

UNITED STATES PATENT OFFICE.

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CARRIER FOR MACHINES FOR CARDING HOOKS AND EYES.

SPECIFICATION forming part of Letters Patent No. 736,717, dated August 18, 1903.

Application filed August 5, 1901. Serial No. 70,922. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. GRANGER, a citizen of the United States, residing at the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Machines for Carding Hooks and Eyes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machines for carding hooks and eyes. Such a machine is described in Letters Patent granted to me, No. 491,281, dated February 9, 1893. Said patented machine embodies mechanism whereby hooks and eyes are mounted and sewed upon a carrier-card automatically. Briefly stated, the said machine comprises thread-sewing elements consisting of a plurality of needles cooperating with a series of stitch-forming devices whereby two or more rows of stitches are formed at one and the same time and a mechanism for holding, presenting, and advancing to said series of needles a series of hooks and eyes disposed in proper order or relationship to a card to which they are to be attached by said stitches. My present invention is an improvement upon the last-named element of said carding-machine, and it is referred to in said recited Letters Patent and will be referred to hereinafter in this specification as the "carrier." In said prior machine the carrier was so constructed that two similar parallel rows of hooks and loop-eyes engaged with each other, as when in use on a garment, were presented to, mounted upon, and sewed to a card held temporarily in the carrier by parallel rows of stitches passing through the thread-engaging ends of said hooks and loop-eyes. Recently another form of eye, known as an "invisible" eye, has been introduced in the trade, and as these are designed to be used in connection with the same general character of hook and in substitution for some purposes for the loop-eyes referred to—that is to say, for some purposes the one type of eyes and for another purpose the other type of eyes are employed by the purchaser and user of the hooks. Hence it is desirable and indeed necessary for commercial reasons that each of such packages of card-mounted sets of

hooks and loop-eyes should have also a set of "invisible" eyes mounted on said card in the same way and in such manner as not to increase the size of the card and to be as easily removable therefrom for use and in the same way as the series of loop-eyes and their hooks.

In an application for patent, Serial No. 70,923, filed August 5, 1901, I have described and claimed my improved package of card-mounted hooks and loop-eyes with a series of "invisible" eyes all mounted in the manner and to the end and purpose hereinabove recited; and my present invention herein described and claimed is an improvement of the carrier of my earlier machine, Patent No. 491,281, to enable it to produce such improved package of card-mounted hooks, loop-eyes, and "invisible" eyes.

In the accompanying drawings, illustrating my present invention, Figure 1 is an inverted plan view of the body-plate or casing of the carrier, the top plate being removed. Fig. 2 is a bottom plan view of the removable base-plate of the carrier; and Fig. 3 is a transverse sectional elevation in the plane of the dotted line *zz* of Fig. 1 through the carrier body-plate and its base-plate after they have been placed together for use in the machine with a card and series of rows of hooks, loop-eyes, and "invisible" eyes in place.

The said mechanism heretofore patented to me, by the aid of which a series of hooks engaged with their respective loop-eyes may be assembled and properly presented with reference to the card to which they are to be sewed and to the mechanism by which such sewing is to be effected, is constituted by the casing or carrier represented in Figs. 1, 2, and 3. This device is termed by me a "carrier" because it carries the hooks and eyes and the card to which they are to be sewed to the sewing mechanism, and it is essentially a casing composed of a lower and an upper member relatively separable, but adapted to be placed and maintained together and formed with sockets and recesses adapted to receive and hold between them the hooks and loop-eyes and the card and with slotted openings extending through the carrier, whereby the thread-carrying needles may pass carrying thread to and through the

hooks, eyes, and card, and thereby uniting them by stitches.

By the term "carrier" I include both the body-plate or casing proper and the base-plate, and while I prefer to form the sockets for the hooks and eyes in the body or casing I can equally well form them in the base-plate. A suitable arrangement of these devices being that represented in the drawings of my said prior patent, No. 491,281, is therein fully shown and described. The specific form therein shown of the device was, however, capable only of holding and presenting to the sewing mechanism one or more series of hooks and loop-eyes. I have improved it as follows: to adapt it to hold and present also a series of "invisible" eyes and in a particular way.

