comparatively stiff piece of metal 20, Fig. 2, which extends approximately half-way around the periphery and over the top of the wheel 5, terminating in a stiff longitudinal extension 23, the extension 23 loosely engaging the longitudinally-extending support 24, which is secured to the bottom of the vehicle by suitable means and which is provided for supporting the threaded shaft 25, hereinafter described. The portion 21 is preferably constructed of spring-steel, which must offer less resistance than the portion 20 of the brake member, as the adjustment of the tension of the brake member is accomplished by means of this portion. The outer end of 21 is projected through an

apertured portion 22 of portion 23 of the brake member 10. A cam-lever 21^a (shown in dotted lines) is secured to the outer end of portion 21 for controlling the tension of the

5 brake member upon the wheel 5.

The brake-wheel 5 is loosely secured upon the hub 6 by means of an annular member 18, which is provided with a screw-threaded aperture registering with a similarly-constructed aperture formed in the hub 6, and within said apertures there is positioned a set-screw 19, which engages the outer surface of the tubing or member 8 for preventing lateral motion of the brake-wheel 5 with reference to the pinion 1.

The auxiliary pinion-wheel 4 is provided with pins or lateral extensions 14, which constitute clamping means for engaging one end of the spool 15, which is journaled upon tubing 8. In Fig. 3 we have illustrated the relative position of the spool 15 and the planetary gearing when said parts are disengaged and necessarily in a position whereby the spool cannot be operated by the gearing. We have provided means for longitudinally adjusting spool 15 upon the tubing 8. The adjusting means comprises a movable collar or member 16, which is furnished with a set-screw 17, the set-screw 17 being adapted to engage the tubing or member 8 for locking the collar 16 in a fixed adjusted position.

Interposed upon tubing 8 between spool 15 and collar 16 is a crank 38, which is provided with a pin similarly constructed to pins 14, which are secured to a pinion-wheel 4. The purpose of the crank is for stretching and reeling up where the vehicle cannot be driven directly.

The planet - gearing when connected, through the medium of clamp members 4, with the spool 15 will be capable of causing rotation of said spool at a sufficient rate to wind a strand upon it when smallest; but as the convolution of the strand increases the size the spool 15 must in some manner be permitted to reduce its speed. This is accomplished by adjusting the flexible looped portion of the brake member, which is positioned upon the brake-wheel 5. With the loop or band of said brake member so loose that the brake-wheel 5 may give way in it the result is that the shaft 13, which it supports and which carries the primary pinion 2 and the auxiliary cog-wheel 3, gives way, resulting in the failure on the part of said planet-gears both to receive and transfer the motion that they otherwise would receive from the primary cog-wheel that actuates them. When it is desired to unwind the strand, which may be wound upon the spool 15, it is only necessary to disengage spool 15 from the members 14 and permit of said spool to be free upon the shaft 8 without engagement with any auxiliary element. However, if it is desired to govern the unwinding of the strand from

the spool 15 the crank 38, which is loosely mounted upon shaft 8, may be secured to the spool 15, and the operator may by grasping said crank 38 control the movement of the spool.

