

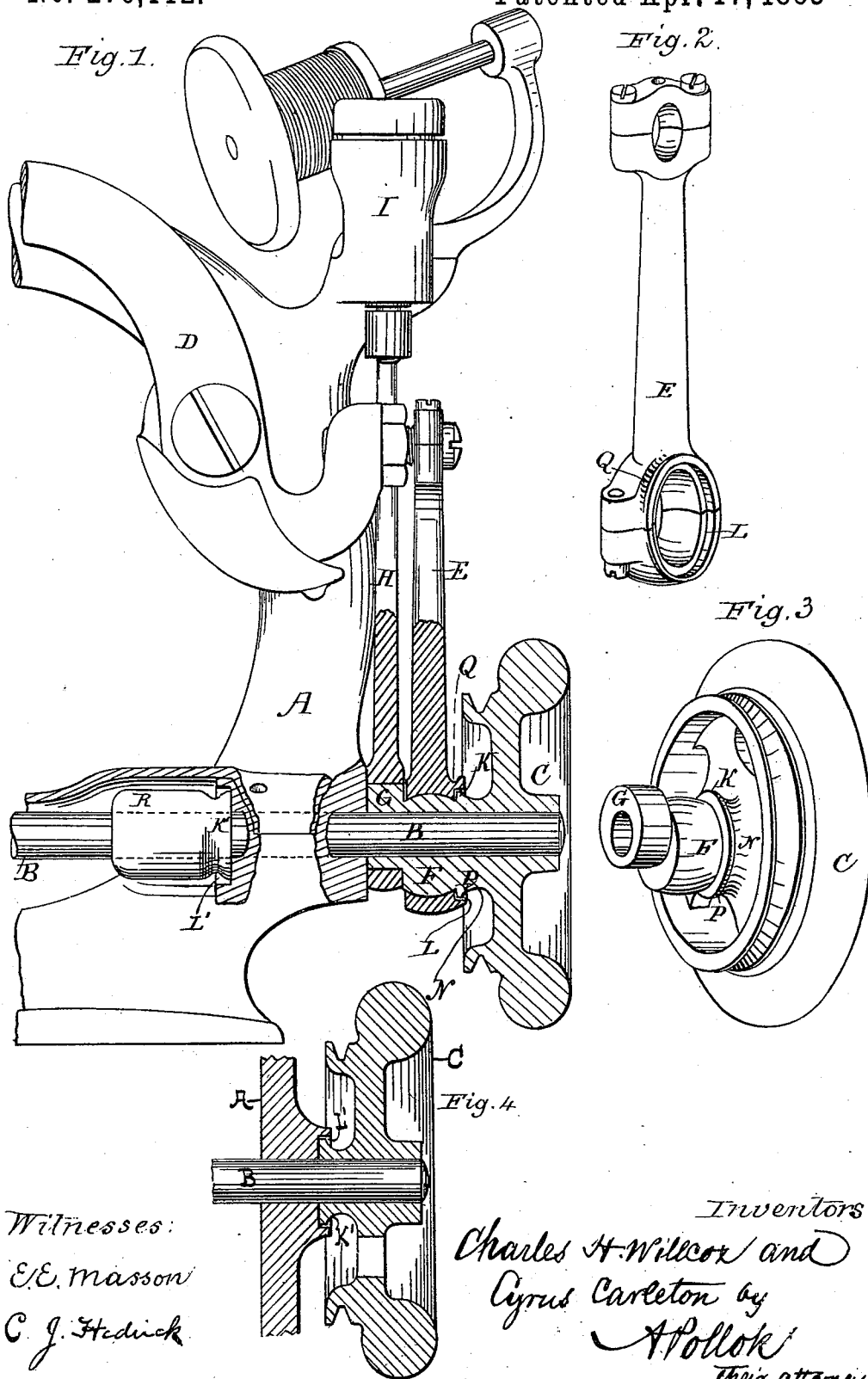
(No Model.)

C. H. WILLCOX & C. CARLETON.

SEWING MACHINE.

No. 276,112.

Patented Apr. 17, 1883



Witnesses:
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UNITED STATES PATENT OFFICE.

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SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 276,112, dated April 17, 1883.

Application filed December 11, 1882. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. WILLCOX, of New York city, in the county and State of New York, and CYRUS CARLETON, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Mechanism for Operating the Needle-Lever in Sewing-Machines, and for other purposes, which improvement is fully set forth in the following specification.

This invention relates more particularly to sewing-machines in which the needle-lever is operated by a connection-rod outside the goose-neck or stationary arm from an eccentric adjacent to the hand or fly wheel or driven pulley, although it is in part applicable to other sewing-machines, and to machines for purposes other than sewing.

