

No. 724,322.

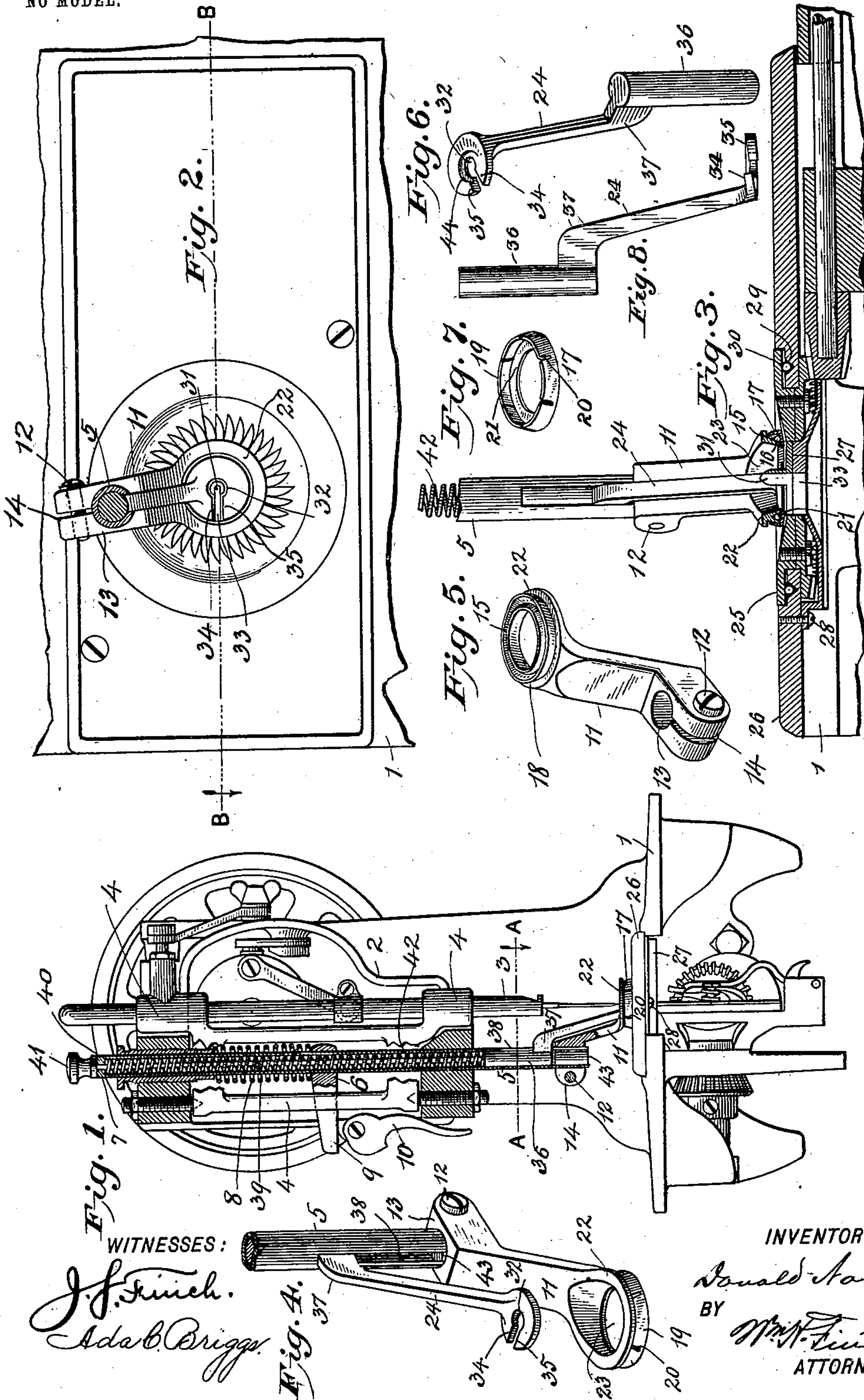
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D. NOBLE.

PRESSER FOOT FOR EYELET SEWING MACHINES.

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NO MODEL.



