

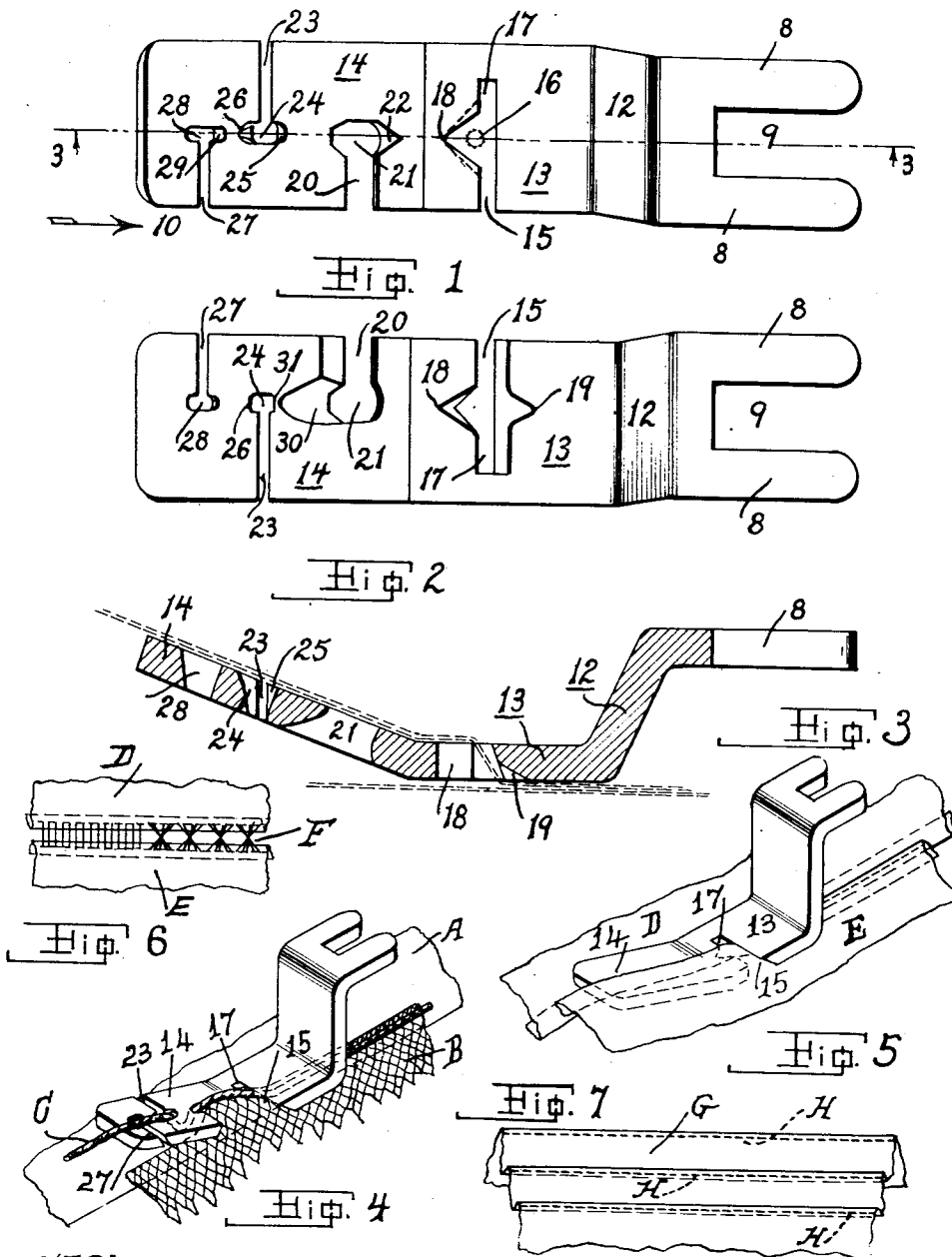
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UNIVERSAL PRESSER FOOT

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# UNITED STATES PATENT OFFICE.

