

W. KNIGHT & N. W. LEWIS.
Clutches.

No. 140,142.

Patented June 24, 1873.

FIG. 4.

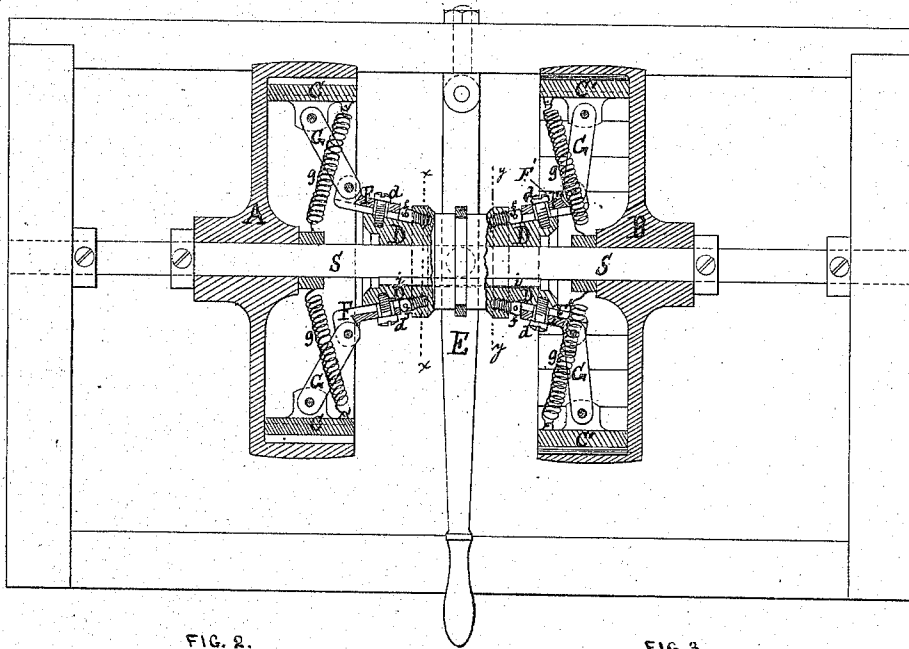


FIG. 2.

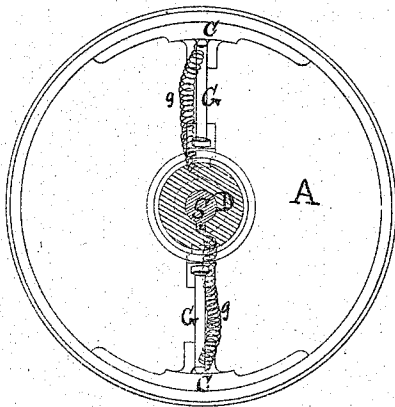
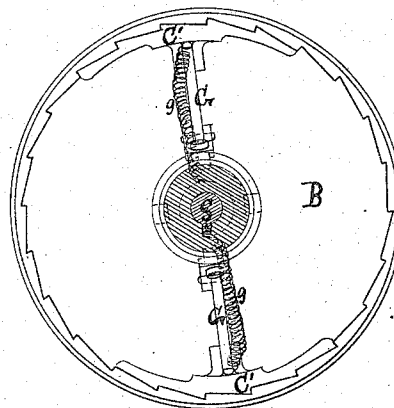


FIG. 3.



WITNESSES.

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IMPROVEMENT IN CLUTCHES.

Specification forming part of Letters Patent No. 140,142, dated June 24, 1873; application filed December 20, 1872.

To all whom it may concern:

Be it known that we, WILLARD KNIGHT and NATHANIEL W. LEWIS, both of the city of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Clutch-Pulleys; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing which forms part of this specification.

Our invention consists in the combination of an adjustable head with the operating sleeve, link, and dog of a clutch-pulley, whereby any wear or inaccuracy in the hold of the dog upon the inner circumference of the flange or rim of the pulley may be easily and quickly compensated for and remedied.

