T. A. WESTON.

Improvement in Friction-Clutch.

No. 129,914. Patented July 30, 1872.

FIG. 1.

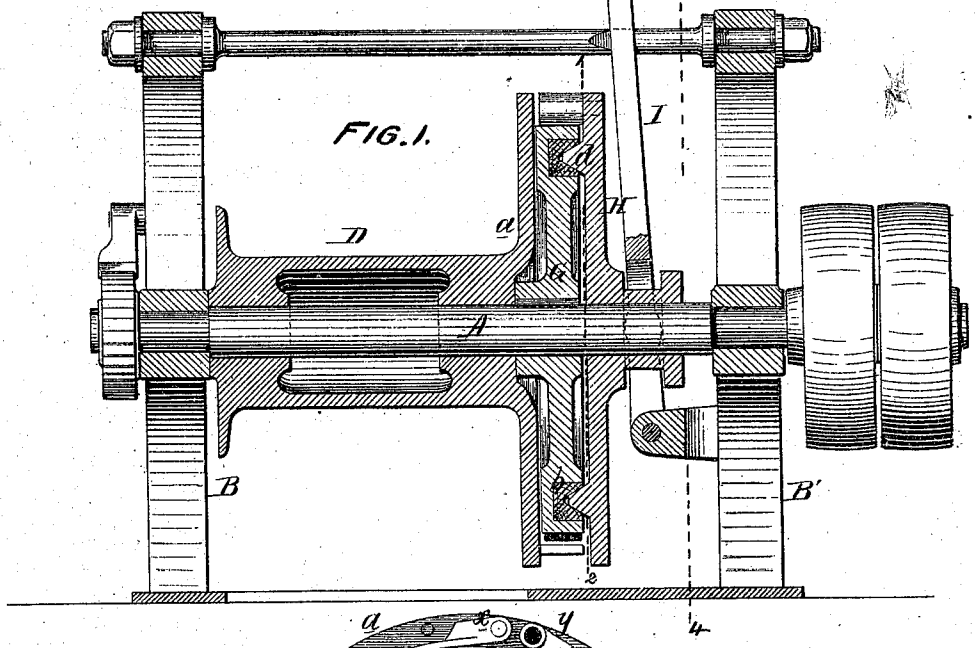


FIG. 2.

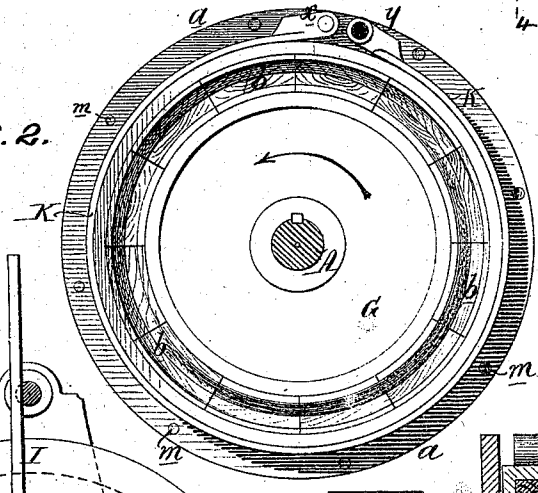


FIG. 3.

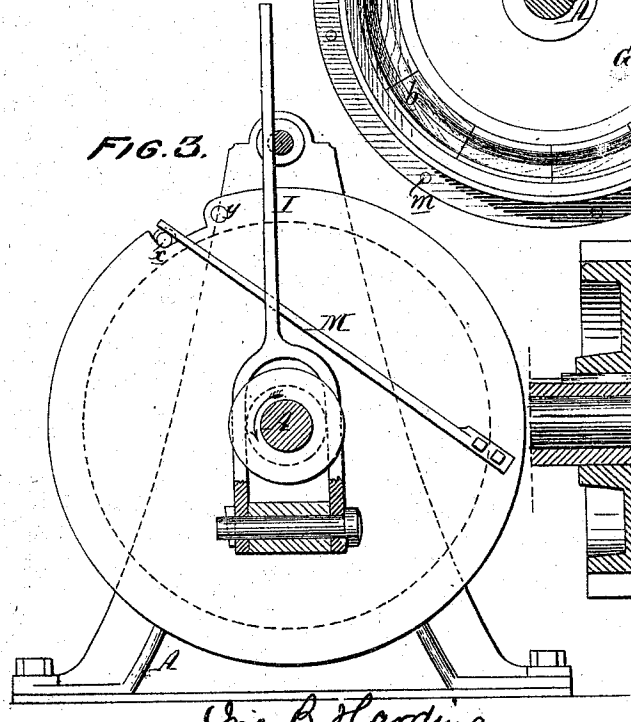
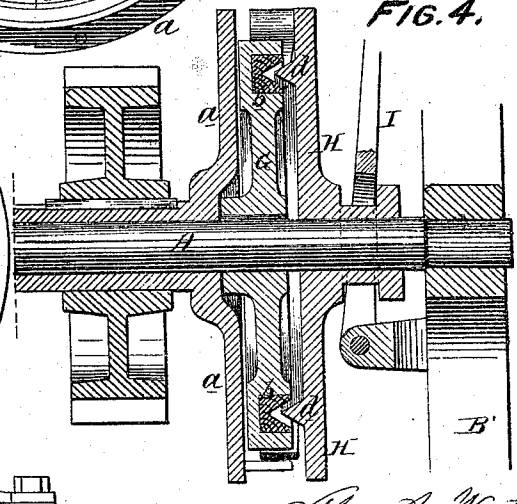


FIG. 4.



