

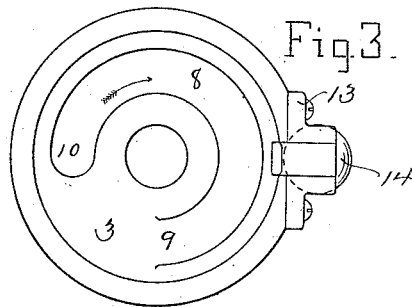
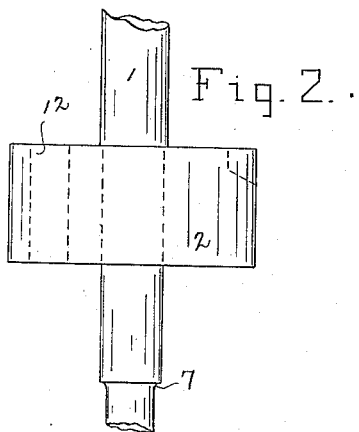
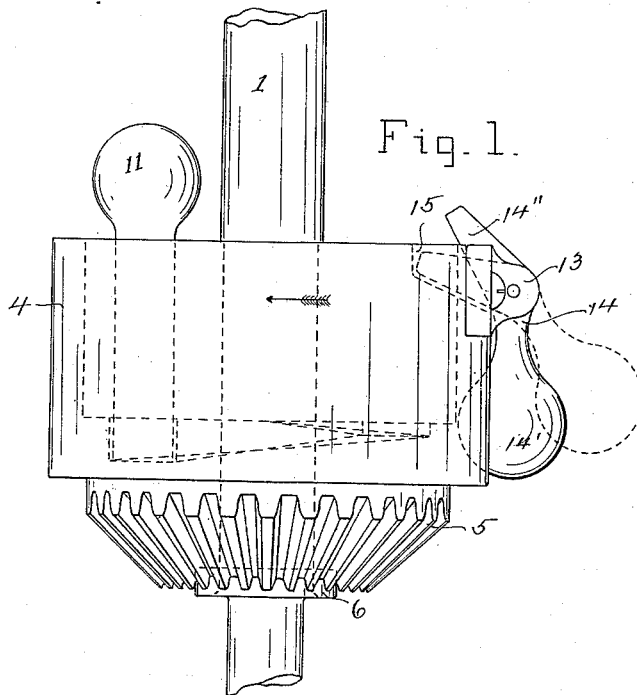
(No Model.)

G. F. HUTCHINS.

CLUTCH COUPLING.

No. 383,297.

Patented May 22, 1888.



Witnesses;  
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# UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE  
KNOWLES LOOM WORKS, OF SAME PLACE.

## CLUTCH-COUPLING.

SPECIFICATION forming part of Letters Patent No. 383,297, dated May 22, 1888.

Application filed February 13, 1888. Serial No. 263,846. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Clutch-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to clutch-couplings of that class in which it is desired to disconnect the driven part of the coupling from the driver for the purpose of turning the former independently of the power furnished through the latter and to have the relative positions in the revolution of the two unchanged when they are again connected.

The object of my invention is to provide a mechanism simple in construction and operation which shall permit the turning of the driven part of the coupling without previously unlocking it, and which shall lock the coupling automatically upon the starting of the driver in the manner to be hereinafter fully described.

Referring to the drawings, Figure 1 is an elevation of my improved coupling on a vertical shaft arranged to be driven by a bevel-gear on a horizontal shaft. Fig. 2 represents, on a reduced scale, an elevation of the driven part of the coupling detached; and Fig. 3 represents, on the same reduced scale, a plan of the driver detached.

In the accompanying drawings, 1 is the driven shaft, upon which is supported and fastened rigidly the collar 2, (see Fig. 2,) which just fills and may turn loosely within the chamber 3 in the driver 4, Figs. 1 and 3.

