

No. 836,783.

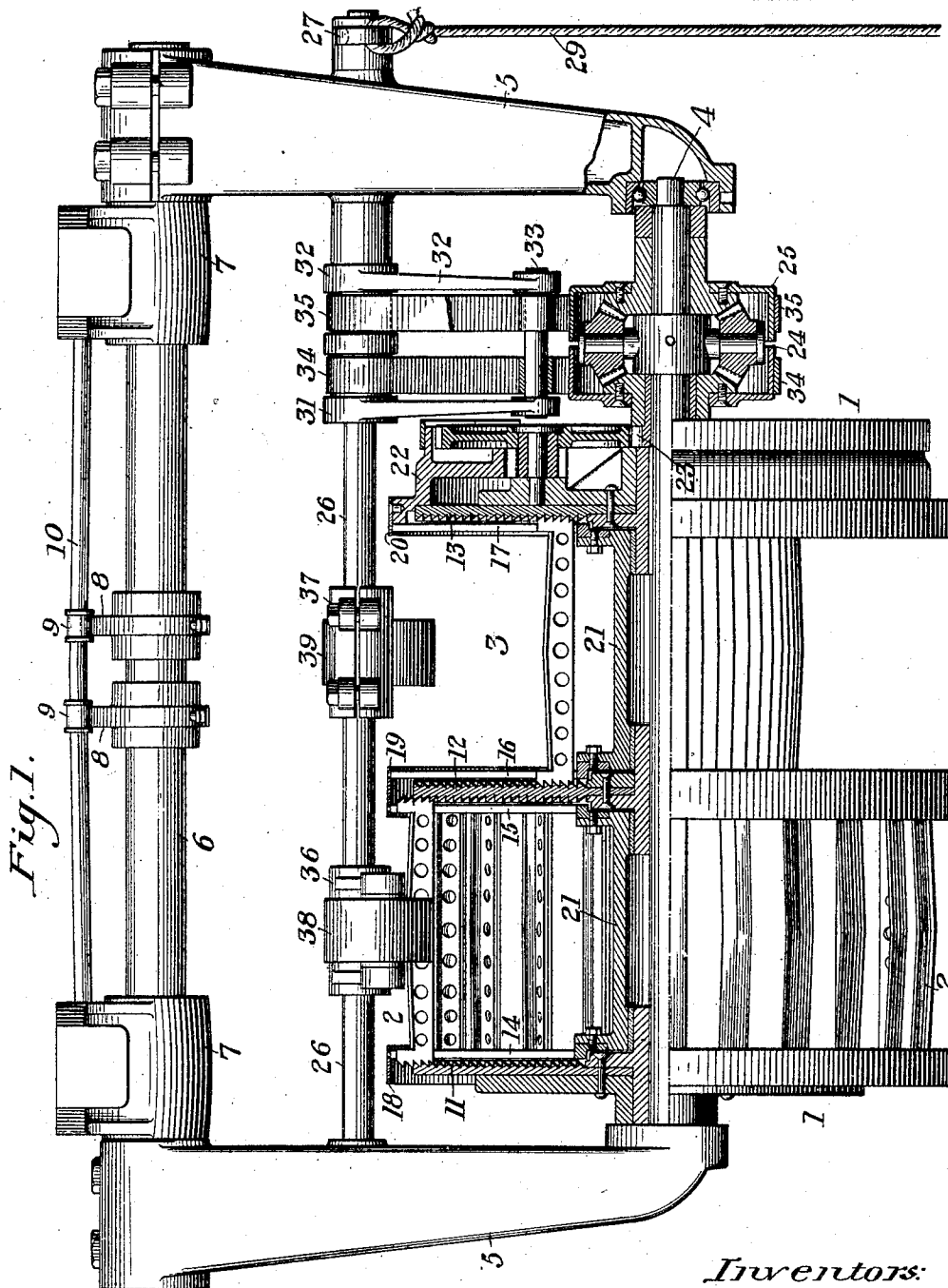
PATENTED NOV. 27, 1906.

