

D. Harrington,
Friction-Clutch Pulley.

N^o 78,961.

Patented June 16, 1868.

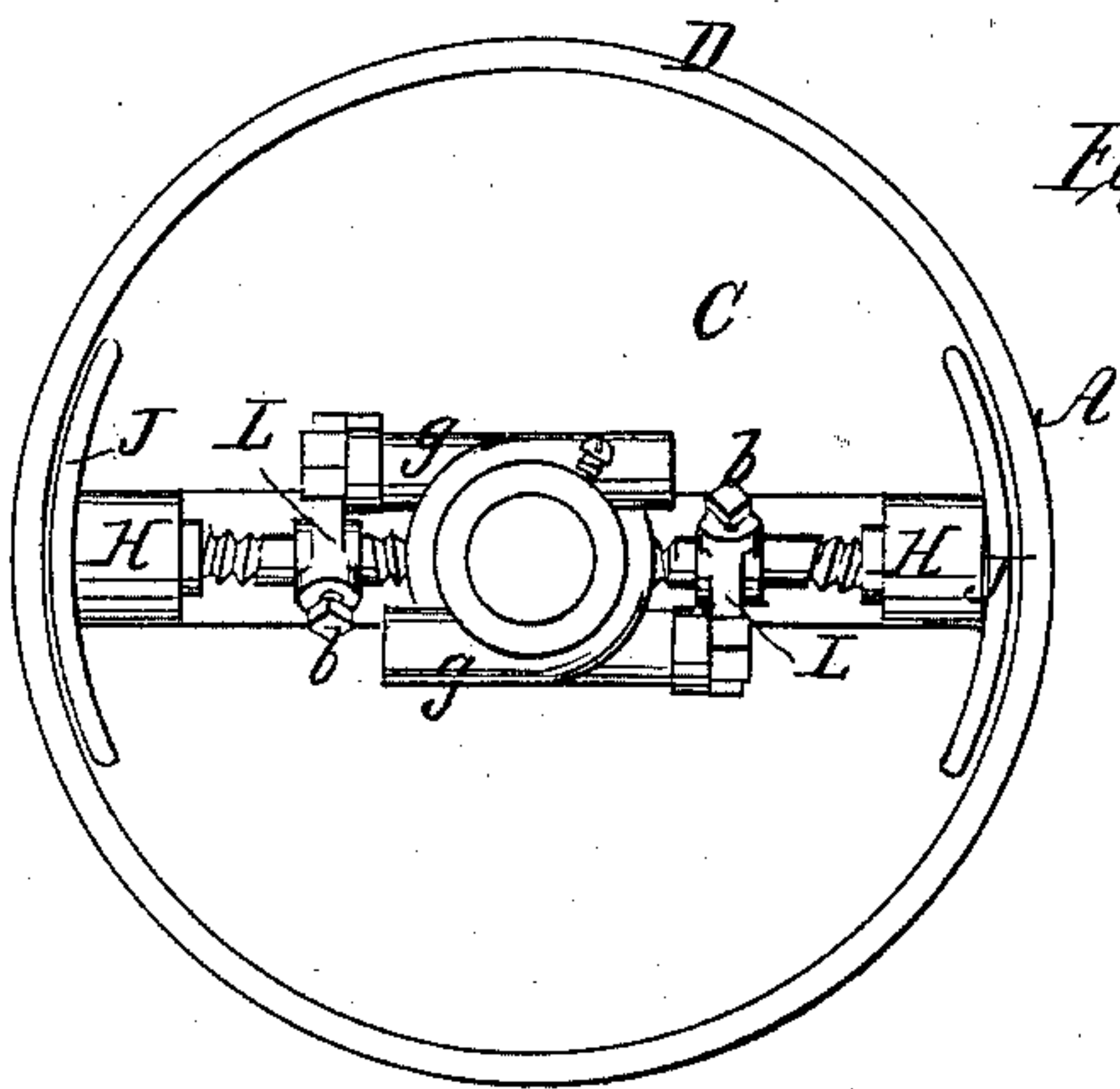


Fig. 1.