Upon the bottom part of the chambered driver 4 is the bevel-gear 5, preferably cast thereon, and which forms a hub for the chambered driver 4, which is mounted loosely on the shaft 1 and held in place, inclosing the collar 2, fast on the shaft 1, by means of the small collar, 6, headed on the shaft 1 at the shoulder 7 (see Figs. 1 and 2) in such a manner as to leave the driver 4 free to turn.

In the bottom of the chamber 3 of the driver 4 is an inclined groove, 8, starting at a point, 9, at the level of the bottom of the chamber 3 and gradually increasing in depth to the point 10, where the bottom of the groove 8 is about two-thirds of its width below the bottom of the chamber 3. A pin, 11, slides loosely up and down in a hole, 12, in the collar 2, the center of which pin 11 is the same distance from the shaft 1 as the center of the inclined groove 8 in the bottom of the chamber 3 of the driver 4.

In a stand, 13, secured to the outer upper part of the driver-shell 4, a lever, 14, is pivoted, consisting of a weighted outer end, 14', depending from the pivot-point, and a projection, 14'', extending upward at such an angle that its inner surface just clears the inside edge of the chamber 3 in the driver 4 when the end 14' of the lever 14 hangs in its normal position, extending into a recess in the outer surface of the chamber 4 made to receive it, as shown by full lines, Fig. 1.

In the upper edge of the collar 2, fast on the shaft 1, is a notch, 15, fitted to just receive the projection 14'' of the lever 14, and said notch 15 is at such a point on said collar 2 as to receive the projection 14'' when the pin 11 is in contact with the end 10 of the groove 8 in the bottom of the chamber 3.

The operation of my improved clutch-coupling, as shown in the drawings, is as follows: Motion being communicated in the direction of the arrow, Fig. 1, through the bevel-gear 5, the end 10 of the groove 8 engages the lower end of the pin 11, which slides loosely up and down in the hole 12 in the collar 2, fast on the shaft 1, and drives said shaft 1 in the same direction. The centrifugal force developed by the revolution of the driver 4, acting upon the lever 14, throws out the lower weighted end, 14', and causes the projection 14'' to drop into the notch 15 in the collar 2. (See dotted lines, Fig. 1.) The object of this is to prevent the driven part of the coupling, with the machinery to which it is attached through shaft 1, from running ahead of the driver by its momentum. When the motion stops or the gear 5 and the driver 4 cease to revolve, the weighted end 14' of the lever 14 drops, and the projection 14'' is raised out of the notch 15 in the

collar 2 (see full lines, Fig. 1) and offers no obstruction to the turning of the collar 2 and the shaft 1, upon which it is secured. The shaft 1, with the collar 2 fast thereon, being turned ahead, the driver 4 remaining at rest, the pin 11 is raised by the incline of the groove 8 in the bottom of the chamber 3 and offers no resistance. When motion is again communicated through the driver 4 and the bevel-gear 5 thereon, the end 10 of the groove 8 can engage the lower end of the pin 11 in but one position, thus preserving the relative positions of the two parts.

In case it is desired to apply my clutch coupling upon a horizontal shaft instead of a vertical one, as shown, it will be necessary to provide springs to operate on the pin 11 and locking-lever 14 to effect what is done by gravity in the arrangement of the coupling shown and described.

The clutch-coupling, as illustrated in the drawings and above described, is designed especially to take the place of the clutch A', Figs. 2 and 3, in the Reissue Patent No. 7,785, of July 3, 1877.

It will be understood by those skilled in the art that the collar 2, fast on the shaft 1, need not be inclosed within a chamber in the driver 4; but this arrangement is preferable, as it reduces the liability of the projecting parts catching the clothing of the operator or others.

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

The combination, in a self-locking clutch-coupling, with a driver provided with an inclined circular groove in its bottom and with a pivoted locking-finger on its side, said driver running loose on the drivenshaft, of the driven shaft and a collar fast on said shaft and provided with a movable pin adapted to engage the said inclined groove, while the said locking-finger engages a notch in the edge of said collar, substantially as shown and described.

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