(No Model.)

H. INMAN.

FRICTION PULLEY OR CLUTCH.

No. 351,447. Patented Oct. 26, 1886.

Fig. 2.

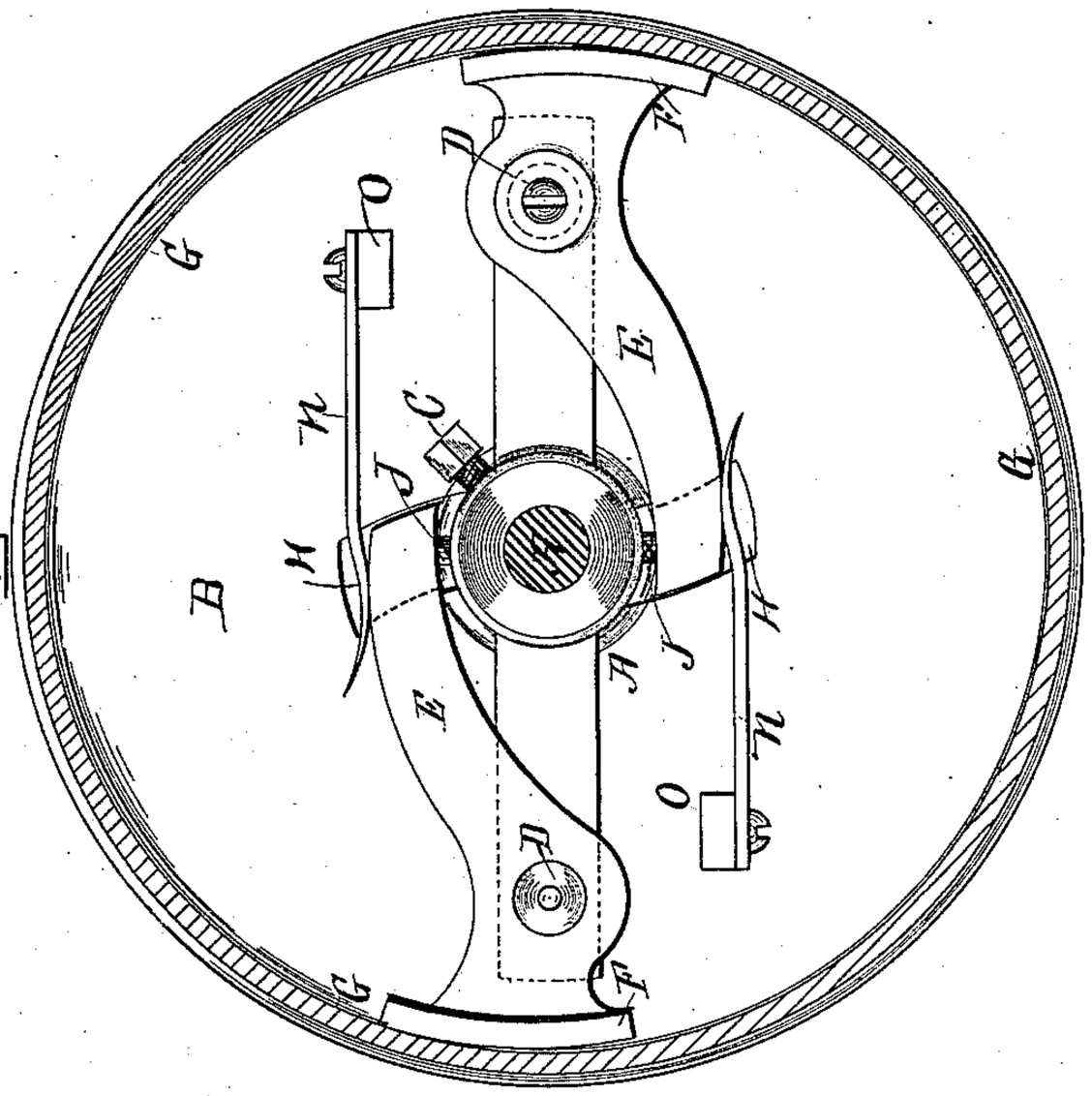

Fig. 1.

WITNESSES:

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HORACE INMAN, OF AMSTERDAM, NEW YORK.

FRICTION PULLEY OR CLUTCH.

SPECIFICATION forming part of Letters Patent No. 351,447, dated October 26, 1886.

Application filed May 17, 1886. Serial No. 202,347. (No model.)

To all whom it may concern:

Be it known that I, HORACE INMAN, a citizen of the United States, and a resident of Amsterdam, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Friction Pulleys or Clutches, of which the following is a specification.

My invention relates to an improvement in friction-clutches and friction-gearing; and it consists, broadly, in placing pivoted friction-segments on the inside of a plate set radially to the shaft, which plate closes one side of a hollow pulley or wheel, the other side whereof is formed integral with the face of the pulley. The friction-segments are springs controlled and operated from the exterior of the hollow pulley by means of a conically-shaped shipper-block entering between the ends of levers attached to the friction-segments, thus forcing them outwardly against the stress of the springs. The friction-segments act on the inner surface of the face of the pulley.

In the drawings like letters indicate like parts in all the figures.

Figure 1 illustrates a front elevation, partly in section, half of the two circular disks being cut away, and part of the face of the friction-segments, to show the inner ends of the hubs of the plates. Fig. 2 illustrates a side elevation, partly in section, with half of the friction-surface of the loose pulley cut away.