For uniformly distributing a strand upon spool 15 we employ a distributing device, which is clearly depicted in Fig. 4. The distributing device comprises in its construction a right and left threaded shaft 25, which is removably secured, by means of set-screw 27, in support 24. Near the ends of the shaft or bar 25 are positioned removable washers 28, which are capable of adjustment longitudinally upon the bar or shaft 25 and are secured in their adjusted position by means of set-screws 29. The washers 28 are employed not only for retaining a sheave-wheel 30 upon the bar 25, but also for limiting the reciprocating movement of said wheel 30. The sheave-wheel 30 is provided with a peripheral groove for receiving the strand passing over the same and onto or off of the spool, as the case may be. It will be obvious that a strand passing over the sheave-wheel will impart rotary movement thereto. Near the hub portion of the sheave-wheel 30 and upon each side thereof are formed circular grooves, in which are positioned ball-bearings 31. Positioned upon bar or shaft 25 are collars 32, having right and left hand lugs, respectively. The collars 32 engage the sides of sheave-wheel 30 and bear against the ball-bearings 31. The bar 33 is positioned within the sheave-wheel 30 and has its ends bent over against the outer face of the collars 32. The bent ends of the bar 32 retain the balls 31 and collars 32 in an operative position with the sheave-wheel 30. It is to be understood that the bar 33 does not hold the collars 32 so tight against ball-bearings as to prevent movement thereof. The lugs 35, constituting threads for the collars 32, are formed diagonally across the inner periphery of said collars and are positioned within the grooves 26 of the bar 25. Upon the periphery of each of the collars is formed a shoulder or integral extension 34. The sheave-wheel is provided with a squared apertured portion for accommodating the slidable bar 36, which is also square in cross-section. Slidable bar 36 is provided with an integral shoulder or extension 37 near each end which are adapted to alternately engage the shoulders or extensions 34 of the collars 32 for locking one of the threaded collars against independent movement relative to the sheave-wheel 30. The collar 32, the shoulder of which is not engaged by the corresponding shoulder formed on bar 36, has a free movement irrespective of the movement of the sheave-wheel; but as soon as the shoulder 37 engages its shoulder 34 it will be placed in an operative position relative to the sheave-wheel for moving said

sheave-wheel in the opposite direction, and the disengaged collar 32 will be permitted to revolve freely irrespective of the movement of the sheave-wheel. The reciprocating movement of the sheave-wheel is controlled by the ends of the bar 36 coming in engagement with the washers 28 28, positioned upon the bar. When one end of the bar 36 engages a washer 28, said bar will be moved longitudinally into a position whereby the shoulder of one of the collars will engage the same for reversing the longitudinal movement of the sheave-wheel, and thereby directing a new course of the strand which is being fed upon the spool 15. It will be obvious that the sheave-wheel is automatically actuated by reason of this construction to direct the courses of the strand upon the spool and that the reversing of the movement of the sheave-wheel is instantaneous by reason of the structure described.

It will be obvious that the spool constitutes strand-receiving means as well as distributing means, as the strands, which may be wound upon the spool, may be also permitted to be unwound therefrom when it is desired to stretch the wire or distribute the same along the posts of a fence prior to the securing of a strand to said posts.

While we have described in the foregoing description and illustrated in the accompanying drawings the preferred form of our invention, it will be obvious to one versed in the art to which this invention relates that certain alterations, modifications, and changes may be made, and we therefore reserve the right to make such alterations, modifications, and changes as shall fairly fall within the spirit and scope of the present invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a mechanism of the class described, the combination with a revoluble support, of a primary cog-wheel fixed to said support, a shaft extending laterally from said cog-wheel, a brake-wheel journaled upon said cog-wheel, a shaft journaled in said brake-wheel, a primary pinion and an auxiliary cog-wheel secured to said shaft, an auxiliary pinion-wheel journaled upon said first shaft and meshing with said auxiliary cog-wheel, a spool slidably mounted upon said shaft, laterally-extending, engaging means for securing said spool in a fixed position relative to the auxiliary pinion-wheel, adjusting means for said spool, a brake member inclosing said brake-wheel, and a distributing device coacting with said spool.

2. In a mechanism of the class described, the combination with a revoluble support, of a primary, apertured cog-wheel secured to said support, said wheel provided with a laterally-extending hub portion projecting from

one side thereof, shoulders formed upon the opposite side of said wheel, removable bolts positioned upon and securing said wheel to said revoluble support, a brake-wheel journaled upon the laterally-extending hub portion of the primary cog-wheel, said brake-wheel provided with a peripheral groove, a brake member positioned within the grooved portion of said brake-wheel, having a central aperture, a shaft secured within said apertured portion of the cog-wheel, an annular member positioned upon the outer end of said laterally-extending hub portion of the cog-wheel, means for securing said annular member and cog-wheel to said shaft, said brake-wheel provided with a hub portion formed upon its rim, a shaft journaled in said hub portion, a primary pinion and an auxiliary cog-wheel secured to said shaft upon opposite sides of said brake-wheel, said primary pinion meshing with the primary cog-wheel, an auxiliary pinion-wheel journaled upon said first-named shaft contiguous to said brake-wheel and meshing with the auxiliary cog-wheel, members extending from one side of said auxiliary pinion-wheel, a slidable spool mounted upon said shaft and adapted to engage said members of the auxiliary cog-wheel for locking said spool in an operative position with said cog-wheel an adjustable collar or washer secured upon the outer end of said shaft, and a crank provided with a locking member mounted upon said shaft and interposed between said spool and adjustable collar.

