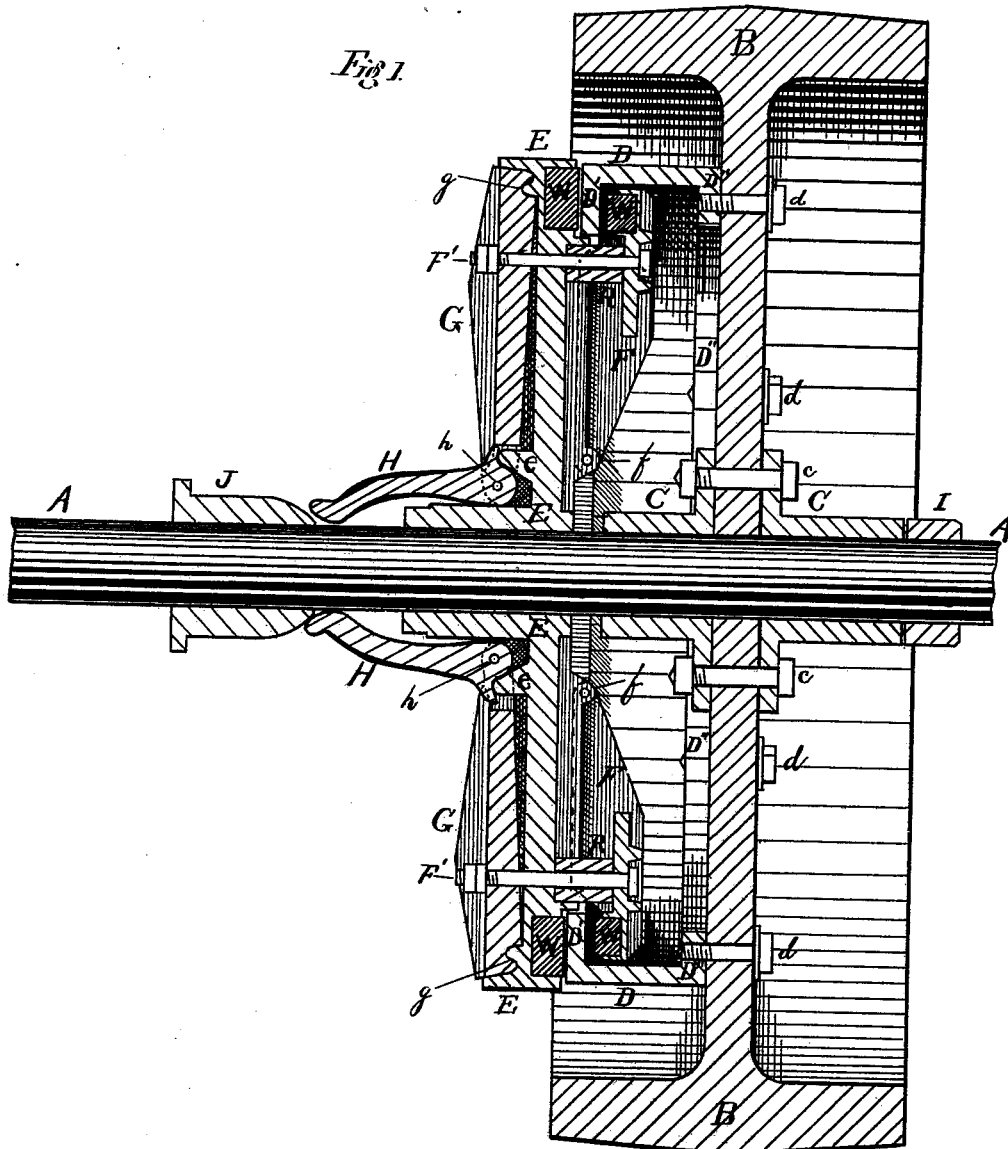


H. C. CROWELL.
Friction-Clutch.

No. 221,396.

Patented Nov. 11, 1879.



