W. I. Risedorph,

Clutch.

No. 94,649. Patented Sept. 7. 1869.

Fig. 1.

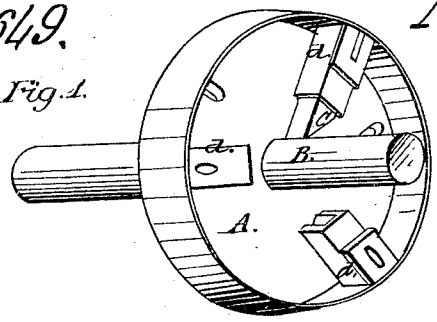


Fig. 2.

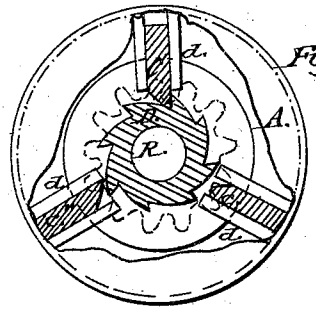


Fig. 3.

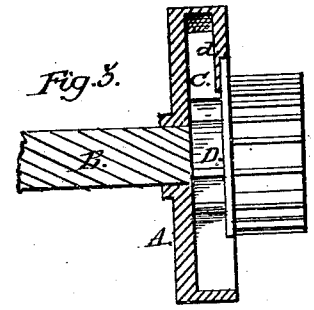
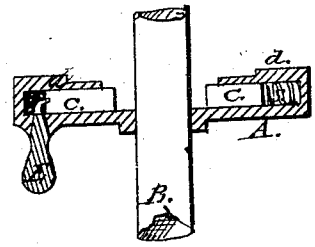


Fig. 4.



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Letters Patent No. 94,649, *dated September* 7, 1869.

IMPROVED CLUTCH.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM I. RISEDORPH, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Clutches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the invention.

Figure 2 represents a view from the back, with a part of the disk broken away, exposing the invention applied to the usual ratchet-wheel.

Figure 3 represents a cross-section of the invention in work with a ratchet-wheel, shown in perspective.

Figure 4 represents the invention used on a vertical shaft, combined with a loaded lever or spring to operate the same.

It is desirable and necessary in many mechanical devices, where two wheels are revolved on one shaft, or where two shafts are placed end to end, and are to run wheels or gears attached thereto, that some device should be used whereby one of the said wheels on the same shaft, or on one of the two shafts, should occasionally be turned back, while the other should remain stationary or continue its revolutions.

Several devices have been used to effect this result, such as weighted dogs, spring dogs, or dogs or pawls kept in work by springs, also, pins working on a line parallel with the axis of the ratchet, and kept in work by springs; all of which have more or less disadvantages connected with them which render them unfit to be used under certain circumstances, where great strength is required.

By my invention I furnish a sure, strong, and durable clutch, which, while it has all the advantages contained in the others, is not liable to wear itself or the teeth of the ratchet in which it works, and will admit receiving a greater strain without injury.

The nature of my invention consists in the employment of one or more oblong pieces of metal, which I term locking-bolts, having one of their ends bevelled in either a straight or convex line, to act in the place of dogs, pawls, &c., between the teeth of the ratchet. The said locking-bolts work into oblong chambers fitted to receive them, which chambers are attached or made to a suitable disk, keyed to the shaft on which it is to be used.

When the invention is to be used on a horizontal shaft, the gravity of the said locking-bolts will cause the said bolts (when they have been moved over and above the shaft, and perpendicular,) to fall and engage with the teeth of the ratchet used with them; and when the said bolts will have passed beneath the said shaft, they will by their gravity fall from the said ratchet.

Though several such locking-bolts may be used, yet I prefer to use but three.

In using these locking-bolts in connection with a ratchet, attached to a perpendicular shaft, I would cause the said bolts to operate by force of gravity exerted through a weighted lever, so pivoted as to hang at right angles to the said bolts, and, at the same time, impinge on their outer ends.

To enable others skilled in the art to make and use my invention, I will proceed to describe it, in reference to the accompanying drawings, and the letters of reference marked thereon, the same letters indicating similar parts.

In the drawings—

A represents any suitable disk, keyed to a shaft, B, and provided with one or more oblong chambers, *a*. The said chambers are cast with or made to the disk A, and are fitted to receive the locking-bolts *c*.

The said locking-bolts consist of oblong pieces of suitable metal, formed as shown in figs. 2, 3, and 4, and are free to work within the said chambers *a*, at right angle with the shaft and the axis of the ratchet-wheel D.

The ratchet D is placed on the same shaft (but not keyed to it) in such a manner as will present its teeth with their face toward the ends of the locking-bolts *c*, figs. 2 and 3.

When two shafts are to be connected and work with this clutch, the disk A, with its locking-bolts *c*, is keyed to one shaft, and the ratchet-wheel D is keyed to the end of the other shaft.

Should three locking-bolts, *c c′ c″*, be used on one disk, in connection with a ratchet-wheel, D, as in fig. 2, the bolt *c*, when it shall have, in its revolution, passed one-third around from the position of *c* to the position of *c′*, will still retain its contact with the teeth, while the bolt *c″* will, at the same time, be carried round and up to the position of *c*, when it will fall into contact with the teeth of the ratchet, and when the bolt *c′* will have passed under the centre of the ratchet it will fall from contact with its teeth, thus by the gravity of the said locking-bolts *c*, the said bolts will fall in or from contact with the ratchet; and when three or more such locking-bolts are used, at least two will be generally engaged with the teeth of the said ratchet, when the said bolts are moved in the direction indicated by arrows, and will carry the said ratchet with them; and should the disk be carried in in an opposite direction, the said locking-bolts would not engage with the ratchet, but would slip over its teeth.

Should this clutch be used on a vertical shaft, I

would use, in connection with the locking-bolts *c*, a weighted lever, E, fig. 4, so pivoted to the disk as will cause a portion of the lever to impinge against the ends of the said bolts *c;* and when thus arranged, the weight of the lever will cause the said bolts to be always engaged or ready to engage with the teeth of the ratchet when moved in one direction, while they would be allowed to slip when moved in a contrary direction.

I am aware that locking-bolts or pins have been used, working from the back of a disk, and in lines parallel with the axis of the shaft and ratchet, which pins or bolts are kept in work by springs; but in my invention the locking-bolts *c* operate in a direction at right angles to the axis of the shaft or ratchet.

Having described my invention,

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

A clutch, consisting of a disk, A, provided with locking-bolts *c*, working in the chambers *a*, in combination with the ratchet-wheel D, substantially as and for the purpose set forth.

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