

C. F. BROSTRÖM.
CLUTCH.

No. 570,247.

Patented Oct. 27, 1896.

Fig. 1.

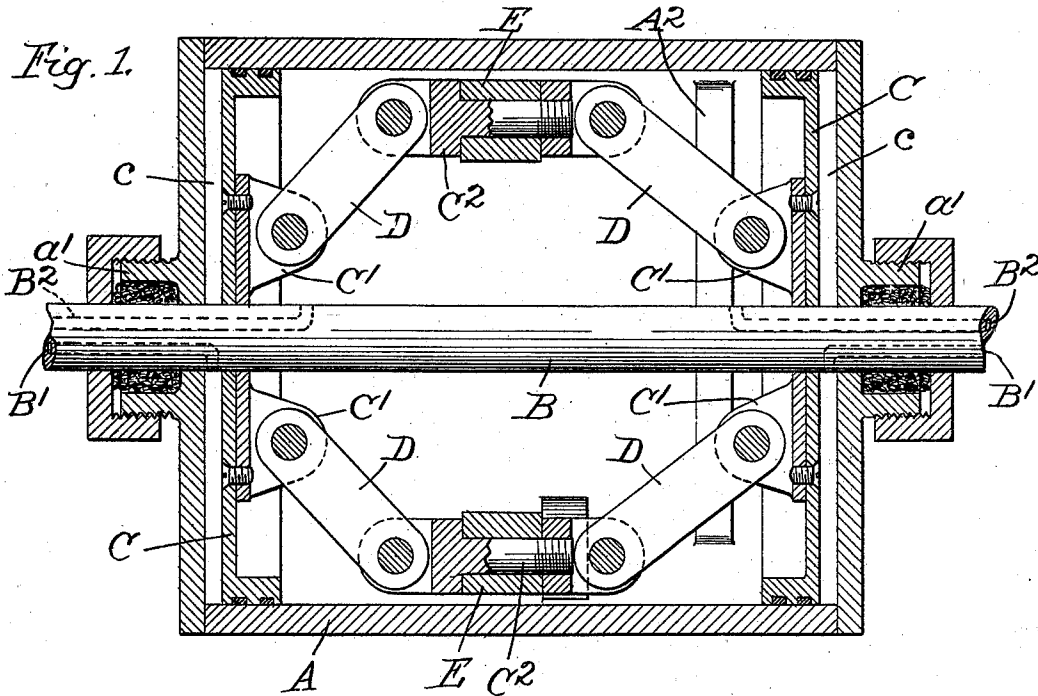
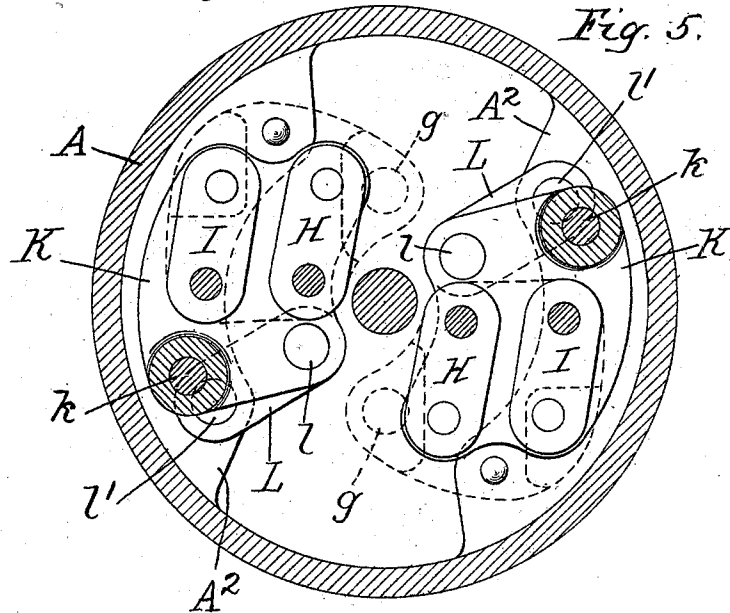


Fig. 5.



Witnesses.

E. T. Wray.
Jean Elliott

Inventor.

Carl F. Broström.

