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P. B. TINGLEY

WEB WINDING MECHANISM

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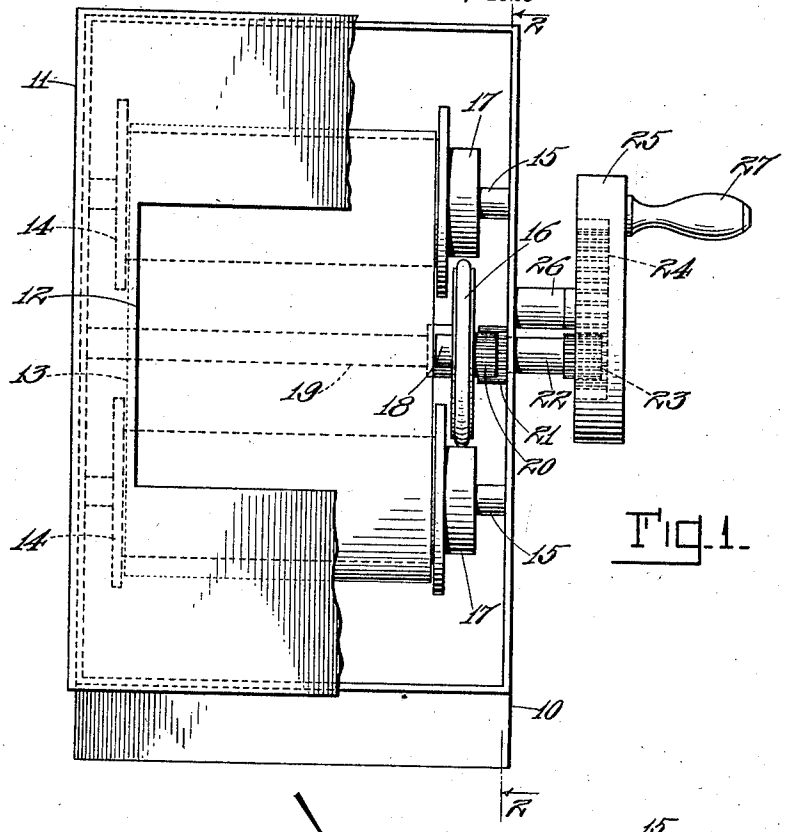


Fig. 1.

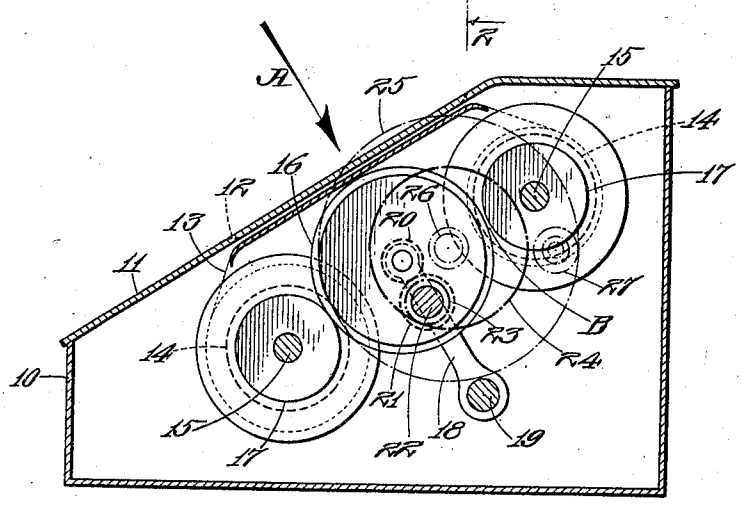


Fig. 2.

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WEB-WINDING MECHANISM.

Application filed February 6, 1923. Serial No. 617,219.

To all whom it may concern:

Be it known that I, PHILO B. TINGLEY, a citizen of the United States, residing at New York, county of New York, State of New York, have invented a certain new and useful Improvement in Web-Winding Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to data displaying devices of the double reel and web type, and has for its object to provide improved operating mechanism for the reels in devices of this character whereby said reels and the web wound thereon may be driven at a high rate of speed but may be quickly stopped at any desired point, which mechanism is so constructed and arranged as to be automatically operatively connected with the several reels alternatively in accordance with the direction of operation thereof, so that only that reel upon which the web is at any time being wound will be positively actuated, the other reel being freely rotatable by the web as it is drawn therefrom.

The foregoing and other objects of the invention, together with means whereby the same may be carried into effect, will best be understood from the following description of one form or embodiment thereof illustrated in the accompanying drawings. It will be understood, however, that the particular construction described and shown has been chosen for illustrative purposes merely, and that the invention, as defined by the claims hereunto appended, may be otherwise practised without departure from its spirit and scope.

In said drawings—

Fig. 1 is a plan view, looking substantially in the direction of the arrow A in Fig. 2, of the complete device, the top plate of the casing being partly broken away to show the interior mechanism.

Fig. 2 is a vertical section taken substantially on the line 2—2, Fig. 1, the crank disk and associated parts at the outside of the casing being indicated in dot and dash lines.

The invention is herein shown as embodied in a data-displaying device or changeable exhibitor comprising a casing 10 having a top plate 11 formed with a sight opening 12 through which may be observed the data inscribed upon a web or strip 13. The ends of said web are secured to reels or rollers 14 upon which said web is wound, rotation of said rollers in one direction or the other causing said web to travel in a corresponding direction past the sight opening 12, so as to bring any portion thereof into a position to be read. The rollers 14 are secured to parallel shafts 15 suitably journalled in the side walls of the casing 10.

