

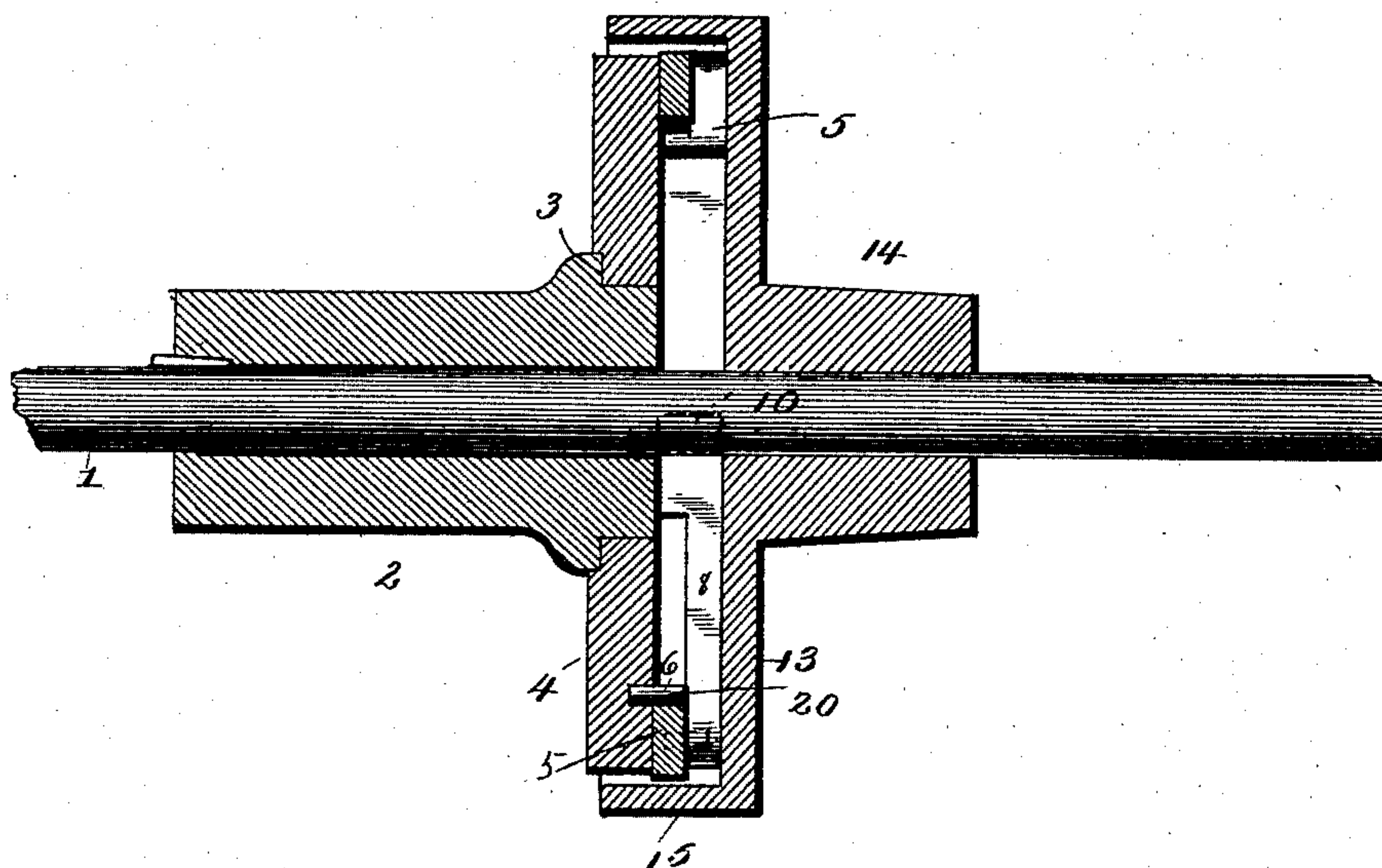
(No Model.)

