Feb. 21, 1928. 1,659,704

J. RHODES

GOVERNOR

Filed Aug. 28, 1926

Fig. 1.

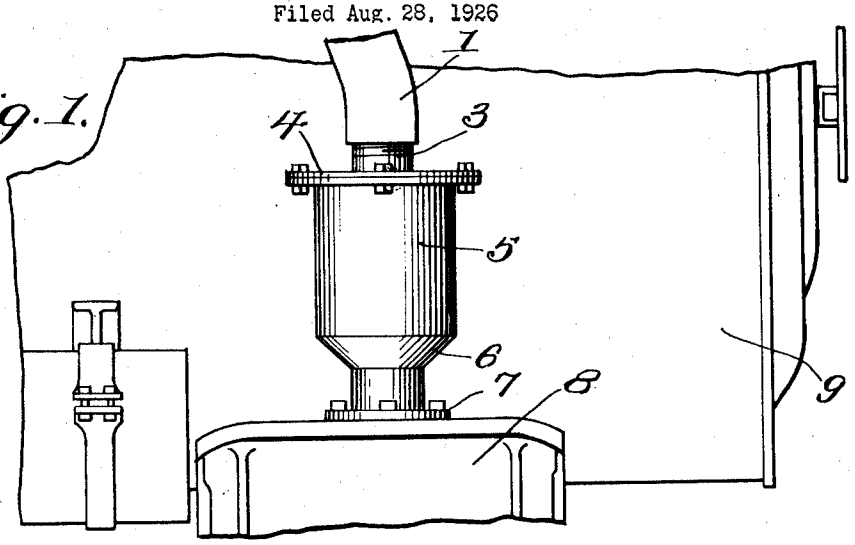


Fig. 2.

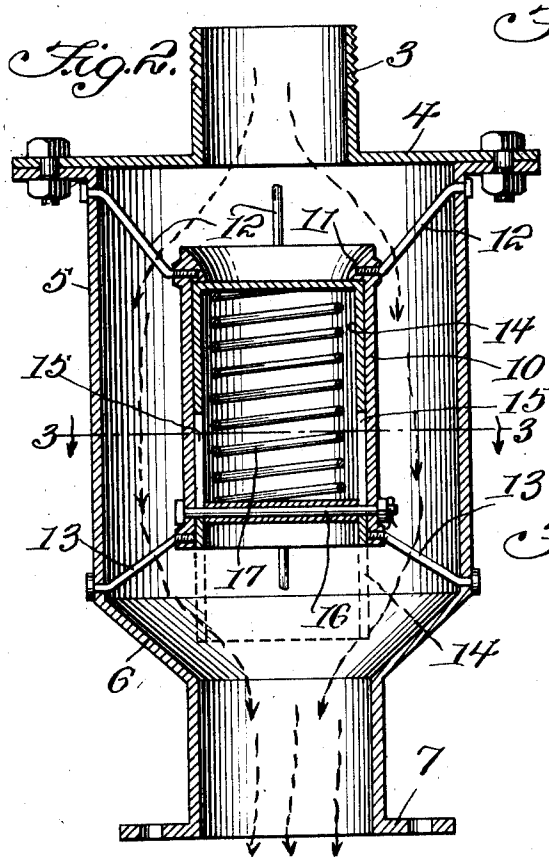


Fig. 3.

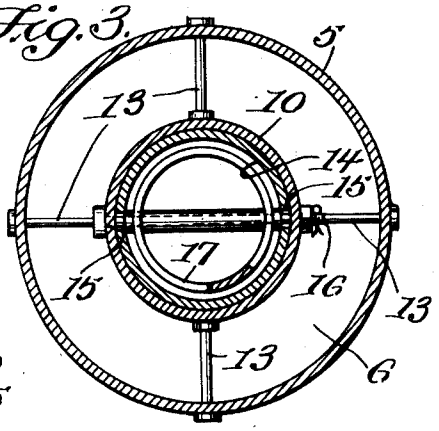
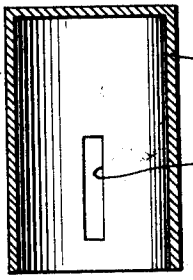


Fig. 4.



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JOHN RHODES, OF LEGRAND, IOWA.

GOVERNOR.

Application filed August 28, 1926. Serial No. 132,165.

The drive wheels of locomotives, when not in firm contact with the rails will spin, or in other words, revolve rapidly without propelling the locomotive, with the result that quite frequently great damage incident to the pounding of the piston and the operation of parts by the reciprocation of such piston have resulted. The object of this invention is the provision of a means in the nature of a steam governor which will reduce, if not entirely prevent such free turning of the drive wheels when the same lose their grip on the rails.

A further object is the provision of a governor for this purpose that is characterized by simplicity in construction, and reliability and efficiency in practical use.

