(No Model.) 2 Sheets—Sheet 1.

F. BROWN.

FRICTION CLUTCH.

No. 266,761. Patented Oct. 31, 1882.

Fig. 1.

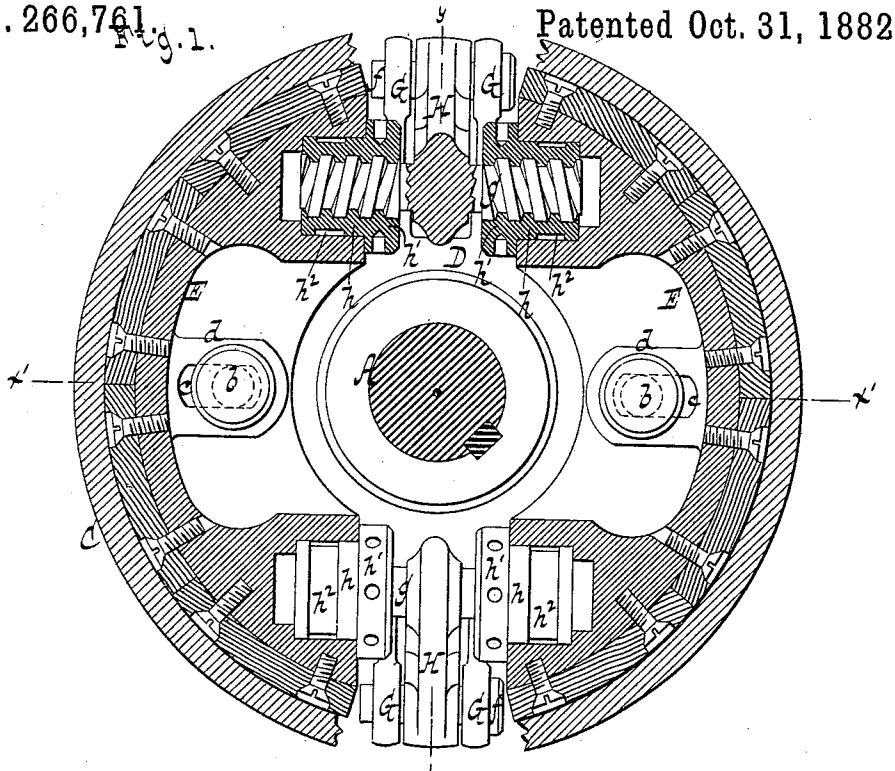
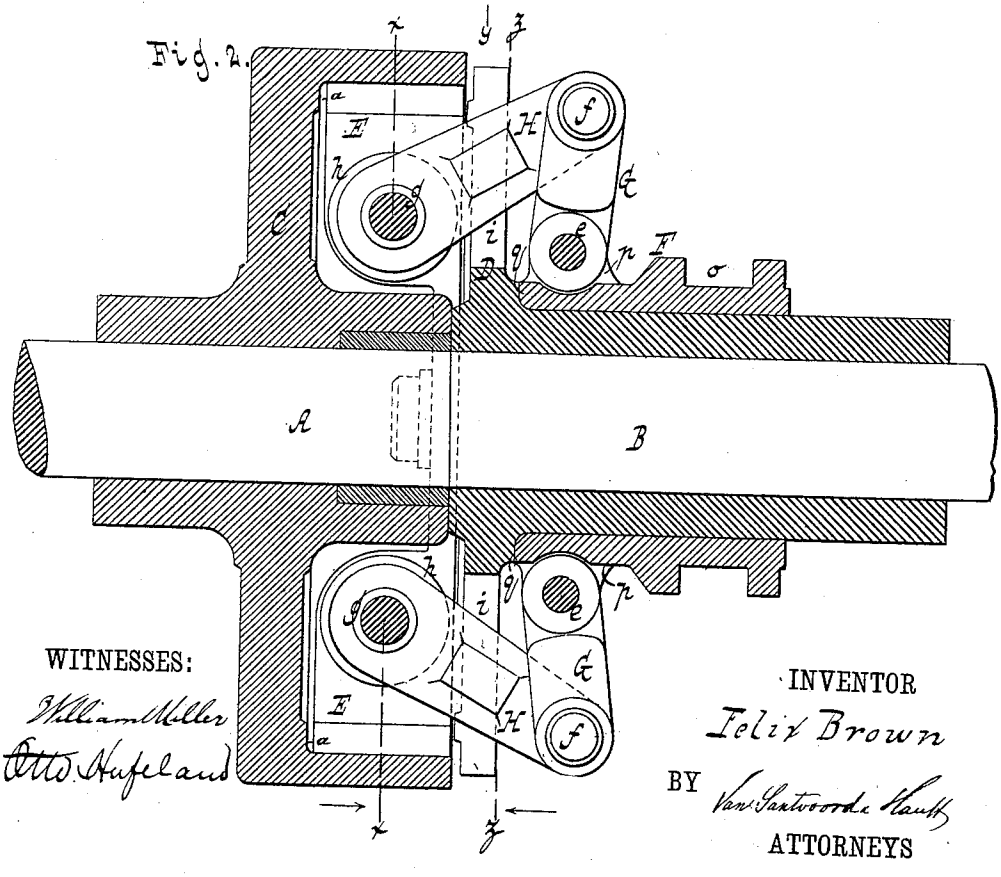


