E. F. Allen,

Friction Pulley.

No. 108743. Patented Nov. 1. 1870.

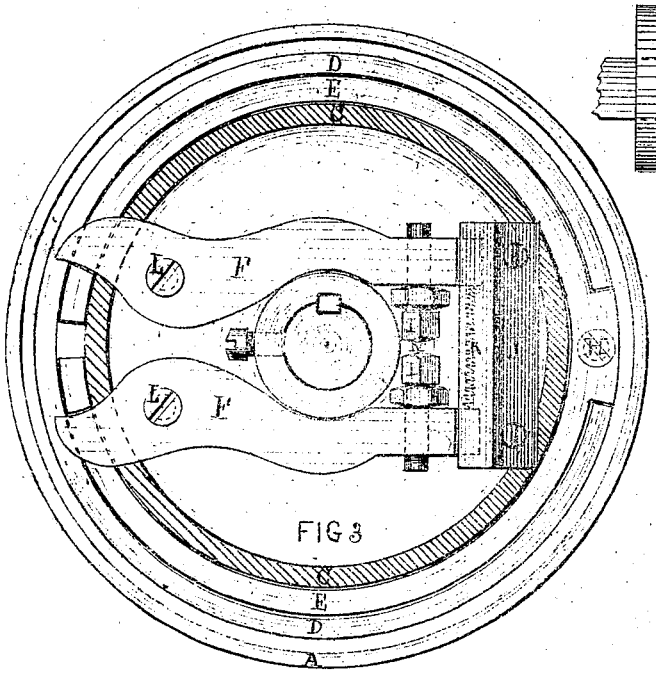

FIG 3

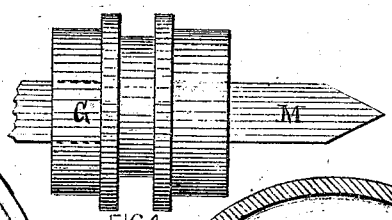

FIG 4

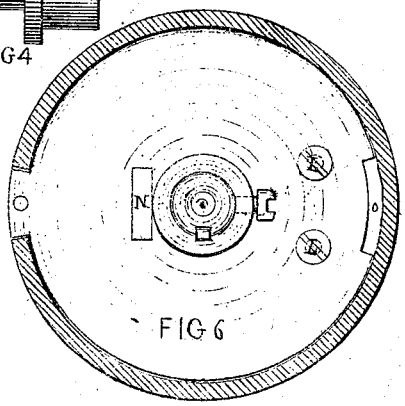

FIG 6

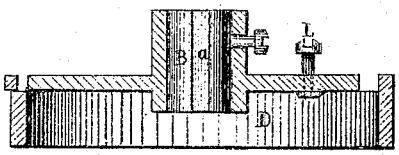

FIG 5

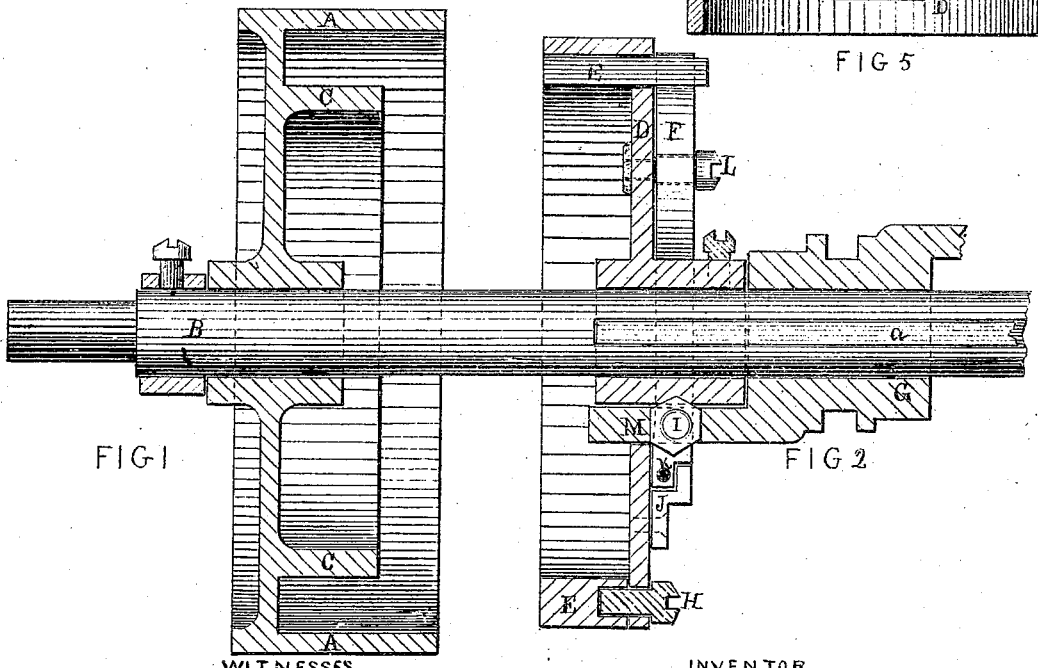

FIG 1 FIG 2

WITNESSES.

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UNITED STATES PATENT OFFICE.

EDWIN F. ALLEN, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO HIMSELF, CHARLES CAMPBELL, AND ELMER A. BEAMAN, OF SAME PLACE.

IMPROVEMENT IN FRICTION-PULLEYS.

Specification forming part of Letters Patent No. **108,749**, dated November 1, 1870.