WITNESSES:

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PRESSER-FOOT FOR EYELET-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 724,322, dated March 31, 1903.

Application filed April 3, 1902. Serial No. 101,260. (No model.)

To all whom it may concern:

Be it known that I, DONALD NOBLE, a subject of the King of Great Britain, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Presser-Foot for Eyelet-Sewing Machines, of which the following is a full, clear, and exact description.

My invention relates to a presser-foot especially for use in an eyelet-sewing machine; and one object thereof is to provide a presser for this class of machines which will not impede the feed of the material.

A further object of my invention is to equip such presser with means to prevent the material from rising with the needle, so as to avoid skipping stitches; and another object of the invention is to provide means to hold in place a reinforce over which the eyelet may be stitched.

My invention consists in an annular presser-foot having an antifriction ring-cover applied thereto and adapted to cooperate with said presser-foot after the manner of a swivel.

My invention also consists in an auxiliary presser-foot adapted to enter an opening within the main presser-foot and rest upon the material, whereby skipping of stitches is prevented and means afforded for holding in place a reinforce over which the eyelet may be formed.

My invention further consists in certain details of construction and combination of elements, which will be more fully hereinafter pointed out, and particularly designated by the claims.

In describing my improvement only such limited reference will be made to the well-known parts of a sewing-machine as is deemed necessary for a proper understanding of my invention.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a front end elevation, partly in section, of an eyelet-sewing machine equipped with my improved presser, the face-plate being removed and the horizontally-oscillating needle-bar gate partly broken away for con-

venience of illustration. Fig. 2 is a horizontal section, partly broken, taken in the plane indicated by the line A-A, Fig. 1, the needle-bar being omitted. Fig. 3 is a vertical section, partly broken, taken in the plane indicated by the line B-B, Fig. 2. Fig. 4 is a perspective view of the presser with the auxiliary foot in raised position. Fig. 5 is a perspective view of the main presser-foot inverted. Fig. 6 is a perspective view of the auxiliary presser-foot inverted. Fig. 7 is a perspective view of the cover. Fig. 8 is a side elevation of the auxiliary presser-foot detached.

1 is the frame or bed-plate of the machine.

2 is the arm, and 3 is the needle-bar, mounted in a pivoted gate 4, which gate is horizontally oscillated in any usual way. As is common to this class of machines, the gate 4 is horizontally oscillated to cause the needle-bar to descend in different vertical lines, so as to form an overseam-stitch; but since the mechanism for actuating both the needle-bar and gate within which it is mounted and also the loop-taker and its operating mechanism may be of any approved construction a description thereof is deemed unnecessary.

5 is a spring-pressed hollow or tubular presser-bar mounted in the end of the arm 2.

6 is the usual presser-bar collar, between which and the screw-threaded sleeve or bushing 7 is interposed the usual coiled spring 8. The presser-bar collar 6 is provided with the usual extension 9, with which the presser-lifter 10 cooperates to raise the presser-bar in the usual manner. The extension 9 also serves in the usual manner to restrain the presser-bar against turning.

11 is the main presser-foot, the heel of which is formed with a socket 13 to engage the end of the presser-bar 5, said heel being slotted into the socket, as shown at 14, Fig. 5, and a pinch-screw 12 is tapped in the heel crosswise of the slot to form a pinch-joint.

15 is an annular ball-race formed in the bottom of the foot 11, in which balls 16 are held by a ring-cover 17, Fig. 7. The external side of the ball-race is undercut or bev-

eled, as shown at 18, and the side wall 19 of the cover 17 is similarly undercut or beveled to correspond with the shape of the foot 11, so that when said cover is forced or sprung upon said foot the contiguous undercut surfaces of these parts will hold them together and prevent the balls from escaping. In order to facilitate putting the cover 17 over the bottom of the foot, the side wall of said cover is notched or slotted, as shown at 20, Fig. 7, so that said wall may be more readily expanded to pass over the lower edge of the foot, which is somewhat larger in diameter than the upper portion of said cover. The ring is fitted quite loosely or swiveled to the foot, so as not to interfere with the free action of the balls, which have their bearings within the race 15 and upon the upper surface of the bottom 21 of said cover, as clearly shown in Fig. 3. Thus the cover 17 serves as a sort of antifriction device.

