The present invention relates to drapery hook holders for use in apparatus for inserting hooks in drapes, curtains, or similar flexible articles, that are to be hung by the hooks from suitable supports.

This application is for an improvement in the staple package shown in my copending application Serial No. 548,502, filed November 22, 1955, entitled Drapery Hook Dispensing and Inserting Apparatus, now Patent No. 2,821,713.

A general object of the present invention is to provide improved means adapted to supply drapery hooks to an apparatus for inserting them into drapes, and like articles.

An object of the invention is to provide means for holding and storing drapery hooks to form a suitable supply, for use in apparatus adapted to automatically insert such hooks in drapes at any desired location and in a proper manner.

Another object of the invention is to provide a package embodying a holder that properly relates drapery hooks in stacked relationship, whereby they are adapted to be individually actuated upon by a dispensing apparatus and advanced into the drapery material, to insure secure attachment of the hook to the drape.

A further object of the invention is to provide a receiver that accommodates a holder supplied with drapery hooks whereby the hooks are individually actuated upon and are inserted into the material of the drape.

Still a further object of the invention is to provide a holder for supplying hooks to apparatus used for inserting said hooks into drapes and the like, and embodying means normally retaining a stack of hooks in the holder and releasable to insure their automatic sequential feeding into the apparatus for insertion into the drape.

Another object of the invention is to provide a holder and receiver of the character above referred to that is simple and inexpensive to manufacture, which is effective in operation, and wherein the holder is expendable after it has been used in supplying hooks to the apparatus.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of a form in which it may be embodied. This form is shown in the drawings accompanying and forming part of the present specification. It will now be described in detail, for the purpose of illustrating the general principles of the invention; but it is to be understood that such detailed description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a front elevational view of a drapery hook dispensing apparatus employing the holder and receiver thereof of the present invention;

Fig. 2 is an enlarged plan view of a portion of the structure shown in Fig. 1, being a view taken along line 2—2 on Fig. 1, and showing the parts of the apparatus in the process of advancing a drapery hook from the holder;

Fig. 3 is an enlarged elevational view of a package of hooks of the present invention showing it removed from the receiver and the apparatus for driving the hooks, and showing the means normally retaining the hooks in stacked relationship in the holder prior to accommodation in the receiver;

Fig. 4 is a view similar to Fig. 3 but showing the parts of the apparatus as they would appear with the top plate thereof removed;

Fig. 5 is a detailed view illustrating parts of the drive mechanism;

Fig. 6 is an enlarged view of a portion of the apparatus and showing the receiver that is provided, the holder and hooks being removed;

Fig. 7 is an enlarged sectional view through the package, taken along line 7—7 on Fig. 3;

Fig. 8 is an enlarged sectional view through the package, taken along line 8—8 on Fig. 3;

Fig. 9 is an enlarged elevation sectional view taken along line 9—9 on Fig. 4.

The holder X and receiver Y disclosed in the drawings are designed to handle a supply of drapery hooks 10, to position them in stacked relationship to be actuated by apparatus and inserted into the fabric of a drape, or the like. With the holder and receiver hereinafter described, the holder is employed to store the drapery hooks in stacked relationship and is accommodated in the receiver to sequentially feed said hooks to the apparatus to be dispensed thereby.

As specifically shown, each drapery hook 10 that is to be handled by the holder X and receiver Y, and to be dispensed by the machine and inserted in the drape, includes the pin portion 11 terminating in a forward point 12, the other end of the pin portion 11 merging into a curved web 13 which, in turn, merges into an inner arm 14 extending generally parallel to the pin portion 11. The outer portion 15 of the inner arm is bent outwardly at an angle, being inclined in a forward direction away from the pin portion. This bent arm portion 15, in turn, merges into a rearwardly and outwardly bent portion 16 of an outer arm 17, the rearwardly projecting portion of which is generally parallel to the inner arm 14 of the hook itself. In effect, the two inclined inner and outer arm portions 15, 16 form a general V shape, in order that the drapery hook may be suspended from and carried by a suitable hanger (not shown), in a known manner.

The drapery hook 10 is adapted to be received within a slotted and recessed portion of a drive plate 18, which is slidable mounted upon an upper supporting plate 19 of the frame of the apparatus, this upper supporting plate being suitably secured to the vertical walls 20 of the housing frame, which encloses the drive mechanism. A top plate 21 is carried by the upper supporting plate 19 of the frame in spaced relation thereto, the distance between the two plates 19 and 21 being slightly greater than the thickness of the hook drive plate 18, so they will appropriately guide and confine the latter during its
the straight slot portion, to dispose the pin 11 substantially parallel to the fabric or the material. When in this latter position, the pin 11 has completed its forward motion, and the hook 10 is disposed in alignment with an opening 39 in the top plate 21 of the apparatus, which will enable the hook to be lifted upwardly by the operator out of the drive plate 18 and the supporting plate 19.