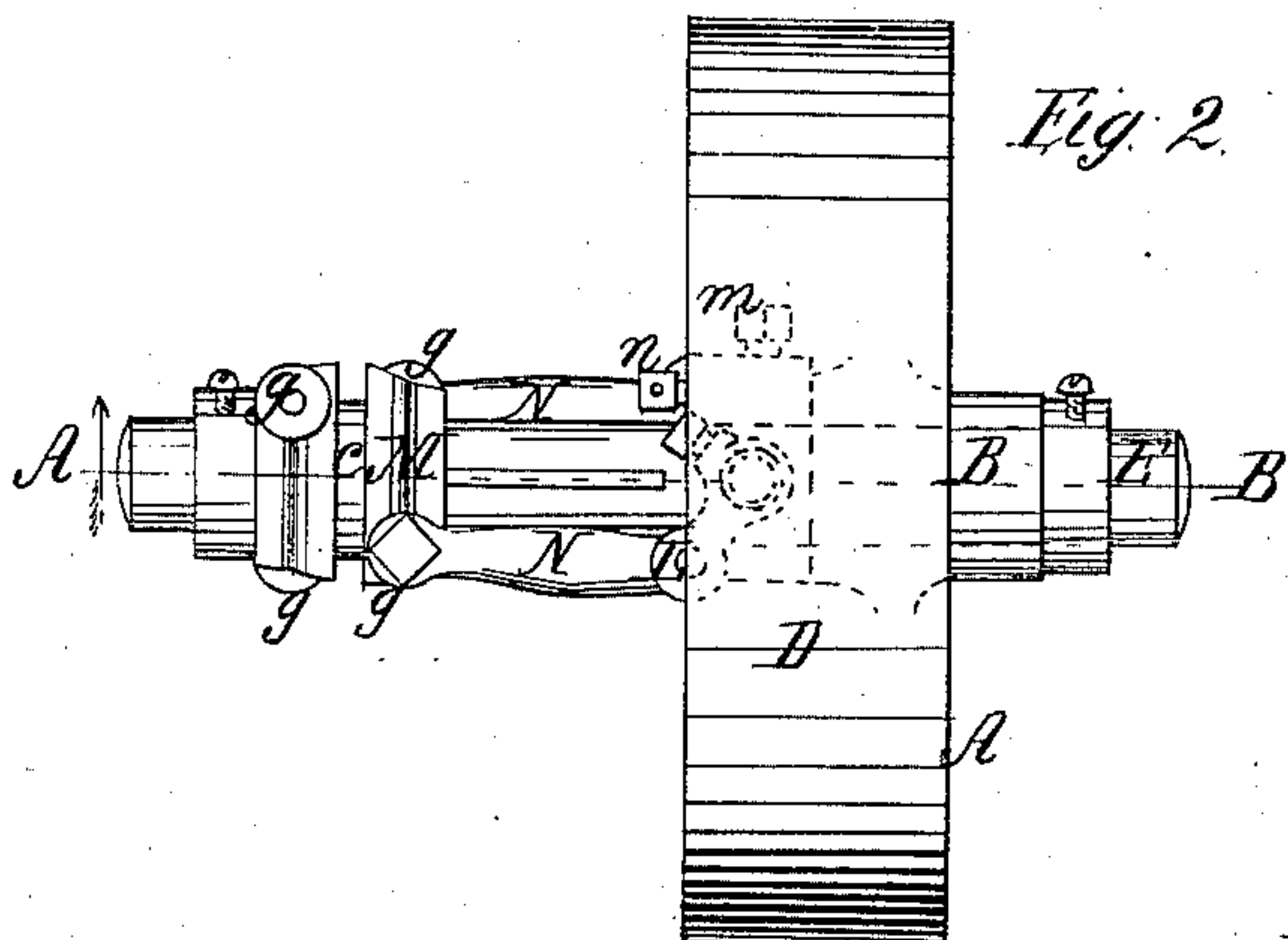


Fig. 2.