Fig. 2.



WITNESSES:

William Miller

Otto Hupeland

INVENTOR

Felix Brown

BY Van Santvoord & Hauff

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

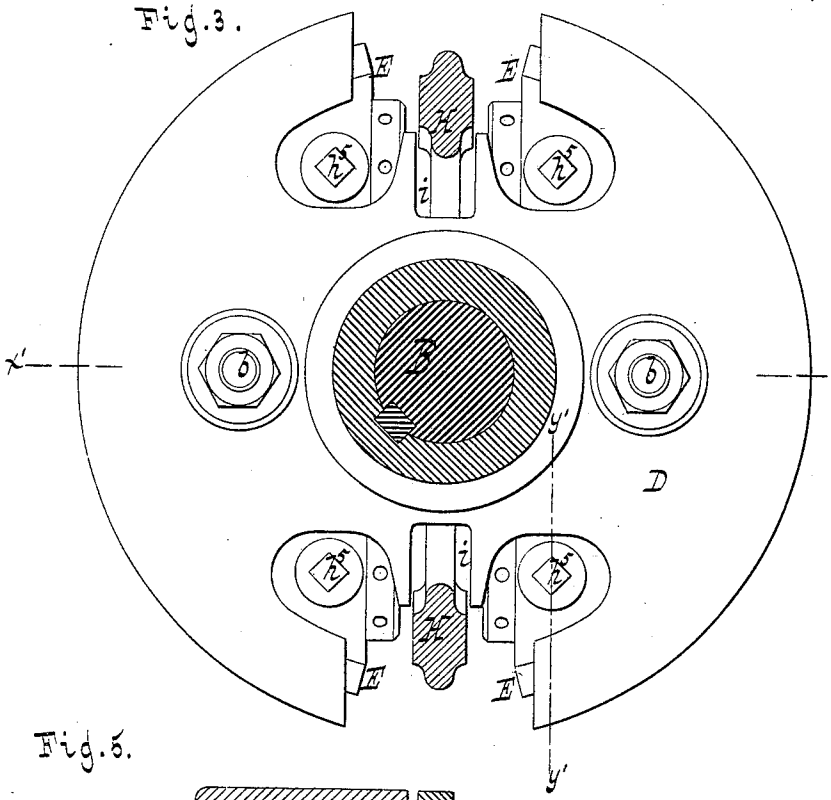

Fig. 5.