C. J. REED & R. PARSONS.

ADJUSTING MECHANISM FOR EXPANSIBLE PULLEYS.

APPLICATION FILED FEB. 27, 1905.

2 SHEETS—SHEET 1.



Witnesses:

R. A. Balderson.
J. B. Hill.

Inventors:

Charles J. Reed,
Richmond Parsons,
by Byrnes & Townsend, Attys.

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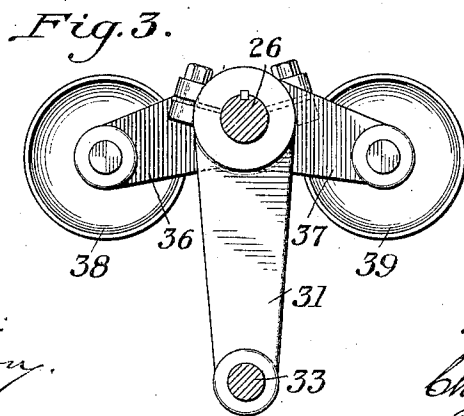
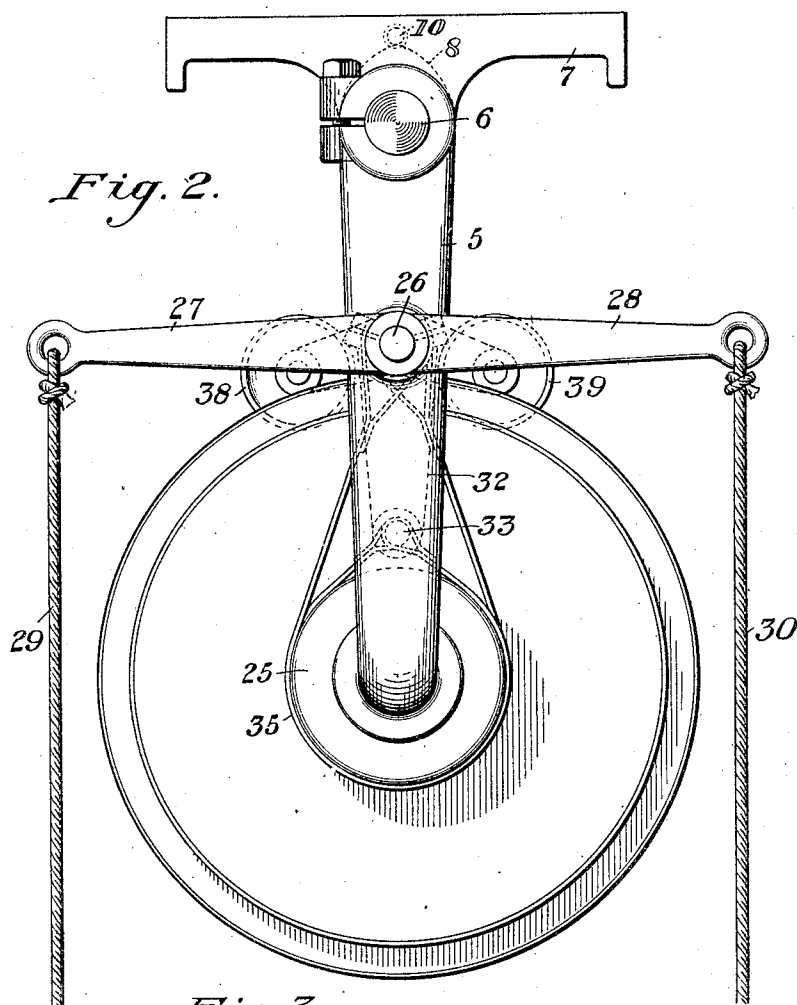
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Attys.

UNITED STATES PATENT OFFICE.

CHARLES J. REED AND RICHMOND PARSONS, OF PHILADELPHIA,
PENNSYLVANIA, ASSIGNORS TO REED-MORRILL ELECTRIC CO.,
OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENN-
SYLVANIA.

ADJUSTING MECHANISM FOR EXPANSIBLE PULLEYS.