A clamp plate 70 is provided to move ahead of the drive plate 18 and to hold or retain the hook 10 properly engaged with the plate 18 and to release the hook after it is fully inserted into the drapery material. In practice, the drive plate 18 has a back edge 71 parallel with the front edge 30 thereof and there is a drive slot 72 extending the plate at the back edge 71. The drive slot 72 is preferably located near the pin 34 and a finger or lug 73 projects from the plate 70 to enter into the slot 72. The clamp plate 70 is carried on a pivot 74 on an axis spaced laterally of the back edge 71 of the drive plate, said lug 73 and slot 72 being shaped to allow for the afore-mentioned movement of the plate 18 and to provide driving connection between the drive plate 18 and the clamp plate 70.

An arm 75 extends from the clamp plate 70 to overlie the front edge 76 of the plate 18, and is provided to dispose the tapered sides 37 of the slot 72 into the slot 18. As clearly shown in Fig. 2 of the drawings, the end portion of the arm 75 engages the hook 10 carried in the recess to clamp or hold the hook therein in engagement with the sides 27, 32. As hereinabove described, the hook 10 has outer arm portions 15, 16 forming a V shape, and said portions are joined by a rounded or curved portion. This latter rounded or curved portion is engaged by a concaved indentation 77 in the outer end portion of the arm 75 to hold the hooks. As shown, the parts of the structure are so related that the clamp plate 70 engages the hook 10 when the pin 11 is brought to the position where it is disposed to project somewhat from the front edge 21 of the machine (Fig. 2). However, when the slot and recess portions 26, 28 of the plate 18 is disposed under the opening 25 in the top plate 21 (Fig. 4) and also when the plate has completed its forward motion, the clamp plate 70 is released. Thus, the hook 10 is allowed to drop freely into the recess portions 26, 28 when the parts are positioned as shown in Fig. 4, and the hook 10 is clamped or held and retained in the recess portions 26, 28 when the parts are positioned as shown in Fig. 2.

In the apparatus specifically disclosed, the drive plate 18 is moved by a power device. Thus, an electric motor and a gear reducer unit 49 is carried within the frame of the apparatus and suspended from the top supporting plate 19 of the frame. The vertical drive shaft 44 of the drive unit has a crank 45 affixed thereto to which a crankpin 46 is secured. This crankpin has one end of a connecting rod or link 47 pivotally secured thereto, the other end of the connecting rod being pivotally mounted on one of the pins, such as the forward pin or follower 35 attached to the drive plate 18. As the drive shaft 44 is rotated by the drive unit 40, it will cause a reciprocation of the drive plate 18 through the agency of the crank 45, connecting rod 47, and the forward follower pin 35, the throw of the crank 45 being such as to move the plate between its full forward position and its full rearward position disclosed in Fig. 4, where it is adapted to receive hooks through the opening 25. The portion of the drape into which a hook is to be initially inserted is placed upon a platform or vertically movable supporting plate 54 disposed adjacent the front end of the apparatus, and below the plane of its top plate 21. This supporting plate 54 has a pair of generally vertical guide rods 55 secured thereto and depending therefrom, these guide rods being slidable through the spaced upper and lower flanges 56, 57 of a bracket 58 suitably secured to the front wall of the frame and housing 20. The supporting plate 54 is urged toward its upper-
most position by helical compression springs 59. It will be noted that the supporting plate 54 can be depressed against the force of the springs 59, as that the releasing of the depressing force will cause the spring to elevate the supporting plate to its uppermost position.

The apparatus has a guide or indicator 66 (Figs. 1 and 2) to determine how far the operator must depress the supporting plate 54 to insure the insertion of a hook 10 at and through a drapering web. The releasing of the depressing force is offset from the plane of movement of the drive plate 18 and is readily visible to the operator, who will place a portion of a drape on the supporting plate 54, and then exert a downward force on the drape until the supporting plate depresses to the point at which the seam of the drape, at which the hook is to be inserted, is in alignment with the indicator 66 and the hook point 12.

The operator then knows that during operation of the machine the hook will be inserted in the drape at the proper location.

