Sept. 23, 1924. 1,509,504

E. J. DOBERSTEIN

GATHERING REEL

Filed Dec. 13, 1923

Fig. 1

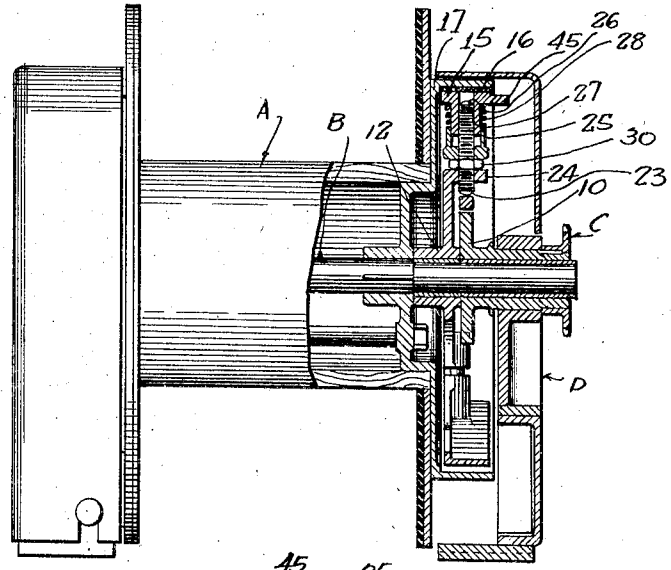
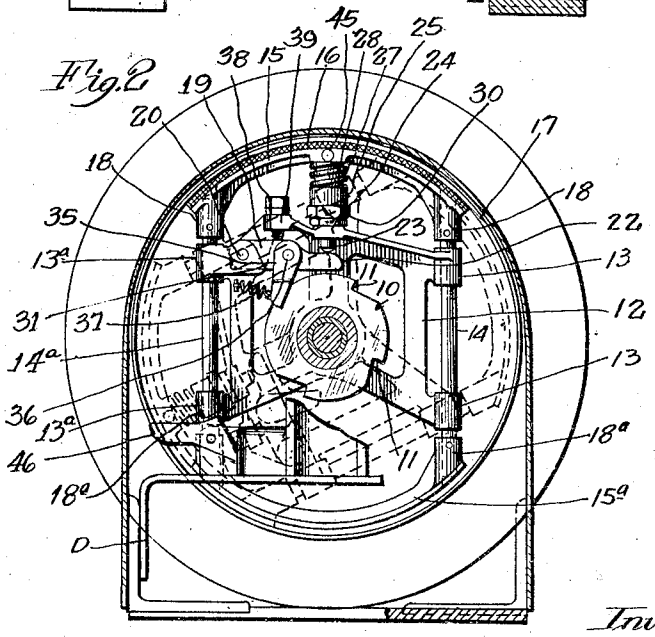


Fig. 2



Witness:
Herbert A. Buehler

Inventor:
Edward J. Doberstein
By Clarence D. Poole
Attorney

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UNITED STATES PATENT OFFICE.

EDWARD J. DOBERSTEIN, OF BLUE ISLAND, ILLINOIS, ASSIGNOR TO GOODMAN MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GATHERING REEL.

Application filed December 13, 1923. Serial No. 680,335.

To all whom it may concern:

Be it known that I, EDWARD J. DOBERSTEIN, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gathering Reels, of which the following is a specification.

This invention relates to improvements in gathering reels of the type adapted to be mounted on mining locomotives, and has for its principal object to provide an improved device of the class mentioned.

More specifically, this invention relates to improvements in the type of reel shown in my co-pending application bearing Serial Number 543,156, filed March 13, 1922, in which I provide a driving mechanism, including a friction segment movable radially into engagement with the reel drum in order to drive the latter positively in one direction and to afford a brake means when the reel is rotated in the opposite direction.

The object of the present invention is to provide a counterweight so that the radially movable segment may be effectively operated at high speeds. After experimentation, it has been found necessary to provide this counterweight to overcome the centrifugal force engendered by high speeds.

The invention may best be understood by reference to the accompanying drawings which illustrate one form in which it may be embodied.

In these drawings:

Figure 1 is a side view of a reel with the driving mechanism shown in vertical cross-section.

Figure 2 is an end view of the reel with the driving sprocket and cover plate removed, showing the driving mechanism in driving position in full lines and in braking position in dotted lines.

Referring now to the details of construction illustrated in the drawings:

The gathering reel A is mounted on shaft B having a suitable driving sprocket C at one end thereof. The reel and associated parts are supported on a suitable frame D. A disk 10, operatively connected with the sprocket C, is rotatably mounted on the shaft B. A plurality of notches 11, 11, are formed in the periphery of the disk 10, as shown. A frame member 12 is also journaled on the shaft B and is provided with two pairs of laterally extending arms 13 and 13, 13^a and 13^a. A guide rod 14 is slidably mounted through the arms 13 and 13 on one side of the frame 12, and a parallelly disposed guide rod 14^a is similarly mounted on the opposite side of the frame through the arms 13^a and 13^a. An arcuate brake shoe 15 is provided with a friction piece 16 of fibrous material, or the like, and is adapted to engage the brake drum 17 forming a part of the reel A to drive the latter. An arcuate counterweight, similar in form to the brake shoe 15, is also provided. The guide rods 14 and 14^a extend into suitable lugs 18, 18 at one end, formed adjacent the opposite ends of the brake shoe 15, and into lugs 18^a, 18^a, formed adjacent the opposite ends of the counterweight, on the other end, which construction permits radial movement of said brake shoe and counterweight, together with their supporting frame 12. The counterweight is not intended to engage the inner bearing surface of the drum 17. A lever 19 is pivotally mounted at 20 to one of the arms 13^a. The outer end 22 of said lever arm engages a movable pin 23 projecting upwardly through the lug 24 integral with the frame 12. The upper end 26 of the pin 23 extends into a suitable annular stud 27 forming a part of the shoe 15. A spring 28 is interposed between the annular portion 25 and the outer face of the brake shoe 15, as shown. A nut 30 has threaded engagement on the pin 23. Variation in the tension of the spring 28 is afforded by adjusting the position of the nut 30 on said pin. The spring 28 is normally adapted to hold the pin 23 in engagement with the outer end of lever arm 19. The inward or downward movement of said arm is limited by a stop 31 on the frame 12. A set screw 38 is mounted on a projection 39 integral with the frame 12 and is adjustable to limit the outward or upward movement of said lever arm. A pawl 35 is pivoted at 36 on the arm 19 and is provided with a compression spring 37 adapted to hold said pawl in engagement with the disk 10.