No. 836,783.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed February 27, 1905. Serial No. 247,570.

To all whom it may concern:

Be it known that we, CHARLES J. REED and RICHMOND PARSONS, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Adjusting Mechanism for Expansible Pulleys, of which the following is a specification.

In United States Patents Nos. 758,474 and 758,561, granted April 26, 1904, to Charles J. Reed, is shown and claimed a mechanism for transmitting power from a driving to a driven shaft, and enabling the speed of the driven shaft to be varied with reference to that of the driving-shaft, comprising a double pulley placed between and belted to pulleys on the driving and the driven shafts. Each drum of the double pulley consists of a set of radially-adjustable rim-sections, the ends of which pass through radial slots in circular guide-plates and have teeth entering spiral grooves in circular adjusting-disks. Differential gear mechanism is provided to rotate the guide-plates with reference to the adjusting-disks, thereby simultaneously moving either set of rim-sections inwardly and the other outwardly, contracting one drum and expanding the other. The shaft of the double pulley is carried by rock-arms to compensate for changes in the working length of the belts, by which it receives and transmits power.

In United States Patent No. 783,310, granted February 21, 1905, to Charles J. Reed, is shown a gear mechanism for rotating the guide-plates with reference to the adjusting-disks, and thereby shifting the rim-sections.

The present invention is a stop mechanism directly actuated by the rim-sections for preventing the operation of the gear-adjusting mechanism when the rim-sections of either drum reach their outer limiting position.

Referring to the accompanying drawings, Figure 1 is a side elevation of the double pulley and its hangers, the parts of the pulley above a horizontal axial plane being shown in vertical axial section. Fig. 2 is an end elevation of the pulley shown in Fig. 1 look-

ing toward the left, and Fig. 3 is a detail view of the stop mechanism.

The double pulley 1, comprising drums 2 3, is carried by a shaft 4, journaled in the lower ends of hangers 5, which are rigidly clamped on a rock-shaft 6, journaled in fixed bearings 7. The rock-shaft carries a pair of cams 8, which bear against antifric-tion-rollers 9 on a steel spring-rod 10, the ends of which are held in the bearings 7. The pressure of the spring on the cams counterbalances the weight of the pulley and hangers, this feature being claimed in the application of Charles J. Reed, Serial No. 246,964, filed February 23, 1905. The pulley has three spirally-grooved rim-section adjusting-disks 11 12 13, carried by short sleeves, which are fixed on the shaft. Between and closely adjacent to the grooved faces of the adjusting-disks are the rim-section guides 14 15 16 17, consisting of pairs of parallel bars receiving the ends of the rim-sections. The outer ends of the guide-bars are riveted in rings 18 19 20 and their inner ends are secured in sleeves 21, revolvably supported on the pulley-shaft between the adjusting-disks. The ring 20 is secured to the member 22 of a train of gears similar to that described in said Patent No. 783,310, actuated by a pinion 23, which is revolvably mounted on the shaft and carries a friction-drum 24. A second friction-drum 25 is revolvably mounted on the shaft facing the drum 24, and a set of bevel-pinion-reversing gears, the intermediate members of which are carried by a collar pinned on the shaft, is interposed between the two drums.

Journaled in the hangers 5 above the pulley-shaft is a horizontal rock-shaft 26, the projecting end of which carries levers 27 28, having depending ropes 29 30, by which the shaft can be rocked in either direction. Fixed on the rock-shaft 26 above the friction-drums is a pair of depending levers 31 32, connected at their lower ends by a pin 33. A pair of spring-steel friction-straps 34 35 extend in opposite directions around the drums 24 25, respectively, one end of each being fastened around the rock-shaft 26 and the other around the pin 33. When the lever 27 is