3. A device of the character described, comprising a strand-receiving member, driving means therefor, and a distributing device coacting with said strand-receiving member comprising a support, a removable right and left threaded shaft carried by said support, adjustable washers secured upon said shaft, a longitudinal, movable sheave-wheel mounted upon said shaft between said washers, a groove formed upon each side of said wheel, bearings positioned within said grooves, right and left threaded collars positioned upon the sides of said wheel, means for securing said collars in engagement with said bearings, and a slidable bar provided with shoulders positioned upon said wheel, said collars provided with shoulders adapted to alternately engage the shoulders of the bar.

4. A mechanism of the class described, comprising a revoluble support, an adjustable spool carried by said support, a planetary gearing carried by said support and coacting with said spool, a brake secured upon said support and coacting with said gearing, and a distributing device coacting with said spool and gearing.

5. In a mechanism of the class described, the combination with a revoluble support, of an adjustable spool carried by said support, a planetary gearing carried entirely by said

support and coacting with said spool, a brake interposed between and supporting part of said gearing, and means for distributing a strand upon said spool.

5 6. The combination with a vehicle-wheel, of a shaft carried entirely thereby, an adjustable spool journaled upon said shaft, a gearing mounted upon said shaft between said wheel and spool, a distributing device coacting with said spool, comprising a stationary shaft, and a longitudinal, movable member journaled upon said shaft.

7. In a mechanism of the class described, the combination with a revoluble support, of a distributing device supported adjacent to said support, a shaft fixedly secured to said support, a spool mounted upon said shaft, a planetary gearing journaled upon said shaft, a brake-wheel journaled upon said shaft and coacting with said gearing, said brake-wheel provided with a peripheral groove, a brake member positioned within the grooved portion of said wheel, and said brake member provided with a longitudinal portion engaging said distributing device.

8. A mechanism of the class described, comprising a revoluble support, strand-receiving means carried by said support, a driving mechanism carried entirely by said support and coacting with said strand-receiving means for imparting movement thereto, said driving mechanism provided with a brake-wheel, a clamping member positioned upon said brake-wheel and provided with a horizontal extension, said extension extending forward of said driving mechanism, and means for distributing a strand uniformly upon said strand-receiving means.

9. In a mechanism of the class described, the combination of a revoluble support, a brake member carried by said support, a flexible band inclosing said brake member, said band provided with a rigid, horizontal extension, strand-receiving means carried by said support, driving means carried entirely by said support and coacting with said brake member and said strand-receiving means, and a distributing device coacting with said strand-receiving means.

10. In a mechanism of the class described, the combination with a revoluble support, of a driving mechanism carried entirely by said support, a brake-wheel interposed between and carrying part of said driving mechanism, longitudinally-adjustable, strand-receiving means carried by said support and coacting with said driving mechanism, and means for retaining said strand-receiving means in an adjusted position.

11. In a mechanism of the class described, the combination with a revoluble support, of a member extending outwardly from said support, a driving mechanism carried entirely by said support, a longitudinally-adjustable spool secured upon said outwardly-

extending member and coacting with said driving mechanism, an adjustable stop positioned upon said outwardly-extending member, a crank interposed between said spool and stop, and means carried by said crank for locking the same in a fixed position with said spool.

12. In a mechanism of the class described, the combination with a revoluble support, of a cog-wheel fixedly secured to said support, a shaft fixedly secured to said cog-wheel, brake means carried by said cog-wheel, strand-receiving means carried by said shaft, and revoluble means carried by said brake-wheel and shaft and coacting with said cog-wheel for imparting movement to said strand-receiving means.