WITNESSES: Jno. B. Harding, John Parker

Thos. A. Weston, By his Attys. Howson & Sons

UNITED STATES PATENT OFFICE.

THOMAS A. WESTON, OF RIDGEWOOD, NEW JERSEY.

IMPROVEMENT IN FRICTION-CLUTCHES.

Specification forming part of Letters Patent No. **129,914**, dated July 30, 1872; antedated July 24, 1872.

Specification describing an Improved Friction Clutch or Coupling, invented by THOMAS ALDRIDGE WESTON, of Ridgewood, county of Bergen and State of New Jersey.

My invention consists of a device whereby a barrel, sleeve, or shaft, or other object to be rotated, may be released from or placed under the control, or partially under the control, of a revolving driving-shaft or its equivalent, the construction and operation of said device being too fully explained hereafter to need preliminary description.

In the accompanying drawing, Figure 1 represents a vertical section of my invention as applied to a hoisting-crab; Fig. 2, a section on the line 1 2, Fig. 1; Fig. 3, a section on the line 3 4; and Fig. 4, a view illustrating a modification of my invention.

It should be understood in the outset that, although I have illustrated my device in Figs. 1, 2, and 3 as applied to the releasing of the barrel of a hoisting-crab from a power-driven shaft and replacing it under the control of the said shaft, my invention is applicable to all machinery in which the stopping and starting of revolving objects are required, and is especially applicable to heavy shafting, such as the main shafts of rolling-mills, dredging-machines, &c.

A is a power-driven shaft, supposed to be turning in the direction of the arrow, Fig. 2, in standards B and B′, and D is a barrel caused to turn with and under the control of the shaft, or to revolve independently or partially independently of the same, by the device which forms the subject of my invention, and which I will now proceed to describe. A disk, G, is secured to the shaft A between the enlarged flange *a* of the barrel and a friction-disk, H, which can revolve and slide freely on the shaft, and which is controlled, in the present instance, by a lever, I, in a manner which will be too readily understood to need minute description. In the face of the disk G is an annular recess packed with wood, *b*, in which is a V-shaped annular groove for receiving the similarly-shaped annular rib *d* on the friction-disk H, which, however, can have a plain face to bear against a similar plain face on the disk G, although I prefer the V-shaped projection and recess and the employment of wood in the manner described, so as to obtain a more determined friction. To a pin on the flange *a* of the barrel is connected one end, *x*, of a metal strap, K, the other end, *y*, of which is connected to a pin on the loose disk H, the strap encircling the periphery of the fixed disk G. When, by operating the lever I, the disk H is brought into contact with the disk G as the latter revolves with the shaft in the direction of the arrow, the said disk H must also be turned in the same direction, and cause the strap K to so embrace the periphery of the disk G that the barrel must turn with the shaft. The moment the disk H, however, is withdrawn from the fixed disk G a spring, M, attached to the former disk, as shown in Fig. 3, acting on the pin to which the end *x* of the strap is connected, tends to expand the said strap, and to free it from contact with the periphery of the disk. In other words, the barrel and the disk H, whenever the latter is free from the disk G, are always retained in such a relative position by means of the spring M that the strap remains expanded and free from the periphery of the disk G. It should be understood, however, that the strap K has or should have more or less tendency when released to expand and relieve itself from the periphery of the disk G, the spring M being a precautionary device to insure prompt expansion.

As the strap may, when expanded, have a tendency, owing to its flexibility, to sag and assume a position eccentric as regards the periphery of the disk G, it is maintained in a position concentric with the same by a series of pins, *m m*, on the flange of the barrel; or the flange may have a projecting annular rib to thus retain the expanded strip; or the pins or flange may be on the disk H.

It will be seen that, by the above device, not only can the barrel be gradually and easily placed under the control of and entirely released from the control of the shaft, but may be partially released from the same, as in the lowering a heavy load from the barrel, when the pressure of the friction-disk H against the fixed disk G should be commensurate with the weight of the load and with the speed at which it has to be lowered.

A modification of my invention is illustrated in Fig. 4, in which P represents a power-driven

sleeve, and Q a shaft to be released from or placed under the control of the sleeve by means of my device in a manner which will be readily understood from the foregoing description without further explanation.

I claim as my invention—

1. The combination, substantially as described, with a driver and the object to be driven, of a fixed disk, G, a loose friction-disk, H, and a friction-strap, K.

2. A spring, M, secured to the one disk, H, and bearing on the other disk, substantially as described, so as to induce the expansion of the strap K.

3. The pins *m* or their equivalent, arranged on the flange *a*, or on the friction-disk H, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS A. WESTON.

Witnesses:

WM. A. STEEL,

JOHN K. RUPERTUS.