No. 793,919. PATENTED JULY 4, 1905.

L. S. CLARKE.

FRICTION CLUTCH.

APPLICATION FILED APR. 2, 1903.

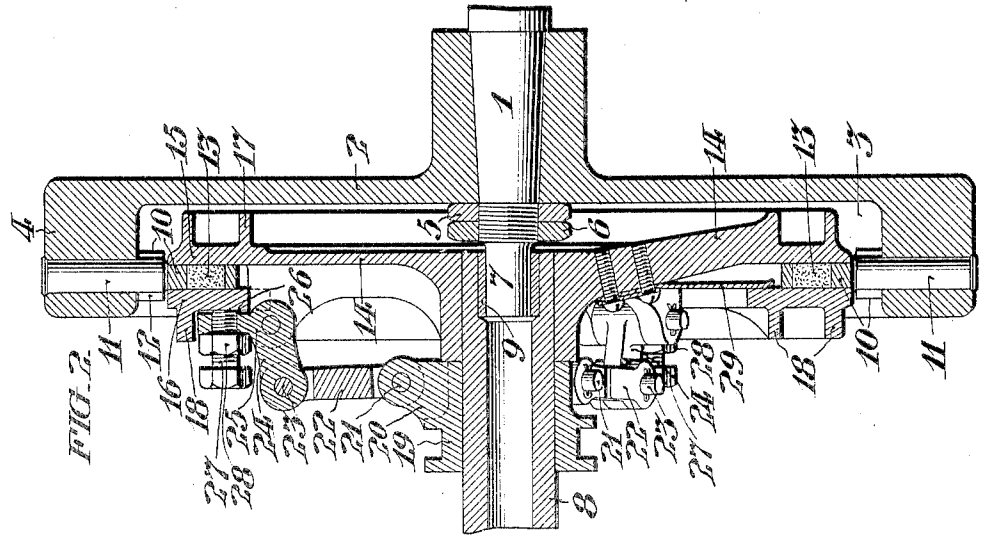


FIG. 2.

