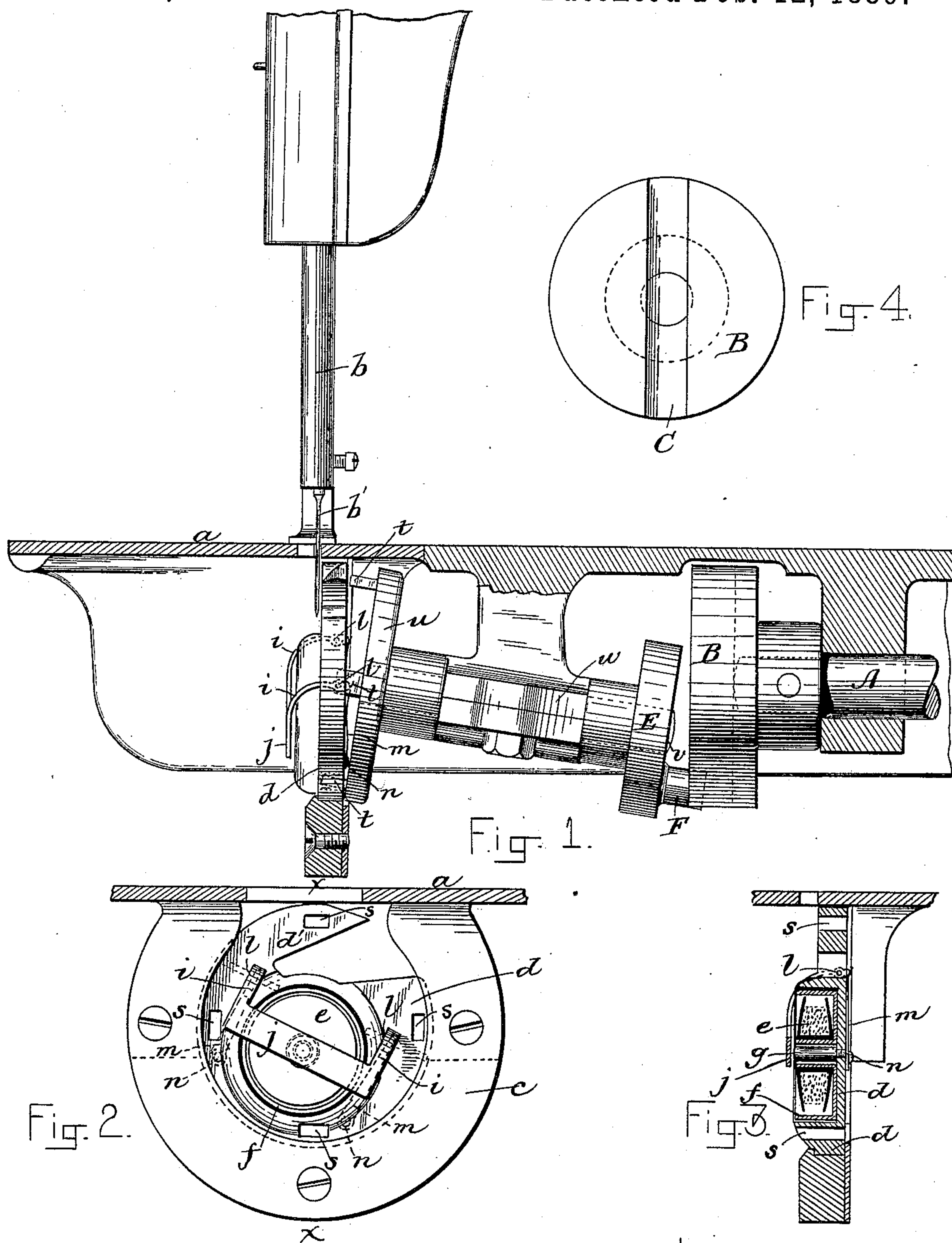


(No Model.)

C. F. LITTLEJOHN.  
SEWING MACHINE.

No. 397,808.

Patented Feb. 12, 1889.



WITNESSES:  
C. S. Gooding,  
A. H. Brown.

INVENTOR:  
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Attys.



# UNITED STATES PATENT OFFICE.

CHARLES F. LITTLEJOHN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF  
ONE-HALF TO E. B. WELCH, OF CAMBRIDGE, MASSACHUSETTS.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,808, dated February 12, 1889.

Application filed March 29, 1886. Serial No. 196,893. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. LITTLEJOHN, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain  
5 new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to lock-stitch sewing-machines in which the bobbin having the  
10 lower thread is held in a case, which is held by a shuttle formed to move in a circular path in a guide or raceway, said shuttle having a hook or hook-shaped point to engage the needle-thread.