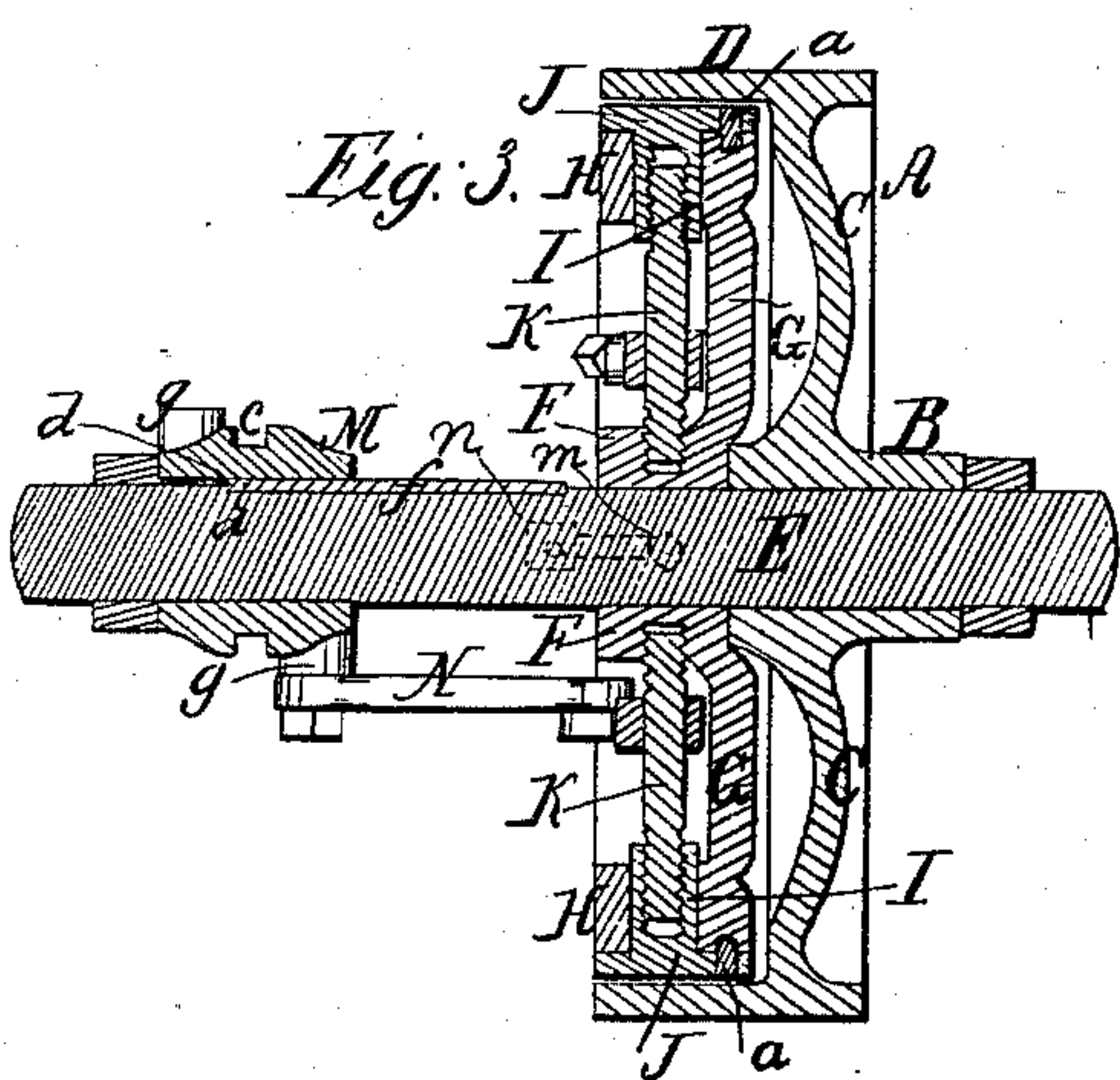


Fig. 3.

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DAVID HARRINGTON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND J. S. WHEELER AND COMPANY, OF SAME PLACE.

Letters Patent No. 78,961, dated June 16, 1868.

IMPROVED FRICTION-CLUTCH PULLEY.

The Schedule referred to in these Letters Patent and making part of the same.

KNOW ALL MEN BY THESE PRESENTS:

That I, DAVID HARRINGTON, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Friction-Clutch Pulleys; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side view of my improved pulley as it appears when applied to use.

Figure 2 represents a face view of the pulley, and

Figure 3 represents a longitudinal central section on line A B.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

A very great number of friction-clutch pulleys have been heretofore devised, but to all of them more or less objections exist.

My pulley is designed to obviate the objections which are urged against those friction-pulleys in common use.

In the drawings, A is the pulley, composed of the hub B, curved centre or web-part C, and face or rim D.

The hub has a hole through its centre, to receive the spindle or shaft E, upon which the pulley turns loosely.

Upon the inside of the pulley is fitted to and fastened upon the shaft or spindle E a hub-piece, F, having two arms, G G, one on each side, which project out towards the periphery or rim of the pulley, and have on their outer ends projections H H, through which the stems I I of the metal friction-pads J J pass. Pins *a a* project from the outer ends of the arms G G, through holes in the friction-pads, as indicated in fig. 3 of the drawings, thereby retaining the pads in their proper relative positions when operated.