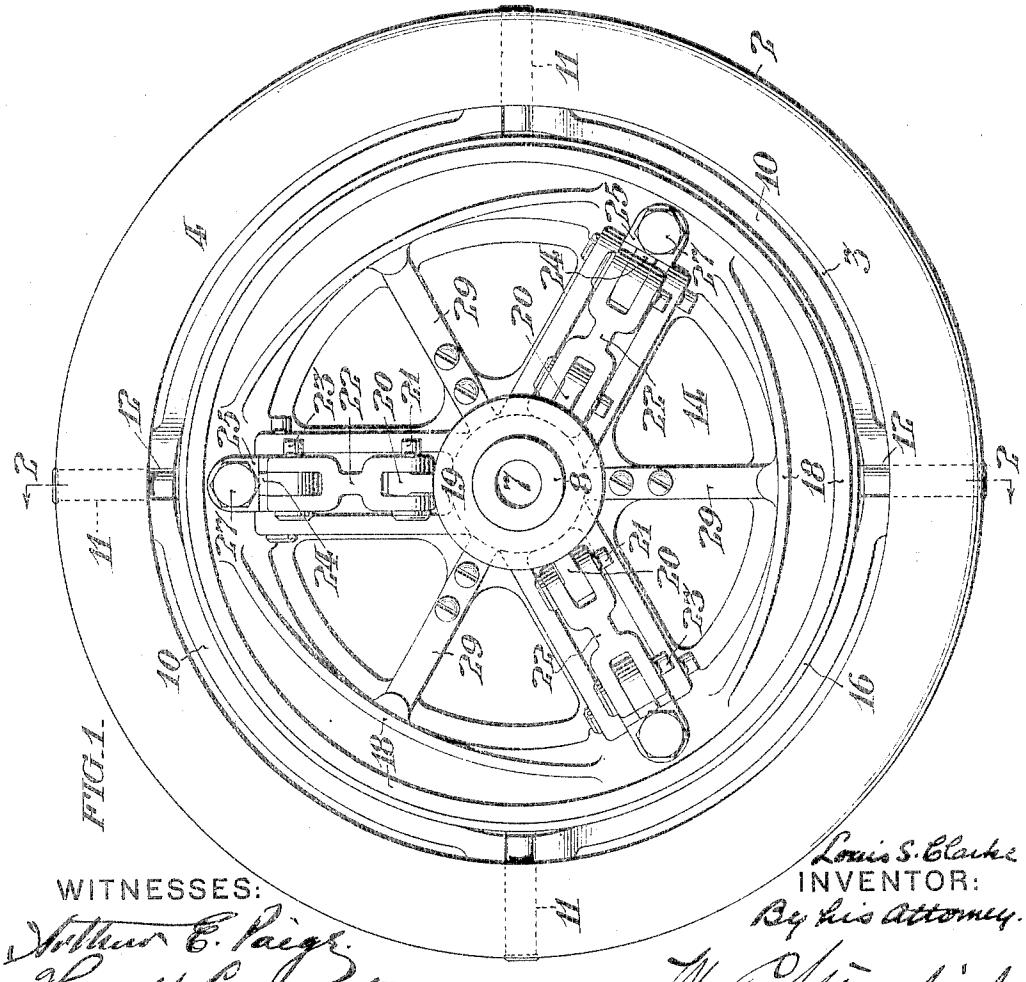


FIG. 1.

WITNESSES:

Nathan E. Paige.

Hook Lancaster

Louis S. Clarke
INVENTOR:
By his attorney.

W. C. Whittlesey

No. 793,919. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

LOUIS S. CLARKE, OF HAVERFORD, PENNSYLVANIA.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 793,919, dated July 4, 1905.

Application filed April 2, 1903. Serial No. 150,799.

To all whom it may concern:

Be it known that I, LOUIS S. CLARKE, a citizen of the United States, residing at Haverford, in the county of Montgomery, State of Pennsylvania, have invented certain new and useful Improvements in Friction-Clutches, of which the following is a specification.

This invention relates to an improvement in friction clutches, and it has for its object to provide a clutch simple in construction, efficient in operation, and also one which may be economically manufactured.

The improvement resides in the combination and arrangement of the parts as hereinafter described and specifically pointed out in the claims.

In the accompanying drawings,

Figure 1 is a side elevation of the clutch, and

Figure 2 is a transverse vertical sectional view taken on line 2 2, Figure 1.

As illustrated, the clutch mechanism is shown as applied for the purpose of connecting the adjacent ends of two shafts so as to cause them to rotate simultaneously and as a single shaft.

In the drawings,

1 designates a shaft upon a reduced end of which is mounted a fly wheel 2, the inner side of which is provided with a depression 3, which is surrounded by an annular wall 4. The said fly wheel is secured to the end of the shaft by means of the nut 5 and the jam nut 6, as clearly shown in Figure 2.

A portion 7 of the reduced end of the shaft 1 extends into the adjacent open end of the shaft 8 and forms a support therefor, the open end of the said shaft 8 being provided with a lining 9 of suitable bearing material.

Secured upon the inner side of the annular wall 4 is an annulus or ring 10 which fits snugly within the said wall and is secured to rotate with the said fly wheel 2 by means of pins 11, which project inwardly through the annular wall 4, integral with and forming part of said fly wheel, the inner ends of said pins projecting into slots 12 cut into and across the annulus or ring 10.

13 designates a series of friction plugs provided in the annulus or ring 10, which consists of cork or other material, the purpose of said plugs being to increase the frictional efficiency of the said annulus or ring. Only two of these plugs are shown, but it is to be understood that any desirable number may be provided in the said annulus.

By securing the annulus or ring 10 to the fly wheel 2 in the manner shown, a slight relative lateral movement between the said ring and the fly wheel is permitted, which is very desirable in the operation of the device for the reason that the shafts 1 and 8 frequently assume slightly angular relations. Especially is this the case where the shaft is a power transmission shaft extending from an engine or motor located at the front of a motor vehicle to the rear axle of such vehicle.

Rigidly mounted upon the shaft 8 and rotating therewith, is a disk 14, the outer periphery of which is provided with a circular friction clamping plate or portion 15 which is arranged adjacent to one side of the annulus or ring 10.

