

E. E. PORTER.
FRICTION CLUTCH.
APPLICATION FILED JAN. 24, 1910.

981,000.

Patented Jan. 10, 1911.

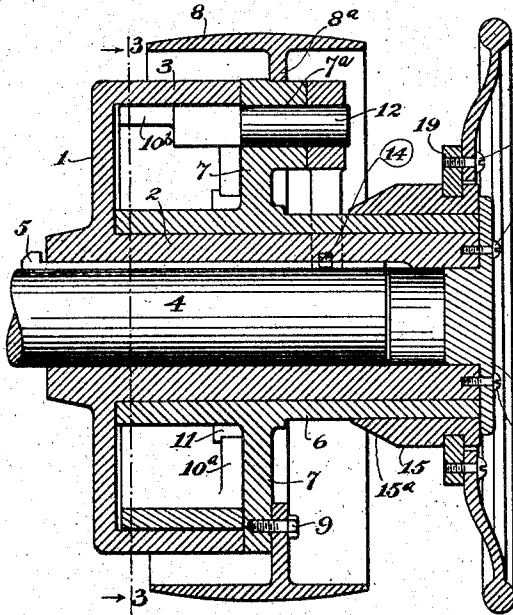


Fig. 1

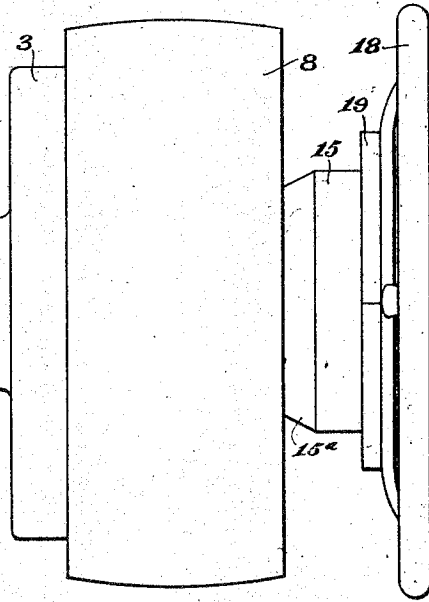


Fig. 2

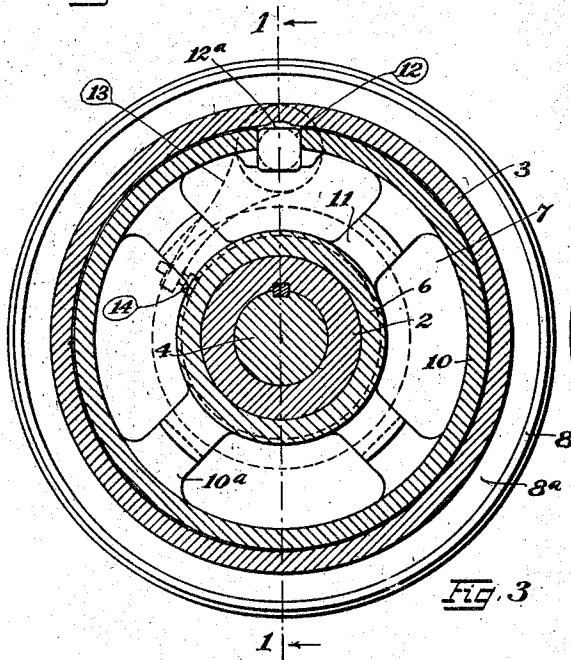


Fig. 3

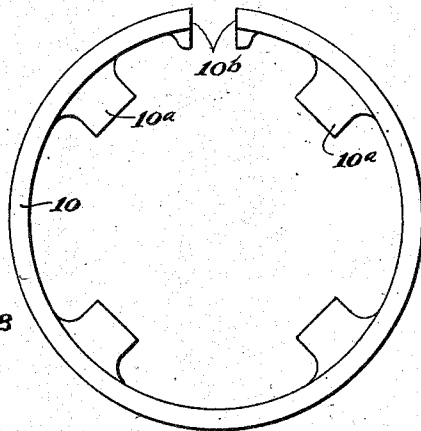


Fig. 4

Witnesses:
H. C. Valentin
A. C. Otter

Inventor:
E. E. Porter,
by Obed B. Billman
his attorney.