22 is an overhanging annular ledge formed on the foot 11 directly above the upper edge of the cover 17, which serves as a guard to prevent the entrance of dust and dirt.

23 is an opening formed in the foot, through which an auxiliary presser-foot 24, presently described, projects.

The bottom of the cover 17 preferably conforms to the adjacent level of the feed-disk 25, which may be of the usual or any approved construction. In the present instance I have shown a feed-disk 25, journaled within a cover-plate 26, which latter also supports the stationary throat-plate 27 by means of screws 28, only one of which is shown.

29 is a ball-race formed in the cover-plate and containing balls 30, which receive the downward pressure exerted upon the feed-disk, thus insuring the latter turning easily.

31 is the usual spur, rigid with the throat-plate.

The feed-disk may be of any approved form and actuated in the usual or any approved manner; but I prefer to use a disk of the kind and to operate it in the manner shown and described in United States Patent No. 680,664, issued to my assignees August 13, 1901.

The auxiliary presser-foot 24 has an opening 32, which fits loosely over the spur 31 and also registers with the opening 33 in the throat-plate. The bottom of the foot 24 is of spiral form, as seen in Figs. 4, 6, and 8, for the purpose of facilitating the passage of the overseam-stitches thereunder during the course of forming the eyelet, the edge 34 being raised slightly above the edge 35, which latter rests upon the material and prevents it from rising with the needle. The auxiliary presser-foot is provided with a piston-like stem or plunger 36, the two being connected rigidly and preferably integrally by a leg 37, which passes through a vertical slot 38 in the hollow presser-bar, and this stem or plunger 36 is fitted to slide vertically within said presser-bar.

39 is a rod one end of which is secured to the plunger 36, as by a screw-thread, while the other end passes through the shouldered end 40 of the presser-bar and has a thumb-piece 41 secured thereon, by means of which said rod may be lifted to raise the auxiliary foot.

42 is a coiled spring interposed between the shouldered end 40 of the presser-bar and the top of the plunger 36, the tendency of said spring being to thrust the auxiliary foot downward. The slot 38 prevents the auxiliary foot from turning or twisting and extends to the lower end of the presser-bar to permit movement of said foot. For convenience in assembling and in order to prevent said bar from being crushed or distorted when the pinch-screw 12 is tightened to secure the presser-foot 11 in place a plug 43 is inserted within the end of the presser-bar. When working on very stiff inelastic material, the auxiliary foot is not really necessary to prevent skipping of stitches, because the stiffness of the goods is sufficient to overcome any tendency to stick to the needle and rise therewith; but when elastic fabrics, such as knit goods and the like, are being used said foot is of value in preventing stitches being skipped by holding the goods down upon the throat-plate or feed-disk, so as to insure a loop of sufficient size being presented to the loop-taker by the needle.

Both presser-feet may be raised or lowered at the same time by manipulating the presser-lifter in the usual manner, and when desired the auxiliary foot may be raised by the rod 39 independently of the other foot to obtain a good view of the eyelet either after or while in the process of formation. The pressure exerted by the main foot is of course quite heavy, so as to insure the work being carried around; but the pressure of the auxiliary foot is very light and only sufficient to strip the material from the needle, so that stitches will not be skipped and injury to the luster of expensive silk thread will be avoided.

In the formation of ordinary eyelets a hole of the desired size is first punched in the material and the latter placed in position on the feed-disk with the spur protruding through the punched hole, or the hole may be punched by said spur. The material is then clamped and the sewing-machine operated to overseam the sides of the perforation in the usual manner. I have worked eyelets over a reinforce, such as a ring of metal or other material placed upon the fabric around the spur, or I use a coarse thread or gimp similarly located. With this character of eyelet the auxiliary foot aside from the service it renders in preventing skipping of stitches is largely if not quite indispensable for holding the reinforce in place during the formation of the eyelet. Moreover, so far as I am aware, my presser-foot is the only device of its kind which permits of an eyelet

being worked over a gimp reinforce. In order the better to accommodate such rings or reinforces, there is provided a slight groove 44 in the bottom of the auxiliary foot. (See Fig. 6.)