13. In a mechanism of the class described, the combination with a wheel, of a cog-wheel fixedly secured to said wheel, a shaft fixedly secured to said cog-wheel, brake means carried by said cog-wheel, strand-receiving means carried by said shaft, revoluble means carried by said brake means and shaft and coacting with said cog-wheel and strand-receiving means, and a distributing device coacting with said strand-receiving means.

14. In a mechanism of the class described, the combination with a wheel, of a cog-wheel fixedly secured to said wheel, a brake-wheel journaled upon said cog-wheel, a band positioned upon said cog-wheel, a horizontal, rigid extension projecting from said band, a shaft secured to said cog-wheel, a spool journaled upon said shaft, and revoluble means carried by said brake-wheel and shaft and coacting with said cog-wheel and spool for imparting movement to said spool.

15. In a mechanism of the class described, the combination with a vehicle-wheel, of a brake-wheel carried upon the side of said wheel, a driving mechanism carried entirely by said vehicle-wheel and positioned upon opposite sides of said brake-wheel, a spool adjustably secured to said vehicle-wheel, means for connecting said driving mechanism and spool, and manually-operated means for controlling movement of said spool.

16. In a mechanism of the class described, the combination with a revoluble support, of a shaft extending from said support, a brake-wheel journaled upon said shaft, driving means positioned upon said shaft and upon opposite sides of said brake-wheel, part of said driving means fixedly secured to said revoluble support, strand-receiving means journaled upon said shaft, a brake member carried by said brake-wheel, and a distributing device coacting with said strand-receiving means.

17. In a mechanism of the class described, the combination with a revoluble support, of a primary cog-wheel fixedly secured to said support, a shaft secured to said cog-wheel, a brake-wheel journaled upon said primary

cog-wheel, brake means surrounding said brake-wheel, an auxiliary pinion journaled upon said shaft, a primary pinion meshing with said primary cog-wheel an auxiliary cog-wheel meshing with said auxiliary pinion, strand-receiving means carried by said shaft, and means connecting said strand-receiving means and auxiliary pinion for securing said strand-receiving means in a fixed position with said pinion.

18. In a mechanism of the class described, the combination with a revoluble support, of a driving mechanism carried entirely by said support, strand-receiving means coacting with said driving mechanism, and a distributing device coacting with said strand-receiving means and driving mechanism, said distributing device comprising a threaded shaft, a sheave-wheel adjustably positioned upon said shaft, ball-bearings positioned upon the sides of said wheel, revoluble collars positioned upon said shaft and engaging said ball-bearings, means for holding said sheave-wheel, ball-bearings, and collars in an operative position, means for preventing movement of one of said collars, and means for shortening the length of travel of said sheave-wheel.

19. In a mechanism of the class described, the combination with a revoluble support, of a driving mechanism carried entirely by said support, a strand-receiving member carried by said driving mechanism, and a distributing device coacting with said driving mechanism and strand-receiving means comprising a threaded shaft, a sheave-wheel journaled upon said shaft, revoluble collars carried by said shaft and secured to said sheave-wheel, a ball interposed between each of said collars and sheave-wheel, and means for locking one

of said collars relative to said sheave-wheel for reversing movement of the sheave-wheel.

20. In a mechanism of the class described, the combination with a support, a gearing carried by said support, of strand-receiving means carried by said support and adjustable in respect to said gearing, an adjustable handle carried by said support, means for locking said strand-receiving means against independent movement relative to said gearing, and fastening means for securing said handle and strand-receiving means against independent movement.

21. In a mechanism of the class described, the combination with a support, of adjustable strand-receiving means carried by said support and capable of being moved longitudinally thereon, a handle loosely mounted upon said support, means for securing said handle and strand-receiving means against independent movement, and driving means secured adjacent to said strand-receiving means and being capable of imparting movement thereto.

22. In a mechanism of the class described, the combination with a revoluble support, of a member fixedly secured to said revoluble support and extending outwardly therefrom, brake means carried by said member, a driving mechanism positioned upon opposite sides of said brake means and coacting therewith and supported entirely by said member, and strand-receiving means carried by said revoluble support and coacting with said brake means and driving mechanism.

CHARLES S. WYCKOFF.

PURLEY B. WILKES.

Witnesses:

PLUMMER K. WADE,
CHAS. J. FREEBURG.