15 The invention comprises the detail construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

Of the accompanying drawings, forming a  
20 part of this specification, Figure 1 represents a side elevation and partial section of a part of a sewing-machine having my improvements. Fig. 2 represents a side elevation of the shuttle and its guide and a section of a  
25 part of the bed of the machine. Fig. 3 represents a section on line *x x*, Fig. 2, and Fig. 4 is a detail view.

The same letters of reference indicate the same parts in all the figures.

30 In the drawings, *a* represents the bed of a sewing-machine; *b*, the needle-bar, and *b'* the needle. *c* represents the circular guide or track attached to the under side of the bed, and *d* represents the body of the shuttle, on  
35 which is formed the hook *d'*, said shuttle being formed to rotate in said track, and is constructed to hold the bobbin *e*, which contains the lower thread. The hook *d'* is formed to take and enter the loop presented by the needle,  
40 so that as the shuttle rotates first the hook and then the body of the shuttle will pass through the said loop.

In the present instance I provide the shuttle with a cavity formed to receive the case *f*,  
45 containing the bobbin, and affix a stud, *g*, to the shuttle *d*, so that it shall stand in the center of said cavity and constitute a bearing on which the case *f* and bobbin *e* may rotate. The bobbin is confined in the cavity by a  
50 holder composed of two arms, *i i*, pivoted to the shuttle *d* at *l l*, and a bar, *j*, extending be-

tween said arms across the cavity. The arms *i i* are pivoted in two small slots or apertures in the body of the shuttle, so that when in the position shown the thickened ends of said  
55 arms will slightly project through said slots or apertures.

Springs *m m*, secured at *n n* to the inner side of the shuttle *d* and bearing at their free ends against the inner projecting ends of the  
60 arms *i i*, secure the holder in the position shown in the drawings with sufficient firmness to prevent the accidental removal of the bobbin from the cavity and enable it to be swung outwardly when it is desired to remove the  
65 bobbin.

The shuttle *d* is made nearly circular, as shown, its periphery being interrupted by the recess or opening that forms the inner edge of the hook *d'*.  
70

In the shuttle I form a series of slots, *s*, preferably at uniform distances apart, said orifices being intended to receive teeth or projections *t*, correspondingly arranged on a disk or shuttle-driver, *u*. Said driver is secured to  
75 a rotary shaft, *v*, which is journaled in a bearing, *w*, affixed to the bed of the machine. The driver *u* and shaft *v* are inclined relatively to the shuttle *d*, the driver being at right angles with the shaft, as shown in Fig. 1. The in-  
80 clination of the shaft is such that the highest tooth, *t*, of the driver is always disengaged from the corresponding slot *s* in the shuttle, so that an unobstructed space always exists between the upper portions of the driver and  
85 shuttle. The shuttle is thus permitted to pass through the loops of the needle-thread engaged by the hook, as will be readily seen. The other teeth, *t*, are engaged simultaneously with the slots of the shuttle and constitute a  
90 positive connection between the shuttle and the driver *u*, so that when said driver is rotated it will positively rotate the shuttle *d* and prevent it from being pressed centrifugally against the guide *c*.  
95

The slots or orifices in the shuttle may be circular, rectangular, or oval, and the teeth on the driver are of course shaped to conform to said orifices. For example, if the orifices are circular, the teeth may be hemispherical at  
100 their outer ends.

The carrier may be provided with any de-



sired number of teeth or projections, as two or more.

The shaft *v*, to which the driver *u* is attached, may be rotated by any suitable means. I have here shown as the means for driving said shaft a horizontal shaft, A, driven by the power of the machine and having a disk, B, with a transverse groove, C, in one face thereof, and a disk, E, on the shaft *v*, having a pin, F, eccentric to said shaft and engaged with the groove C, as shown in Fig. 1. I do not limit myself, however, to the described means for rotating the driver, but may use any other suitable devices.

It will be observed that the shuttle may be either oscillated or continuously rotated by the means described.

I claim—

1. In a sewing-machine, the combination, with the shuttle having a central cavity and a stud or pin projection therein, of the case *f*, secured in said cavity on said stud or pin, and the holder comprising the parallel arms *i i*, and the bar *j*, connecting the outer ends of said arms, the other ends of which are pivoted

in apertures in the shuttle, substantially as shown and described, said bar being designed to bear against said case, as set forth.

2. In a sewing-machine, the combination, with the shuttle having the central cavity and two small slots or apertures and the case *f* disposed in said cavity, of the holder comprising the parallel arms *i i*, having thickened ends pivoted in said slots or apertures, the bar *j*, connecting the outer ends of said arms and extending across said case *f*, and the springs secured to the inner side of said shuttle and having their ends bearing against the thickened ends of said arms, which project through said slots or apertures, substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of March, 1886.

CHARLES F. LITTLEJOHN.

Witnesses:

WALTER NICHOLS,  
SAMUEL TYLER.