W. E. CANEDY.  
CLUTCH.

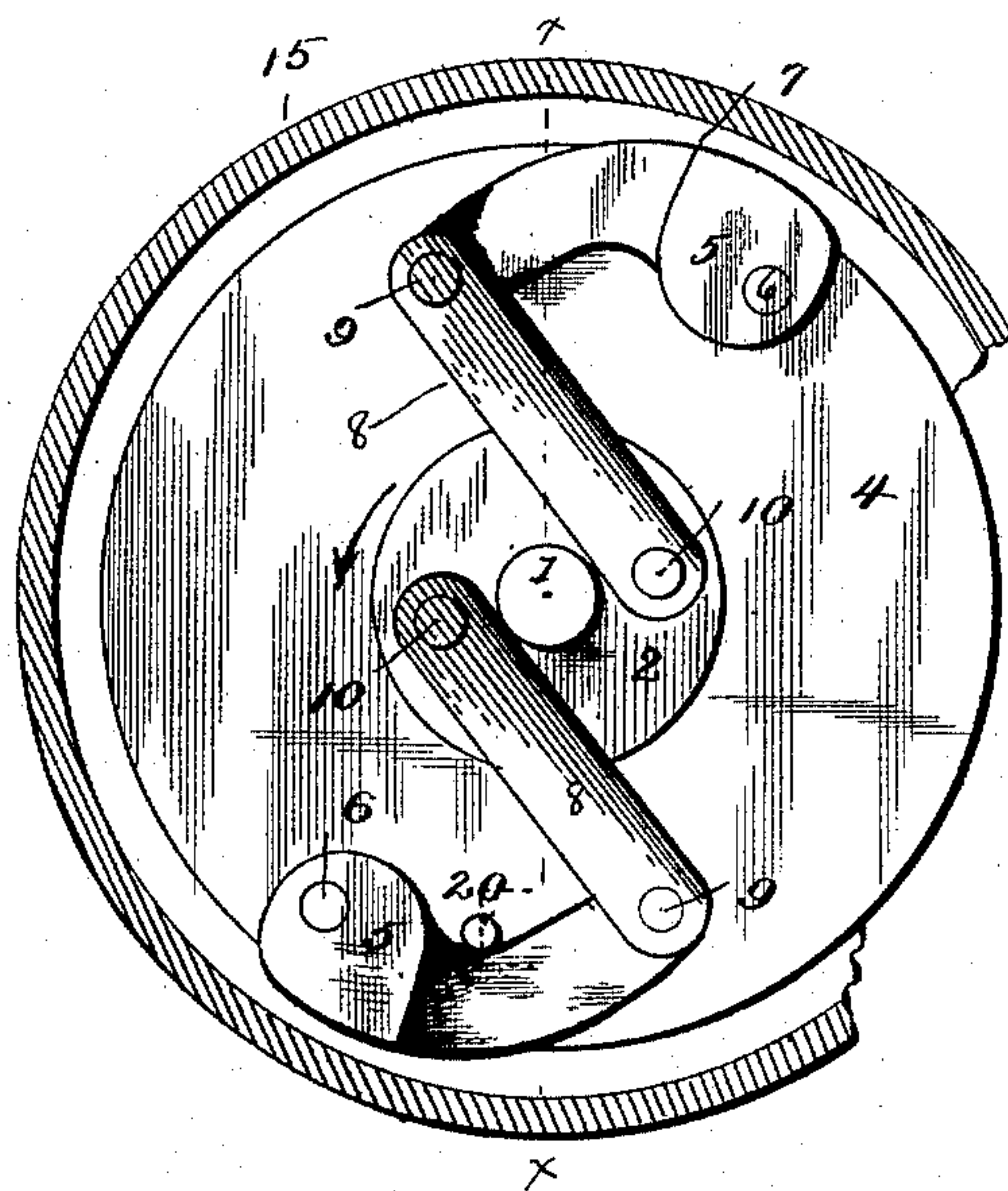
No. 483,533.

Patented Oct. 4, 1892.