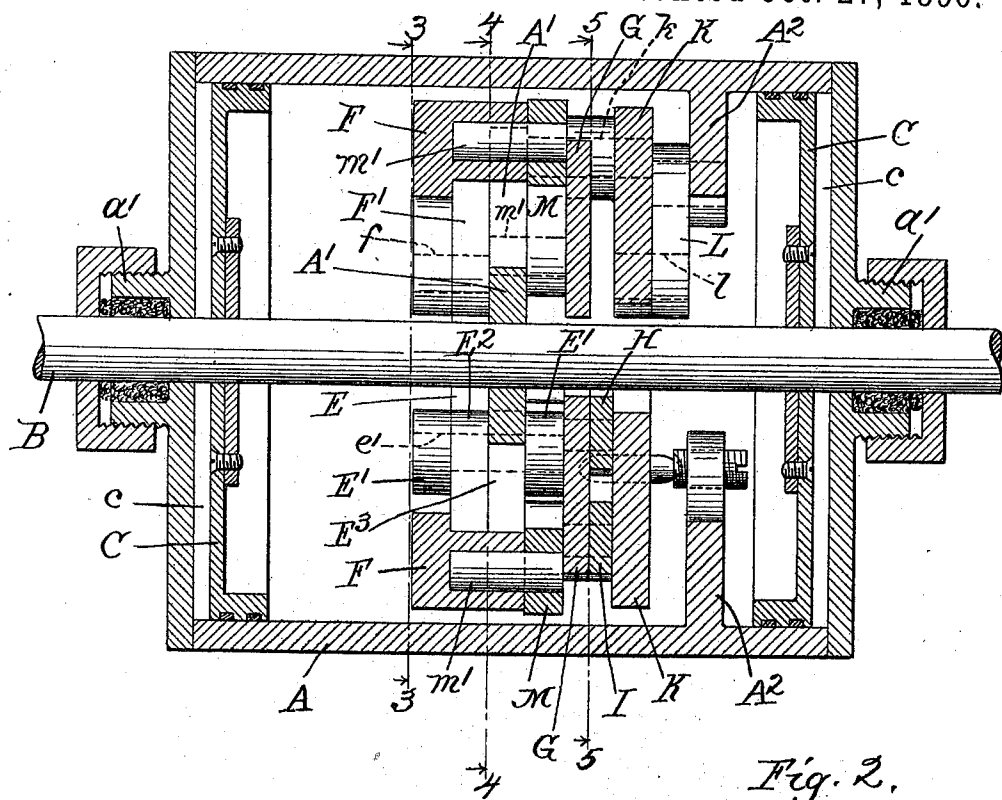
(No Model.)

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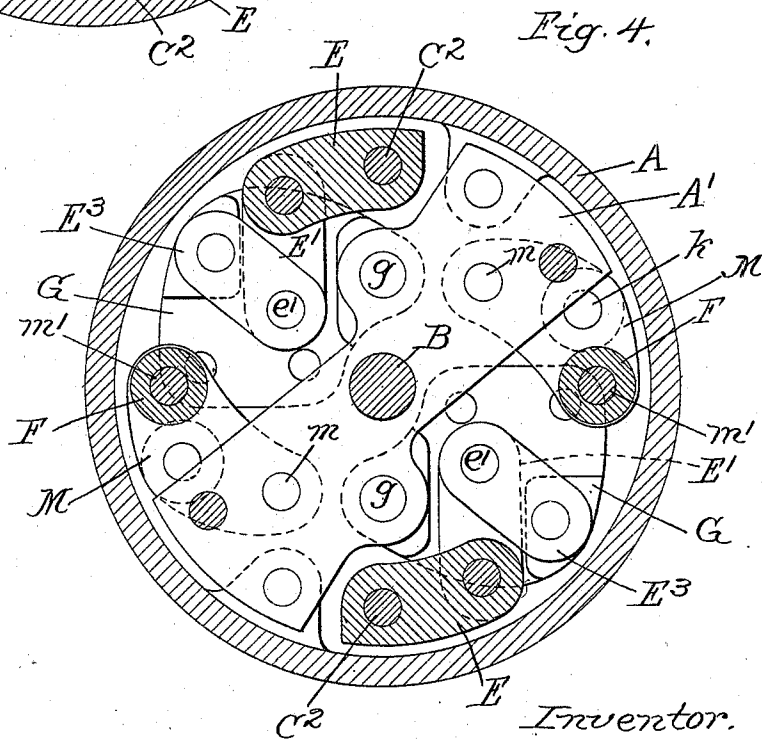
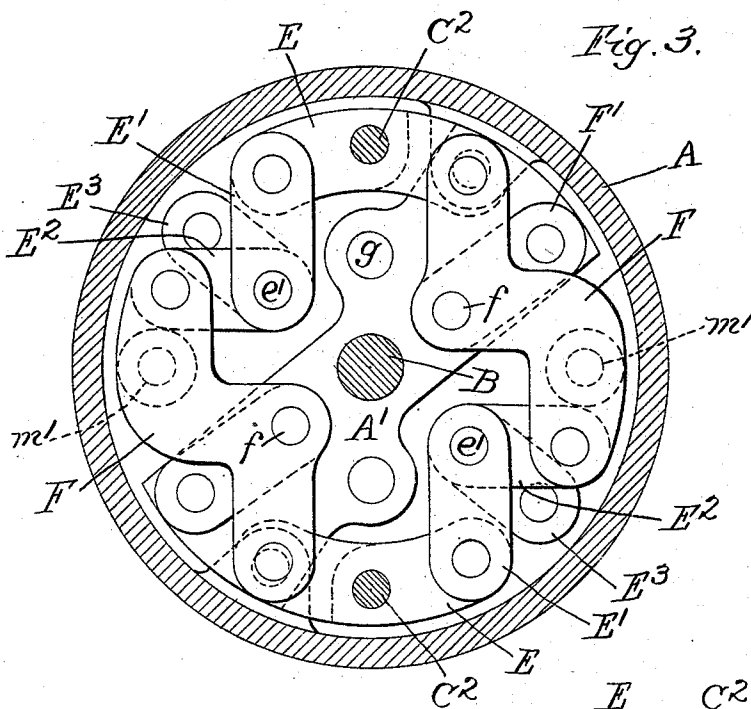
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Fig. 6.