In the accompanying drawing, Figure 1 is a vertical central section of two pulleys mounted on the same shaft for driving in opposite directions, showing our improvement in the clutching mechanism applied thereto. Fig. 2 is a vertical section taken on the plane of the line *x x*, Fig. 1. Fig. 3 is also a vertical section on the plane of the line *y y*, Fig. 1.

A B designate two pulleys, mounted on the same shaft S. The clutching-dogs, in both cases, operate upon the inner circumference of the rims of the pulleys. In the drawing the left-hand pulley, A, is a friction-pulley, and the right-hand pulley, B, a ratchet-pulley; and in the former case two hinged or pivoted dogs, C C', are caused to press against the inner circumference of the rim of said pulley A, so as to operate in a well-known manner; and in the latter case two toothed dogs, C' C', are caused to engage with teeth formed upon the inner face of the rim of said pulley B. D designates a sleeve, which is fitted to slide longitudinally on the shaft C, a forked lever, E, being employed for moving said sleeve to the right or left. The sleeve, of course, must revolve with the shaft, and to accomplish this a flange, *f*, may be cast upon the shaft C, so as to project into a corresponding recess in the sleeve; or the reverse construction may be adopted. The sleeve is of gradually-increasing diameter from the center toward each end. This sleeve D carries four adjustable heads, F F', two at each end, and arranged on opposite sides of the sleeve. A link or rod, G, is pivoted at one end to one of

the dogs, and at the other to one of the said adjustable heads F. These adjustable heads are each provided with an elongated slot passing vertically through them, and through such slot there passes a screw, *d*, which enters or screws into the sleeve D and holds the said head securely in place.

It oftentimes occurs that the friction-dog, or toothed dog, as the case may be, requires to be set up closer to the rim of the wheel, and this we accomplish, with respect to each head F, by a screw, *f*, which enters a collar formed on the sleeve D, the head of said screw abutting against the end of the adjustable head F. Now, to adjust the dogs C C' up closer to the rims of the wheels A B, it is merely necessary to loosen the screw *d*, which passes through the elongated slot in the head F, so as to permit the sliding of the said head F, and such moving or adjusting of the head can be nicely, easily, and accurately accomplished by screwing outward the propelling-screw *f*, and thus the dogs will, of course, be set closer to the rim of the pulley.

We find it desirable to use springs of any suitable construction—say, spiral springs *g*, (one end of each being attached to a dog, and the other end to a nut or collar on the shaft)—to keep the dog from striking against the pulley when the said dog is not in use for locking the pulley. A cross-belt employed on one of the pulleys will cause it to revolve in an opposite direction to the other pulley.

It will therefore be understood that, if the lever E be pushed to the left the sleeve will cause the links or rods G to straighten, and press the dogs C against the inner periphery of the flange or rim of the wheel A and lock it, so as to cause it to revolve the shaft S in one direction; but if the lever E be pushed to the right, the sleeve, through the links or connecting-rods G, will cause the toothed dogs C' to engage with the teeth formed on the inside of the flange or rim of the wheel B and cause this wheel to revolve, and, therefore, if a cross-belt be upon this pulley, the shaft will be revolved in an opposite direction to that in which it is revolved by the other pulley.

It will be seen that, by the construction shown, the dogs can be caused to press closely up to the rim of the wheel, by reason of the straightening of the links or rods G; and hence

a very reliable and durable clutch-pulley is obtained.

We have shown our improvement applied to two pulleys on a shaft, but, of course, it is obvious that, by dispensing with a portion—say, one-half—of the device, the improvement will operate equally as well with a single pulley.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the adjustable heads F and propelling-screws *f* (two or more) with

the sleeve D and links or rods G, substantially as and for the purpose herein specified.

2. The combination of the pulley A or B, links or rods G, sleeve D, adjustable head F, propelling-screw *f*, and operating-lever E, substantially as and for the purposes herein specified.

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Witnesses:

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