For operating the rollers 14 in the manner above indicated there is, in accordance with the present invention, provided a common actuator, herein shown as a gear or friction disk 16, which is located between and adapted for alternative operative engagement with cooperating gears or disks 17 carried by the ends of the rollers 14, respectively. The actuating disk 16 is journalled in a movable support in the form of a swinging arm 18 pivotally mounted on a transverse rod 19 connecting the side walls of the casing 10 in such a manner as to render said disk 16 freely movable into engagement with either of the disks 17. The actuating disk 16 is at all times in close proximity to both of the disks 17, so that its range of movement is small, as indicated at B in Fig. 2, being just sufficient to cause said actuating disk to clear one of the disks 17 when moved into driving engagement with the other. Engagement of the disk 16 with one or the other of the disks 17, when said disk 16 is rotated in one direction or the other, is therefore insured.

The actuating gear or disk 16 carries a coaxial spur pinion 20 which meshes with a spur gear 21 carried by a shaft 22 suitably journalled in the adjacent side wall

of the casing 10 and extending through said wall to the exterior of the casing. It will be seen that rotation of the shaft 22 and gear 21 will operate not only to rotate the pinion 20 and friction disk 16 in one direction or the other, but also to move said friction disk bodily in a direction depending upon the direction of rotation. For example, if the gear 21 be rotated in a clockwise direction, it will not only rotate the pinion 20 and disk 16 in a counter-clockwise direction but, due to the freely swinging mounting of said disk 16, will move the latter bodily toward the right into operative engagement with the upper friction disk 17 and out of engagement with the lower one. The upper roller 14 will therefore be rotated in a clockwise direction to wind up the web 13 and cause the same to move upwardly past the sight opening 12, said web being drawn from the lower roller 14 whose friction disk 17 is, at this time, disengaged by the actuating disk 16, so that said lower roller is freely rotatable by said web as it is drawn off. Similarly, if the shaft 22 and gear 21 be rotated in a counter-clockwise direction, the friction disk 16 will be moved into engagement with the friction disk 17 of the lower roller 14, and the latter roller rotated in a counter-clockwise direction to wind up the web 13, cause the same to travel downwardly past the sight opening 12, and be withdrawn from the upper roller 15 which is at this time free.

The shaft 22 carries at its outer end a pinion 23 which meshes with an internal gear 24 formed on a crank disk 25 journalled on a stud 26 projecting from the casing 10, said crank disk having a suitable operating handle 27. The mechanism described and comprising the internal gear 24, pinion 23, gear 21, and pinion 20, provides a form of speed accelerating gearing whereby the actuating disk 16 within the casing may be driven at a relatively high rate of speed and in either direction from the crank disk 25 outside the casing. The disk 16 is preferably larger than the disks 17, thereby further accelerating the speed of rotation of the rollers 14 and causing the web 13 to travel rapidly past the sight opening 12. The rollers 14 are made as light as possible in order to avoid the effect of inertia in starting and stopping the web which may therefore be quickly started and caused to travel at a rapid rate of speed, but which may be instantly stopped at any desired point by arresting the movement of the crank disk 25, the effect of which is to cause the actuating disk 16 to move out of engagement with the disk 17 which it has been driving and into engagement with the other disk 17, so as to check the movement of the latter and the travel of the web 15. Thus, with the parts in the position shown in Fig. 2, if the shaft 22 be turned in a counter-clockwise direction to cause a downward travel of the web, it will be seen that the pinion 20 will, during such operation, rotate in a clockwise direction, so that if the rotation of the gear 21 is abruptly stopped, said pinion 20 will tend to move toward the right upon the then stationary gear 21, thereby releasing the disk 16 from the lower disk 17, causing the same to engage the upper disk 17 and check the rotation of the upper roller and consequently of the web drawn therefrom.

Having thus described my invention, I claim—

1. In a winding mechanism, in combination, a pair of rollers, friction disks carried by said rollers respectively, a single friction disk located between said first named disks in close proximity to both and bodily movable into engagement with either, and means for rotating and simultaneously bodily moving said last named disk in either direction.

2. In a winding mechanism, in combination, a pair of rollers, gears carried by said rollers respectively, a gear located between said first named gears in close proximity to both and freely movable into operative engagement with either and means for rotating and simultaneously bodily moving said last named gear in either direction.

3. In a winding mechanism, in combination, a pair of rollers, gears carried by said rollers respectively, a gear located between said first named gears, in close proximity to both a swinging support in which said last named gear is journalled and with which it is movable into operative engagement with either of said first named gears, and means for rotating and simultaneously bodily moving said last named gear in either direction.

4. In a winding mechanism, in combination, a pair of rollers, friction disks carried by said rollers respectively, a friction disk located between said first named disks, a swinging support in which said last named disk is journalled and with which it is movable into engagement with either of said first named disks, a spur pinion carried by said last named disk, and a spur gear meshing with said pinion.

5. In a winding mechanism, in combination, a pair of rollers, a common actuator therefor, a casing enclosing said rollers and actuator, means including a shaft extending through said casing to the exterior thereof for operating said actuator in either direction and for automatically operatively connecting the same with said rollers alternatively, a pinion on said shaft outside said casing, and a crank disk having an internal gear meshing with said pinion.

6. In a winding mechanism, in combina-

tion, a casing, a pair of rollers therein, friction disks carried by said rollers respectively, a friction disk located between said first named disks and bodily movable into engagement with either, a pinion carried by said last named disk, a gear meshing with said pinion, a shaft by which said gear is carried, said shaft extending through said casing to the exterior thereof, a pinion on said shaft outside said casing, and a crank disk having an internal gear meshing with said last named pinion.

In testimony whereof I affix my signature.

PHILO B. TINGLEY.