A is the driving-shaft. Upon it is rigidly attached a plate, B, by means of set-screws C passing through the hub thereof, preferably on the inside of the plate, as shown, or in any other desired manner. On the inside of the plate B are provided stanchions or axes D D, of any suitable construction, upon which are pivoted the friction-segment levers E E, the outer ends of which terminate in the friction-segments F, which bear, when in operation, on the inner surface of the face of the pulley G. The inner ends of the levers E are turned at substantially right angles, and pass outwardly through slots H, formed in the plate B, near the center thereof, and project beyond the outside of the plate, as seen at I I. In the end of the parts marked I I there are formed threaded holes, through which pass adjustable set-bolts J, provided with jam-nuts K, to hold them in the desired position after their proper adjustment has been obtained. By their employment the pressure of the friction-segments against the friction-surface can be regulated as desired.

L is a shipper-block, which rides on the shaft A. It is cone-shaped at the end toward the plate B, the apex thereof being small enough to enter between the inner ends of the adjusting-bolts J when the friction-segments are retracted. Just at the base of the conical part of the shipper-block there is a flat surface, *j*, upon which the ends of the bolts J can rest to hold the friction-segments permanently outward, if desired. The shipper lever or handle *j'* enters the annular recess M in the shipper-block, as usual, it being preferably bifurcated.

N N are two springs, which are fastened at one end to lugs O O, formed on the plate B, and bear at their free ends on the levers E E, near the point where they are bent to pass through the plate B. The function of these springs is to normally press the levers E E in toward the shaft, and hence withdraw the friction-segments from contact with the inner surface, G, of the face of the pulley. The face of the pulley is cast integral with or otherwise rigidly attached to its supporting-plate P, which is provided with a hub, Q, through which is bored a hole sufficiently large to allow of free rotation of the shaft within it. There is a collar, R, provided with a set-screw, S, fastened to the shaft against the end of the hub Q, which holds the parts in their proper position relative to each other.

In Fig. 2 a washer and screw is shown on one of the stanchions D, to keep the levers E in place. It is not shown on the other, so that the construction may be clearly seen.

The operation is obvious. The shaft A continually revolves, carrying with it the plate B, with its friction-segments, levers, springs, &c. The segments, being retracted by the springs, do not touch the inner surface of the pulley G. (The shipper-block is of course retracted.) Now, to convey the motion to the pulley G, the shipper-block is moved by the action of the shipper-lever toward the plate B, the conical part of the shipper-block entering between the inner ends of the adjusting-bolts J, forcing them apart, and causing the levers E to rock on their fulcrums D, com-

pressing the springs N until the friction-segments are crowded hard against the inner surface of the face of the pulley G, thus clamping the pulley to the plate B, and causing it to rotate therewith. When the bolts J have reached the flat surface *j*, they ride up on it and rest there immovable as long as desired. The parts are released by simply withdrawing the shipper-block from between the ends of the levers I, and the springs N will then at once withdraw the friction-segments from engagement with the pulley G. It is of course immaterial whether the power be applied to the shaft A or to the pulley G. In other words, either the shaft or the pulley may continually rotate, the motion being transmitted to the other by means of the friction-segments, as before stated.

There may be any desired number of friction-segments employed, and instead of continuous plates the sides of the pulley may be spoked wheels or open-work castings. I prefer continuous plates, however, since dirt is thus prevented from getting into the pulley.

Many possible changes in detail of the operative parts will suggest themselves to those skilled in this art. I do not, therefore, limit myself to the details of construction.

I claim—

1. The combination of shaft A, pulley P, having friction-surface G, plate B, lever E, pivoted to the plate B and bent at substantially right angles to the said plate near the shaft A, and having friction-segments F, spring N, and shipper-block L, which engages with the bent end of the lever E externally of the plate B, substantially as set forth.

2. The combination of a shaft, A, pulley P, provided with friction-surface G, plate B, levers E, bent at substantially right angles near the shaft and pivotally supported on plate or support B, the bent ends of said levers being provided with adjustable set-bolts and bearing friction-segments on their ends, springs N, to retract the friction-segments, and a shipper-block sliding on the shaft, and which has a conical end adapted to pass between the bent ends of the levers E and engaging directly with the said set-bolts, substantially as set forth.

3. The combination of shaft A, pulley P, having friction-surface G, plate B, pivoted levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends at substantially right angles, and projecting through and beyond the plate B, and a conical shipper-block adapted to enter between the ends of the said levers outside of the plate B, substantially as set forth.

4. The combination of shaft A, pulley P, having friction-surface G, plate B, pivoted levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends, and which pass through and extend beyond the plate B and engage with a shipper-block externally of the said plate, the said shipper-block, and springs which automatically retract the friction-segments from the friction-surface when released from the action of the shipper-block, substantially as set forth.

5. The combination of shaft A, pulley P, having friction-surface G, plate B, levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends so as to pass through the plate B and project beyond the same, a conical shipper-block adapted to pass between the ends of the said levers externally of the plate B, and adjustable set-bolts in the ends of the said levers, which engage with the shipper-block, substantially as and for the purposes set forth.

6. The combination of shaft A, pulley P, having friction-surface G, plate B, levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends so as to pass through the plate B and project beyond the same, and a shipper-block adapted to pass between the ends of the levers externally of the said plate, and provided with a straight surface, on which the ends of the levers or set-bolts rest and permanently hold the friction-segments in contact with the friction-surface, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 12th day of May, A. D. 1886.

HORACE INMAN.

Witnesses:
CHARLES B. WEBERG,
JOHN H. IVES.