WITNESSES

INVENTOR

H. F. Dean.

Helen C. Crowell

E. J. O'Connor

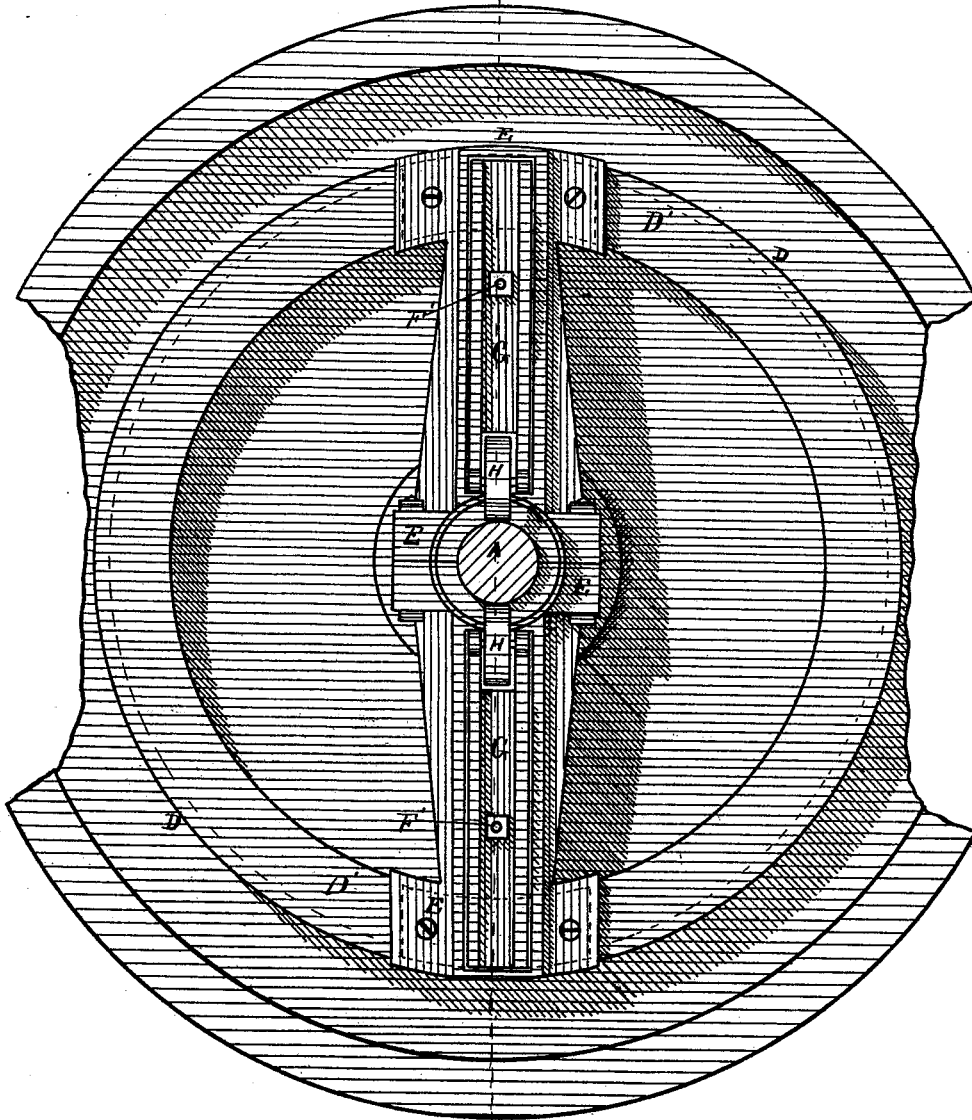
PER *Jas K. Stallock*
ATTY

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Fig 2
B



X B

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UNITED STATES PATENT OFFICE.

HILEN C. CROWELL, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN FRICTION-CLUTCHES.

Specification forming part of Letters Patent No. **221,396**, dated November 11, 1879; application filed June 21, 1879.

To all whom it may concern:

Be it known that I, HILEN C. CROWELL, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Friction-Clutch; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the construction of friction-clutches for loose belt-pulleys.

The object, purpose, and scope of my invention will appear in the following specification and claims.

My device is shown in the accompanying drawings, as follows:

Figure 1 is a vertical section on the line *x*, Fig. 2, with the shaft in elevation. Fig. 2 is a side elevation.

A is the shaft; B, the pulley; C, the hub of the pulley; D, a clutch-ring attached to the web of the pulley by a flange, D', and bolts *d*. D' is the friction or clutch flange of the clutch-ring D. E is a cross-head attached to the shaft and revolving with it. I is a collar, also attached to the shaft, and keeps the pulley in close proximity to the cross-head.

