May 1, 1928. 1,667,864

T. MALEY

YIELDABLE DRIVING MECHANISM

Filed May 18, 1926

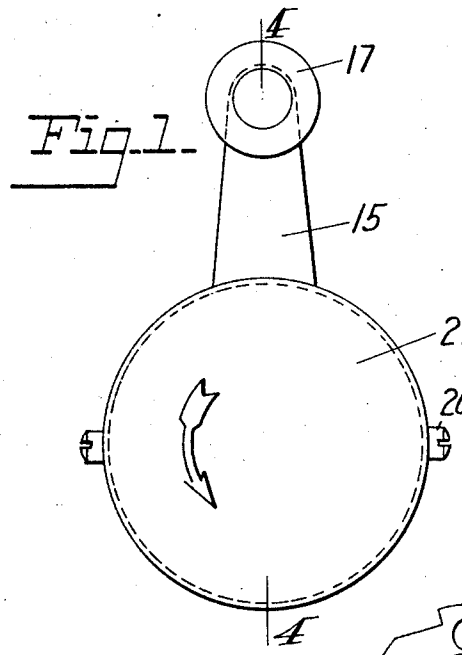


Fig. 1.

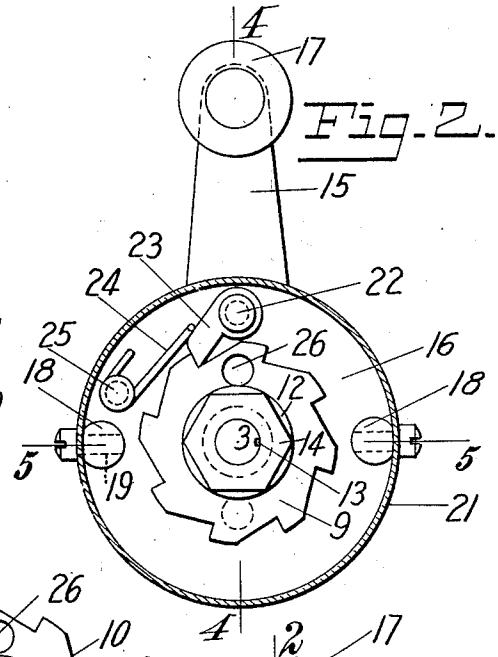


Fig. 2.

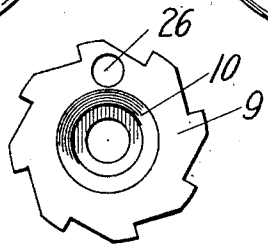


Fig. 6.

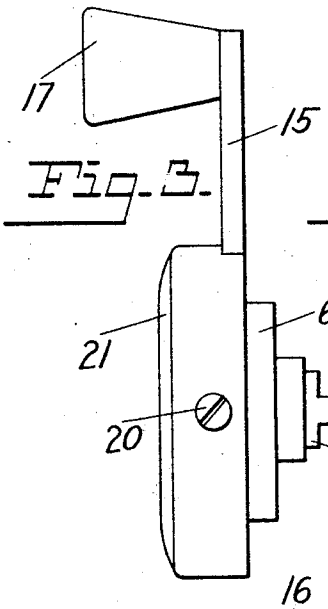


Fig. 3.

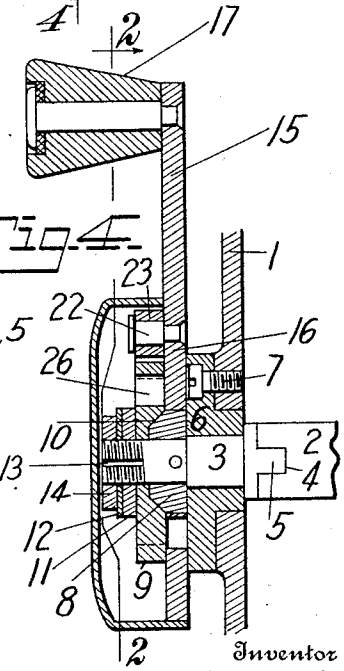


Fig. 4.

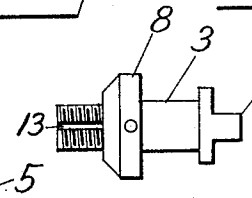


Fig. 7.

