(No Model.)

L. J. HIRT.

FRICTION CLUTCH.

No. 458,579. Patented Sept. 1, 1891.

Fig. 3.

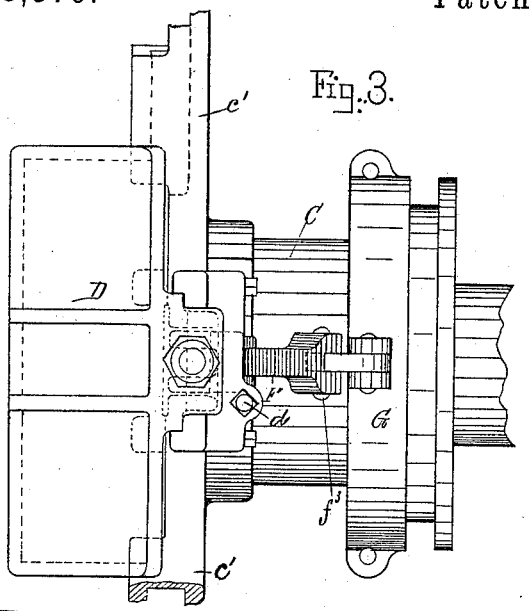


Fig. 1.

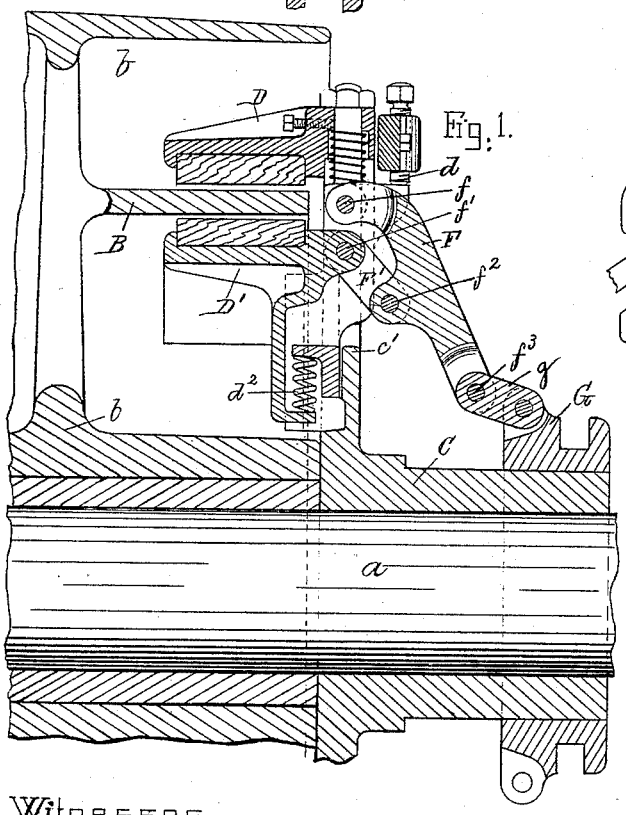
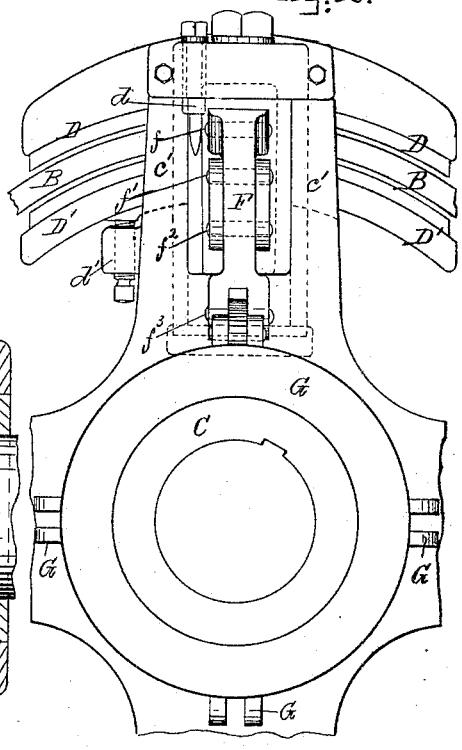


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

LOUIS J. HIRT, OF BOSTON, MASSACHUSETTS.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 458,579, dated September 1, 1891.

Application filed January 23, 1891. Serial No. 378,819. (No model.)