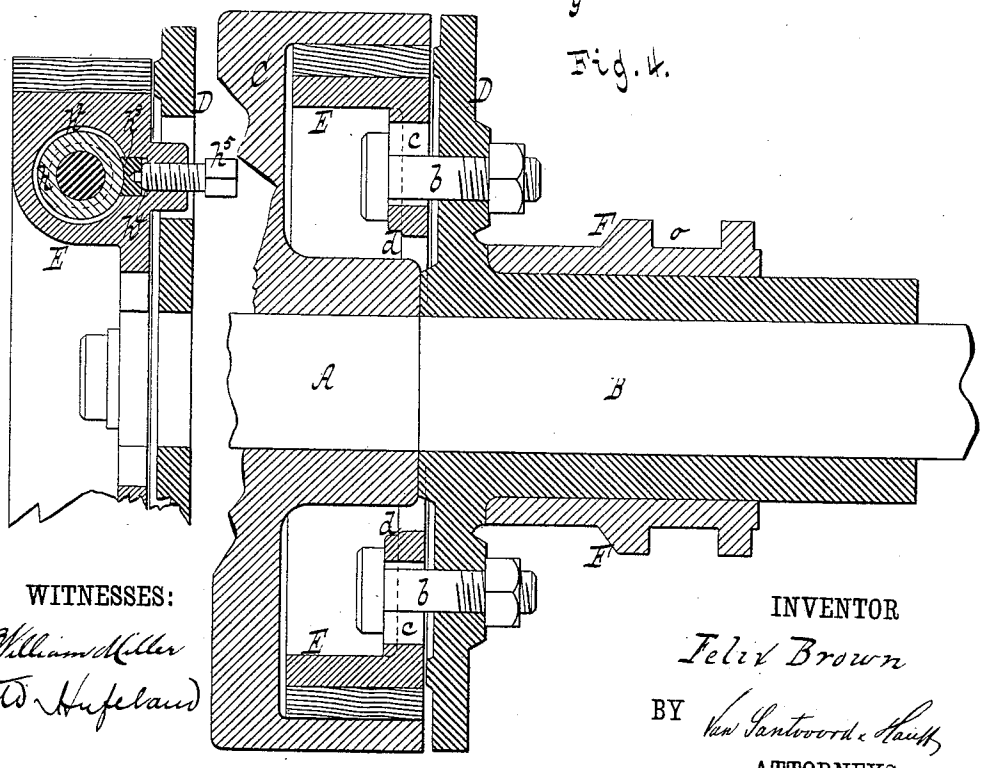

Fig. 4.

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UNITED STATES PATENT OFFICE.

FELIX BROWN, OF NEW YORK, N. Y.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 266,761, dated October 31, 1882.

Application filed August 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, FELIX BROWN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Friction-Clutches, of which the following is a specification.

This invention relates to certain improvements in friction-clutches of that class which is composed of a drum mounted firmly on the end of the first shaft, an annular groove formed in the face of said drum, and two expansible segments, which are secured to a disk mounted on the end of the second shaft, (which is to be coupled together with the first shaft,) said expansible segments being so situated that they engage with the annular groove in the drum on the first shaft, and that by expanding said segments the two shafts are coupled together without throwing either of them out of line.

The novel and peculiar construction of my clutch is pointed out in the following specification.

In the accompanying drawings, Figure 1 represents a transverse section of my clutch in the plane *x x*, Fig. 2. Fig. 2 is a longitudinal section in the plane *y y*, Fig. 1. Fig. 3 is a transverse section in the plane *z z*, Fig. 2. Fig. 4 is a longitudinal section in the plane *x' x'*, Figs. 1 and 3. Fig. 5 is a partial section in the plane *y' y'*, Fig. 3.

Similar letters indicate corresponding parts.

In the drawings, the letters A B designate two shafts, which are mounted in line with each other, and which are to be coupled together. On the end of the shaft A is firmly mounted the female section of the coupling, which consists of a drum, C, provided in its face with a deep annular groove, *a*. (See Figs. 2 and 4.) The male section of the coupling is firmly mounted on the end of the shaft B, and it consists of a disk, D, on which are secured the expansible segments E E by means of screws *b*, Figs. 1, 3, and 4, which pass through radial slots *c* in flanges *d*, which project from the inner surfaces of the segments, so that said segments can be moved toward and from the center of the shaft B. When the two sections of the coupling are secured in their proper positions on the shafts A B, the segments E E project into the annular groove *a* of the drum C, and when the two segments are simultaneously moved outward or expanded their peripheries are brought to bear against the outer circumference of the annular groove *a*, and the two shafts A B are compelled to rotate together.