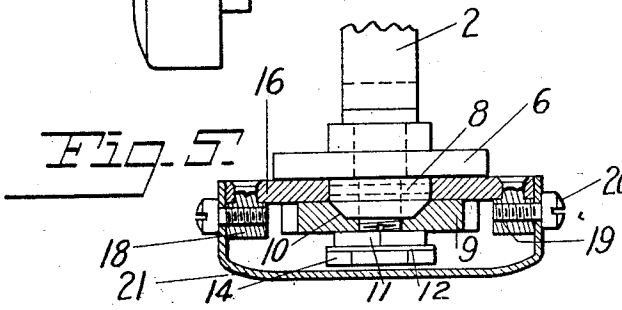


Fig. 5.

Inventor
THOMAS MALEY.
Hastings W. Baker
Attorney

Patented May 1, 1928. 1,667,864

UNITED STATES PATENT OFFICE.

THOMAS MALEY, OF DAYTON, OHIO, ASSIGNOR TO OHMER FARE REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF NEW YORK.

YIELDABLE DRIVING MECHANISM.

Application filed May 18, 1926. Serial No. 109,893.

This invention relates to a friction driving mechanism and is designed more particularly for use with the printing mechanism of a taximeter. More specifically it is an improvement on the type of driving mechanism shown in the application of Henry B. Ohmer, Serial No. 690,003, filed February 1, 1924.

In taximeters of the type to which this invention is applied the printing mechanism is normally locked against operation and can only be released for operation by the proper actuation of other parts of the taximeter mechanism. In a machine of the type shown in the patent of John F. Ohmer 1,223,067, dated April 17, 1917, if an attempt is made to operate the printing mechanism before the operations have been properly performed or when for any other reason the printing mechanism is inoperative, there is serious danger of some part of the mechanism being broken or otherwise injured by excessive pressure being applied to the actuating device.

Another object of the present invention is to provide means for safeguarding the taximeter mechanism from injury when excessive force is applied to the actuating crank or the printing mechanism.

A further object of the invention is to provide a driving connection between the printing shaft and the actuating crank, which under normal conditions will cause the printing mechanism to be positively driven, but which will yield to permit the actuating device to move forward relatively to the printing shaft when the latter is held against rotation.

A further object of the invention is to provide a device of this kind which will be very simple in its construction and operation, of strong, durable character and in which the various parts are readily accessible.

Other objects of the invention will appear as the mechanism is described in detail.

In the accompanying drawings,

Fig. 1 is a front elevation of a device embodying my invention.

Fig. 2 is a cross-sectional view on the line 2—2 of Fig. 4, looking in the direction of the arrows.

Fig. 3 is an edge view of the same.

Fig. 4 is a cross-sectional view on the line 4—4 of Figs. 1 and 2.

Fig. 5 is a cross-sectional view on the line 5—5 of Fig. 2.

Fig. 6 is a detailed view of the ratchet shown in Fig. 2, and

Fig. 7 is a detailed view of one of the connecting members.

In these drawings I have illustrated one embodiment of my invention and have shown the same as applied to the printing mechanism of a taximeter, but it will be understood that this particular embodiment has been chosen for the purpose of illustration only and that the device itself may take various forms and may be used in connection with mechanisms of various kinds.

The particular device here illustrated comprises two cooperating clutch members, one of which is connected with the actuating device or crank handle through a pawl and ratchet arrangement, and the other of which is connected with the printing shaft of the taximeter. The two members of the connecting device have cooperating parts which serve normally to positively connect the two members one to the other, but which will yield when the printing shaft is held against rotation to permit the crank handle to be rotated without causing danger to the printing mechanism.

In Fig. 4 I have designated a portion of the end wall of a taximeter casing by the reference character 1 and a portion of the printing shaft by the character 2. The other parts of the taximeter mechanism are not necessary to understand the invention, and, therefore, I have not illustrated the same. The printing shaft 2 is operatively connected with a connecting member 3 by a tongue and groove connection clearly shown in Fig. 4, the groove 4 in the printing shaft 2 receiving the tongue 5 in the connecting member 3. If desired, the parts 2 and 3 may be made integral. The connecting member 3 is journaled in a bearing 6 secured to the casing 1 by means of screws 7.

