F. G. BATES.

Clutch.

No. 206,071. Patented July 16, 1878.

Fig. 4

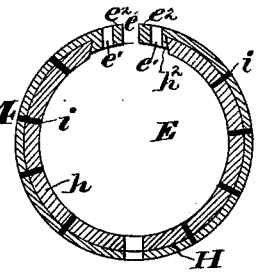


Fig. 1

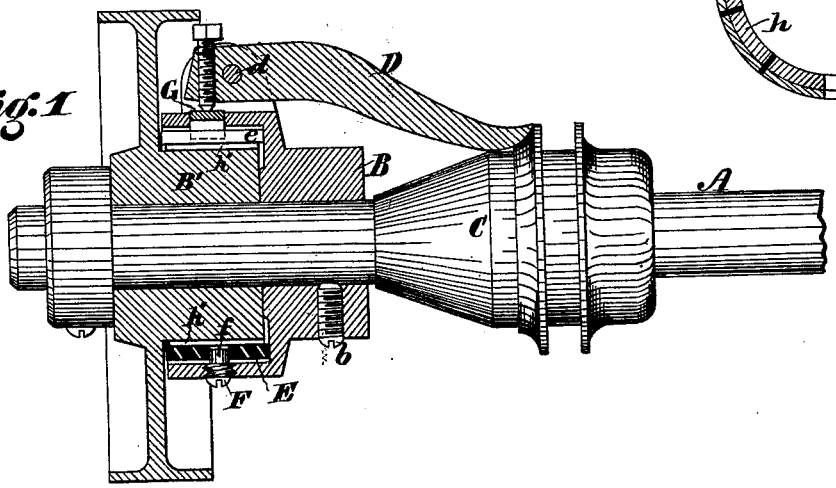


Fig. 5

Fig. 3

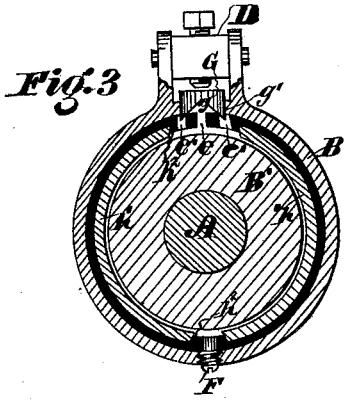


Fig. 2

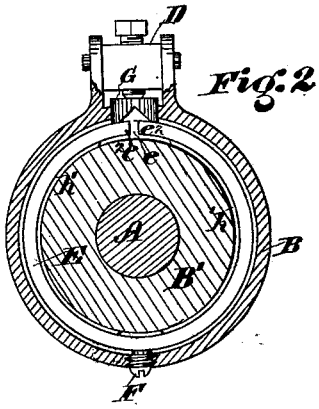
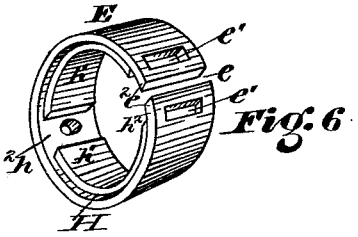


Fig. 6



WITNESSES:

Saml. J. Vanstavoren

Jos B. Connolly

INVENTOR,

Francis G. Bates,

By Connolly Bros, ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANCIS G. BATES, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN CLUTCHES.

Specification forming part of Letters Patent No. **206,071**, dated July 16, 1878; application filed March 27, 1878.

CASE C.

To all whom it may concern:

Be it known that I, FRANCIS G. BATES, of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Friction-Clutches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Figs. 2 and 3 are transverse vertical sections of the same. Fig. 4 is a vertical longitudinal section of the friction-ring. Fig. 6 is a perspective of the same, and Fig. 5 a perspective of the Λ-shaped plug.

My improvement has special reference to the invention for which Letters Patent of the United States, dated November 24, A. D. 1874, No. 157,063, were granted to Charles E. Burwell and Frank G. Bates; and the special object of said improvement is to obtain a more thorough, even, and effective clamping or binding action on the part of the friction-ring.

My improvement consists in the provision and employment of a double wedge, which acts simultaneously on both ends of the friction-ring, operating to draw said ends together, the ring being fastened in the shell or hub directly opposite to the wedge.

Referring to the accompanying drawing, A designates a shaft; B, a false hub or shell, secured fixedly thereon by a screw, *b;* C, a sliding conical spool; and D, a lever, fulcrumed at *d* on the shell B, these several parts being substantially the same as are shown and described in the Letters Patent aforesaid. E is a friction-ring, cleft at *e*, and fastened in the shell B by a pin or screw, F, having a plain end, *f*, where it passes into said ring. e^1 e^1 are transverse slots or openings in the ring E, on either side of the cleft *e*, and at equal distances from the ends e^2 e^2 of said ring. G is a sliding plug, which passes through the shell B directly beneath the head of the lever D. The lower or inner end of this plug has a Λ-shaped notch, *g*, made in it, thereby forming a double wedge, or two wedges, g' g', the points of which enter the slots e^1 e^1.

When the lever D is elevated by sliding the spool C toward the shell B on the shaft A, the plug G is made to slide inwardly, causing the wedges to enter the slots e^1 e^1, thus drawing the ends e^2 e^2 toward each other, and causing the friction-ring E to contract and bind equally on either side of the pin F upon the hub or shaft or shoulder B′, to which it is applied for the purpose of producing friction.

For the purpose of obtaining a more powerful clutch, grasp, gripe, or hold, I line the friction-ring with wood, paper, leather, or rawhide. To cause this lining to fit snugly and be securely retained in place, I form the friction-ring E with an internal annular groove, H, and in this groove I insert the lining. (Shown at *h*.) Said lining may be further fastened by pins *i i*, or by being made in sections h^1 h^1, and fitted between or divided by stops or partitions h^2, produced by not making the groove H continuous, or, in other words, by intermitting the groove H at the points h^2 h^2.

I am aware that wood and other substances have been used in brakes to provide a friction-surface. I therefore do not broadly claim to be the first to apply the materials named to frictional uses, but limit myself to their application specifically to clutches and their combination with essential elements of such devices.

In applications A and B, of even date herewith, filed by me, I have shown and described, and in application A have claimed, the friction-ring held in place in the shell by means of a pin entering said ring at a point diametrically opposite the cleft. I therefore disclaim this feature, broadly, as pertaining to the subject-matter of this application.

What I claim as my invention is—

1. In combination with the friction-ring E, cleft at *e*, and having slots or openings e^1 e^1 on either side of said cleft, a double sliding wedge or two sliding wedges, g' g', arranged to enter said slots or openings and draw the ends e^2 e^2 of the friction-ring toward each other.

2. In combination with the shell or false hub B, the friction-ring E, cleft at *e*, having slots

or openings e^1 e^1 and double wedge G, said ring being fastened in the shell B at a point directly opposite the cleft e, or midway between its ends, and the wedges g' g' being arranged to enter the openings e^1 e^1, substantially as shown and described.

3. In a friction-clutch, the combination, with a friction-ring, of a double wedge, g, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of March, 1878.

FRANCIS G. BATES.

Witnesses:
CHAS. F. VAN HORN,
SAML. J. VAN STAVOREN.