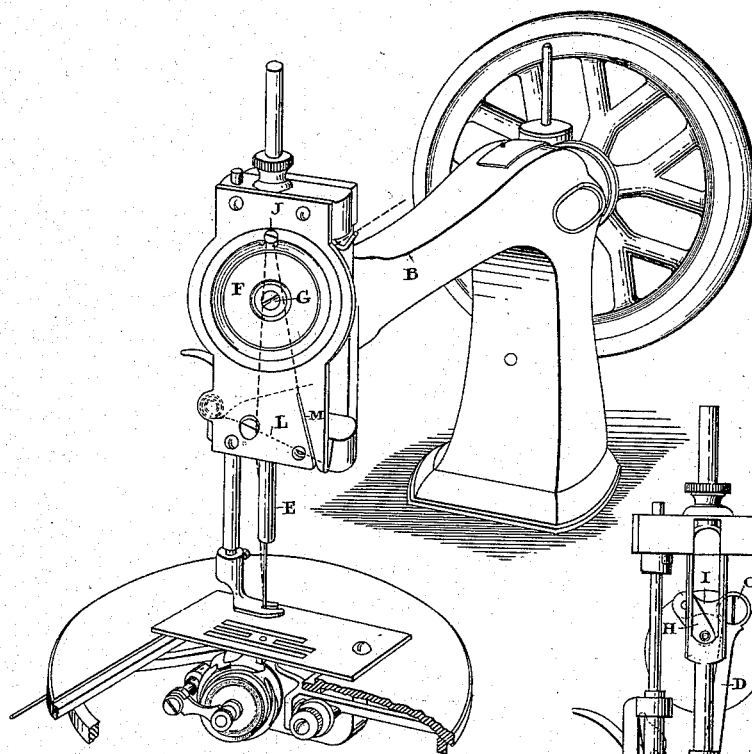


(No Model.)

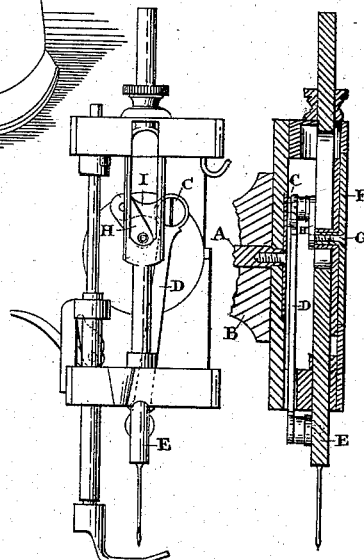
J. AUTHORS.  
SEWING MACHINE.

No. 263,009.

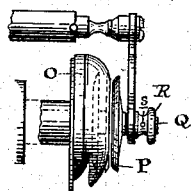
Patented Aug. 22, 1882.



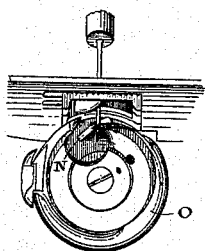
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

Witnesses.

*Lewis Toulumson*  
*C. W. Baldwin*

Inventor.

*James Authors*  
*by* *Ridout Aird & Co.*  
*Attys.*

# UNITED STATES PATENT OFFICE.

JAMES AUTHORS, OF TORONTO, ONTARIO, CANADA.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,009, dated August 22, 1882.

Application filed September 30, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES AUTHORS, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates particularly to that class of sewing-machines in which the needle-bar derives a reciprocating movement from the rotary movement of the driving-shaft working at right angles to it, and in which a circular bobbin fitting into a recess in the face of the circular hook below the table is used, although parts of the invention may be applicable to other classes of machines.

The invention consists in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

Figure 1 is a perspective view. Fig. 2 represents a front view, and also a cross-section, of the needle-bar end of the machine. Figs. 3 and 4 are details of the bobbins.