The marginal edge, a stack S of hooks is supported vertically in the holder X, which serves as a means for storing a desired number of hooks 10 in proper stacked relation and for sequentially feeding such hooks into the recessed and slotted portions 26, 28, 29 of the drive plate as they are needed. As best illustrated in Figs. 3, 7 and 8 of the drawings, the holder X handles a stack S of hooks 10 of the particular character herein above described. In accordance with the invention, the holder is adapted to handle the hooks 10 for the purpose of storing and handling them prior to relating them to the apparatus, to be dispensed thereby. The holder is particularly adapted to be related to the apparatus hereinabove referred to, to the end that the hooks are sequentially fed, one at a time, to be driven and inserted into draperies material and the like. The holder X, as shown, involves, generally, an elongate body 80 shaped to engage with and guide the hooks in stacked formation, one adjacent another. The body 80 is preferably of lightweight construction and of inexpensive material so that it is expendable after once used, and in practice it is made of a suitable sheet material, for example, sheet metal, paper, or a plastic. Depending upon the material employed, appropriate methods of forming the body 80 may be employed as circumstances require.

The body 80, forming the holder X, is shaped in a manner to have spaced guide rails 81 and 82 that have guiding engagement with the point 12 and web 13 of the hook 10, respectively. The rails 81 and 82 are such as to confine the hooks 10 to the body 80 of the holder X and allow for free movement of the hooks 10 longitudinally of the body 80. The body 80 has a flat plate-like portion 83 that extends between and spaces the rails 81 and 82, and the rails are formed to have confining parts that overlie the engaged portions of the hooks 10.

The rail 81 involves a portion of the body 80 that is turned back along the edge of the portion 83 to overlie the marginal edge portion of the body and is parallel therewith. In this way, a longitudinal guideway 84 is formed to receive the points 12 of the hooks 10 with suitable clearance, as shown in Fig. 7. The rail 82 involves a portion of the body 80 that is turned back along the edge of the portion 83, opposite the side having the rail 81, to overlie the marginal edge portion of the body. The rail 82 is formed to engage with the extreme end of the hook 10 at the web 13 and has, therefore, a flange 85 preferably disposed at a right angle to the plane of the body portion 83, the back of the web 13 of each hook having point contact with the flange 85. Further, rail 82 is formed to closely overlie the exterior of the web 13, which is a looped section of wire, and has, therefore, a lip 86 disposed inwardly from the edge of the flange 85 to overlie the marginal edge portion of the body. The lip 86 is a straight part extending along the body portion 83 but inclined thereto in transverse cross-section, whereby the loop-shaped web 13 of each hook is held within the guideway 87 for the webs 13 defined between the lip or flange 86 and the body portion 83. The lip engages the inclined side of the web 13, moving in a direction toward the point 12 of the hook 10, to the end that the point 12 of the hook will not touch the bottom of the guideway 84. In the preferred form of the invention, the lip 86 is provided with a longitudinally disposed band 88 that acts to stiffen the lip and which also provides for point contact with the webs 13, as shown.

The holder X, as above described, may be of any suitable length and has opposite ends 89 that are normal to the longitudinal rails 81 and 82 that extends parallel with each other. The hooks 10 are entered into the holder X in stacked relation and facing in a common direction. That is, the points 12 of the hooks are entered into the guideway 84 while the webs thereof are entered into the guideway 87. The pin 11 of the hook lies adjacent the portion 83 of the holder X while the remaining portions of the hook 10 are not engaged by the holder and are unsupported.

In order to retain the stack S of hooks 10 in the holder X, there is provided a retainers 90 disposed with the holder X and with the stack S of hooks 10 handled thereby. The retainers 90 may vary in form and acts to prevent displacement of the hooks 10 from the ends of the body 80. The retainer 90 is shown in the form of a band wrapped over the holder X and stack S of hooks 10, and it is preferably a band of material that can be easily torn away and removed from the holder. For example, the retainer band is made of paper, the end portions thereof being secured together, as by a suitable adhesive at 91, and with a free end 92 adapted to be manipulated to be torn whereby the band can be pulled from the holder, freeing the hooks 10 for downward feeding from the holder.

The holder X, with the stack S of hooks 10 arranged therein, is suitably supported in vertical position on the apparatus within a receiver Y attached to the top plate 21. The receiver Y has a base portion 93 attached to the top plate 21 in any suitable manner, as by means of welding, for example, spot-welding, and from which suitable guide walls project. The receiver Y for the holder X includes a vertical guide wall 94 corresponding to the body portion 83 of the holder to engage and retain said portion. A guide channel 95 is provided at the rail 81 of the holder, and a guide channel 96 is provided at the rail 82 of the holder.