A frustrum of a cone 8 is secured to the connecting member 3, which cone frictionally engages a ratchet 9 having a cup-shaped portion 10 of the same contour as the face of the cone member 8, the cone and cup forming a friction clutch. The ratchet 9 is rotatably mounted on the connecting member 3 and is held in position thereon by means of a washer 11, a second washer 12 provided with a tongue adapted to be seated in the

groove 13 in the connecting member 3, and a third washer 14. The washer 12 eliminates any tendency for the washer 14 to rotate and, therefore, holds the ratchet securely in position so that it cannot be moved away from or toward the cone member 8. A crank 15 is provided with an enlarged circular part 16 and a crank handle 17. The circular part 16 is provided with a circular aperture within which lies the member 8 and is provided with two lugs 18 provided with threaded holes 19 to receive screws 20 to thereby secure the circular casing 21 to the crank 15. The circular part 16 also carries a lug 22 serving as a pivot for a dog 23 which is yieldingly pressed toward the ratchet 9 by means of a spring 24 secured to a lug 25 on the circular portion 16 of the crank 15. A hole 26 is provided in the ratchet 9 to facilitate the oiling of the device and to make the screws accessible.

In operation the crank handle 17 is rotated in the direction of the arrow shown in Fig. 1. As the crank 15 rotates it carries with it the circular portion 16 thereof and the dog 23 which engages the ratchet 9 rotating the same to the same extent that the handle 15 is rotated. The cup-shaped portion of the ratchet 9 engages the cone-shaped member 8 frictionally rotating the same and thereby rotating the members 3 and 2. If, however, the printing shaft 2 should be held against rotation, the friction in the clutch members will be overcome, the cone-shaped member 8 remaining stationary and the cup-shaped portion of the ratchet 9 revolving relative thereto. By adjusting the washers 11, 12 and 14 the amount of friction necessary to rotate the shaft 2 can be accurately adjusted, and when once adjusted required no further adjustment for a long period of time inasmuch as the tongue and groove connection between the washer 12 and the member 3 prevents any rotational effect being exerted on the washer 14 by the ratchet member 9.

If it be desired to rotate the crank handle reversely, it is obvious that upon such reverse rotation the pawl 23 will ride over the teeth of the ratchet 9 without tending to impart any movement to the printing shaft 2. This is necessary in case the printing shaft has been obstructed or held against rotation by the flag being, for instance, in an improper position. As soon as the cause of the obstruction is removed, the crank 15 can be reversely rotated to its usual position and then rotated as shown by the arrow in Fig. 1 to operate the printing shaft 2.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof, but desire to claim the same broadly, reserving to myself the right to make any modifications which may occur to a person skilled in the art.

Having described my invention, I claim:

1. In a taximeter, a crank, a dog carried by said crank, a connecting member, a ratchet rotatably mounted on said connecting member and engaged by said dog, said ratchet being provided with a cup-shaped depression, and a cone member secured to said connecting member and frictionally engaged by the cup-shaped portion of said ratchet.

2. In a taximeter, a shaft, a crank handle whereby said shaft may be operated, means operatively connecting said crank handle and shaft consisting of a cup and cone friction clutch, one of the members of said clutch being a ratchet, means whereby said ratchet is operated by the said crank handle, and means whereby said clutch may be adjusted so as to adjust one of the clutch members relative to the other.

3. In a taximeter, a shaft, a crank handle whereby said shaft may be operated, means operatively connecting said crank handle and shaft consisting of a cup and cone friction clutch, one of the members of said clutch being a ratchet, means whereby said ratchet is operated by the said crank handle, and means whereby said clutch may be adjusted so as to adjust one of the clutch members relative to the other, said ratchet being provided with an aperture to facilitate the oiling of the clutch.

4. In a taximeter, a crank, a dog carried by said crank, a connecting member, a ratchet rotatably mounted on said connecting member and engaged by said dog, said ratchet being provided with a cup-shaped depression, a cone member secured to said connecting member and frictionally engaged by the cup-shaped portion of said ratchet, and a cover to exclude foreign matter from the clutch, the pawl and the ratchet.

In testimony whereof I affix my signature.

THOMAS MALEY.