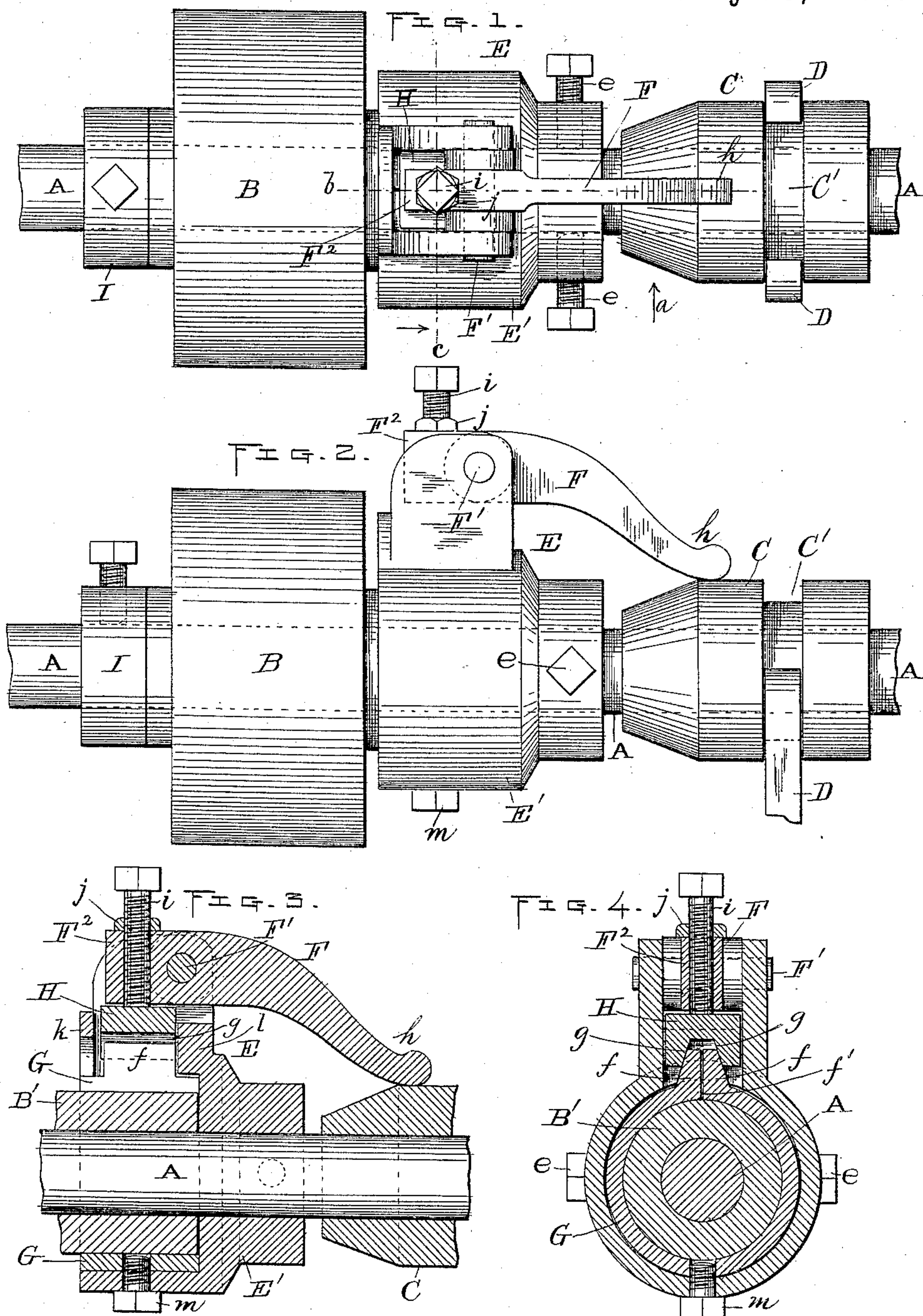


(No Model.)

E. S. CAPEN.
FRICTION CLUTCH.

No. 432,179.

Patented July 15, 1890.



Witnesses;

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UNITED STATES PATENT OFFICE.

EBENEZER S. CAPEN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO THE P. BLAISDELL & COM-
PANY, OF SAME PLACE.

FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 432,179, dated July 15, 1890.