It has for its object to prevent threads from the machine or loose threads lying on the work-table being accidentally caught between the connecting-rod and the hub of the wheel or pulley and drawn into the joint when the machine is in operation; and it has the further object of preventing the lubricating-oil from spreading, and especially from getting on the said wheel or pulley, and thus being liable to soil the hands of the person running the machine or the material on the work-table. To accomplish these and other objects the following dispositions are adopted.

First. The wheel or pulley is provided with or has combined with it a flange or boss, which extends into a counterbored recess in the adjacent face of the connecting-rod. The said flange and recess are both eccentric to the shaft-axis to follow the motions imparted to the connecting-rod. The joint between the adjacent faces of the connecting-rod and said flange is therefore hid within the connecting-rod, and the liability of threads or other foreign matters working into it is practically obviated. Should a thread be caught by the wheel or pulley, it would simply be wound around the hub thereof, and not interfere with the operation. The flange aforesaid may be made integral or in one piece with the wheel or pulley, or with the eccentric which operates the connection-rod, or with both the wheel or

pulley and eccentric; or it may be fastened to either or both in any suitable way; or it may be separate from either, being placed on or forming part of a collar on the shaft or the shaft itself. Preferably it is made in one piece with the wheel or pulley and the eccentric.

Second. The connection-rod which imparts movement to the needle-lever is preferably a ball-eccentric, and the aforesaid flange or annular projection and the recess for containing the same are adapted to allow the desired motion to the connection-rod on said eccentric.

Third. The flange or boss is constructed to project radially beyond its support, and is provided with a thin circumferential edge, which is contained in the recess made therefor. The revolution of the flange or boss causes the oil thereon to move centrifugally. The flange being inclosed in the connecting-rod, the oil therefrom cannot be thrown outside, but, being caught by the inclosing-walls, will run down to the lower part of the connection-rod and drop upon the table or into a drip-cup placed beneath. Since the oil will come mostly from the eccentric, it will obviously be intercepted by the flange or boss, which will throw it off into the recess in the connection-rod. Oil may, however, drop down from above. In order to collect this oil, as well as that which may escape over the flange or boss when the machine is not running, the side of the flange or boss adjacent to the wheel or pulley is inclined so that the centrifugal force will cause the oil to travel up the incline toward the connecting-rod, although some distance therefrom.

Fourth. The connection-rod has at its lower end a flange on the side adjacent to the wheel or pulley, and in the upper part of this flange is made a groove or channel, which collects any oil flowing down the rod from the joint with the needle-lever at the upper end of said rod, conveys it around the eccentric, and allows it to run off the extreme lower end or bottom of the rod without passing over the face of the flange. The extreme lower end or bottom of the rod is rounded, so that the oil will drop from the middle clear of the wheel or pulley. The oil from the upper joint is thus prevented from getting upon the wheel or pulley.

Fifth. When it is desired to prevent the oil spreading over the collars or other revolving parts adjacent to bearings, they are provided with a radial flange or boss, which is housed in a counterbored recess in the adjacent frame containing the bearing.

In the accompanying drawings, which form a part of this specification, Figure 1 is a partial view, in elevation and vertical section, of a Willcox & Gibbs single-thread sewing-machine embodying the invention. Figs. 2 and 3 are perspective views, respectively, of the connection-rod and the fly-wheel or pulley, with eccentrics; and Fig. 4, a vertical section, showing the application of a portion of the invention to a machine having the fly-wheel or driven pulley immediately adjacent to the frame or goose-neck.

Referring to Figs. 1, 2, and 3, A is the machine-frame; B, the main shaft; C, the fly-wheel or hand-wheel and driven pulley; D, the needle-lever; E, the connection-rod; F, the ball-eccentric for operating said lever through said connection-rod; G, a second eccentric, and H an eccentric-rod operated thereby to control the automatic or intermittent tension device I. As shown, these parts are constructed, except in the particulars to be presently indicated, as customary in the Willcox & Gibbs sewing-machine. The eccentric flange or boss K, which is shown as being made in one piece with the wheel C and the eccentrics F G, is inclosed in the recess L, which is made in the adjacent face of the connection-rod E. The said flange or boss K projects radially beyond the adjacent surface N and terminates in a thin edge, which is entirely within the recess L. The outer or right-hand face, P, is inclined. The flange or boss K is separated slightly from the shoulder, constituting the bottom of the recess L, so as not to interfere with the motion of the connection-rod E in adapting itself to the different positions of the needle-lever D and eccentric F. The recess L is made of sufficient depth to contain the edge of flange or boss K and not at any time to uncover it.

Q is the oil-collecting groove or channel at the bottom of the eccentric-rod.

