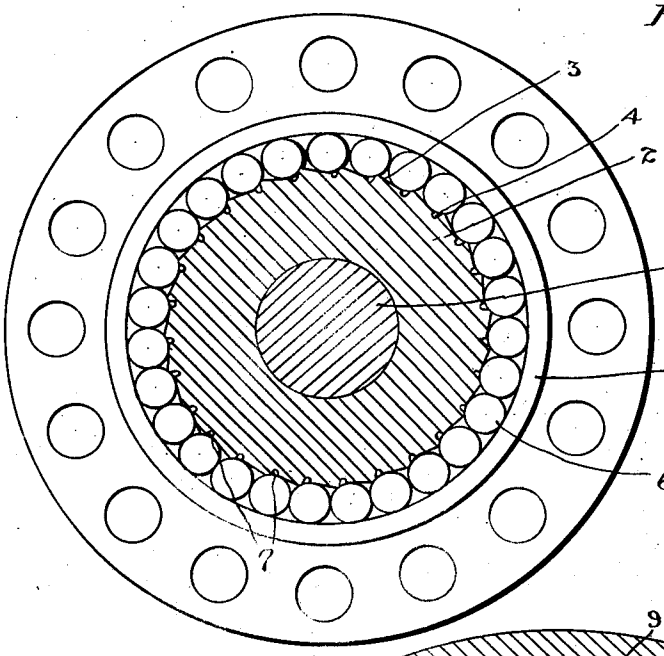
May 4, 1926. 1,583,530

D. S. DE LAVAUD

CLUTCH MECHANISM

Filed Jan. 28, 1922

Fig. 1.



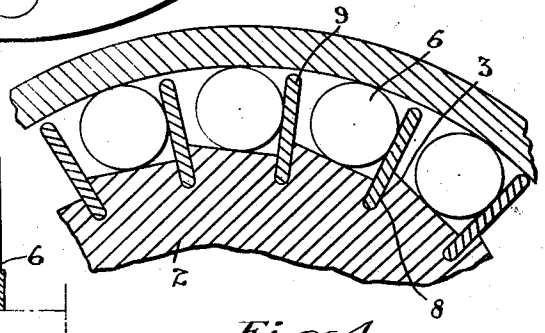
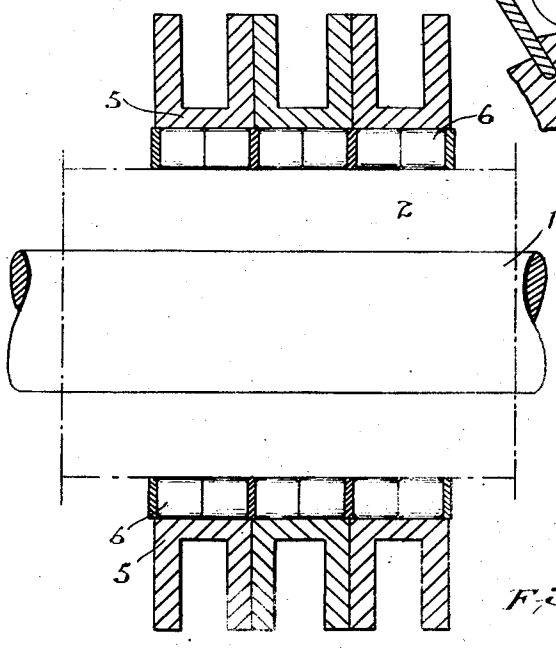


Fig. 4.



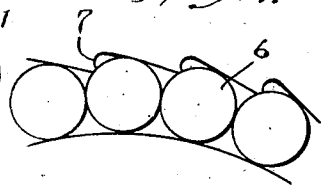


Fig. 3.

Fig. 2.

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UNITED STATES PATENT OFFICE.

DIMITRI SENSAUD DE LAVAUD, OF PARIS, FRANCE.

CLUTCH MECHANISM.

Application filed January 28, 1922. Serial No. 532,464.