A projection 45 is formed on the brake shoe 15 and is adapted to engage a dog 46 mounted on the supporting frame D. Said

dog is arranged so as to allow the projection to pass it while the reel is being wound or rotated in a clockwise direction, but will check the rotation of the entire frame and brake shoe when the reel is being unwound or is being rotated in a counter-clockwise direction, as shown in dotted lines in Figure 2.

The use and operation of my device is as follows:

The disk 10 is adapted to be rotated by the driving mechanism in a clockwise direction (see Figure 2) when the locomotive is advancing toward the point of connection of the conductor cable to the supply wires. As the disk is thus rotated, the pawl 35 engages one of the notches 11, as shown in Figure 2, whereupon the lever arm 19 is pivoted outwardly, thereby moving the pin 23 in a radial direction. The spring 28 is thereupon compressed and the brake shoe is forced into driving engagement with the drum 17 thereby transmitting the driving torque to the reel. As already suggested, it is desirable to maintain a tension on the conductor cable as it is being wound on the reel and to this end the set screw 38 limits the amount of relative movement of the friction shoe 15 and frame 12. By means of this arrangement, the disk 10 may be rotated at a slightly greater speed than is necessary to retrieve the conductor cable on the reel, and the movement of the friction shoe 15 is limited so as to limit the amount of frictional contact and thus provide a slipping frictional driving engagement with the drum. It will be noted that the arrangement of the dog 46 and notches 11, 11, is such that the reel can be driven in but one direction to wind the cable thereon.

Referring now to the arrangement for applying a brake to the reel during the time that the locomotive is moving away from the point of connection of the conductor cable and the latter is being withdrawn from the reel, it will be seen that the spring 28 serves to maintain the brake shoe 15 in constant contact with the drum 17 so that when the cable is unwound from the reel, and the latter is rotated in a counter-clockwise direction, the entire frame member 12 and the shoe 15 carried thereby will be rotated into a position shown in dotted lines in Figure 2, in which the stop 45 engages the dog 46 mounted on the frame D. In this position the brake shoe is under sufficient tension of the spring 28 to retard the rotation of the cable so as to eliminate the danger of "over-running" the conductor cable. The amount of tension on the spring 28 may be adjusted by screwing the nut 30 in either direction on the pin 23.

Although I have shown and described one form in which my invention may be embodied, it will be understood that the arrangement and construction of the various parts may be altered without departing from the spirit and scope of my invention. I do not, therefore, wish to be understood as limiting myself to the particular construction illustrated, excepting as it may be limited in the appended claims.

I claim as my invention:

1. In a device of the class described, a reel, a friction drum, a frame concentrically mounted with said drum, a friction clutch mounted on one side of said frame, a part carried by said frame and movable radially for actuating the friction clutch, and means connected with said part and diametrically opposed thereto whereby the centrifugal force of said moving part is counterbalanced.

2. In a device of the class described, a reel, a friction drum operatively connected with said reel, a frame concentric with said drum, a friction clutch carried by and radially movable respective to said frame, driving mechanism for said reel, means affording operative connection between said frame and driving means in one direction of rotation of the latter, a part carried by said frame and movable radially for actuating the friction clutch, and means oppositely disposed to said friction clutch respective the axis of revolution and connected with said movable part whereby the centrifugal force thereof is counterbalanced.

3. In a device of the class described, a reel, a friction drum operatively connected with said reel, a frame rotatably mounted concentric with said drum, driving mechanism for said reel, friction means carried by and movable respective to said frame, ratchet mechanism affording operative connection between said frame and driving means in one direction of rotation of the latter, tension means normally imposing a limited degree of friction contact of said friction means on said drum, means on said frame actuated by the driving torque to increase the tension of said last named means, and means connected with said friction means and disposed oppositely thereto respective the axis of revolution of said frame whereby the centrifugal force of said friction means is counterbalanced.

4. In a gathering reel, the combination of a reel, a shaft for said reel, a support for said shaft, a friction drum on said reel, a frame member journaled on said shaft having a plurality of laterally extending arms, a pair of parallelly disposed guide rods slidably mounted therethrough on opposite sides of said frame, a radially movable brake member provided with friction means mounted on adjacent ends of said guide rods, driving mechanism for said reel, means affording operative connection between said frame and said driving mechanism to drive

the reel in one direction, means on said frame actuated by the driving torque to move said brake member into driving engagement with said drum, means limiting the rotation of said frame in the direction opposite to that in which it is driven, and a radially movable member mounted on the oppositely disposed ends of said guide rods to counterbalance the centrifugal force of said brake member.

Signed at Chicago, in the county of Cook and State of Illinois, this 10th day of December, A. D. 1923.

EDWARD V. DOBERSTEIN.