In the drawings, A is the main driving-shaft, supported in the usual way in a frame B of ordinary form. At the needle-bar end, F, of this shaft I place a crank, C, either in the disk, as shown, or otherwise. A pitman, D, connects the crank C to the needle-bar E. A disk, F, is embedded in the front plate of the machine and pivoted on the pin G. This pin passes through a longitudinal slot in the needle-bar E, and has fixed to its end a crank, H, which is connected to the crank C by the link I.

It will be understood by any mechanic that the mechanical movement produced by the connection described between the driving-shaft A, the disk F, and needle-bar E will be a regular reciprocating movement to the needle-bar, effected only by the passage of the crank over the dead-center, while the disk will receive a rotary movement which will be more rapid at some points of its revolution than at others, owing to the fact that its center is different from that of the driving-shaft from which it derives its motion. At a point in the face of the disk F, which will move at the desired rate of speed at the different points of the revolution of the disk to agree with the movement of the needle-bar and hook, I place a pin, J, over

which the thread is passed on its way to the needle, and which, owing to the differential movement of the disk, constitutes a rotating take-up which will perform its duty with regularity and smoothness. A spring, L, is riveted at one end to the inner side of the front face of the machine, and is arranged to move behind the same, so as to take up the slack thread before it passes over the pin, and thus lay the thread smoothly on the work. A slotted passage-way, M, in the front face-plate affords room for the movement of the thread passing through it, caused by the action of the spring on the thread as the disk revolves.

On reference to Fig. 4, which is a detail of the hook, a wedge-shaped projection, N, will be noticed. This projection is attached to or forms part of the hook, and is situated opposite to its sewing-point, so that after the descent of the needle and when it rises to form the loop the hook is in front, and the wedge-shaped projection, approaching the needle at the same time, presses it forward toward the sewing-point of the hook, thereby making the needle pass the same point at each stroke, straightening the needle should it be bent, and making it impossible for the hook to pass the needle without entering the loop. Consequently the machine will not drop stitches.

In a former part of the specification I described the rotating take-up as arranged to move slower at some points in its revolution than at others. This irregular motion is required when the take-up is applied to a hook-machine, as herein illustrated; but it will be understood that it may be applied to a shuttle-machine, in which case it should move evenly, or nearly so, at all points in its revolution. In order to cause this even motion it is only necessary to adjust the center of the take-up on a line with the center of the driving-shaft, which may be easily done by moving the face-plate upon which the take-up is pivoted.

As is shown in Fig. 3, the open face of the hook O is protected by a cap, P. This cap is secured to a shank or pin, Q, which is fitted loosely in the hole in the arm R and is pivoted therein by a rivet or pin, S, so that it will be free to rock on said pivoted pin. By this construction the cap, although holding the bobbin in position in the hook, does not present any ob-

struction to the thread between it and the face of the bobbin.

What I claim as my invention is—

5 1. In a sewing-machine, the combination of a disk, F, a shaft secured to said disk, revolving in a different line from the main shaft, the needle-bar E, having a slot to allow the passage of the disk-shaft, the crank H, secured to said disk-shaft on the opposite side of the needle-bar, the crank-pin C, and the links D H, 10 substantially as and for the purpose specified.

2. On the face of a sewing-machine, a horizontal spring, riveted thereto and arranged in combination with a slotted guideway cut in 15 the face-plate and passing across the spring, for the purpose of taking up the slack thread produced by the movement of the take-up, substantially as specified.

3. In a sewing-machine having a circular bobbin fitting in a recess in a revolving hook, 20 the combination of a cap or cover having its shank loosely fitted and pivoted in its hanger, whereby it is free to oscillate on its pivot to permit the thread to pass freely between it and the bobbin, substantially as set forth. 25

4. In combination with the needle of a sewing-machine, a rotating hook provided with a projection situated opposite to its sewing-point, so that it approaches the needle simultaneously with the hook, pressing it toward the sewing- 30 point of the hook, substantially as and for the purpose specified.

JAMES AUTHORS.

Witnesses:

C. W. BALDWIN,  
LEWIS TOMLINSON.