For the purpose of expanding or contracting the segments E E the following mechanism is employed: On the hub of the disk D is fitted a sliding sleeve, F, which is provided with a groove, *o*, intended to engage with the clutch-lever. On opposite sides of this sleeve are secured lugs *p*, which form the bearings for pivots *e*, and on these pivots are mounted levers G G, which are connected at their outer ends by pivots *f*, with levers H H. (Best seen in Fig. 2.) These levers H H are firmly mounted on or made solid with spindles *g g*, each of which is provided with a right-and-left screw-thread, Fig. 1, to engage with nuts *h h*, which are firmly secured in the segments E E. If the sleeve F is moved back away from the disk D, Fig. 2, the spindles *g g* are rotated so as to contract the segments E E; but if the sleeve F is moved toward the disk D, the spindles *g g* are rotated so as to expand the segments and to couple the two shafts A B together. In order to lock the two segments in their expanded position and to prevent the shafts from becoming uncoupled accidentally, I have arranged the pivots *e* of the levers G G, Fig. 2, in such a position that when the sleeve F is moved toward the disk D, to the position shown in Fig. 2, said pivots *e e* are situated inside a line drawn through the center of the pivots *f f*, and consequently the levers H H are firmly locked in this position. A shoulder, *q*, on the hub of the disk D arrests the sleeve in the required position. The nuts *h h* are fitted into cavities in the segments E E, Figs. 1 and 5, and they are provided with heads *h' h'*, so that they can be rotated for the purpose of adjusting the position of the two segments, which must be such that by moving the sleeve F both segments are brought to bear with the same force against the outer circumference of the annular groove *a* in the disk C. After the nuts have been adjusted in the required position they must be firmly locked. For this purpose I provide each nut with a groove, h^2, Figs. 1 and 5, in its circumference,

and into each of these grooves is fitted a segmental plug, h^3, Fig. 5, which projects into a cavity, h^4, in the body of the segment, and is exposed to the action of a set-screw, h^5. By means of the plug h^3, groove h^2, and head h' each nut is retained in its cavity, so that it can be turned, but not moved in the direction of its length, and thereby the adjustment of the segments is facilitated, and when the segments have been adjusted in the required positions, the nuts h h can be locked in position by the set-screws h^5, while at the same time the plugs h^3 prevent the nuts from becoming injured by the points of the set-screws. Since the nuts h h, as well as the spindles g g, must be made of brass or other metal less liable to corrode than iron, the advantage of the construction above described will be apparent.

In the disk D are formed recesses i i, Fig. 3, which form guides for the levers H H, and which, together with the slotted flanges d and screws b, serve to retain the expansible segments E E in the center whenever the shaft B revolves independent of the shaft A.

I do not claim broadly as my invention a friction-clutch composed of a grooved drum, expansible segments fitting the groove of the drum, and mechanism for expanding and contracting said segments, such being old and well known.

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

1. The combination of the grooved drum C, the expansible segments E E, the levers G H, the screw-spindles g, the sleeve F, and the slotted disk D, provided with a hub on which the sleeve slides, and having at the inner end of its hub the shoulder q, against which the inner end of the sleeve abuts to arrest the sleeve and levers in their locked position, substantially as described.

2. The combination, with the disk D, the expansible segments E, and levers H, forming part of the mechanism for expanding the segments, of recesses i i in the disk and screws b, passing through slotted flanges d, projecting from the segments, for retaining said segments in a central position, substantially as set forth.

3. The combination, with the grooved drum C, of the disk D, the expansible segments E E, engaging with the grooved drum, the screw-spindles g g, the nuts h h, the heads h', formed on said nuts, the plugs h^3, fitting grooves h^2 in said nuts, and the set-screws h^5, substantially as and for the purpose shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

FELIX BROWN. [L. S.]

Witnesses:
AUG. P. BROWN,
JOSEPH TAUBLES.