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## UNIVERSAL PRESSER FOOT.

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The presser foot is of the type used as an attachment for sewing machines. A prime purpose of the invention is to provide a unitary presser foot capable of performing a number of operations which have hitherto necessitated the use of a number of attachments on the sewing machine, said presser foot being adapted for associating, guiding and sewing a number of fabrics, such as a main fabric, minor fabrics, tapes, laces and cords; to provide means whereby the associated minor fabrics may run over the presser foot for part of their travel with the stitching in plain view of the operator, thus enabling him to attain very accurate operation; to provide an inclined fabric-supporting element having entrance openings in such relation to each other that the surface of said element and the walls of said openings will co-act to maintain proper tension of the associated minor fabrics relative to the moving main fabric or fabrics; to provide a presser foot of improved form, useful for ordinary sewing and also useful for special sewing without any adjustment or change of the presser foot itself; to provide a presser foot having a series of chambers, a series of entrance openings and a series of V-shape cord guides communicating with the chambers, the apexes of all of said V-shape guides being in a straight line in a vertical plane containing the vertical axis of the sewing machine needle, in order that a very small cord or the like, may be stitched accurately along its central lengthwise line without wavering of the cord; to provide a separating element between a main fabric and a minor fabric running concurrently, one above the other, at the center of the needle chamber to space them apart from each other such a distance that when the seam is completed and the fabrics are pressed hemstitching will intervene between the parallel edges of the fabrics; and to provide other improved details of construction as will hereinafter appear.

The invention is illustrated in the accompanying drawings in which Figure 1 is a top plan of a presser foot embodying my invention; Fig. 2 is a bottom view of the same presser foot inverted; Fig. 3 is a vertical section through the presser foot taken on the line 3—3 of Fig. 1; Fig. 4 is an isometric view on a reduced scale, of the same presser foot shown in position to operate on a major fabric, a trimming fabric, and a cord or like

trimming; all in position to be sewed together at one operation; the trimming fabric and the cord both running in clear view of the operator; and Fig. 5 is a reduced isometric view of the presser foot as used in hemstitching; Fig. 6 is a fragmental top view of the fabrics united by hemstitching and Fig. 7 shows a fragment of fabric having pin tucks made by the use of the presser foot.

The presser foot as a whole comprises an attaching member 12; a flat horizontal intermediate member 13; and an upwardly inclined member 14 extending to the left of the operator who faces the machine; but the work travels towards the right, as indicated by the arrow 10.

The typical attaching member 12 shown in the drawing, has prongs 8 separated by a space 9 to accommodate the usual presser bar of the sewing machine to which it is attached; it is to be understood however that the form of the attaching member may be varied to suit different makes of sewing machines without departure from my invention.

The flat member 13 has an entrance opening 15 in the right hand edge of the member. The entrance opening 15 is continued beyond the central line 3—3 and extends some distance into the left hand part of the member and forms a gauge opening 17 useful for guiding the work and gauging the distance of the seam from the edge of the fabric, as will appear later.

The member 13 has on its under side a rearwardly extending V-shape guide 18, and a forwardly extending V-shape guide 19.

The upwardly inclined member 14 has at its right hand edge a relatively large entrance opening 20 leading to a relatively large chamber 21 adapted to accommodate a number of associated fabrics, it has also a forwardly extending V-shape guide 22 communicating with the chamber 21. The member 14 has also an intermediate entrance opening 23 at the left hand edge of the member and leading to a central chamber 24. The entrance opening 23 and the chamber 24 are adapted to accommodate one or more trimming fabrics running over the member 14 in position to be associated with and stitched on a main fabric or fabrics running under the member 13 as indicated at C Fig. 4. The member has also on its upper side a forwardly extending guide 25 and a rearwardly extending guide 26. Both guides 25 and 26 communicate with the chamber 24.