To all whom it may concern:

Be it known that I, DIMITRI SENSAUD DE LAVAUD, a citizen of the United States of Brazil, and resident of the city of Paris, in the Republic of France, have invented certain new and useful Improvements in Clutch Mechanisms, described in the following specification and illustrated in the accompanying drawings, that form part of the same.

The principal object of this invention is to devise a mechanism which will maintain a constant operative contact between the driving and driven members and will distribute the stress uniformly.

The principal feature of the invention consists in the novel construction and arrangement of clutch members, whereby a plurality of roller members are individually rotatively supported between two points of contact one of which is an inclined surface and a cylindrical surface engages said rollers at a third point to rotate said rollers to effect a binding in one direction and to release in the opposite direction.

A further important feature consists in the arrangement of a plurality of circular members to which vibratory impulses are applied in co-operation with a unitary member adapted to be driven thereby with a continuous rotative movement through intermediary roller contacts.

In the drawings, Figure 1 is a cross sectional view through one unit of the device.

Figure 2 is a longitudinal sectional view illustrating the multiple arrangement of the device.

Figures 3 and 4 are enlarged sectional details of slightly modified structures of the roller contact surface.

It has been known to form a clutch by the arrangement of roller members between a smooth cylindrical surface and a member provided with tangential surfaces to wedge against the rollers and various methods have been proposed to maintain the roller members in constant contact with the driving and driven members. The present invention proposes to maintain the desired relation between the driving and driven members and the roller intermediaries by the simple expedient of providing a third contact point in fixed relation to each of the tangential surfaces to effect a definite stop for the rollers during the non-clutching movements of the driving member.

In the application herein shown the shaft 1 has mounted upon it a drum 2 which drum is formed with a plurality of longitudinally disposed planes 3 which are arranged substantially tangential to a circle described about the axis. These planes are preferably separated by longitudinal grooves or channels 4.

A plurality of ring-shaped members 5 encircle the drum 2 being spaced therefrom and within the space between the drum and the rings are arranged a plurality of roller members 6. These roller members are so proportioned that they engage in physical contact with the outer ring surface and the tangential surfaces are so arranged that the rollers each engage the projecting edge 7 of the adjacent tangential surface at the intersection of said surface and the channel 4. It is of course understood that the physical contact referred to allows the interposition of a lubricating film.

The actual construction of the ribs formed by the planes 3 may be varied as indicated in Figure 3 but it will of course be necessary to substitute some limiting means to the free movement of the roller members so that they may be maintained in a continuous contact with the tangential and cylindrical contacting surfaces and in the modification shown in Figure 4 the plane member is provided with radial grooves 8 and in these grooves are rigidly secured the radial vanes 9 which engage the roller members.

Any desired number of the ring members 5 may be utilized in conjunction with the drum 2 and when a rotative movement is imparted to these rings they carry the drum in rotative movement with them.

It will be readily seen that if an intermittent action is imparted to the rotative ring, said ring will alternately grasp and rotate the drum and allow the drum to run free, consequently if a vibratory back and forth rotative action is imparted to the ring the result will be a continuous rotative action in the drum and when a plurality of such rings are operated with vibrations of high frequency which vibrations are out of step with the vibrations applied to adjacent or other rings a perfect continuous movement of the central rotated member will result.

In Figures 1, 2 and 4 the illustration shows the plane surfaced member as being the central one but as illustrated in Figure 3 the planes may be formed upon the outer member if desired with a like result.

What I claim as my invention is:—

1. In a clutch, a cylindrical surfaced member, a member spaced from said cylindrical surfaced member and having a continuous succession of tangential surfaces, roller members co-operating with each of said tangential surfaces and with the cylindrical surface, and means interposed between the tangential surfaces engaging said rollers and holding them in definite location.

2. In a clutch, a member having a cylindrical surface, a member having a plurality of longitudinal grooves therein and tangential surfaces extending between the grooves the acute angled meeting surfaces forming shoulders, and roller members having engagement with said shoulders and said tangential surfaces and held in rolling contact with the cylindrical surface.

DIMITRI SENSAUD DE LAVAUD.