Referring to the annexed drawings illustrating the same, K designates the body or casing of the carrier, the under face of which is represented in Fig. 1 and which is a flat plate of metal traversed in the direction of its length by several parallel needle-slots (shown as four, marked k^1 k^2 k^3 k^4) spaced a sufficient distance apart to cause them to register with the needles of the machine when such machine is supplied with as many as four needles and to enable the operator automatically to present the thread-eyes of each inserted "invisible" eye and each hook and its engaged loop-eye through said slots to said needles.

k represents transverse slots terminating in segmental recesses t , suitably conformed to constitute sockets for the hooks h and loop-eyes h' . Two series of these slots, each series bisecting and overlapping an adjoining pair of needle-slots, are formed in the casing represented. Their conformation is best described by saying that they are sunken grooves conforming to the shape of the hooks and eyes and that they are so disposed as to bring the thread-eyes of the inserted hooks and eyes in line with longitudinal channels k^x , and that in the region where the loop-eyes (not the thread-engaging eyes) occur they are formed with studs k^5 , which serve, as shown in Fig. 1, to maintain the eye-engaging bends of the hooks in bight upon the said eyes. As shown in the drawings, the carrier is constructed with suitable slots and recesses for holding and presenting two opposite parallel rows of hooks and loop-eyes; but they are merely duplicates of each other, and the invention is exemplified when one such row only is employed. Opposite the transverse needle-slot k^3 and longitudinal channel k^x I provide another and parallel channels, adapted to receive the raised central portion of the invisible eye, and transversely thereto and immediately opposite and in line with the walls of the segmental recesses t I provide a series of slots m , within which the bar of the invisible eye N may rest, bringing its thread-engaging bend r , Fig. 1, immediately under that of the loop-eye, and hence

held to the card by the same thread-stitch, though it may be arranged alternately thereto.

k^6 represent studs or lugs projecting from the body-plate K and base-plate L, respectively, and adapted to register with respect to holes in the opposite plate to insure the correct application of the two separable members to each other, and k^7 represents gages, adjustable, if desired, to insure the accurate placing of the card to which the engaged hooks and eyes are to be sewed after said engaged hooks and eyes have been manually inserted in their sockets. These gages cooperate with spring-controlled lever-gage k^9 , Fig. 1, which serves to frictionally grasp its edges to retain the card rectilinearly in position.

L is the base-plate of the carrier, (shown in Fig. 1,) the same being a flat plate conformed to be fitted on the body-plate K, within the raised edges a thereof, as shown in Fig. 1, and in the construction represented the stud k^6 fits in the recess k^{10} on the body-plate. This base-plate is provided with a series of parallel needle-slots l^1 l^2 l^3 l^4 , which respectively correspond with the needle-slots k^1 k^2 k^3 k^4 in the body and respectively register with them when the base-plate is in place in order that each of four needles may pass through a pair of the slots. The under face of the base-plate is provided with a ratchet-bar l^x , which when the base-plate is closed in place with respect to the body and both are in place upon the bed-plate of the machine registers with actuating mechanism of the sewing mechanism, as described in said previous patent, and occasions the required advance movement of the carrier as an entirety with its contained cards and engaged hooks and eyes to the needles. It is of course to be understood that the hooks in engagement with their eyes are first inserted in their sockets and the card laid over them before the base-plate is applied to or closed upon the body and the carrier as an entirety presented to the action of the sewing mechanism.

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

1. A carrier for a sewing-machine, operating to support a series of hooks and a series of "invisible" eyes and present the thread-engaging bends thereof to the needles, to be sewed by parallel lines of stitches, the same consisting of a carrier-plate and its cover-plate, relatively separable and spaced to contain a card between them, said carrier-plate being provided with a channel k^x and transverse slots k adapted to support a series of hooks h , and also a series of slots m and a transverse channel s , adapted to support a series of "invisible" eyes; said carrier members being formed with parallel rows of corresponding needle-openings in line with the thread-engaging bends of the contained hooks and eyes; substantially as described.

2. A carrier for a sewing-machine for sew-

ing hooks and eyes upon a card, composed of
two relatively separable members spaced to
contain a card between them, and one of which
is provided with recesses to contain a series of
5 hooks and a series of segmental recesses and
studs to hold a series of loop-eyes, and a series
of slots *m* and transverse channels; said mem-
bers being formed with parallel rows of cor-
responding needle-openings in line with those
10 recesses in the carrier-plate which contain the

thread-engaging bends of the hooks and eyes;
substantially as and for the purpose set forth.

In testimony whereof I have hereunto af-
fixed my signature this 31st day of July, A. D.
1901.

JOHN W. GRANGER.

Witnesses:

GEO. W. REED,
H. T. FENTON.