

(No Model.)

J. H. BULLARD.  
Clutch Device for Sewing Machines.

No. 241,526.

Patented May 17, 1881.

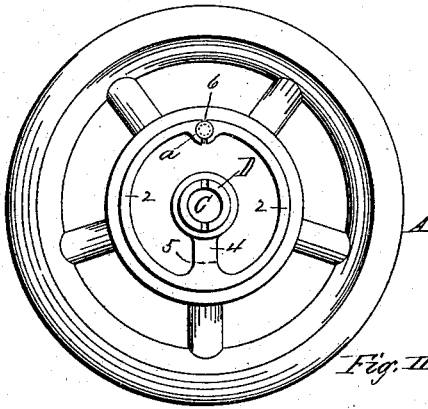


Fig. II

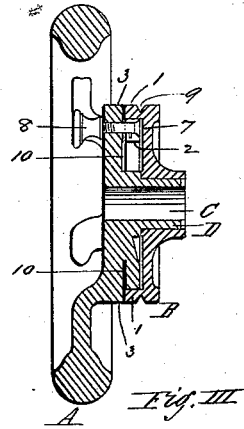


Fig. III

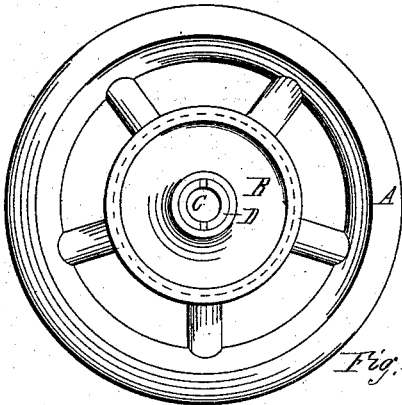


Fig. I

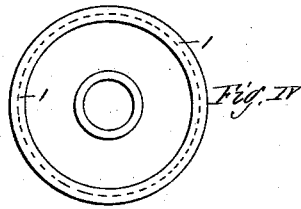


Fig. IV

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## CLUTCH DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 241,526, dated May 17, 1881.

Application filed February 14, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. BULLARD, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improved Clutch Device for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide a cheap and convenient device for securing the loose band-wheel on the driving-shaft of a sewing-machine fast or to the hand-wheel fixed thereon whenever it is desired that the said band-wheel shall actuate the sewing mechanism of the machine; and I accomplish this by the mechanism hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I is a side view of the loose band-wheel and the hand-wheel to which it is secured when desired, and upon whose hub the band-wheel is arranged to revolve. Fig. II is the same side view of the hand-wheel, but without the band-wheel in place, and showing the clutch mechanism. Fig. III is a vertical transverse section of Fig. I. Fig. IV is an inside view of the band-wheel.

In the drawings, A represents the hand-wheel, provided with a hub, D, and a hole, C, therein to receive the shaft which is to be driven and to which the hand-wheel is secured, and this hand-wheel is provided with an annular projection, 2, cast upon the inside of the inner or central solid portion, and this annular projection is connected with the hub or with the central solid portion of the wheel by a web, 4, also cast solid therewith. A hole, *a*, is made through the annular projection, which is enlarged at that point for that purpose, said hole extending entirely through the solid portion of the wheel, and made of a conical form at the inner end, and the annular projection is then cut transversely across the hole at 6. The hand-wheel then being put in a lathe, the annular projection 2 is separated from the part upon which it was cast by a narrow cutting-tool, separating the web also to any desired point—say to the dotted line 5 in Fig. II—by a narrow cut, (shown at 10 in Fig. III.) A bolt, 7, having a conical-shaped head to approxi-

mately fit the conical hole *a* and threaded at the other end, is inserted into the hole at that portion of the ring marked 6, and a thumb-nut, 8, is turned upon the threaded end of said bolt.

The band-wheel B, which carries the driving belt, is provided with an annular flange, 1, into which the ring 2 fits easily, and said band-wheel is fitted to turn freely on the hub D, and when in place thereon its flange 1 incloses the ring 2, which I denominate a "spring-ring," the flange turning freely just outside of said ring.

When the hand-wheel A, which may also serve as a balance-wheel, is secured fast to the driving-shaft of the machine the driving-belt passes around the main driving-wheel and also around the band-wheel B, and if the driving-wheel be turned and the thumb-nut 8 is not turned up against the outer face of the hand-wheel the band-wheel B is free to revolve in either direction upon the hub D without turning the hand-wheel or the shaft to which it is secured; but if the thumb-nut 8 is turned up snugly against the outer face of the wheel A, the conical head of the bolt 7 is drawn into the conical hole at the point 6, when the ring 2 is cut and the ends of the ring 2 are pressed apart, and the ring forced outward into contact with the interior surface of the flange 1 of the band-wheel, and the hand-wheel and band-wheel being thus firmly clamped together, both are caused to rotate by the driving-belt, and the shaft to which the hand-wheel is secured is also caused to rotate.

It is evident that the band-wheel, instead of being made to rotate upon the hub D, may be adapted to rotate directly upon the shaft, and the wheel A may be made without any hub D and fixed directly to the shaft without departing in the least from the operation of the invention.

It will be seen that when it is desired to run the band-wheel B in either direction for any purpose, without turning the hand-wheel or the shaft to which it is attached, the thumb-nut 8 is loosened; and if it is desired to turn the hand-wheel and shaft the thumb-nut 8 is turned up against the outer face of the hand-wheel.

It is evident, of course, that the ring 2 may

be made in a separate piece from the hand-wheel and be riveted thereto without departing from the invention; but I prefer to cast the ring and hand-wheel in one piece and afterward separate them, except a portion of the web 4, which holds the ring in place, as the latter construction I deem to be the best.

Instead of being counterbored in a conical form at the ends of the ring at 6, the ends may be made straight across and wedge-shaped, and the head of the bolt 7 may be made of a corresponding wedge shape, and a small cam may be used at the outer end of the bolt to impinge against the outer face of the hand-wheel in tightening the bolt to tighten it and force the ends of the ring apart without departing from the principle of operation.

I am aware that spring-rings operated by a wedge have heretofore been made and used in clutch devices in various constructions, and I do not claim the same, irrespective of its construction and application to a wheel, so as to be operated directly through and in connection with said wheel, substantially as hereinbefore described.

Having thus described my invention, what I claim as new is—

The combination, with the driving-shaft of a sewing-machine, of a hand-wheel adapted to be secured thereto, a divided spring-ring secured to or made upon one side of said hand-wheel, and with the ends of said ring made in a wedge shape or of conical form, a bolt with a conical or wedge shaped head inserted between the ends of said ring and through said hand-wheel in a direction substantially parallel with the driving-shaft, with a knob at the outer end of said bolt to impinge against the outer face of the hand-wheel to tighten said bolt and open the ring, and a loose band-wheel provided with a flange to inclose said spring-ring, all substantially as and for the purpose herein set forth.

JAMES H. BULLARD.

Witnesses:

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