The clutching devices are attached to the cross-head, and consist of a duplicate system of compound levers, one system on each arm of the cross-head. These levers are operated by a sliding cone-wedge, J, on the shaft. These levers are as follows: On the inside of the cross-head, and so placed as to operate upon the inside of the clutch-flange D', is the lever F, pivoted on the cross-head at *f*. This lever has, at its outer end, a socket, in which is set a wooden friction-block, W. As the lever F is depressed this friction-block W comes in contact with the friction-flange D'. On the cross-head E there is also a socket, holding a similar friction-block, W, against which the outer side of the friction-flange D' comes in contact when the lever F is depressed. The wood of which these blocks W is composed is placed so that the ends of the grain come in contact with the flange D'. G is a lever lying in a socket on the outside of the cross-head. This lever has its fulcrum at *g* on the outer end of the cross-head, and it is attached to the lever F by a bolt, F', which passes through the cross-head. Attached to

the lever G, at *h*, is an elbow-lever, H, which has its pivot at *h* on the lever G. Its short arm is fulcrumed against a lug, *e*, on the cross-head, and its long arm lies upon the shaft A. This lever H is operated by the cone-wedge, J.

When the cone-wedge is pushed in toward the cross-head the levers H H are expanded or raised from the shaft, the short arms bear against the fulcrum-lugs *e e*, and the pivots *h h* pull out the ends of the levers G G. This lifts the bolt F' and pulls the lever F against the clutch-flange D' with sufficient force to draw the pulley so the outer face of the clutch-ring D' will press against the block W on the cross-head. Thus the clutch-flange is gripped by the two blocks W W as by the jaws of a vise, and the pulley will then revolve with the shaft and the cross-head.

R is a rubber spring, placed between the cross-head and the lever F, to throw that lever back when the cone-wedge is withdrawn from between the levers H H. Any suitable spring may be used for this purpose.

The cross-head E is made in two parts and clamped upon the shaft. This construction is not essential, but it is convenient, for then the clutch device can be removed from the shaft for repair, when necessary, without disturbing the shafting or pulleys, and without disturbing the clamping device carried by the other arm of the cross-head.

Another advantage of this construction is, that the levers attached to each arm can be properly adjusted before the cross-head is put in place upon the shaft.

The friction-blocks W W can easily be removed and renewed, as they only set snugly in the sockets designed for them. This is a great convenience, as it enables an unskilled person to renew the friction-blocks without taking the clutch to a machine-shop.

I do not intend to claim, broadly, the application of wood as a facing for the bearing-surfaces of clutches, for I am aware that such an application is old, as, for example, in the patent to C. W. Baldwin, April 2, 1872, No. 125,252. My invention in this respect is only in the combination with the clamping device, which gripes the flange-ring of bearing-faces of

softer material than the flange; and, further, of the means—*i. e.*, the sockets—by which the blocks are attached.

My device may be applied to all manner of loose wheels and pulleys for throwing machinery in and out of gear.

What I claim is as follows:

1. In a friction-clutch device for a loose pulley, the combination, with said pulley, of a flanged ring, D, cross-head E, levers F G H, and cone-wedge J, said parts being constructed to operate substantially as and for the purposes set forth.

2. In a friction-clutch for loose pulleys, the combination, substantially as herein shown, of a friction flange or ring, a device for gripping or clamping said flange, and facings of softer material than said ring, attached at the bearing-point of said gripping or clamping device, whereby the said ring, when clamped or gripped, is held between bearing-surfaces of softer material than said ring.

3. The cross-head E, having sockets at the ends of its arms, bearing friction-blocks of

wood, in combination with the levers F having like sockets and blocks, substantially as shown.

4. In a friction-clutch device for loose pulleys, which has a friction-flange upon the pulley and devices attached to the shaft for clamping both sides of said flange, the combination, with the said clamping devices, of a cross-head bearing the same, which is formed of two parts, clamped together upon the shaft, substantially as shown, whereby either arm of said cross-head can be loosened and its accompanying clamping apparatus can be removed from its operative position without disturbing the clamping apparatus carried by the other arm of the cross-head, substantially as and for the purposes set forth.

In testimony whereof I, the said HILEN C. CROWELL, have hereunto set my hand.

HILEN C. CROWELL.

Witnesses:

JNO. K. HALLOCK,
SAM. WOOD.