16 is an annular friction or clamping plate arranged adjacent to the opposite side of the said annulus or ring 10, and is adapted to be forced against the adjacent side of the said annulus or ring. The disk 14 and the clamping-plate 16 are respectively provided with strengthening ribs 17 and 18.

Also slidably mounted upon the said shaft 8 and rotating therewith, is a sleeve 19 provided with three sets of lugs 20, as clearly shown in Figure 1 of the drawings, to which are pivotally secured at 21, links 22 extending radially outwardly, the outer ends of said links being pivotally connected at 23 to the outer ends of the horizontally and longitudinally extending arms 24 of a bell crank lever 25. The sliding of the sleeve 19 is occasioned by any suitable means, not shown.

The other arm 26 of said bell crank lever extends radially and in a direction substantially parallel to the direction of the links 22, as indicated in Figure 2 of the drawings, the said arm 26 being arranged in proximity to the outer side of the annular clamping plate 16.

27 is a thumb screw having screw-threaded engagement with the arm 26 of the bell crank lever, and is adapted to be screwed in and out in a well understood manner, and is for the

purpose of controlling the clamping force of the clamping plate 16 against the annulus 10. The inner ends of the thumb screws 27 are located in contact with the clamping plate 16 and transmit the force of the bell crank lever to said plate. 28 is a jam nut for the purpose of retaining the thumb screw in the desired position.

In Figure 2, the parts are shown in operative position with the annulus or ring 10 firmly clamped between the clamping members 15 and 16. It will be observed upon examination of Figure 2, that the pivotal connection 21 between the links 22 and the lugs 20 upon the slidable member is located to the right of a vertical line passing through the center of the pivots 23.

By this means, when the slidable member is moved to the position which it occupies in Figure 2 of the drawings, the parts are locked in such position as will be readily understood.

It is to be understood that when the parts of the device are not in operative position, that is to say, when the slidable sleeve 19 is moved to the left upon the shaft 8, and the said shaft is not rotating, the clamping members 15 and 16 should not be and are not in contact with the annulus or ring 10. For the purpose of holding the said clamping members out of contact with the said annulus or ring 10, at such time, the spring plates 29 are provided which are secured to the disk 14 in the manner shown.

It will be understood that the shaft 1 and the fly wheel 2 mounted thereon, and the annulus or ring 10 carried upon the fly wheel, are constantly rotating and that the shaft 8 is normally stationary. To secure the shaft 8 to the shaft 1, the slidable sleeve 19 is moved by any suitable means, not shown, to the position shown in Figure 2, in which position the clamping members 15 and 16 will firmly clamp or grasp the annulus or ring 10, and thus, through the fly wheel 2 and the disk 14, the said shafts are secured together and compelled to rotate in unison.

Having thus described my invention, I claim—

1. In a clutch mechanism, in combination, a rotatable annulus, a series of friction plugs of suitable material secured upon said annulus, circular friction clamping members located on opposite sides of said annulus, a bell crank pivoted upon a stationary support in proximity to one of said clamping members, one arm of said bell crank extending parallel and adjacent to one of said clamping members, an adjustable device secured to said arm and adapted to contact with but which is not connected to the clamping member last mentioned, a link pivotally connected to the other arm of said bell crank, means for moving said link about its pivot to operate the bell crank, and plate springs for moving and holding one of the friction clamping members away from the said annulus, substantially as described.

2. In a clutch mechanism, in combination, a rotatable shaft, a fly wheel mounted thereon to rotate therewith, and provided with a depression upon one side thereof, an annular wall integral with the fly wheel and surrounding said depression, an annulus or ring in the said depression provided with transverse slots in its peripheral edge, pins extending through said annular wall and into said slots, clamping members located upon the opposite sides of said annulus or ring, and plate springs for holding one of said clamping members out of contact with the said annulus or ring, and means for occasioning a clamping action of said clamping members, said means comprising a bell crank pivotally supported and having one of its arms adjacent to one of said clamping members, the said arm being provided with an adjustable device adapted to contact with the outer face of the adjacent clamping member, but which is not connected thereto, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 18th day of March, A. D. 1903.

LOUIS S. CLARKE.

In presence of—

THOMAS SHIELDS CLARKE,

JAMES KING CLARKE.