UNITED STATES PATENT OFFICE.

EDWIN E. PORTER, OF WOOSTER, OHIO

FRICTION-CLUTCH.

981,000.

Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed January 24, 1910. Serial No. 539,643.

To all whom it may concern:

Be it known that I, EDWIN E. PORTER, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, have invented certain new and useful Improvements in Friction-Clutches, of which the following is a specification.

My invention relates to improvements in friction clutches, the present embodiment being particularly designed for use as a friction-clutch-pulley and is adapted to be readily attached to or detached from a driving-shaft of a gas engine, or motor of similar character.

The primary object of the invention is to provide a generally improved friction-clutch which will be exceedingly simple in construction, cheap of manufacture, efficient in use, and much better adapted to its intended purposes than any other device of the same class with which I am acquainted.

A further object is to provide a friction-clutch having its shifting mechanism located outside of the driving-pulley and adapted to economize in the length of the projecting end of the shaft required for its attachment, the device being particularly adapted for attachment to a very short portion of a driving-shaft.

A still further object of the invention is to provide a compactly built friction-clutch adapted to carry driving pulleys of various sizes and dimensions.

With the above mentioned ends in view, the invention consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings forming a part of this specification, Figure 1, is a longitudinal sectional view of a friction-clutch taken through line 1—1 of Fig. 3. Fig. 2, a plan view of the same. Fig. 3, a cross-sectional view taken through line 3—3 of Fig. 1. Fig. 4, a plan view of the improved split friction-ring member.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved friction-clutch comprises a clutch-member 1, provided with a bearing-sleeve 2, and a surrounding friction-rim 3. The bearing-sleeve 2, preferably projects laterally beyond the plane of the friction-

rim portion 3, as shown, and is adapted to be secured upon the end of a driving-shaft 4, in any suitable and convenient manner, preferably, by means of a key 5, as shown.

The pulley-clutch-member comprises a sleeve 6, loosely or slidably mounted on the bearing-sleeve 2, and a main body or rim portion 7, adapted to carry a separately formed detachably mounted driving-pulley 8. The driving-pulley is preferably provided about its inner periphery with an inwardly extending attaching flange 8^a, secured to the face of the main body portion 7, of the pulley-clutch-member by means of a plurality of set-bolts 9. The pulley-clutch-member is provided on its inner side with a detachably mounted split friction-ring 10, carried within the friction-rim 3 of the cooperating clutch-member 1, and adapted to be thrown into and out of frictional engagement therewith by the means hereinafter described. The split friction-ring 10, is preferably mounted and detachably secured to the friction-clutch-member by means of a plurality of inwardly extending bearing-lugs 10^a, adapted to rest upon and interlock with a plurality of radially extending flanged bearing-lugs 11, of the sleeve portion 6, of said pulley-clutch-member. As a means for providing for the expansion of the split friction-ring into frictional engagement with the inner periphery of the friction-rim 3, of the opposing clutch-member, as well as for preventing the circumferential movement of the friction-ring relative to the pulley-clutch-member when mounted as above described, an expanding-bolt member 12, is provided, said bolt-member being adapted to oscillate in a suitable bearing 7^a, of the pulley-clutch-member and provided at one end with an expanding-head 12^a, interposed between the adjacent ends 10^b, of the split friction-ring and at the other with a lever-arm or member 13, having its free end disposed in close proximity to the sleeve portion 6, of the pulley-clutch member. As a means for adjusting the throw of the lever 13, and the consequent oscillation of the expanding-bolt 12, and expansion of the split friction-ring 10, the free end of the lever member 13, is provided with an adjusting bolt 14, and as a means for shifting or operating the lever-arm or member 13, whereby the friction-ring may be expanded or contracted for being brought into and out of frictional engagement with the ad-

jacent friction-rim portion 3, of the opposing clutch-member, a shifting collar 15, is slidably mounted upon the sleeve 6, and is provided with an annular wedge-shaped portion 15^a, adapted to take under and co-operate with the adjacent end of the adjusting-bolt 14, when the shifting collar is moved longitudinally on the sleeve 6, by suitable shifting mechanism.

