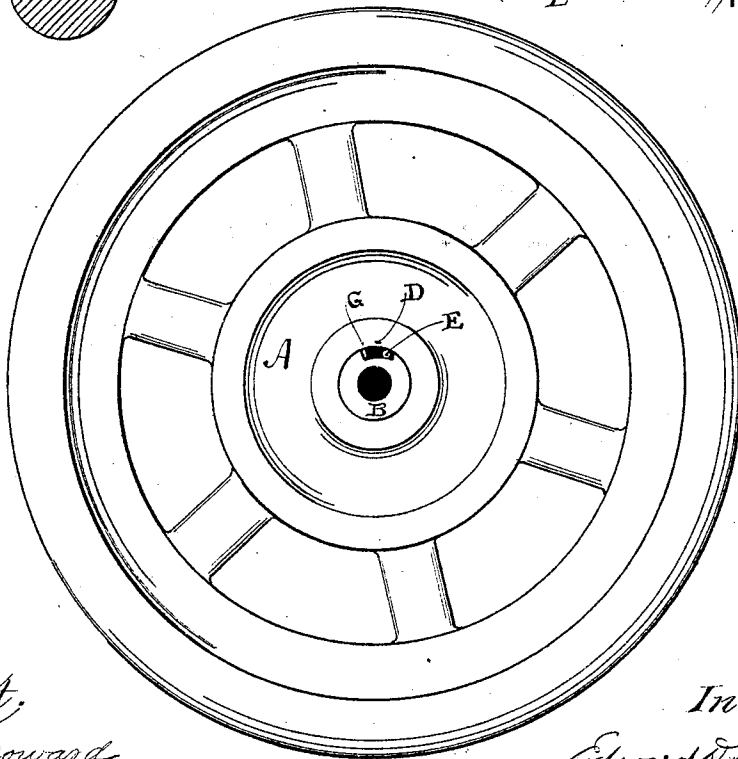
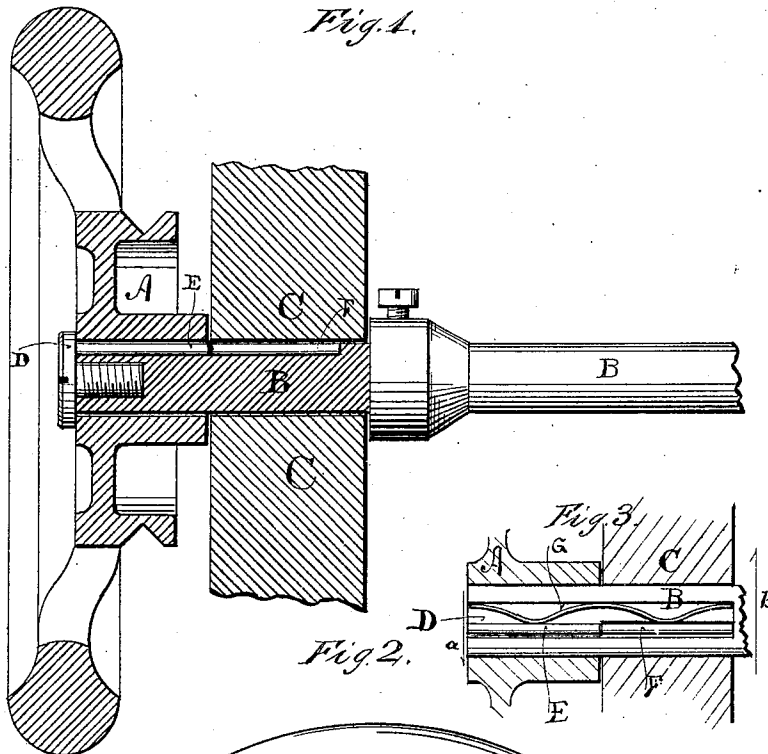


E. D. HUBBARD.
Friction-Clutches.

No. 150,041.

Patented April 21, 1874.



Attest,
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J. A. Brown.

Inventor,
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UNITED STATES PATENT OFFICE.

EDWARD D. HUBBARD, OF MIDDLETOWN, ASSIGNOR TO HIMSELF AND
F. A. HART, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN FRICTION-CLUTCHES.

Specification forming part of Letters Patent No. 150,041, dated April 21, 1874; application filed
September 4, 1873.

To all whom it may concern:

Be it known that I, EDWARD D. HUBBARD, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Friction-Clutches; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a central longitudinal section of my improvement. Fig. 2 represents the same in end elevation. Fig. 3 is a plan view of the same.

My improvement relates to that class of friction-clutches wherein a cavity is made either in the shaft or hub, one edge of which approaches nearer the surface of said shaft or hub than the other, and a spherical or cylindrical key is placed within said cavity, so that as said shaft or hub is rotated in one direction said rolling key will become wedged in the narrow edge of said cavity, and bind said shaft and hub together, while, when said shaft is rotated in the contrary direction, said key will be rolled toward the larger end of said cavity, where the shaft and hub cannot become wedged by said key.

Friction-clutches such as above described have been employed heretofore; but it has happened that they would not always release when the motion of the driving-shaft has been reversed, in consequence of the rolling key having become too tightly wedged by reason of long-continued use, gummed oil, &c.

The object of my improvement is to prevent a backward motion of either shaft or hub; and it, therefore, consists of two rolling keys, the one acting between the shaft and pulley-hub, and the other acting between said shaft and its journal-box, so that, while the hub may freely revolve backward, the shaft will be immediately locked and prevented from revolving in the same direction.

That others may fully understand my invention, I will particularly describe it.

A represents a driving-pulley mounted upon the shaft B. C is one of the bearings or boxes of said shaft, rigidly attached to the frame of the machine to be driven. A groove or seat, D, is cut in the shaft A, in the position shown—*i. e.*, with one edge nearer the surface than the other—so that the rolling key may have sufficient space for the locking and releasing action above described. The seat D is made to extend the whole width of the bearing of the hub of pulley A, and also across the bearing in box C, and rolling keys E F are placed in said seat, the one under the hub A and the other under the box C; and in order that said rollers shall be always in operative position—*i. e.*, in contact and ready to wedge with the first backward movement—a light spring, G, is placed behind each of said rollers in the seat D.

It will appear evident that, while pulley revolves forward in direction of the arrow *a*, the roller E will wedge and bind it to the shaft, so that the two will rotate together; but upon the slightest movement backward, the roller F will wedge and bind the shaft to the box C, the revolution then being in direction of arrow *b*. A backward revolution of the shaft B will, therefore, be impossible, however firmly set upon said shaft said pulley may be.

Having now described my improvement, what I claim as new is—

In combination with the pulley A and shaft B, provided with a rolling clutch-key, E, for the purpose described, the rolling clutch-key F, placed to act against the box C, substantially for the purpose set forth.

EDWARD D. HUBBARD.

Witnesses:

F. A. HART,
G. F. KILBURN.