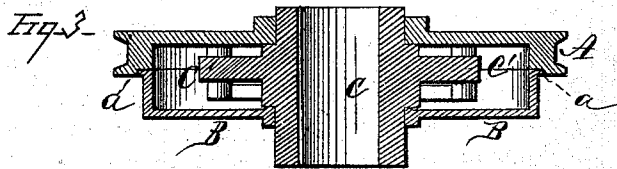
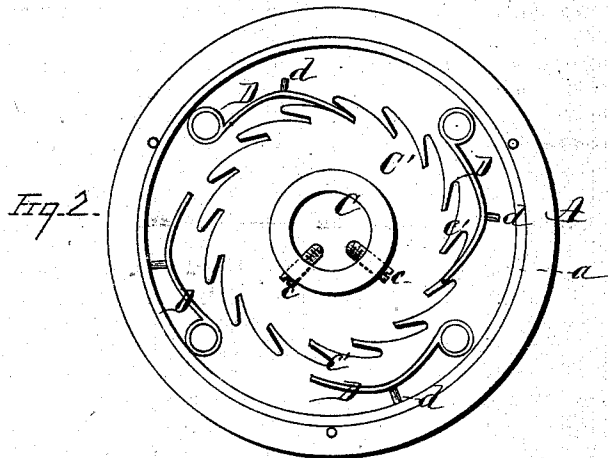
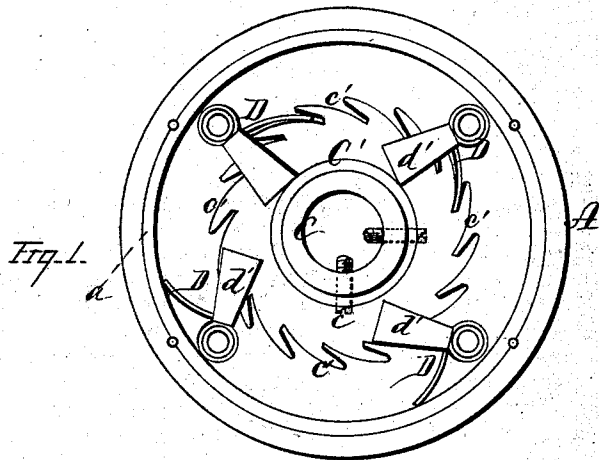


A. H. & J. H. RACE.
Clutches.

No. 146,359.

Patented Jan. 13, 1874.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ALFRED H. RACE AND JAMES H. RACE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN CLUTCHES.

Specification forming part of Letters Patent No. **146,359**, dated January 13, 1874; application filed October 21, 1873.

To all whom it may concern:

Be it known that we, ALFRED H. RACE and JAMES H. RACE, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Device for Preventing Back Motion in Sewing-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings which form part of this specification.

Our invention relates to improvements in devices for preventing back motion in sewing-machines, &c.

In the drawings, Figures 1 and 2 represent plan views of a band-wheel, one side thereof being removed to expose the interior arrangement; Fig. 3, a transverse section of the same.

Our invention consists in the combination of devices and appliances, hereinafter described and claimed, in which—

A represents a band or pulley wheel, the interior of which is hollowed out, as shown; B, a cap or cover, which fits into a groove, *a*, around the face of the wheel, and secured thereto by screws, and forms the opposite face or side of the wheel A. Through the center of this cap B and wheel A is a cylindrical hole, into which fits the ratcheted collar C C'. D are pawls, which may be weighted, as shown in Fig. 1. *c* are set-screws, in the collar C, for attaching the band-wheel (by the collar C) to the driving-shaft of a sewing-machine.

The operation and advantages of this invention are as follows:

The wheel is attached to the main shaft of a sewing-machine by passing the shaft through the collar C, and securing it thereto by the set-screws *c*. In the forward direction of the machine, the band-wheel, by the engagement of the pawls D in the teeth *c'* of the ratchet-wheel C', is caused to revolve together with the driving-shaft, thereby operating the whole machine.

There are always two pawls engaging at the same time with the ratchet, no matter what position the wheel may be in, so that

there is always a rigid and firm bearing or connection between the ratchet-wheel and band-wheel.

When it becomes necessary to reverse the motion of the machine, for the purpose of winding bobbins, &c., or when it is done by accident, the band-wheel only revolves upon the ratcheted collar, thereby preventing the driving-shaft or machinery from working, thus saving the rapid wear of the machine, and also preventing the breaking of needles, thread, &c., by the sudden reversion of a forward to a backward motion.

To prevent the pawls flying too far from the ratchet-wheel, by centrifugal force on the backward motion of the machine, stops *d* or weighted pendants *d'* are used. At the same time that centrifugal force acts to keep the pawls out of the ratchet, on the backward motion of the machine, it also acts in keeping the pawls firmly in position on the forward movement of the machine; thus the pawls are always in position, and ready at all times to engage with the ratchet, no matter what position the wheel is in, and, because of the centrifugal force keeping the pawls away from the ratchet, all noise or rattling by the pawls dropping over the teeth of the ratchet is avoided, and a simple, cheap, and effective instrument is obtained.

The object in undercutting the ratchet C' so deeply is as follows: The action given to a sewing-machine is always, more or less, irregular and impulsive, and such a motion is liable to cause a slight play between the end of the pawl and the bottom of the ratchet, which, if not deeply undercut, would be liable to disengage the pawl from the ratchet.

What we claim as our invention is—

1. The combination of the wheel A, ratchet-wheel C', and the weighted pawls D pivoted to the wheel, the pendants or weights, so constructed that they shall not come in contact with the sides of the wheel, substantially as and for the purpose set forth.

2. The pawls D, having the rigid weighted pendants *d'* constructed, relatively to the thickness of the ratchet-wheel, so that in their backward movement the pendants shall not

come in contact with the sides of the ratchet, substantially as set forth.

3. The combination of the collar C, provided with the deeply undercut ratchet C' and bearings for the wheel A, with the loose wheel and weighted pawls D, substantially as and for the purpose set forth.

In testimony that we claim the foregoing we

have hereunto set our hands this 7th day of October, 1873.

A. H. RACE.
J. H. RACE.

Witnesses:

T. C. MOORE,
THOS. COBURN.