

R. J. FORMAN.
MECHANICAL MOVEMENT.
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922,467.

Patented May 25, 1909.

Fig. 1.

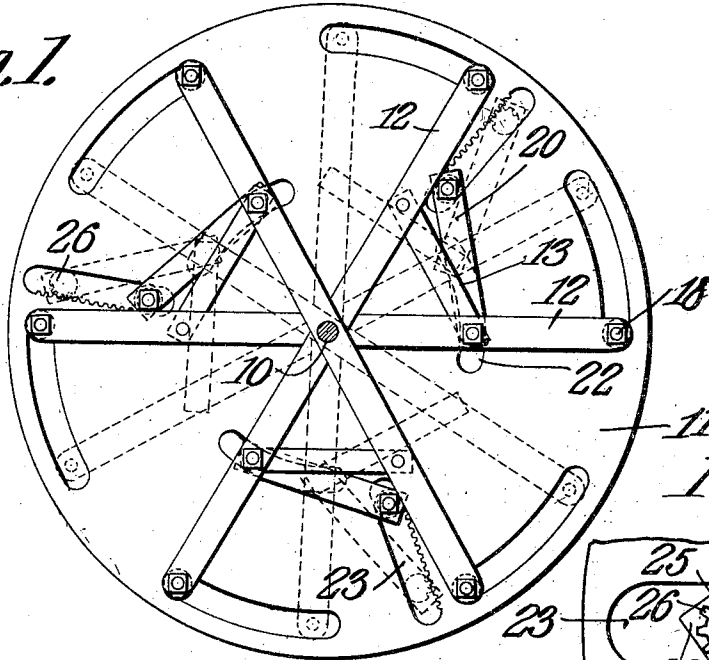


Fig. 3.

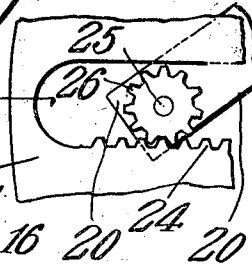
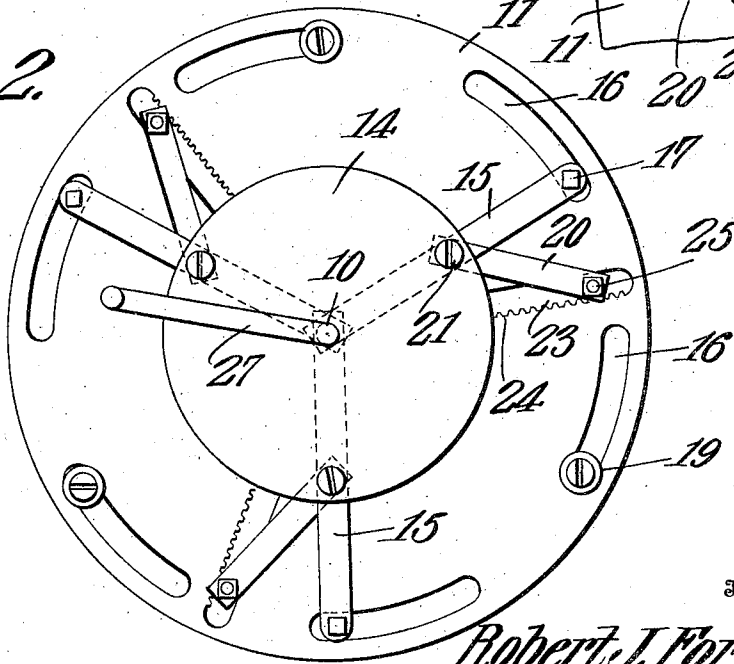


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT J. FORMAN, OF BROOKLYN, NEW YORK.

MECHANICAL MOVEMENT.

No. 922,467.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT J. FORMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Mechanical Movement, of which the following is a specification.

This invention relates to mechanical movements, and its principal object is to provide an improved form of such movement wherein a disk such as a belt pulley or gear wheel may be so mounted on a shaft that relative angular adjustment of the shaft and disks may be varied at will.

Another object of the invention is to provide and improve the means for bracing the disks to the shaft.

The invention consists in general of a shaft having a spider rigidly mounted thereon, and levers connecting the spider with a disk free to rotate on the shaft, the connection of said levers with the disk being variable at will.

With the above and other objects in view, as will be hereinafter more apparent, the invention further consists in certain novel details of construction and combinations of parts, hereinafter fully set forth, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and; Figure 1 is a front elevation of a mechanical movement, constructed in accordance with this invention, one position being shown in full lines, and another position being shown in dotted lines. Fig. 2 is a rear elevation of the same, the parts being shown in a position similar to the dotted line position of Fig. 1. Fig. 3 is a detail view in elevation of a portion of the disk and one of the links.