In operation, the flange or boss K being contained in the recess L, the joint between the inner face of the flange or boss and the adjacent face of the connection-rod is protected by the body of said rod. The joint between the edge of the flange in boss K and the inclosing-wall of the recess L, being circular, is not liable to catch or to admit the introduction of threads and other foreign matter. The inclined face P of the flange or boss tends also to make the thread slip away from the joint. Any oil escaping from the eccentric-joint, or otherwise getting upon the outer face of the flange or boss K, will, when the machine is in operation, travel up the incline P by the centrifugal action, and be thrown off against the inclosing-wall of the recess L. Any oil which may run down the connection-rod from the

joint with the needle-lever, and which otherwise would run over the outer or right-hand face of the said rod, is caught by the groove or channel Q and delivered at the bottom of the eccentric-strap. The lower end or bottom of this strap being rounded, so that the lowest point is in the middle, the oil will drop off said lowest point clear of the rim of the fly-wheel.

R is a collar, which is fixed on the shaft B on the opposite side of the shaft-bearing from the eccentrics. It is provided with a flange or boss, K', which differs from the flange or boss K only in being concentric with the shaft instead of eccentric thereto. The said flange or boss K' fits within the recess L' in the machine-frame, and throws off any oil which may get thereon against the inclosing-wall of said recess. The oil is thus prevented from spreading over the body of the collar.

In Fig. 4, A is a portion of the machine-frame or goose-neck, and B is the main shaft of the machine. C is a fly-wheel or pulley. Said shaft B may be considered as supported in the upper part of the goose-neck and operating the needle-bar through a direct connection at the front end, or as supported at the lower part thereof and operating the needle from a cam or eccentric within the goose-neck through a needle-lever or needle-lever and connection-rod. The fly-wheel and pulley C is provided with a concentric flange, K', which fits within the recess L' in the machine-frame. The said flange keeps threads from getting into the joint, and also prevents the oil from spreading over the wheel.

As so far described, the inclosed flange or boss is carried by a revolving part of the machine. The flange or boss may, however, be carried by a non-rotating part. For example, an eccentric flange or boss on the connection-rod may project into an eccentric recess in the adjacent face of the wheel and pulley, or a concentric flange or boss on the machine-frame may project into a concentric recess in the collar or the wheel and pulley. While this latter arrangement is included in the present invention, it is inferior to that shown, and embodies a part only of the said invention. The running flange or boss could be made integral with the shaft where it is necessary or desirable.

Having now fully described our said invention and the manner of carrying the same into effect, what we claim is—

1. In a sewing or other machine, the combination, with a revolving shaft, a wheel or similar device carried thereby, and a non-rotating part of the machine, recessed on the side adjacent to said wheel, of a flange or boss revolving with said shaft and wheel and fitting within said recess, substantially as described.

2. The combination, with the wheel and driven pulley of a sewing-machine and an adjacent non-rotating part of the machine, of a boss or flange fitting within a recess and form-

ing an inclosed joint between said wheel and pulley and the adjacent non-rotating part of the machine, substantially as described.

3. The combination of an eccentric, a connection-rod, and an eccentric boss or flange fitting within a recess in said connection-rod, substantially as described.

4. The combination of an eccentric, a connection-rod, a wheel or pulley adjacent to said rod, and a boss or flange fitting within a recess and forming an inclosed joint between said rod and the said wheel or pulley, substantially as described.

5. The combination, with a rotating and a non-rotating part of a machine, of a flange or boss fitting within a recess and having its outer face inclined, substantially as described.

6. The combination, with a rotating and a non-rotating part of a machine, of a rotating flange or boss fitting within a recess in said non-rotating part and having its outer face inclined, substantially as described.

7. The combination, with an eccentric and connection-rod, of an eccentric flange or boss fitting within a recess in said rod and having its outer face inclined, substantially as described.

8. In a sewing or other machine, the vertical connection-rod provided with an oil-collecting groove or channel at its lower part, substantially as described.

9. The combination, with a ball-eccentric and connection-rod, of an eccentric boss or flange

fitting within a recess in said rod, and adapted to allow a play of the rod on the ball of the eccentric, substantially as described. 35

10. The combination, with a non-rotating part of a sewing-machine—such as the connection-rod or frame of a sewing-machine—and a rotating part—such as the fly-wheel and pulley of said machine—of a rotating flange or boss projecting radially beyond the adjacent surface, and terminating in a thin edge, and fitting within a recess which incloses said edge, substantially as described. 40

11. The combination, in a sewing-machine, of the needle-lever, the connection-rod, the eccentric for operating said rod, the eccentric flange or boss fitting within a recess in said rod, and the fly or hand wheel and driven pulley, substantially as described. 45

12. The combination, in a sewing-machine, of the needle-lever, the connection-rod, the eccentric for operating said rod, the eccentric flange or boss having the outer face inclined, and a thin circumferential edge inclosed by the walls of said recess, substantially as described. 50

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

CHAS. H. WILLCOX.
CYRUS CARLETON.

Witnesses:

GEORGE H. NOBLE,
GILMAN E. JOPP.