To all whom it may concern:

Be it known that I, LOUIS JOSEPH HIRT, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Friction-Clutch, of which the following is a specification, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a sectional elevation showing so much of a pulley and its shaft with my improved clutch as is necessary to make my invention clear. Fig. 2 is an elevation, and Fig. 3 a plan.

My invention relates to that class of friction-clutches in which a cylindrical flange fast to a pulley is clamped between a pair of jaws which are actuated by a lever, and is in many respects like the clutch described in my pending application, Serial No. 377,454, filed January 12, 1891; but in my present invention the floating lever F is connected by a link F′ to the jaw D′, so that the jaws D D′ are forced against flange B by bringing the pins f on the outer jaw, f' on the inner jaw, and f^3 in line.

The main feature of my invention consists in the combination of a lever pinned to the outer jaw with a link pinned at its upper end to the inner jaw and at its lower end to the lever near its middle, the lever being connected with mechanism for moving its lower end toward the inner jaw to clutch and away from the outer jaw to unclutch.

In the drawings, a is a shaft; b, a pulley loose on the shaft; B, a flange fast to pulley b, and C a frame fast to shaft a. This frame C carries in its arms c' two jaws D D′, so mounted that they can move toward and from one another, but otherwise rigid on the arm c'. The jaws are actuated by lever F and link F′. When the inner end of lever F is moved inward by the sliding sleeve G, acting through link g and pin f^3 or in any other suitable manner, pin f^3 tends to move in the arc of a circle on pin f as a center; but pin f^2 must also move in the arc of a circle with pin f as center so long as jaw D remains against its stop d. Inasmuch, however, as any such motion of pin f^2 will raise pin f' and jaw D′, through link F′, it will be clear that as pin f^2 moves toward the pulley jaw D′ will be forced outward, the pin f on jaw D being then the fulcrum of lever F; but as soon as jaw D′ brings up against the flange B it arrests the further motion of pin f' and becomes the fulcrum of lever F, through link F′, so that jaw D is forced toward and against flange B.

The main purpose of my present invention is the same as that described in my pending application, Serial No. 377,454—namely, to do away with a fixed fulcrum for lever F and cause each jaw to act in turn as a fulcrum for that lever; but as I have already claimed that invention in my former application my present invention is more limited. The jaws D D′ are distended by spring d^2, and this spring also holds jaw D against its stop d; but in lieu of a second spring acting to force jaw D against its stop d, as in my former application, I use a stop d', which limits the motion of jaw D′ toward the shaft. The stops d and d' should both be adjustable and determine the extent to which the jaws D D′ can be separated or distended by spring d^2. This combination of jaws D D′ and stops d d' for the jaws constitutes one feature of my invention.

The operation is as follows: When sliding sleeve G is moved to clutch, lever F is forced to move in an arc of a circle by link g and link F′ forced to move endwise and also to swing on pin f', thereby moving pin f' and jaw D′; but when jaw D′ is stopped by contact with flange B the continued swing of lever F toward the pulley forces pin f and jaw D toward the shaft until jaw D is stopped by contact with flange B. This motion of the jaws D D′ compresses spring d^2 and also carries both jaws D D′ away from stops d d', and on the motion of sliding sleeve G to unclutch jaw D will be moved until it is arrested by its stop d and jaw D′ until it is arrested by its stop d'; but should either jaw tend to stick to flange B the reverse motion of lever F will aid the spring d^2 in separating the jaws and bringing each against its stop, as in Fig. 1. The spring d^2 serves, mainly, to prevent rattle, and while desirable is manifestly, like the spring between the two parts of jaw D, a matter of convenience mainly.

What I claim as my invention is—

1. In a friction-clutch, the combination of a cylindrical flange, radial jaws, one opposite

the inner and the other opposite the outer surface of the flange, a lever pinned at three points only, the innermost pin connecting the lever to the outer jaw, the middle pin to a link, and the outermost pin to the actuating mechanism, and a link pinned at its lower end to the middle pin of the lever and at its upper end to the inner jaw, all substantially as described.

2. In a friction-clutch, the combination of a cylindrical flange, radial jaws, one opposite the inner and the other opposite the outer surface of the flange, a lever pinned at three points only, the innermost pin connecting the lever to the outer jaw, the middle pin to a link, and the outermost pin to the actuating mechanism, a link pinned at its lower end to the middle point of the lever and at its upper end to the inner jaw, an adjustable stop to limit the outward movement of the outer jaw, and a second adjustable stop to limit the inward movement of the inner jaw, all substantially as described.

LOUIS J. HIRT.

Witnesses:
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