

No. 826,794.

PATENTED JULY 24, 1906.

A. F. MACK.

FRICTION CLUTCH.

APPLICATION FILED JUNE 14, 1905.

2 SHEETS—SHEET 1.

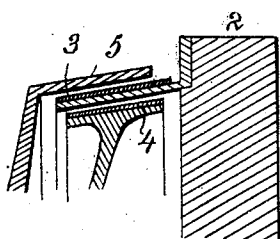
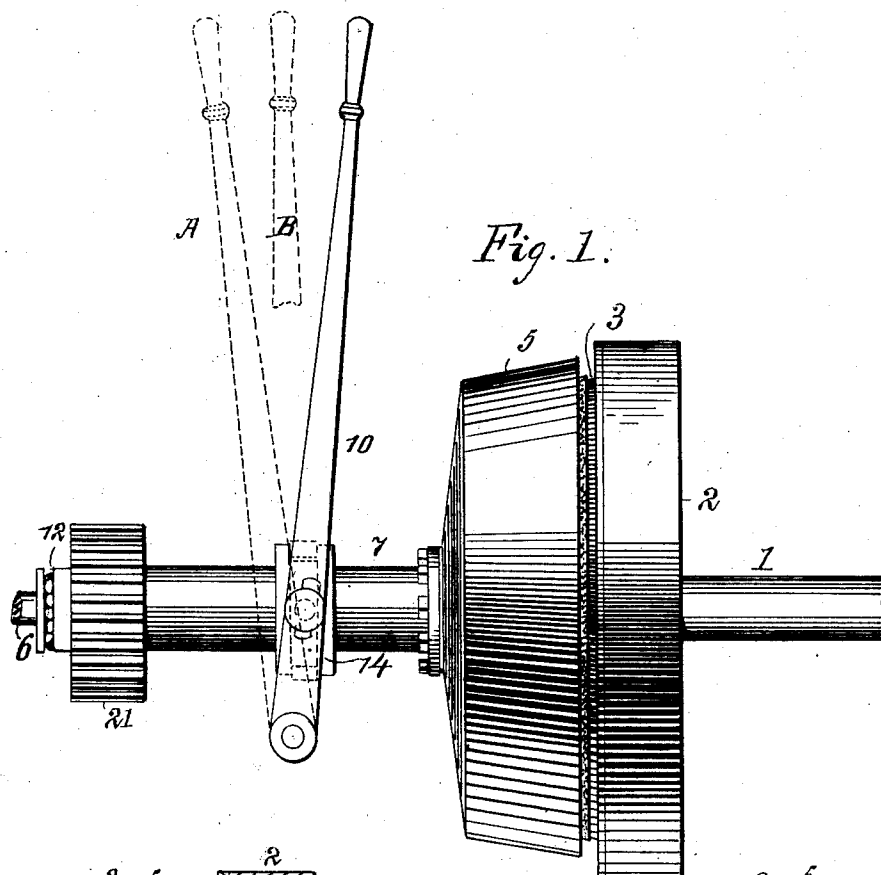


Fig. 4.

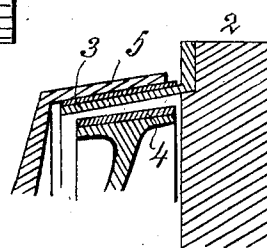


Fig. 3.

WITNESSES:

Augustus Frederick Mack INVENTOR

A. M. Hayes

BY

Clayton Hermance

Robert Eric Monroe ATTORNEY

No. 826,794.

PATENTED JULY 24, 1906.

A. F. MACK.

FRICTION CLUTCH.

APPLICATION FILED JUNE 14, 1905.

2 SHEETS—SHEET 2.

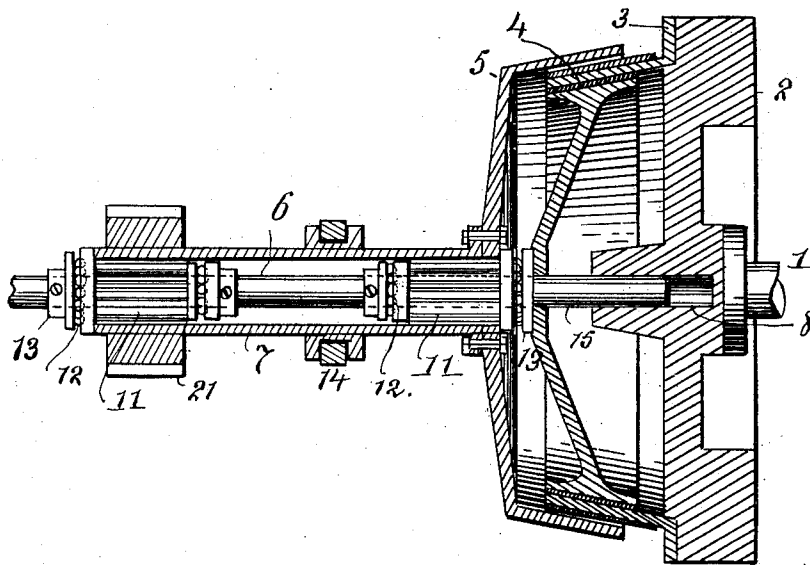


Fig. 2.