To the attainment of the foregoing the invention consists in the improvement as hereinafter described and definitely claimed.

In the drawings:

Figure 1 is a side elevation of a sufficient portion of a locomotive to illustrate the application of the improvement thereon.

Figure 2 is a central vertical longitudinal sectional view through the improvement.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a central longitudinal sectional view through the plunger.

Secured to the main steam line pipe that feeds steam to the cylinder of the locomotive, commonly called the main drive pipe, and indicated by the numeral 1, there is a short threaded pipe member 3 that surrounds a central opening and extends from the top or cap plate 4 of my improved governor. The cylindrical body 5 of the governor has an upper flange to which the cap plate is pivoted. The lower portion of the cylindrical body 5 is flared inwardly, as at 6, and is formed with a pipe extension whose lower end is flanged, as at 7, and this flange is bolted or otherwise secured to the steam chest 8 of the locomotive 9.

In the body 7 there is centrally arranged a cylinder 10 that has its upper end formed with a continuous inwardly directed flange 11. Upper and lower angle brace rods 12 and 13 secured to both the body 5 and the cylinder 10 hold the cylinder centrally in the said body 5, and directly in a line with the pipe member 3 for the said body 5.

In the cylinder there is a hollow plunger 14. This plunger has its sides provided with longitudinal elongated openings 15 arranged opposite each other and passing through the cylinder 10 and through the openings 15 in the plunger there is a connecting rod 16. The rod supports thereon a plate or disc for a comparatively strong spring 17 and this spring contacting with the closed top of the plunger 14 forces the same upwardly in the cylinder and against the flange 11.

When the piston in the steam chest 8 is reciprocated in the usual manner and such reciprocation is resisted by the drive wheels in firm contact with the track rails, the steam will pass through the body 5 in the path indicated by the dotted lines in Figure 2. The steam in the body 5 and in the boiler for the locomotive, is in this instance, equalized. Should the drive wheels lose their grip or start to slip comparatively little resistance is offered to the piston in the steam chest with the result that the steam rushes into the chest, causing the piston to be rapidly reciprocated, which, as above stated, not only inflicts injury to the piston but to the parts operated thereby. This abnormal pressure of the steam will be directed toward the head of the plunger so that the plunger will be forced downwardly against the pressure of the spring 17 to the dotted line position in Figure 2 of the drawings, which reduces the entrance of steam to the steam chest 8. This reduction of steam will cause a back pressure from the steam chest, and such back pressure of steam will enter the plunger to force the same, without assistance of the spring 17 to its normal seated position so that the drive wheels of the locomotive will thus be prevented from free spinning. The steam finds an outlet through the slots or openings 15 of the plunger as well as through the bottom of the plunger. The governor does not interfere with the movement of the engine either running fast or slow, unless the drive wheel slips when the flow of steam is cut off in a manner as just described until the drive wheels are turned at only normal speed. When the engineer opens his throttle valve to start the train the plunger 17 will be moved downwardly by the first inflow of steam but will be returned to its normal seated position by the back pressure of such steam.

The simplicity of the construction and the advantages thereof will, it is thought, be perfectly apparent to those skilled in the art to which such invention relates when the foregoing description has been carefully

read in connection with the accompanying drawings, it being, of course, understood that I do not wish to be restricted to the precise details of construction herein set forth and hold myself entitled to such changes therefrom as fairly fall within the scope of what I claim.

Having described the invention, I claim:—

1. A governor of the character described adapted to be placed between the main steam line and the steam chest of a locomotive and comprising a hollow body having a nipple at one end thereof for connection with the steam pipe and a flange at the opposite end for connection with the steam chest, said body being cylindrical in shape and having its lower end converging toward a central point and terminating in a tubular portion, a cylindrical member lying centrally of the body and members for holding said cylindrical member in spaced relation to said body, said cylindrical member being hollow and having its upper end inwardly flanged, said flange having an upwardly and outwardly flaring surface, a cylindrical hollow plunger fitting within said cylindrical member, said plunger having one end thereof closed, the periphery of which is adapted to rest against the flange of the cylinder, said plunger having slotted sides and a transverse rod connected with said cylinder and extending through said slots and a spring within said plunger for pressing the same normally against said flange, said spring being supported by said pin and having one end thereof abutting against said plunger.

2. A governor of the character described comprising a cylindrical hollow body adapted to be connected to and between the main steam line and steam chest of a locomotive, a tubular member at one end secured centrally in said body and a tubular plunger slidably mounted in said tubular member, said plunger being closed at one end and having elongated axially extending slots, a rod connected to the tubular body and extending transversely through said slots and a spring resting on said rod and contacting with the closed end of said plunger.

In testimony whereof I affix my signature.

JOHN RHODES.