

No. 690,722.

Patented Jan. 7, 1902.

W. GROTHE.

LOOP TAKER MECHANISM FOR SEWING MACHINES.

(Application filed June 17, 1901.)

(No Model.)

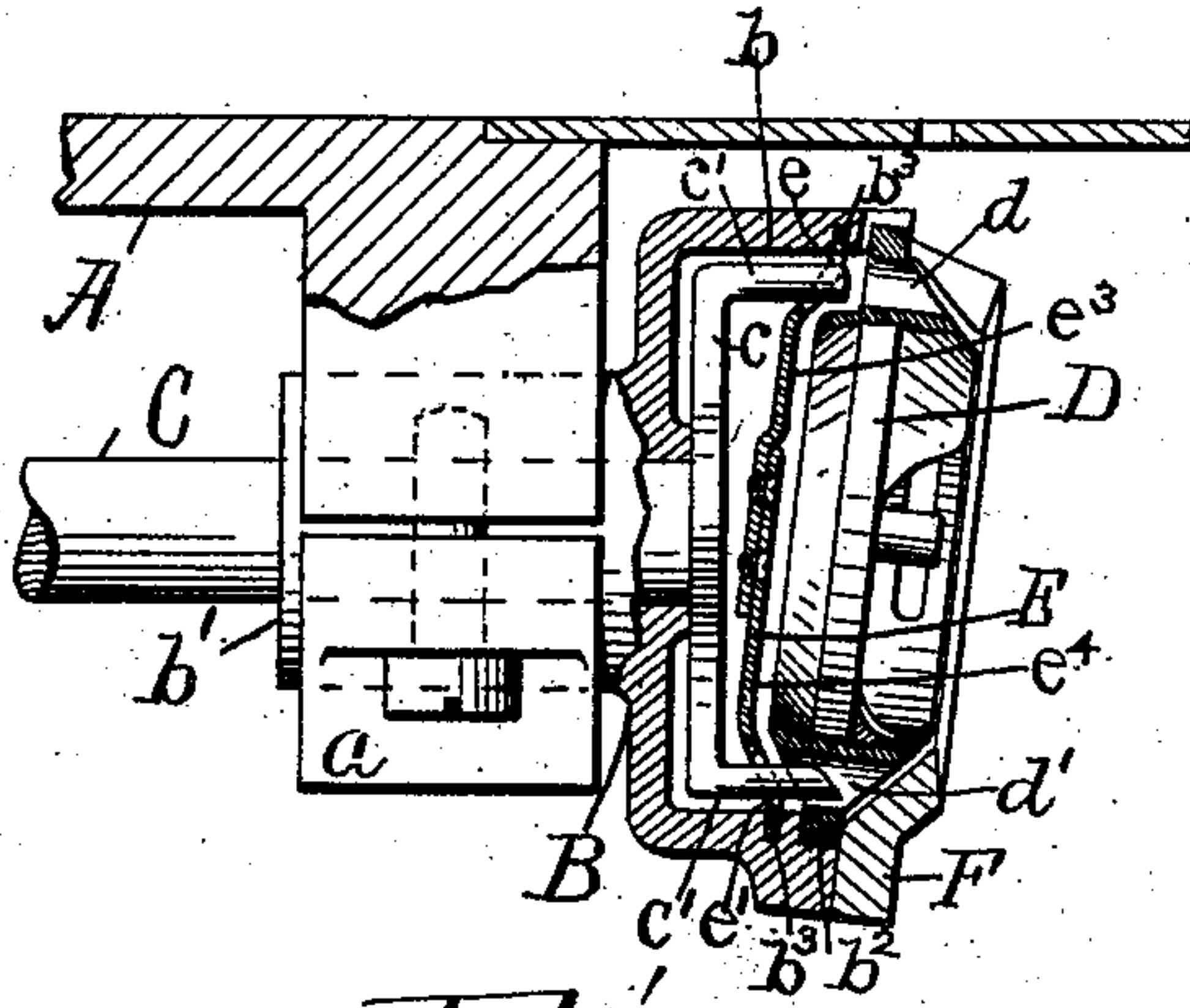


Fig. 1,

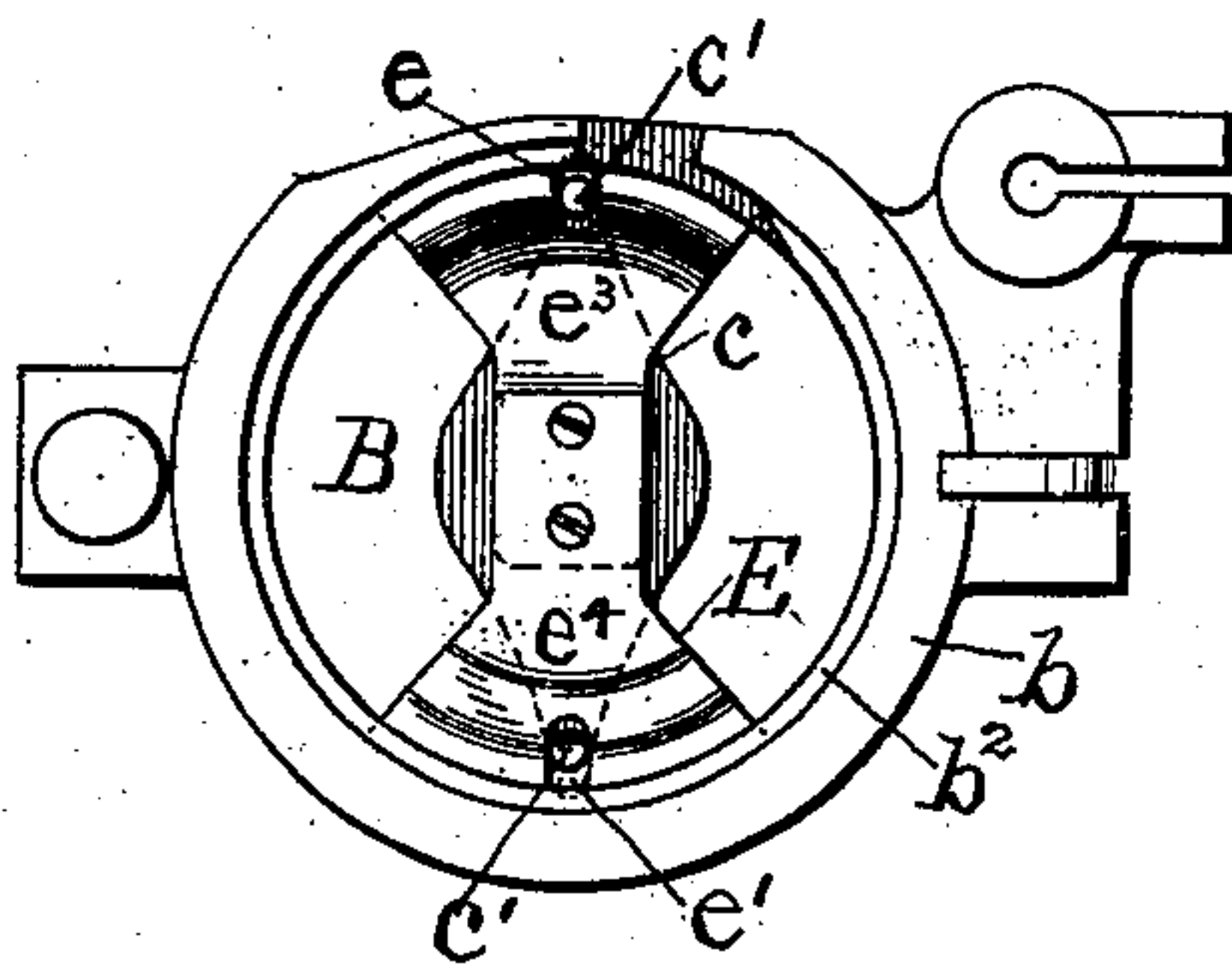


Fig. 2,

Witnesses.
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UNITED STATES PATENT OFFICE.

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LOOP-TAKER MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 690,722, dated January 7, 1902.

Application filed June 17, 1901. Serial No. 64,813. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GROTHE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Loop-Taker Mechanism for Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to the type of sewing-machines in which the stitch-forming mechanism includes a loop-taker which carries the lower thread and is moved about its axis through the loop of the upper thread by a driver which moves about an axis lying at an angle to the axis of the loop-taker.

The primary object of the invention is to prevent the upper thread from becoming entangled with the loop-taker driver or its fingers.

The invention consists in the combination, with the loop-taker and its driver having the characteristics referred to, of a guard-plate located between the driver and loop-taker and mounted to turn with the driver on an axis at an angle to the axis of the driver and having holes through which the driver-fingers pass to the loop-taker.

In the drawings, Figure 1 is a side elevation, partly in section, of the loop-taker housing and the parts which it supports. Fig. 2 is an end view of the same parts when the loop-taker and the retaining-plate therefor have been removed.