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cloth-presser, for eyelet-sewing machines, comprising a spring presser-bar, a presser-foot carried by said bar and having an annular ball-race in the bottom thereof, a cover movably applied to said foot, whereby said ring and foot are held together after the manner of a swivel, and antifriction-balls arranged within said race and bearing upon said cover, substantially as set forth.

2. A cloth-presser, for eyelet-sewing machines, comprising a spring presser-bar, an annular presser-foot carried by said bar and having an undercut or beveled side, a ball-race in the bottom of said foot, an antifriction annular cover having its side wall shaped to correspond with the undercut or beveled side of said foot, and antifriction-balls bearing within said race and upon said cover, the latter being sprung upon said foot, substantially as set forth.

3. A cloth-presser, for eyelet-sewing machines, comprising a spring presser-bar, an annular presser-foot carried by said bar and having an undercut or beveled side, a ball-race in the bottom of said foot, an antifriction ring-cover having its side wall undercut or beveled to correspond with the undercut or beveled side of said foot, antifriction-balls bearing within said race and upon said cover, the adjacent undercut walls of said cover and foot coöperating to retain the parts in operative position, and an annular ledge formed on said foot directly over said cover for the purpose of excluding dust, substantially as set forth.

4. A cloth-presser, for eyelet-sewing machines, comprising a spring presser-bar, an annular presser-foot carried by said bar and having an undercut or beveled side, a ball-race in the bottom of said foot, an antifriction ring-cover having its side wall undercut or beveled to correspond with the undercut or beveled side of said foot, and antifriction-balls bearing within said race and upon said ring, the sides of the latter being slotted to facilitate its engagement with said foot, substantially as set forth.

5. A cloth-presser, for eyelet-sewing machines, comprising a tubular spring presser-bar, an annular presser-foot, a spring-pressed auxiliary presser-foot mounted within said

tubular presser-bar and a thumb-piece located outside of said bar and connected with said auxiliary presser-foot, said annular foot being provided with an opening through which said auxiliary foot has access to the material to be stitched, substantially as set forth.

6. A cloth-presser, for eyelet-sewing machines, comprising a tubular spring presser-bar, an annular presser-foot, a spring-pressed auxiliary presser-foot operatively mounted within said presser-bar, the bottom of said auxiliary foot being of spiral form, said annular foot being provided with an opening through which said auxiliary foot has access to the material to be stitched, and independent means to operate manually the said auxiliary presser-foot, substantially as set forth.

7. A cloth-presser, for eyelet-sewing machines, comprising a spring-pressed tubular presser-bar having a longitudinal slot, a main presser-foot, an auxiliary presser-foot having a plunger mounted within said tubular presser-bar, said auxiliary foot being connected with said plunger by a leg which passes through the slot in said tubular bar, whereby said auxiliary foot is retained in proper alinement, a lifting-rod secured at one end to said plunger, a thumb-piece applied to said rod to effect independent movement of said auxiliary presser-foot, and a coiled spring interposed between said plunger and said tubular bar, substantially as set forth.

8. A cloth-presser, for eyelet-sewing machines, comprising a tubular spring presser-bar having a vertical slot, a presser-foot provided with a pinch-joint by means of which said foot is secured to said bar, an auxiliary presser-foot having a plunger mounted to slide within said tubular presser-bar, said auxiliary foot being connected with said plunger by a leg which passes through said vertical slot, whereby said auxiliary foot is retained in proper alinement, a lifting-rod secured at one end to said plunger, a coiled spring interposed between said plunger and said tubular bar, and a plug inserted within the end of the bar, whereby said bar is prevented from being crushed or distorted when the pinch-joint formed on said first-mentioned foot is tightened, substantially as set forth.

In testimony whereof I have hereunto set my hand this 31st day of March, A. D. 1902.

DONALD NOBLE.

Witnesses:

F. W. OSTRAM,
C. N. WORTHEN.