As best illustrated in Fig. 6 of the drawings, the guide channel 95 is formed of walls 97 and 98, the wall 97 being disposed in spaced parallel relationship with the wall 94. The wall 98 is disposed between the walls 94 and 97 and is preferably a curved wall formed integrally with and joining the walls 94 and 97. The guide channel 96 is formed of walls 99 and 100, the wall 99 being at the rear portion of the wall 94, and disposed in spaced parallel relationship thereto. The wall 100 is disposed at right angles to the walls 94 and 99 and is preferably integral with and joins the walls 94 and 99. The holder X is suitably engaged in the receiver Y with the rails 81 and 82 thereof received in the guide channels 95 and 96, whereby the hooks 10, that is in stacked formation by the holder X are allowed to feed downwardly in succession, when the retainer 90 is removed, and into the drive plate slot and recess portions 26, 28 of the drive plate 18. As clearly shown in Fig. 6 of the drawings, the opening 25 in the top plate 21 of the same general configuration as each hook 10, such that a portion of the top plate 21 underlies the holder X by engaging the lower end 89 thereof, to position the holder X in the receiver Y and to prevent it from dropping into the opening 25.

It will be apparent from the foregoing that a very simple and inexpensive means is provided to store and supply drapery hooks into apparatus adapted to drive said hooks into drapery material. Hooks of the character described are obviously difficult to handle by individual
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manipulation, and with the holder X that I provide, a stack of hooks 10 is conveniently stored and handled at any one time to the apparatus for driving them. Further, the apparatus involves a simple and effective receiver Y that accommodates the holder X and hooks 10 handled thereby to the end that the hooks are sequentially fed one at a time when the retainer 90 is removed from the holder in the manner above described.

I claim:

1. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth than said first groove; said holder being adapted to receive said stack of hooks with said pin portions being confined in said first groove, and said web being confined in said second groove.

2. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth and width than said first groove; said holder being adapted to receive said stack of hooks with said pin portions lying along said central portion, said forward points being confined in said first groove, and said web being confined in said second groove, said outer arms being disposed outwardly of said first and second flanges.

3. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth and width than said first groove; said holder being adapted to receive said stack of hooks with said pin portions lying along said central portion, said forward points being confined in said first groove, and said web being confined in said second groove, said outer arms being disposed outwardly of said first and second flanges.

4. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth than said first groove; said holder being adapted to receive said stack of hooks with said pin portions lying along said central portion, said forward points being confined in said first groove, and said web being confined in said second groove; said holder being open at one of its ends to permit said hooks to be withdrawn from said holder through such one end; and removable means disposed across such one end to prevent movement of said hooks through said one end, said hooks being free to slide from said holder through said one end upon removal of said removable means.

5. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth and width than said first groove; said holder being adapted to receive said stack of hooks with said pin portions lying along said central portion, said forward points being confined in said first groove, and said web being confined in said second groove; said holder being open at one of its ends to permit said hooks to be withdrawn from said holder through such one end; and a removable band adapted to extend lengthwise of said holder along said inner arms and across said one end to prevent movement of said hooks through said one end, said hooks being free to slide from said holder through said one end upon removal of said band.

6. A package adapted to receive a stack of abutting drapery pin hooks, each hook having a pin portion terminating in a forward point at one end and merging into a curved web at its other end, said web merging into an inner arm disposed alongside and lengthwise of said pin portion, said inner arm merging into an outer arm spaced from and extending lengthwise of said inner arm; comprising an elongate holder including a central portion connected at one of its sides with a first flange overlying and spaced from said central portion to define a first elongate groove therewith, said central portion being connected at its opposite side with a flange structure including a flange portion spaced from and overlying said central portion to a substantially greater extent than said first flange to define a second elongate groove therewith of substantially greater depth and width than said first groove; said holder being open at one of its ends to permit said hooks to be withdrawn from said holder through such one end; and a removable band adapted to extend lengthwise of said holder along the exterior of said central portion, across said one end, and along said inner arms to prevent movement of said hooks through said one end, said hooks being free to slide from said holder through said one end upon removal of said band.
said central portion to define a second elongate groove therewith; said holder being adapted to receive said stack of hooks with said pin portions lying along said central portion, said forward points being confined in said first groove, and said web being confined in said second groove; said second flange being inclined toward said central portion, whereby said second groove converges in a direction toward said first flange to retain said webs in said second groove.

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