Referring to the parts by letters, A represents the bed-plate of a sewing-machine head, and α an integral bracket projecting from the under side thereof. The loop-taker housing B has a cylindrical stem b' , which is clamped in said bracket and has a bell-shaped front end b . Through the stem a cylindrical hole is formed in which the shaft C of the loop-taker driver is rotatably mounted. Secured to that end of this shaft which projects into the bell-shaped end of the housing is a cross-arm c , near the extremity of which are forwardly-projecting fingers c' . The loop-taker D is rotatably mounted in a cylindrical rabbet or groove b^2 in the front edge of this bell-shaped portion of the housing, the axis of this groove being at an angle to the axis of the

driver-shaft. The loop-taker is held in its guide-groove b^2 by a retaining-plate F, secured to the front end of the housing, and said loop-taker has two holes d d' , into which the driving-fingers c' project, whereby the loop-taker is moved about its axis by the driver. Because the axes of rotation of the loop-taker and said driver, respectively, are at an angle to each other each finger c' is entirely withdrawn from its engagement with the loop-taker when said finger is at its highest point. At this time the loop-taker is being driven by the other finger. Because of this construction and operation the loop-taker may pass through the loop of the upper thread and one strand of said loop may pass between the loop-taker and first one driving-finger and then the other.

So much of the construction as is above described is old and it constitutes one specific structure having certain defects which it is the object of this present invention to cure. For example, if one should carelessly start the machine after it is threaded and without any cloth in position for the needle to pass through the loop from the upper thread frequently becomes entangled with one or both of said driving-fingers. When this happens, it is generally necessary to remove the loop-taker and then remove this tangled thread. To prevent this operation the guard-plate E is provided, which plate is rotatably mounted in a cylindrical groove b^3 inside the bell-shaped end of the housing and between the loop-taker and the driver, the axis of this guide-groove being preferably coincident with the axis of the loop-taker, although some slight variation from this position is permissible. This plate has two holes e e' , through which the driver-fingers pass to the loop-taker, and therefore as the driver rotates it rotates this guard-plate, as well as the loop-taker. The driver-fingers are, however, because of the angular relation between the axes of the driver and the guard-plate, respectively, caused to move backward and forward through the holes in this guard-plate. When a machine is provided with a guard-plate substantially as described, there is very little likelihood that the thread will become entangled with the fingers, but if it does it will be stripped or scraped

off by this guard-plate during each rotation thereof.

In order to be able to cause the described engagement of this guard-plate in this internal groove b^3 , in which it is mounted, the plate is made in two or more sections $e^3 e^4$, which are fastened together by screws or other suitable means after the edges of the said sections have been inserted in said guide-groove b^3 .

10 Having described my invention, I claim—

1. In a sewing-machine, the combination of a rotatable loop-taker having holes which are substantially parallel with its axis and are adapted to receive the driver-fingers, a guard-plate lying behind and close to the loop-taker and mounted to rotate upon the same axis, and having holes through which the driver-fingers may pass, with a rotatable driver-shaft having fingers rigidly secured thereto and projecting forward from its end through the holes in the guard-plate and into the holes in the loop-taker, whereby both the loop-taker and guard-plate are simultaneously rotated by the driver-fingers, said driver-shaft being mounted with its longitudinal axis at an angle to the loop-taker and guard-plate, whereby the driver-fingers are caused to engage and recede from the holes in the loop-taker, substantially as and for the purpose specified.

30 2. In a sewing-machine, the combination of a loop-taker housing, having a bell-shaped

end in which is an annular groove in which the loop-taker is rotatably mounted, and behind this another annular groove in a plane parallel to the plane of the first-named groove, with a loop-taker rotatably mounted in the groove provided therefor, and having holes to receive the driver-fingers, a guard-plate located between the loop taker and driver and composed of two separable sections secured together, and having its edge rotatably mounted in the groove in the housing behind the loop-taker, and having also two holes through which the driver-fingers pass to said loop-taker, and a driver-shaft having, inside the bell-shaped end of the housing, forwardly-projecting driving-fingers which pass through the holes in the guard-plate and engage the holes in the loop-taker and operate to simultaneously rotate both the loop-taker and guard-plate, said driver-shaft being mounted with its longitudinal axis at an angle to the axis of the loop-taker and guard-plate whereby the driver-fingers are caused to engage and retreat from the holes in the loop-taker, substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM GROTHE.

Witnesses:

ALBERT H. BATES,
H. M. WISE.