pulled downward, the strap 34 is drawn tight on the drum 24, thereby stopping the rotation of the pinion 23 on the pulley-shaft and adjusting the rim-sections of one drum inward and those of the other drum outward. When the lever 28 is pulled downward, the band 34 is released and the band 35 is tightened on the drum 25, thereby through the reversing-gears rotating the pinion 23 in the same direction as but with twice the angular velocity of the shaft. Fixed on the shaft 26 are two arms 36 37, carrying rollers 38 39, which face the middle of the pulley-drums 2 3, respectively. When the rim-sections of either drum have been shifted to their outer limiting position, the belt carried by these sections bears against one of the rollers 38 or 39, and thereby rocks the shaft 26 into its intermediate position, (shown in Fig. 2,) releasing the friction-strap from the drum on which it has been clamped by the operator, and preventing further movement of the rim-sections of both pulley-drums. The rollers 38 39 thereby serve as stops, directly controlled by the movement of the rim-sections for preventing these sections from being accidentally shifted into contact with either end of the guide-slots.

We claim—

1. An expansible pulley comprising rim-sections and relatively movable members for guiding and adjusting said rim-sections, and means operated by the continued relative movement of said members to arrest said movement, as set forth.
2. An expansible pulley comprising rim-sections and relatively movable members for guiding and adjusting said rim-sections, and a stop actuated by the expansion of the pulley to arrest the relative movement of said members, as set forth.
3. An expansible pulley comprising rim-sections and relatively movable members for guiding and adjusting said rim-sections, and a roller-stop actuated by the expansion of the pulley to arrest the relative movement of said members, as set forth.
4. An expansible pulley having two drums each drum comprising rim-sections and relatively movable members for guiding and adjusting said rim-sections, and stops actuated by the expansion of either drum to arrest the relative movement of said members, as set forth.
5. An expansible pulley having two drums, each drum comprising rim-sections and relatively movable members for guiding and adjusting said rim-sections, and roller-stops actuated by the expansion of either drum to arrest the relative movement of said members, as set forth.
6. An expansible pulley comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a brake for said revoluble member, and means

for throwing said brake out of operation when said rim-sections reach their outer limiting position, as set forth.

7. An expansible pulley comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a brake for said revoluble member, and a stop for throwing said brake out of operation when said rim-sections reach their outer limiting position, said stop arranged in the path of said rim-sections, as set forth.

8. An expansible pulley having two drums, each drum comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a brake for said revoluble members, and means for throwing said brake out of operation when the rim-sections of either drum reach their outer limiting position, as set forth.

9. An expansible pulley having two drums, each drum comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a brake for said revoluble members, and stops for throwing said brake out of operation when the rim-sections of either drum reach their outer limiting position, one stop arranged in the path of the rim-sections of each drum, as set forth.

10. An expansible pulley comprising rim-sections and means for adjusting and guiding said rim-sections, a revoluble friction member connected to said adjusting means, and a rock-shaft having means for clamping said friction member, as set forth.

11. An expansible pulley comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a friction member arranged to rotate said revoluble member, a rock-shaft having means for clamping said friction member, and a stop carried by said rock-shaft in the path of said rim-sections, as set forth.

12. An expansible pulley having two drums, each comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, friction members arranged to rotate said revoluble members in opposite directions, and a rock-shaft having means for clamping either of said friction members, as set forth.

13. An expansible pulley having two drums, each comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, friction members arranged to rotate said revoluble members in opposite directions, a rock-shaft having means for clamping either of said friction members, and stops carried by said rock-shaft, one stop arranged in the path of the rim-sections of each drum, as set forth.

14. An expansible pulley comprising rim-sections and fixed and revoluble members for adjusting and guiding said rim-sections, a friction-drum arranged to rotate said revoluble member, a rock-shaft having a strap for

clamping said friction-drum, and a roller-stop carried by said rock-shaft in the path of said rim-sections, as set forth.

15. An expansible pulley having two drums,
5 each comprising rim-sections and fixed and
revoluble members for adjusting and guiding
said rim-sections, friction-drums arranged to
rotate said revoluble members in opposite di-
rections, a rock-shaft having straps for clamp-
10 ing either of said friction-drums, and roller-

stops carried by said rock-shaft, one stop ar-
ranged in the path of the rim-sections of each
drum, as set forth.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

CHARLES J. REED.

RICHMOND PARSONS.

Witnesses:

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DANIEL M. NUGENT.