Near its free end the member 14 has at its right hand edge an entrance opening 27 communicating with a chamber 28. The opening 27 is of less width than the opening 23 and the opening 23 is of less width than the opening 20. The openings are calibrated to receive a variety of fabrics of various qualities associated in various positions relative to each other; as may facilitate the work in hand. A forwardly extending rounded guide 29 communicates with the chamber 28.

On the under side of the member 14 (Fig. 2) a rearwardly extending concave guide 30 communicates with the chamber 21 and a forwardly extending guide 31 communicates with the chamber 24. The guide 31 is immediately under the guide 25 and in Fig. 1 is visible on the upper side of the member 14 and is also in line with the point of the guide 30 so that a cord or fabric may run downwardly through the chamber 24 and then forwardly under the member 13 or may in the first instance run downwardly through the chamber 24 and then upwardly and forwardly through the chamber 21; and then forwardly and through the chamber 17 and then run forwardly under the presser foot as shown in Fig. 4; or reversely may be inserted from below through the right hand chamber 21 and then inserted from above through the left-hand entrance opening 23 into the chamber 24 as may be desired for convenient disposition, observation and manipulation of the cord or fabric.

The dotted circle 16 (Fig. 1) designates the location of the needle opening in the top plate of the sewing machine. That needle opening is not in the presser foot, but it is necessary to show its position in order to illustrate the mode of operation. The presser foot is made from a single piece of suitable metal formed as shown and having a series of entrance openings, a series of chambers and a series of V-shape guides substantially as shown.

It will be noted that the entrance opening 23 and the chamber 24 are on a higher level than the entrance opening 20 and the chamber 21; and the entrance opening 27 and the chamber 28 are on a higher level than the entrance opening 23 and the chamber 24 in order to accommodate braids of different widths and cords of different sizes without wobbling and to guide small cord in view of the operator accurately in line with the point of the needle to assure accurate stitching along the central line of the cord and in order to admit of easy control of the associated fabrics.

The entrance opening 23 differs from all the other entrance openings in that both of its parallel edges are rounded in order that a fabric may be inserted from below upwardly through the opening and may travel above the member 14; or may be inserted from above through the opening and travel below the member 14. This difference in the form of

the opening 23 admits of using a minor fabric on the left-hand side of a current seam so that it may be associated with other fabrics on the right-hand side of the current seam looking forwardly, so that all the fabrics may be united at one operation by a single seam.

The presser foot is adapted for use in sewing together a variety of fabrics in various relation to each other. A typical use is shown in Fig. 4 in which a main fabric A, a trimming or minor fabric B, and a cord C are associated in a position for sewing the fabrics together by a single seam. The main fabric A runs in a straight line under the presser foot; the trimming fabric B is inserted from below upwardly through the opening 20 and downwardly through the opening 15 and continues thence under the presser foot. The cord C extends downwardly through the opening 23, upwardly through the opening 21 and then runs on top of the fabric B in plain sight of the operator and then turns downwardly through the opening 15 and the three fabrics are united by the needle operating in the opening 16 in the top plate of the sewing machine. The operator guides the distance of the seam from the edge of the main fabric by noting the passage of the fabrics through the gauge opening 17.

It is to be understood however, that a reverse construction relative to the entrance openings may be employed; that is to say: the openings 15, 20 and 27 may lie on the left side and the opening 23 may lie on the right side; thus permitting identical operations to be performed by the use of my presser foot, while the surplus of the major fabric lies at the left side of the presser foot and needle; without departure from my invention.

The entrance opening 15 and the gauge opening 17 do not control the accurate run of the cord C. The accurate run of the cord is controlled solely by the aligned V-shape guides which are all in the plane of the vertical axis of the needle thus assuring accurate sewing along the central line of the cord.

A V-shape guide 18, pointing rearwardly, has its apex immediately behind the entrance opening 15 and in line with the exact centers of a series of chambers 21, 24 and 28. The respective entrance openings 20, 23 and 27 are of suitable transverse widths to accommodate a wide range of tapes, braids, oval cords, and trimming fabrics and the transverse dimensions of said entrance openings are successively reduced as they occur further from the entrance opening 15. Said entrance openings are only for the purpose of easily and quickly inserting tapes, braids, cords, etc., as the case may be, into the chambers 21, 24 and 28.