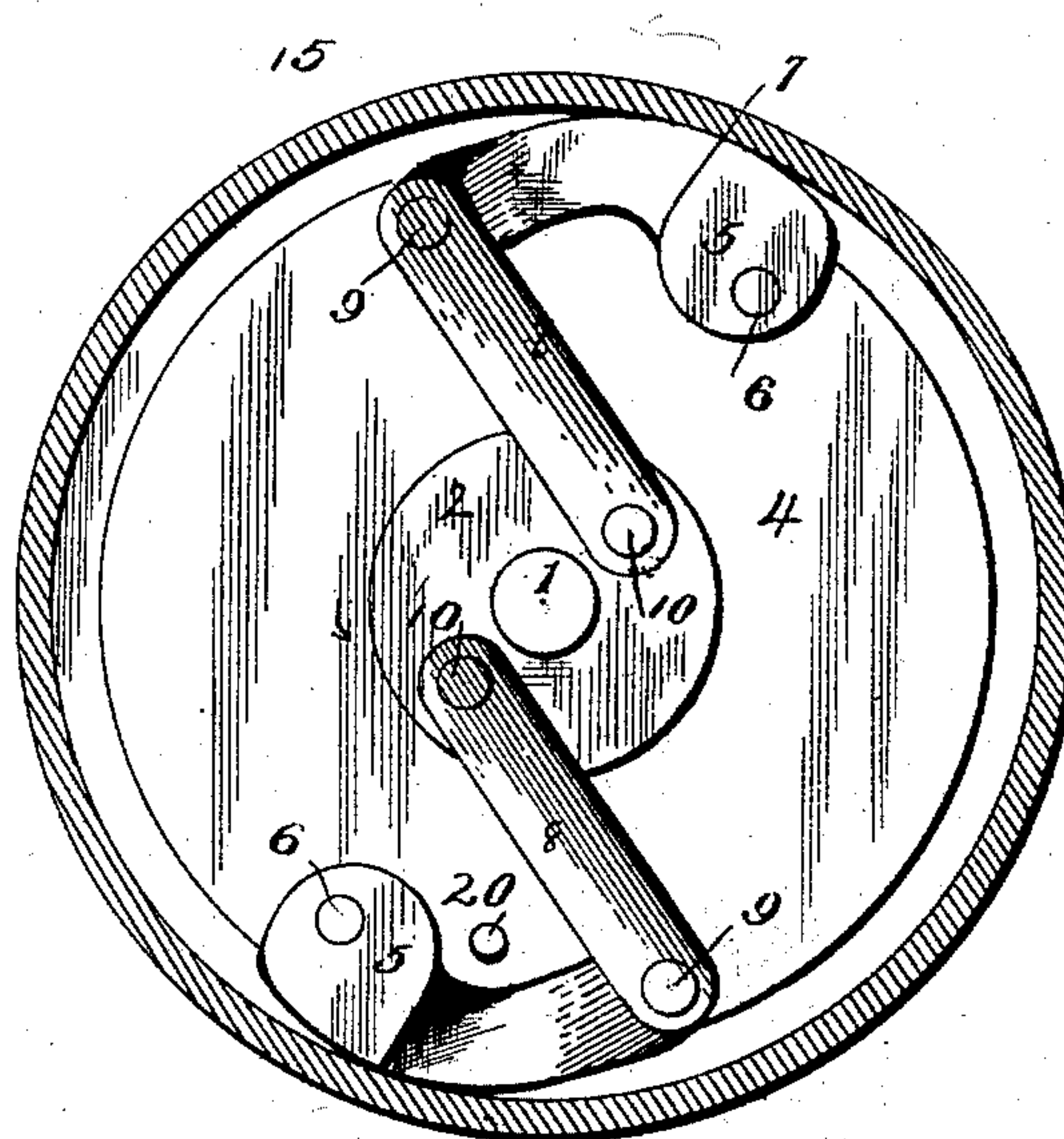
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses

*John D. Irvine*  
*E. C. Wells*

Inventor

*W. E. Canedy*

By his Attorney

*W. A. Bartlett*



# UNITED STATES PATENT OFFICE.

WILLIAM E. CANEDY, OF DOWNER'S GROVE, ILLINOIS.

## CLUTCH.

SPECIFICATION forming part of Letters Patent No. 483,533, dated October 4, 1892.

Application filed March 18, 1892. Serial No. 425,416. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. CANEDY, residing at Downer's Grove, in the county of Du Page and State of Illinois, have invented certain new and useful Improvements in Clutches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to friction-clutch gear.

The object of the invention is to produce a friction-clutch in which the engaging surfaces may operate by leverage; also, to produce a clutch in which friction engagement may be automatic, if desirable; also, to improve friction-clutches in various details.

Figure 1 is a longitudinal central section of the clutch-gear mounted on a shaft, the section being indicated at  $x x$ , Fig. 2. Fig. 2 is an end elevation of the disk or lever support, hub, levers, and cams in disengaged position. Fig. 3 is an end elevation of the disk or lever support with its cams, levers, and hub, showing the outer rim of second disk in section and the manner of engagement of the cam-levers therewith.