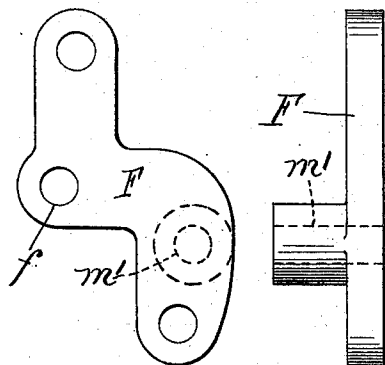


Fig. 7.

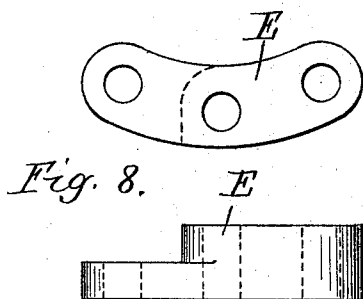
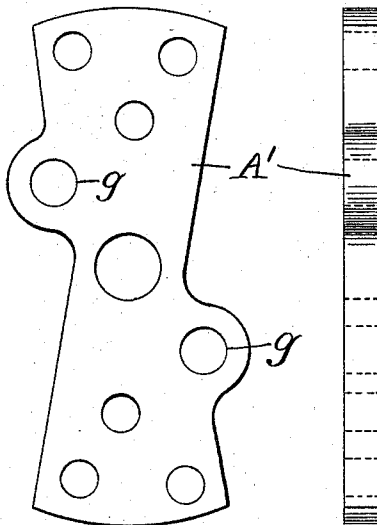


Fig. 9.

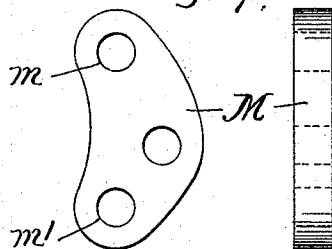


Fig. 10.

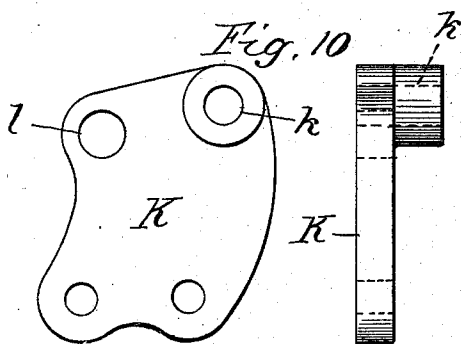
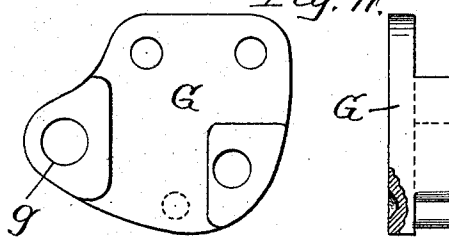


Fig. 11.



Witnesses.

E. T. Wray.
Jean Elliott.

Inventor.

Carl F. Broström

UNITED STATES PATENT OFFICE.

CARL F. BROSTRÖM, OF CHICAGO, ILLINOIS.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 570,247, dated October 27, 1896.

Application filed June 22, 1896. Serial No. 596,420. (No model.)

To all whom it may concern:

Be it known that I, CARL F. BROSTRÖM, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Clutches, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

10 In the drawings, Figure 1 is an axial section through my clutch with certain parts omitted, section being at the plane indicated by the line 1 1 on Fig. 3. Fig. 2 is an axial section at right angles to Fig. 1, showing the parts omitted from the former figure, section being at the line 2 2 on Fig. 3. Fig. 3 is a section at the line 3 3 on Fig. 2. Fig. 4 is a section at the line 4 4 on Fig. 2. Fig. 5 is a section at the line 5 5 on Fig. 2. Fig. 6 comprises a plan and an edge elevation of the part F; Fig. 7, similar views of the part A'; Fig. 8, similar views of the part E; Fig. 9, similar views of the part M; Fig. 10, similar views of the part K; Fig. 11, similar views of the part G.