Application filed May 3, 1889. Serial No. 309,419. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER S. CAPEN, of the city and county of Worcester, and State of Massachusetts, have invented certain new and
5 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, forming a part of this specification, and
10 in which—

Figure 1 represents a top or plan view of my improved friction-clutch, shown in position for use upon a short section of shaft between a driving-pulley and the cone with
15 which the upper end of the shipping-lever is connected. Fig. 2 is a side view of the parts shown in Fig. 1, looking in the direction of arrow *a*. Fig. 3 is a longitudinal section taken on line *b*, Fig. 1, showing only the hub of the
20 driving-pulley and part of the shipper-cone in addition to the clutch; and Fig. 4 is a transverse or cross section taken on line *c*, Fig. 1, through the clutch, driving-cone, hub, and shaft.

25 My invention relates to that class of clutches having a split expansion-ring adapted to expand automatically to release the driving-pulley, and having means whereby the same may be contracted over the hub of the pulley to
30 communicate the driving power from the shaft to said pulley; and it consists of an improved construction and arrangement whereby said friction-ring may be contracted and allowed to expand, as aforesaid, over the hub of the
35 driving-pulley, as hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe it more
40 in detail.

In the drawings, the part marked A represents the shaft, only a portion of which is shown, as previously stated.

45 B is the driving-pulley provided with the hub B' and fitted to turn on shaft A.

C is the cone-pulley fitted to slide on said shaft A and provided with the transverse annular groove C', in which the upper end D of the shipping-lever fits, as is shown in Figs.

1 and 2. Said lever being in practice constructed and operated as usual, it is deemed unnecessary to show more than said upper end D.

The clutch E consists of the central portion or body E', fitted over the shaft and fastened
55 thereto by means of set-screws *e* or other suitable means, of the lever F, pivoted at F' to said body, the ring G, provided with the beveled lugs or projections *ff*, and the loose block H, arranged under the head F² of the
60 compressing-lever F, and provided with internal longitudinal beveled sides *gg*, adapted to fit over the beveled lugs or projections aforesaid. The body E' is recessed upon the inside next to the pulley B to receive the hub of said
65 pulley and the split ring G, sufficient play being allowed for the expansion of said ring to release the pulley. Said pulley is held in position longitudinally between the body E' at the
70 bottom of its recess and a collar I secured to the shaft just outside of the hub of said pulley. The lugs or projections *ff* on the friction-ring extend out radially at each side of its joint *f'* into the longitudinal groove formed in the under side of the loose block H. There-
75 fore, as the inner beveled sides *gg* of said block fit over the outer beveled sides of said lugs or projections *ff*, it is obvious that by forcing down the block the lugs or projections are forced toward each other, and in
80 consequence contracting the ring over the hub of the driving-pulley, thereby locking them together by frictional contact, so that said pulley will be turned with the shaft when in operation. The block is thus forced down
85 by operating the shipper-lever so as to move the cone-pulley C toward the clutch, as in other friction-clutches, said operation causing the end *h* of the compressing-lever to be elevated and its head to be lowered against
90 the block to force it down, as aforesaid. In order that the pressure upon said grooved block may be regulated, it is preferable to employ a vertical screw *i* in the head F², which may be turned up and down, as required, to
95 produce the desired pressure, and fastened after adjustment by means of the set-nut *j*. Said loose block is in this instance held in

position longitudinally between the transverse flanges *k* and *l*, formed on the body or central portion *E'* of the clutch. I do not, however, limit myself thereto or to the special shapes shown of the various other parts.

It is preferable to fasten the friction-ring about opposite from its beveled lugs or projections to said body *E'* by means of a transverse screw *m* or otherwise; but this I also do not limit myself to, as it is not an essential feature in carrying out my invention.

By constructing a friction-clutch in the manner herein specified it is obvious that the ring thereof may be clamped tight and secure over the hub of the driving-pulley, while at the same time permitting of the free expansion of said ring when the pressure is removed. The construction is not only simple and effective, but inexpensive and not liable to get out of repair.

Being aware of various ways now employed of contracting the ring in a friction-clutch for the purpose described, I limit my invention to substantially the construction and arrangement herein set forth and shown.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

In a friction-clutch, the split ring provided with the transverse lugs beveled on their outer sides and formed on said ring at each side of its joint, in combination with the loose block having a longitudinal beveled groove in its under side and adapted to fit over said beveled lugs, the compressing-lever, the slidable cone, and the central holding-body, substantially as set forth.

EBENEZER S. CAPEN.

Witnesses:

A. A. BARKER,
W. B. NOURSE.