Upon each side of hub F is fitted a short shaft, *k*, having a right-hand screw-thread cut on one end, and a left-hand screw-thread cut on the other.

The inner ends of the shafts *k k* are screwed into screw-holes bored and tapped in the opposite sides of hub F, while the outer ends of the same shafts are fitted to work in screw-holes bored and tapped in the ends of the stems I I, all as fully indicated in the drawings.

Upon each shaft *k* is placed or slipped a crank-arm, L, the same being secured in any desired position by a set-screw, *b*. Each crank-arm L is connected to the sliding-hub-piece M by a hinged arm or connection, N.

Hub-piece M has a groove, *c*, to receive the fork of the operating-lever, by which hub-piece M is moved back and forth on the shaft E, to cause the screw-shafts K K to move the pads J J out or in, to clamp the rim D of pulley A to the arms G G of the hub F, which is fastened securely to the shaft or spindle E. Hub-piece M is provided with a slot, *d*, to receive the spline or key *f*, fitted into the shaft E, whereby the hub M will always revolve with shaft E, while at the same time it is free to slide back and forth on the shaft, to operate the shafts K K for the purposes stated.

It will be observed that the connections N N are arranged upon opposite sides of the hubs M and F, whereby the balance of the parts is retained in a very uniform manner.

It is very often the case that two clutch-pulleys are used in connection with each other, that is, both pulleys are clutched by one lever, one being clutched when the other is freed, and in which case I have cast upon the hub M four projections or circular enlargements, *g g*, two, or one set, on each end, the groove *c* being between each set, as fully shown in the drawings.

The operation is as follows: Pulley A has a continuous motion imparted to it, and when it is desired to drive shaft E by means of said pulley, the operator, by means of his shipping-lever, forces hub M towards pulley A, thereby turning the screw-shafts K K, through the instrumentalities of the hinged connecting-arms N N and crank-arms L L, whereby the friction-pads J J are forced out against the inner surface of the rim D with sufficient force to securely bind and clamp the arms G G and pulley A together. It will be understood that

when the screw-shafts K K are turned, the friction-pads J J are forced out very rapidly, even by a partial revolution of the screw-shafts K K, since the threads are so cut upon the ends of said shafts that, when turned, the ends in the hub F screw out, while at the same time the stems I I are also screwed off from the ends of said shafts, thus forcing the pads J J out towards and against the rim of the wheel with the combined velocity of both screws.

A slight motion of the hub M from pulley A will withdraw the pads from the rim of the wheel, and leave it free to revolve, without turning arms G G, hub F, and shaft E.

In lieu of the connections N N and crank-arms L L, for operating the shafts K K, the latter may be provided with spur-gears, to be operated with racks, hinged or connected to the projections *g g* in the same manner as the arms N N, or said racks may be connected to the hub M in any other proper manner.

The screw-shafts could be made with a screw-thread on only one end, the other end being fastened by a swivel-joint, but I prefer to make them as shown in the drawings.

The hub F is fastened to shaft E by means of a set-screw, *m*, and a stop-screw, *n*, may be inserted in hub F to stop hub M, all as indicated in the drawings.

My improved friction-clutch pulley is not liable to get out of order, can be operated quickly and easily, and, besides, can be conveniently adjusted to keep the friction-pads in their proper relative positions, so as to exert a uniform and comparatively even pressure upon opposite sides of the rim of the pulley.

In lieu of having both of the connections N N hinged or connected to the hub M, a single T-arm may project from hub M, with short connections from the ends of the T to the crank-arms on the screws or shafts K K, and an arrangement of a cord or chain may be made, so as to operate the screws or shafts K K by that.

Having described my improved friction-clutch pulley, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the rim D of the pulley, hub F, and arms G G, of the screw-shafts K K and friction-pads J J, substantially as and for the purposes set forth.
2. The combination, with the screw-shafts K K and hub M, of the crank-arms I I and connections N N, substantially as and for the purposes set forth.
3. The combination, with the hub M, of the projections *g g*, substantially as shown and described.
4. The combination and relative arrangement, with the loose pulley A and shaft E, of the hub F, arms G G, with projections H H, and steady-pins *a a*, and screw-shafts K K, substantially as and for the purposes set forth.

DAVID HARRINGTON.

Witnesses:

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CHAS. H. BURLEIGH.