To all whom it may concern:

Be it known that I, EDWIN F. ALLEN, of the city and county of Providence, State of Rhode Island, have invented a new and useful Improvement in a Friction-Pulley; and I do hereby declare that the following is a full and exdescription thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in combining a friction-spring, griping-bar, shipper-sleeve having a taper bar and disk with a pulley having an outer and an inner rim, so that by the movement of the shipper-sleeve the inner rim of the pulley is compressed by the friction-spring, holding it firmly, so that the disk, to which the friction-spring is inseparably attached, is made to revolve with the revolution of the pulley.

The construction and operation of my invention are as follows:

Figure 1 represents the pulley cut through the center, with other parts attached. A A is the outer rim of the pulley. B is the shaft around which the pulley revolves. C C is the inner rim of the pulley.

Fig. 2 represents the disk separated from the pulley, with the shipper-sleeve, and also an edge view of the griping-bars. D D is the disk separated from the pulley, having attached to, connected with, and forming part of, said disk D the friction-spring, designated by letters E E, the projecting ends of said friction-spring E E passing through and opening inside of said disk D D. F is an edge view of the griping-bars. G is the shipper-sleeve, with its taper bar in position to act in connection with the griping-bars F. H is the screw or bolt which holds the friction-spring E, forming a part of disk D, as aforesaid, in its place. At the point where the screw H is inserted the friction-spring E is thickened to give sufficient strength for the friction-spring to receive the bolt or screw H. The spring E at point H abruptly changes its direction at both ends, and, bending outward, passes through an opening in the disk D. L is the screw holding the griping-bars F in their place. J is a plate used for a support of the griping-bars F. K is a spiral spring connecting with the griping-bars, keeping them in the right place, and allowing, at the same time, for the movement necessary to the operation of the pulley in its combinations. I I is an adjusting-bolt with check-nuts to take up the wear. Q is a spline running through the disk D to keep it from turning, and extending through the shipper-sleeve G for the same purpose.

Fig. 3 is a front view of the griping-bars on the outside of the disk, in position to act in conjunction with the other parts of the pulley. It also presents a view of the inside of the pulley. (The letters in this figure represent the same parts as similar letters in Figs. 1 and 2.) A A is the outer rim of the pulley. C C is the inner rim of the pulley. D D is the disk, having E E, the friction-spring, attached to, connected with, and forming part of the disk D D. F F are the griping-bars. I I is an adjusting-bolt holding the lower part of the griping-bars in its place. K is the spiral spring attached to the griping-bars, so that they will allow the two parts to separate when the taper-bar is introduced between them, and yet bring them back to their original position after the taper-bar is withdrawn. J is the plate used for a support to the griping-bars. L L are the screws holding the upper part of the griping-bars onto the disk, but not so firmly as to prevent the two arms of the griping-bar to move when the lower parts are separated by the insertion of the taper-bar. By means of this the two ends of the friction-spring which penetrate the opening in the disk D are compressed by the upper part of the griping-bars as they are brought together. N is the opening under the shaft, through which the taper-bar is forced when the friction-power is sought. The circular opening above, N, between the griping-bars F F, represents the place through which the shaft goes.

Fig. 4 is a perspective view of a shipper-sleeve with a taper-bar. G is the shipper-sleeve; M, the taper-bar connected with it.

Fig. 5 is an edge view of the disk, L being the screw holding the griping-bar in position; B, the shaft, and Q the spline, as described in Figs. 1 and 2.

Fig. 6 is the interior view of the disk, being the opposite side to that represented by Fig. 3. O is the opening in the disk through which the two ends of the friction-spring E E project

to operate on the other side, in conjunction with the griping-bars. N is the opening under the shaft, through which the taper-bar is forced by the movement of the shipper-sleeve.

The mode of operating this improved friction-pulley is as follows: Suppose the pulley to be revolving loosely upon the shaft, the inner rim not being compressed by the friction-spring, and the power not being used which is necessary for mechanical use. It is desired to make the pulley available in moving other machinery. The shipper-sleeve is moved by the ordinary shipper-arm, and this presses the taper-bar M through the opening N in the disk. In passing this opening the taper-bar presses aside the adjusting-bolts I I. This forces asunder the lower parts of griping-bars F F. As the griping-bars are separated, being so constructed that the upper parts will approach in proportion as the lower parts are separated, the upper ends approach each other. By this approach they press the projecting ends of the friction-spring E together as they appear through the opening in the disk. This compression of the ends of the friction-spring, which is circular and flexible, causes it to firmly grasp the inner rim of the pulley, which is also circular and next to it. As the pulley, therefore, revolves after such compression it compels the revolution of the disk and of all the machinery attached thereto. By a single motion of the shipper-sleeve this result is accomplished.

I do not claim the exclusive right to use any of the parts, except the disk D, alone and apart from the combinations mentioned.

What I claim, and desire to secure by Letters Patent, is—

1. The disk D having attached to and connected with it the friction-spring E, which friction-spring E forms a part of said disk D.

2. The disk D having attached to and connected with it the friction-spring E, which friction-spring E forms a part of said disk D, in combination with the griping-bars F F, or their equivalent, operating together substantially as described, and for the aforesaid purposes.

3. The combination of the disk D having the friction-spring E attached to, connected with, and forming a part of said disk D, with the griping-bars F F, and the shipper-sleeve G, and taper-bar M, and a pulley having an outer and an inner rim, or their equivalents, operating together substantially as described, and for the purposes specified.

EDWIN F. ALLEN.

Witnesses:

JAMES H. LAMONS,

STEPHEN A. COOKE, Jr.