A special use of the entrance openings 15, 20 and 27 at one edge of the presser foot and the entrance opening 23 at the opposite edge of the presser foot is to facilitate the inser-

tion of the round or oval fabric through the entrance opening 23 and 27 without the risk of pulling the fabric out of the entrance opening 20 while attempting to insert it through the entrance opening 23.

In every instance the aligned V-shaped grooves guide the round fabric in a straight line in the vertical plane of the axis of the needle and also serve to maintain proper tension of the round fabric.

Fig. 5 shows the presser foot used to make hemstitching.

The letters D and E designate two fabrics which are to be hemstitched together. Preparatory to hemstitching, the adjacent edges of the fabrics will be creased by hand and will be slightly over-lapped so that the seam will be made through the creased parts of both fabrics. The fabrics are separated by the thickness of the member 13. The downwardly creased fabric D will be placed face upward on top of the work-table of the sewing machine and under the presser-foot 13; and the upwardly creased fabric E will be placed face downward on top of the presser foot. Upon operating the sewing machine the creased parts of both fabrics will run in unison and will be sewed together by a single seam. The sewing will be done with very loose tension of the thread carried by the needle and will make loose stitches approximately equal in length to the thickness of the presser foot. As the sewing progresses the loosely stitched fabric will travel together forwardly under the presser foot. When the seam is completed the fabrics D and E will be pressed apart and smoothed as shown in Fig. 6 and the stitches F may be tied as usual in hemstitching or the tying may be omitted.

To make pin tucks the fabric G will be creased by hand and the adjacent members, one on each side of the crease, will be united by stitching H in the usual manner.

The center of the needle opening 16 is in line with the apex of the V-shape guides 18, 22, etc. This relation of the needle and the guide 18 in the member 13 admits of turning the work accurately around the axis of the needle to facilitate accurate embroidery.

My universal presser foot is usable for plain sewing, embroidery, hemstitching, pin tucking and precise braiding without any change in the presser foot itself.

To the best of my knowledge and belief no other presser foot is adapted to sew along the central line of a small cord in plain view on the upper side of the presser foot and as-

sociated with other fabrics running on the underside of the presser foot.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A universal one-piece presser foot for sewing machines, comprising an attaching member; an intermediate flat member having an entrance opening; a gauge opening; and a V-shape guide pointing rearwardly; and an upwardly inclined fabric-guiding member having right and left entrance openings communicating with chambers in line with each other and also having aligned guides whose apexes are in line with the needle and in line with each other.

2. A universal one-piece presser foot for sewing machines, comprising an attaching member; an upwardly inclined fabric-guiding member and an intermediate flat member having an entrance opening, a gauge opening, and a V-shape guide having its apex in line with the needle; said upwardly inclined member having a series of openings with V-shape guides whose apexes are all in line with the needle and in line with the apex of the V-shape guide to the entrance opening in said flat member, said upwardly inclined member having also right and left entrance openings and a series of chambers at different elevation relative to the horizontal feed plane of the sewing machine.

3. A presser foot comprising in a unitary structure an attaching member; a flat table member having an entrance opening, a needle opening, a guide located in line with the center of the needle opening, and a gauge in line with said entrance opening and adapted to guide the creased edge of a fabric in a straight line, in such manner that the stitching is always at uniform distance from the creased edge of the fabric; and an upwardly and rearwardly inclined member having right and left entrance openings and upper and lower guides in a continuation of a vertical plane through the center of the needle opening; said inclined member adapted to facilitate right or left insertion, for disposal and observation of various fabrics inserted from above said inclined member, and also adapted to permit selective disposal and observation of various fabrics, inserted from below said inclined member.

In witness whereof I have hereunto signed my name at Cincinnati, Hamilton county, Ohio, this 17th day of May, 1927.

CHARLES W. DOOLEY.