(No Model.)

E. F. SPAULDING.

FRICTION CLUTCH.

No. 265,170. Patented Sept. 26, 1882.

Fig. 1

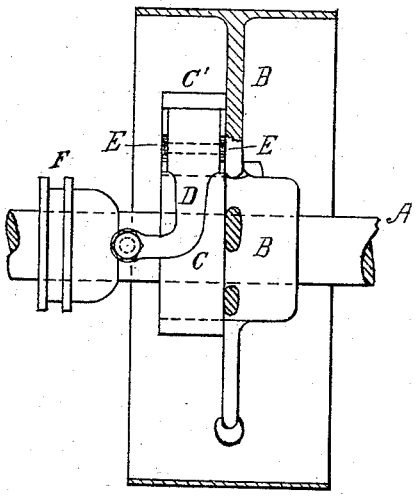


Fig. 2

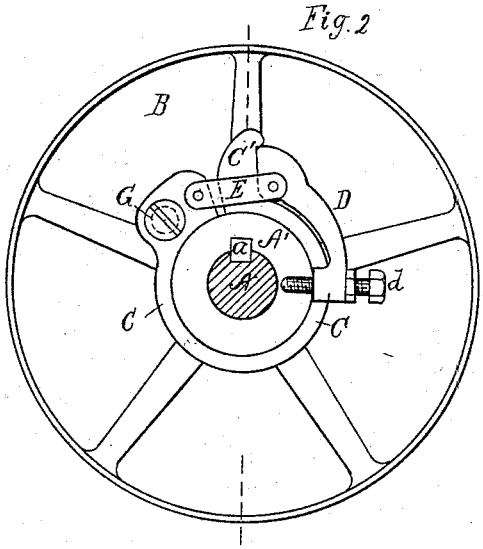


Fig. 3

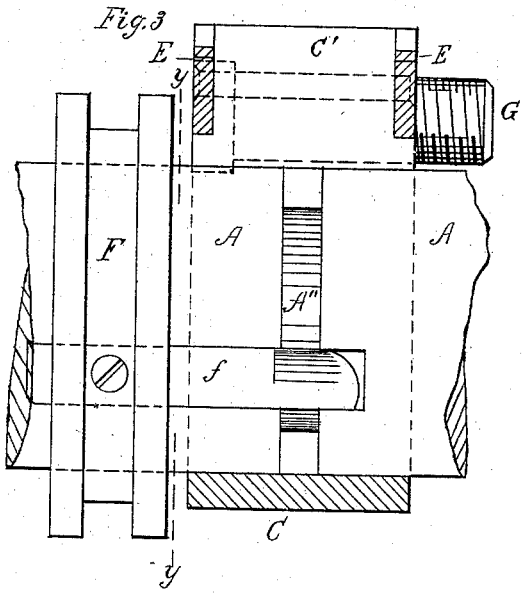
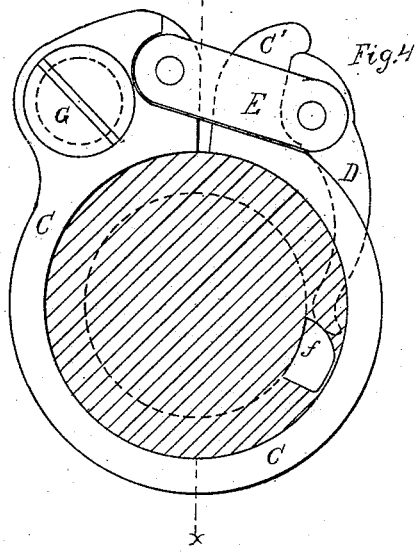


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

ELIJAH F. SPAULDING, OF ERIE, PENNSYLVANIA.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 265,170, dated September 26, 1882.

Application filed April 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH F. SPAULDING, a citizen of the United States, residing at Erie, Erie county, Pennsylvania, have invented new and useful Improvements in Friction-Clutches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters or figures of reference marked thereon.

My invention consists in providing a new and improved friction-clutch for use on various kinds of machinery.

The objects, purpose, and scope of my invention will fully appear in the following general description.

My invention is illustrated in the accompanying drawings as follows:

Figure 1 is a front elevation of my clutch, with the belt-pulley to which it is connected in vertical section. Fig. 2 is an end view, the shaft being in section; Fig. 3, an enlarged view, and shows an alternative construction of some of the parts. The clamp is here shown in section on the line *x x* in Fig. 4. Fig. 4 is an end view of the same construction shown in Fig. 3, the shaft being sectioned on the line *y y* in Fig. 3.

The various parts are lettered as follows:

A is the shaft; B, the belt-pulley or other gearing to be clutched to the shaft.

C is the clutch or clamp ring.

D and E together form a toggle-lever, D being a cam-lever, and E E being links connecting said cam-lever with the opposite end of the clamp-ring, which end I call the "head," while the end C′ I call the "toe," of the clamp-ring.

G is the bolt or screw by which the clamp is attached to the gear or pulley.

F is the shifting collar, which in the construction shown in Figs. 1 and 2 is a cone, while in Figs. 3 and 4 it is a plain collar carrying an arm, *f*. The two constructions shown are essentially the same, the difference being only in the means used for tripping the cam-lever D.

My clutch consists of the clamp-ring C, which is made of spring-steel, and the means employed for clamping it upon the shaft or a collar, A′, keyed to the shaft.

The means for drawing the clamp-ring together consists of the links E E and the cam-lever D, which acts upon the toe C′ of the clamp-ring C. In the construction shown in Figs. 1 and 2 the long end of the cam-lever D is bent and runs out along the middle of the shaft, and is provided with an adjusting-screw for bearing upon the shifting cone. When the cone is shoved under the end of the lever it raises it, and the short end or cam presses the toe of the clamp-ring toward the head, thus clamping the ring upon the shaft and clutching it. This construction is desirable when it is desired that the clutching be done gradually. The construction shown in Figs. 3 and 4 is intended for use when the clutching is desired to be instantaneous. In this construction the end of the cam-lever D lies in a slot in the ring C and runs in a groove in the shaft. (See A″.) The shifting-collar F has an arm, *f*, which lies in a longitudinal groove in the shaft, and when it is used to trip the lever D it slides across the groove A″ and passes under the lever D as the shaft revolves.

The clamp-ring C can be used as a shaft-coupler, if desired, by using a screw similar to *d* to bear against one of the parts and lift the lever D, so as to grip the ring to the shafting.

One of the advantages of my clutch is that it can be used on small gears and have all the power it would on a large one. The clutch is very powerful. It may be used for attaching pulleys and gears to the shaft by using the screw in the end of the lever, as above described.

I am aware of clutching-rings having their ends connected together by links and operated by a lever which forces the links upwardly and causes the ring to clutch the shaft or part surrounded by it. This device, however, differs from mine, in that my lever forces the ends toward each other and causes the ring to clutch a greater area and more firmly than in the devices above referred to, in which the upper part of the ring is lifted from the body. Therefore

What I claim as new is—

A clutching device consisting of part C, encircling the body to be clutched, and having a

projecting lip, C′, of links attached to one end of part C and transversely crossing lip C′ and connecting with lever D, having one end in contact with the operative mechanism which draws the ends of part C together, for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of February, 1882.

ELIJAH F. SPAULDING.

Witnesses:
JNO. K. HALLOCK,
W. S. BROWN.