A is a cylinder which is air-tight.

B is a shaft extending axially through the cylinder. *a' a'* are stuffing-boxes on the heads, respectively, of the cylinder.

30 C C are disks or pistons fitting air-tight within the cylinder.

D D D D are similar links connected two and two to the disks C C, respectively, the connections of each pair being at diametrically opposite lugs C' C', which project from the inner surfaces of the disks C C, respectively. The links D D are connected two and two, one from each disk, by means of the detachable two-part links or cross-heads C² C², which extend parallel to the axle B, proximate to the cylindrical wall of the cylinder. These two-part links are made in two parts in order that they may be secured detachably—that is, in such manner that the device may be assembled and disassembled—to the eveners or spreaders E E, whose outer peripheries correspond to and are adapted to bear against the inner wall of the cylinder when they are spread by the links D D.

50 Between the heads of the cylinder and the disks C C, respectively, are spaces *c*, and the shaft B has ducts B' B' and B² B² extending

longitudinally and opening the ducts B' into the air-spaces *c c* and the ducts B² into the space between the disks C. When air or other fluid under pressure is introduced through the ducts B' B', it tends to force the disks or piston-heads C C inward toward each other, causing them, by means of the links D D, to spread the eveners E E and hold them against the inner wall of the cylinder. One end of each evener is connected by two links E' E', one on each side, to two links E² and E³, both clasped between the two links E' E', all four links being connected by the pivot *e'*. The link E² is connected to a lever F, suspended at *f* by a link F', the end of which is pivoted to a bridge or diaphragm A', rigid with the cylinder-wall, said lever being connected at the end remote from that at which the link E² is connected to it to the opposite end of the opposite evener E—that is to say, the two eveners have their corresponding ends connected to each other by a train consisting in each instance of the links E', the link E², and the lever F, which is suspended from the bridge A'. The link E³ at the end remote from its pivot *e'* is connected to the lever G, which is fulcrumed at *g* on the bridge or diaphragm A', the two pivotal connections of the said lever E³ being in radial line, so that if the part G were fixed with respect to the cylinder as a whole the link E³ would suspend the pivotal connection of the links E' and E² directly toward the center.

The lever G, besides its pivotal connection at its fulcrum and its pivotal connection with the link E³, is connected by the parallel links H and I to the lever K. The lever K is suspended by the link L, connected to it at *l* from the cylinder-wall, to which the link L is connected by being pivoted at *l'* to the lug A². Said lever K is further pivotally connected at *k* to the lever M, said lever M being fulcrumed at *m* on the diaphragm and pivotally connected at the other end by the pivot *m'* to the lever F intermediate of the fulcrum of the latter lever and its connection to the link E².

It will be manifest upon inspection that pressure exerted between the heads of the cylinder and the piston-heads or disks C, tending to crowd said disks together, will cause the spreaders E E to be crowded out-

ward and to bind the wall of the cylinder with a tangential tendency in one direction, and that pressure introduced between the two disks C, tending to crowd them apart
 5 and to draw together the spreaders E E, will crowd outward the levers F F against the wall of a cylinder with a tangential tendency in the opposite direction.

I claim—

- 10 In combination with a cylinder having outer fixed heads and inner fluctuating heads or pistons with air-spaces between the fixed and fluctuating heads, respectively, and air-spaces between the two fluctuating heads; a
 15 shaft axial with respect to said cylinder having ducts which open between the fixed and fluctuating heads, respectively, and other ducts which open between the fluctuating heads; links connected to the fluctuating
 20 heads, and spreaders connected to the links and adapted to bear against the inner surface of the cylinder, levers F and links E' and E², connecting corresponding ends of the spreaders, and the radial links F' and
 25 E³ symmetrically disposed and constituting

means of suspension respectively of the levers F and of the connecting-pivots of the links E' and E², whereby the approach of the fluctuating heads forcing the spreaders against the cylinder, tends to give them a
 30 tangential motion in one direction, and the levers G and K and parallel links H and I connecting the same, the lever G being pivoted at a fulcrum fixed with respect to the cylinder, and the radial link L, by which the
 35 lever K is pivotally suspended from the cylinder, the lever G being suspended by the radial link E³, whereby the separation of the heads tending to withdraw the spreaders from the cylinder, causes the levers K to bear
 40 against the inner surface of the latter with a tangential tendency in the opposite direction.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, in the presence of two witnesses, this 9th day of June, 1896. 45

CARL F. BROSTRÖM.

Witnesses:

CHAS. S. BENTON,
 JEAN ELLIOTT.