The numeral 1 indicates the main driving-shaft, to which the hub 2 is keyed or otherwise connected in the example shown. The hub has a shoulder 3, and a disk or lever support 4 is mounted on the hub next to said shoulder and is free to move rotatively relatively to the hub to some extent. Near the outer edge of disk 4 there is a series of cam-levers 5, two or more in number, supported on pivots 6 on the plane face of the disk. These cam-levers have faces 7, which are normally about in the line with the edge of the disk when out of engagement; but by rocking the levers 5 on their pivots 6 these faces may be projected beyond the edge of the disk. The cam-levers 5 are connected by links 8 to the hub 2, each link being connected by a pin 9 to its lever 5 and by a pin 10 to the face of the hub 2. The links 8 are connected to the hub 2 and extend outwardly therefrom in such manner that the turning of the hub 2 tends to carry the links from nearly tangential toward radial lines. As the links approach radial lines from the hub the outer ends of said links are projected, thus rocking the levers 5 on their pivots and projecting the engaging surfaces 7 outside the

edge of the disk 4. A disk, plate, or wheel 13 has a hub 14 on the shaft 1 and turning loosely thereon. Said plate or wheel also has a rim 15 close to or surrounding disk 4 and inclosing the levers 5.

When the hub 2 is rocked relatively to the disk 4 to swing levers 5 outward, the engaging faces 7 of said levers are carried against the inner face of the rim, and thus have frictional engagement therewith. This engagement binds the rim 15 and its wheel or disk and hub to partake of the movements of the levers 5.

As the hub 2 is connected to disk 4 by means of the links and levers and their coupling and supporting pins, it follows that disk 4 must rotate with hub 2; but there may be a slight oscillation or rocking permitted between them. When the levers 5 are projected, as in Fig. 3, by the rocking of the hub relatively to disk 4 in the direction of the arrow, (from the position in Fig. 2,) the hub 2, disk 4, and rim 15 will be firmly held together, and hub 14 or any of the parts connected thereto may then serve as a driving-pulley.

To uncouple the clutch, it is only necessary to slow or stop the rotation of shaft 1, when the forward movement of disk 4 relatively to hub 2 will carry the fulcrums 6 of levers 5 forward, and thus swing the links 8 into the position of Fig. 2 and release the rim 15 from levers 5.

In starting shaft 1 the inertia of disk 4 holds it back until the levers 5 are projected. In stopping the same influence reverses the movement.

I have described the parts as connected by hub 2 to shaft 1. Of course a change or reversal of parts could readily be effected. Shaft 1 might be simply a stationary axle and hub 2 a driving-pulley turning thereon.

The engaging faces 7 may be made as near as desirable to the radii of the pins or fulcrums 6, so that any desirable leverage may be had. This gives a marked advantage over a well-known construction wherein engaging faces are made at the ends of links 8 and the levers 5 are omitted.

The inward movement of levers 5 is limited by a pin or stop 20, projecting from disk 4 near one of said levers. The outer movement is limited by rim 15.



It is of course apparent that the locking of the parts together will be effected to some extent if a single lever 5 be brought to bear against the rim 15; but the engagement is 5 much more effective if the levers are arranged on opposite sides to balance each other.

While the impulse which expands the levers 5 may be the inertia of the disk or lever support 4, the same effect will be to some extent produced by centrifugal force. It is not, 10 therefore, absolutely necessary that the part 4 should be a true disk.

The device shown illustrates what I consider the best form in which the invention 15 has been developed; but it is intended to be understood that it can be modified in construction without departing from the spirit of the invention.

What I claim is—

20 1. In a clutch, a central hub connected to the driving-shaft and a disk mounted on said

hub, a series of levers pivoted near the periphery of the disk and a link connecting each lever to the hub, and a rim surrounding said levers and attached to the second hub or driving-pulley of the clutch, all the above-named 25 parts combined substantially as described.

2. In a clutch, a central hub having links pivoted thereto, a lever-support in proximity to said hub and having cam-levers pivoted 30 near its outer edge and connected to said links, and a rim against which said levers bear when extended, said rim connected to the driving hub or pulley, all the above-recited elements combined substantially as described. 35

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. CANEDY.

Witnesses:

E. SHULTZ,

G. CANEDY.