10 The shifting-collar 15, may be retained upon the sleeve 6, in any suitable and convenient manner, the retaining means, in the present instance, comprising a head-plate 16, secured to the end of the bearing-sleeve 2, by means of screws 17.

As a convenient means for shifting the collar 15, a rotatably mounted shifting wheel 18, may be provided, said wheel being preferably carried by and secured to the shifting-collar 15, by means of a collar or ring-portion 19, having its inner periphery adapted to rest within the annular groove of the shifting-collar 15. The collar or ring-portion 19, is preferably made up of two semi-cylindrical parts as shown in Fig. 2, of the drawings, and may be secured to the shifting-ring 18, by means of a plurality of screws 20.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described my invention, what I claim and desire to secure by Letters Patent is,—

1. A friction-clutch, comprising a clutch member provided with a peripheral friction-rim and a laterally extending bearing-sleeve, a pulley-clutch member having a sleeve provided with radially extending bearing lugs and loosely mounted on said bearing-sleeve, a split friction-ring detachably carried in said bearing lugs, an expanding-bolt carried by said pulley-clutch member and projecting between the adjacent ends of said friction-ring whereby said ring is expanded and prevented from circumferential movement relative to said pulley-clutch member, a lever member carried by said expanding bolt and having its free end provided with an adjusting bolt disposed in close proximity to said bearing-sleeve, a collar slidably mounted on the sleeve of said pulley-clutch member and having an annular wedge-shaped portion adapted to coöperate with said adjusting bolt of said lever member, means for shift-

ing said collar, and means for retaining said collar on said last mentioned sleeve.

2. A friction-clutch, comprising a clutch member provided with a friction-rim and a laterally projecting bearing-sleeve, a pulley-clutch member having a sleeve loosely mounted on said bearing-sleeve and provided with a plurality of radially expanding flanged bearing-lugs, a split friction-ring provided with a plurality of inwardly extending bearing-lugs normally resting upon and interlocked with said flanged bearing-lugs, an expanding-bolt carried by said pulley-clutch member and projecting between the adjacent ends of said friction-ring whereby the latter may be expanded and prevented from circumferential movement relative to said pulley-clutch member, a lever carried by said expanding-bolt and having its free end disposed in close proximity to said bearing-sleeve, a collar slidably mounted on the sleeve of said pulley-clutch member and adapted to coöperate with said lever member, and means for retaining said collar on said last mentioned sleeve.

3. In a friction-clutch, the combination with a clutch member provided with a laterally projecting bearing-sleeve and a surrounding friction-rim, and a pulley-clutch member having a sleeve loosely mounted on said bearing sleeve and provided with a plurality of radially extending flanged bearing-lugs; of a split friction-ring provided with inwardly extending bearing lugs normally resting on said flanged bearing-lugs, an expanding-bolt mounted in said pulley-clutch member and projecting between the adjacent ends of said friction-ring whereby the latter is expanded and prevented from circumferential movement relative to said pulley-clutch member, a lever member carried by said expanding-bolt, a collar slidably mounted on the sleeve of said pulley-clutch member and having an annular wedge-shaped portion adapted to engage with said lever member; and a bearing-head secured to the end of said bearing-sleeve and adapted to retain the sleeve of said pulley-clutch member and said collar in operative position.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EDWIN E. PORTER.

Witnesses:

O. C. BILLMAN,
GEO. H. BILLMAN