(No Model.)

A. D. SIMPSON.

GRAVITY FRICTION CLUTCH.

No. 305,765. Patented Sept. 30, 1884.

Fig. 1.

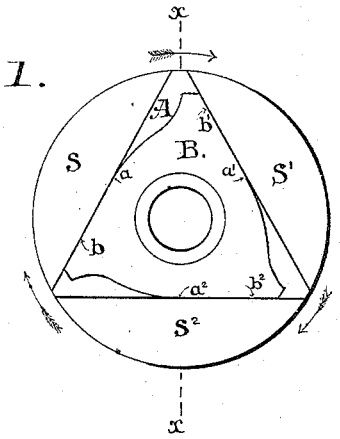


Fig. 2.

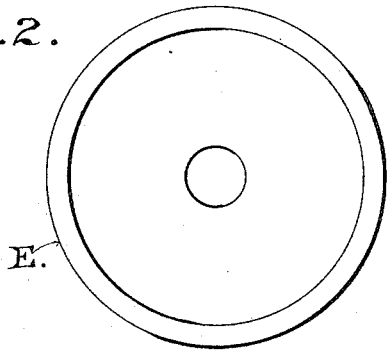


Fig. 3.

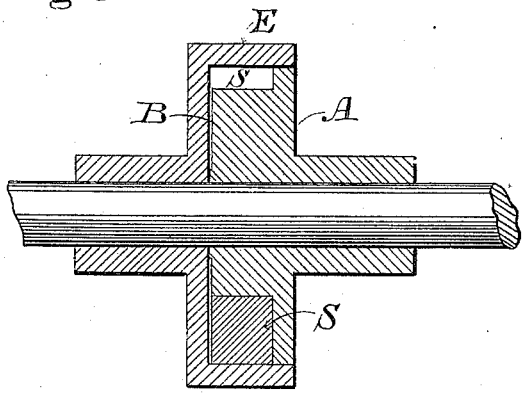
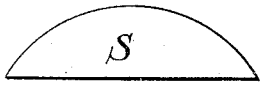


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ANSON D. SIMPSON, OF NIVERVILLE, NEW YORK.

GRAVITY FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 305,765, dated September 30, 1884.

Application filed August 11, 1884. (No model.)

To all whom it may concern.

Be it known that I, ANSON D. SIMPSON, of Niverville, in the county of Columbia and State of New York, have invented a new and useful Improvement in Gravity Friction-Clutches, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to that class of clutches for which I have filed one application, January 17, 1884, Serial No. 117,846; also, an application June 5,1884, Serial No. 133,972; and it consists in partially duplicating the hub, the segments, and their belongings, as described hereinafter, for the purpose of taking up all lost motion and to insure a perfect working of the arrangement.

This invention is fully shown in the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of the disk and hub, with the segments resting against the tangents of the hub. Fig. 2 is an inside face view of the cap. Fig. 3 is a sectional view of the clutch on the line *x x*, Fig. 1. Fig. 4 is a face view of one of the segments.

A circular plate or disk, A, is provided with a triangular-shaped hub, B, formed of three eccentric arcs and three tangents, the tangents meeting the arcs at the centers of the sides of the triangle, the arcs having their centers on a line drawn from the center of the sides of the triangular hub to the points of the same. The hub is thus provided with three equally-divided shoulders, $b\ b'\ b^2$, and three equally-divided points of pressure, $a\ a'\ a^2$. Three segments, $s\ s'\ s^2$, are placed against the hub B, the inner edges of the segments being straight and resting against the shoulders of the hub, and coming in contact with the eccentric where the tangent meets the arc, and the outer edges curved in such a manner that the said outer edges form a complete broken circle when the inner edges of the said segments rest against the shoulders of the hub.

A cap, E, fits snugly over the outer edges of the pieces $s\ s'\ s^2$. The disk A or the cap E may be provided with cogs, or with a groove for a belt or cord, or with any suitable means for transmitting power. If the cap E, placed over the pieces $s\ s'\ s^2$, is revolved in the direction of the arrow, Fig. 1, the outer edges of the pieces $s\ s'\ s^2$ will bind against the rim of the cap E, and the inner edges of the said pieces will come in contact with the eccentrics of the hub, as the gravity of the pieces $s\ s'\ s^2$ causes the pieces to act against the inner surface of the cap. The cap thus carries the pieces around with it, and thereby causes the pieces $s\ s'\ s^2$ to press against the eccentrics of the hub, binding the cap E and hub B together. If the cap E is revolved in the inverse direction of the arrow, the segments $s\ s'\ s^2$ will not bind, and the cap E will slide over them. The cap is held firmly on the shaft and the disk A is mounted loosely on the shaft, or the disk A may be held firmly on the shaft and the cap E may be mounted loosely, and the motion transmitted from the cap or disk, as desired; or the cap and the disk can be mounted on separate shafts, if desired, or in any other suitable manner.

The advantage and improvement of this clutch over the ones referred to in my before-mentioned applications for patent are, that in the one referred to when the two segments are resting horizontally, one upon the upper surface of the hub and the other on the lower inside surface of the cap, there is at such time some lost motion, whereas by using three segments there is no time when gravity is not acting upon one of the segments and causing it to bind, thereby taking up all lost motion; also, there being three points of pressure against the cap instead of two, and three segments instead of two, it distributes the pressure more equally around the rim of the cap, thereby adding to its strength.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A friction-clutch made substantially as herein-before described, and consisting of a disk or plate provided with a triangularly-shaped hub formed of three eccentric arcs and three

tangents, the tangents meeting the arcs at the centers of the sides of the triangle, the three segments with straight sides resting against the hub and coming in contact with the eccentrics of the hub where the tangents meet the arc, and the cap fitting over them, for the purpose described.

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

ANSON D. SIMPSON. [L. S.]

Witnesses:

DAVID STRAIN,

MILTON J. DOWNING.