Referring now to the drawings, the numeral 10 indicates a shaft whereon is rotably mounted a disk 11. This disk 11 is to be understood as typical of any form of disk such as a belt pulley, gear wheel, sprocket wheel, or in some instances may indicate one of the members of a clutch. Rigidly attached to the shaft upon one side of the disk 11, is a spider having a plurality of arms 12, suitably braced together as indicated at 13. Upon the opposite side of the disk 11 is preferably mounted a disk 14. It is to be understood that in either case the disk may be substituted for the spider, thus making a disk

upon each side of the disk 11, or the spider may be substituted for the disk 14, thus making a spider upon either side of the disk 11. In either event the disk 14 will act the same as the spider. Between the disks 11 and 14 are spider arms 15. Guide slots 16 are formed in the disk 11 and a bolt 17 connects the spider arms 12 and 15, passing through the slots 16. In the present instance there are shown six arms 12 and three arms 15, and consequently but three of the arms 12 can be connected to the arms 15. In order to provide a guiding means for the remaining spider arms 12, each of these arms is provided with a bolt 18 passing through one of the slots 16, and having a washer 19 on the opposite end thereof, arranged to overlap the edges of the slot 16 through which the bolt passes. Shifting links 20 are pivotally connected to the spider arms 15 and 12, said links being arranged in pairs and one of each pair lying on opposite sides of the disk 11. These links 11 are pivotally connected to the spider arms by bolts 21 and slots 22 are arranged in the disk 11 to accommodate the said bolts 21. Slots 23, each preferably provided with a rack 24 are formed in the disk 11, and constitute guides for the free ends of the links 20. Each pair of links 20 is connected by a bolt 25 preferably carrying a pinion 26. The bolts 25 are so arranged as to be readily tightened to form a clamp for the pinions 26.

In the present instance the device is shown as provided with a crank arm 26 on the shaft, but this is not an essential feature of the invention.

In the operation of the device, let it be assumed that the bolts 25 and 19 are loose. By rotating the disk 14 or the spider 12 relative to the disk 11, the gears 26 are caused to move in or out along the guide slots 23. At the same time the guide slots 16 act to hold the ends of the spider arms 12 and 15 in proper relation to the disk 11. When the desired point of attachment has been reached, it is simply necessary to tighten either the bolt 25 or the bolt 18. This securely locks the device in position and the tread is then transmitted from the spider to the desired point upon the disk 11. In the disk 11 is assumed to be the driving member, the tread may be transmitted from the desired point on that disk to the spider and then to the shaft 10.

It is obvious that many minor changes

may be made in the form and proportions of the device without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope thereof.

Having thus described the invention, what is claimed as new, is:—

10 1. In a device of the kind described, a shaft, a spider rigidly attached thereto, a disk rotatably mounted upon said shaft and provided with a plurality of guide slots each having a rack formed on one side thereof, 15 links pivotally connected to said spider, bolts passing through said links and guide slots, pinions carried by said bolts and engaging said racks, said bolts being adapted to clamp the ends of said links in desired position in 20 said slots.

2. In a device of the kind described, a shaft, a spider rigidly attached thereto, a disk rotatably mounted on said shaft and provided with a plurality of guide slots having a rack formed on one side thereof and a 25 second series of guide slots of arcuate form, bolts passing through the spider arms and said arcuate slots, links pivotally connected to said spider, and bolts each carrying a 30 pinion engaging one of said racks, said bolts being held on the outer end of said links and passing through said links, pinions and guide slots and adapted to clamp the ends of

said links in the desired position in said slots. 35

3. In a device of the kind described, a shaft, a disk rotatably mounted on said shaft provided with a plurality of guide slots each having a rack formed on one side thereof and a second series of guide slots of arcuate form 40 arranged near the periphery of said disk, a spider rigidly mounted on said shaft carried on one side of said disk, a second spider rigidly mounted on the shaft and carried on the opposite side of said disk, the second spider 45 having one-half as many arms as the first spider, said arms being arranged opposite every other one of the arms of the first spider, bolts connecting the arms of the second spider with every other one of the arms of the 50 first spider passing through the arcuate slots, links pivotally connected to said spiders and arranged in pairs, each pair being disposed on opposite sides of said disk, bolts passing through the first mentioned guide 55 slots connecting the pairs of links, and pinions being carried on said bolts to engage said racks.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 60 in the presence of two witnesses.

ROBERT J. FORMAN.

Witnesses:

JAS. H. FORMAN,

ROBERT M. FORMAN.