WITNESSES:

Augustine Frederick Mack INVENTOR

A. M. Hayes

BY

Clayton J. Heermance *Robert H. Moore* ATTORNEY

UNITED STATES PATENT OFFICE.

AUGUSTUS FREDERICK MACK, OF BROOKLYN, NEW YORK.

FRICTION-CLUTCH.

No. 826,794.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed June 14, 1905. Serial No. 265,161.

To all whom it may concern:

Be it known that I, AUGUSTUS FREDERICK MACK, of Brooklyn, Kings county, New York, have invented a new and useful Improvement in Friction-Clutches, of which the following is a specification.

The invention relates to a clutch mechanism wherein the parts operate by direct frictional contact; and it consists in the construction hereinafter set forth, whereby the motion of a driving-shaft may be imparted at will to either of two driven shafts, both of said driven shafts being rotated in the same direction.

In the accompanying drawings, Figure 1 is a side elevation of my improved clutch. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detailed view in section, showing the ring 5 in engagement and the ring 4 disengaged. Fig. 4 is a similar view showing both rings 4 and 5 out of engagement.

Similar characters of reference indicate like parts.

1 represents a rotary shaft, fast upon which is the disk 2, provided on one face with a frusto-conical flange 3 and with a central guide-opening 8. The inner and outer peripheries of flange 3 furnish friction-surfaces for the rims of the inner and outer clutch-rings 4 and 5. The inner ring 4 is secured upon a shaft 6, while the outer ring 5 is secured to a sleeve 7, which surrounds said shaft 6. Roller-bearings 11 and ball-bearings 12 permit the sleeve 7 to rotate freely around the shaft 6, while relative motion lengthwise is prevented by the collars 13. 10 is an operating-lever connected by yoke 14 to sleeve 7. When said lever is swung on its pivot, it moves the sleeve 7 and the inclosed shaft 6 simultaneously in a longitudinal direction to bring the inner periphery of clutch-ring 5 and the outer periphery of clutch-ring 4 into or out of frictional contact with the flange 3. Thus when said lever is moved to the position indicated by dotted lines A in Fig. 1 the position of the clutch-rings is as shown in Fig. 2, the ring 4 being in frictional engagement with the inner periphery of the flange 3 and the ring 5 being out of engagement with the outer periphery of said flange. When the lever is brought to the position shown in full lines in Fig. 1, the clutch-ring 5 comes into engagement with the flange 3 and the clutch-ring 4 is moved out of engagement with said flange, as shown in Fig. 3. When said lever is placed in its

middle position, (represented in dotted lines at B, Fig. 1,) then both clutch-rings are moved out of engagement with the flange 3, as shown in Fig. 4. The shaft 6 has a prolongation 15, which enters the guide-opening 8 in disk 2. In this way the clutch-rings 4 and 5 are guided in a right line during their movement into and out of engagement. It will be obvious that by this construction I may cause motion to be transmitted from the disk 2 to either the clutch-ring 5 or the clutch-ring 4 at will, or, by placing the lever in its middle position B, I may wholly interrupt the transmission of motion from the disk 2, said disk then revolving freely upon the shaft 6. These capacities of the clutch I may utilize in any desired way, as by having a certain mechanism driven by the shaft 6 and another mechanism driven from the sleeve 7 by means, for example, of a gear-wheel such as is shown at 21. It will also be observed that when one clutch-ring, as 4, is brought into engagement with the flange 3 the other clutch-ring 5 is at the same time moved out of engagement with said flange 3, and this capacity I may also utilize in connection with any suitable mechanism or mechanisms.

In another application for Letters Patent, Serial No. 245,991, filed February 17, 1905, I have shown my present clutch in connection with transmitting-gearing for providing variable-speed transmission, in which construction I utilize in one specific way the capacities of my aforesaid clutch, as hereinbefore pointed out.

I claim—

1. In a friction clutch mechanism, a driving-shaft, a fixed frusto-conical clutch-ring thereon, a driven shaft, a sleeve on said driven shaft and two frusto-conical clutch-rings respectively fixed on said sleeve and shaft and both rotated in the same direction by said first-named clutch-ring; one of said rings being surrounded by and the other surrounding said driving clutch-ring, and means for moving either of said driven rings into frictional contact with said driving-ring.

2. In a friction clutch mechanism, a driving-shaft, a frusto-conical clutch-ring thereon, a longitudinally-movable driven shaft, a sleeve rotatable on said driven shaft, two frusto-conical clutch-rings respectively fixed on said sleeve and said driven shaft, one of said rings being surrounded by and the other surrounding said driving clutch-ring, and

means for moving said driven shaft to carry either of said driven rings into frictional contact with said driving-ring.

3. The combination of a driving-shaft, a
5 disk thereon having a central guide-recess, a frusto-conical clutch-ring on said disk, a longitudinally-movable driven shaft having one end entering and guided by said recess, a sleeve on said driven shaft and two frusto-
10 conical clutch-rings respectively mounted on said sleeve and shaft; one of said rings being surrounded by and the other surrounding

said driving clutch-ring, and either of said rings being movable into frictional engagement with said driving-ring by the longitudinal displacement of said driven shaft. 15

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

AUGUSTUS FREDERICK MACK.

Witnesses:

C. J. HEERMANCE,
R. G. MONROE.