

P. DIEHL.
 TUCK MARKER FOR SEWING MACHINES.
 APPLICATION FILED MAR. 22, 1912.

1,079,329.

Patented Nov. 25, 1913.

Fig. 1.

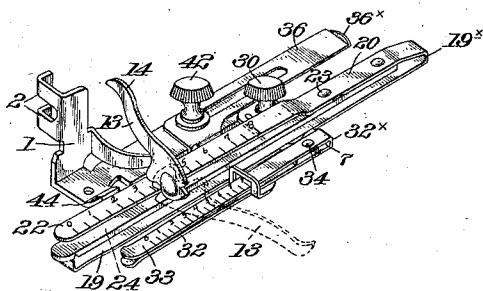


Fig. 3.

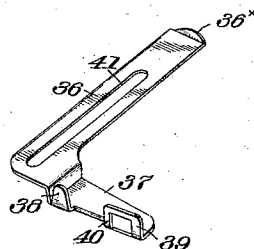


Fig. 2.

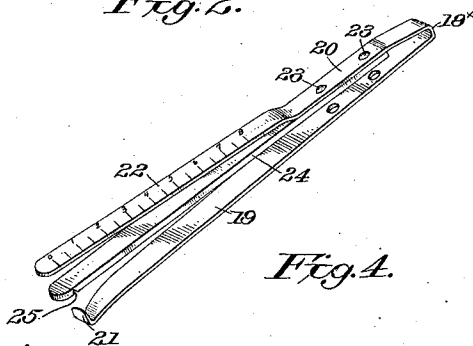


Fig. 5.

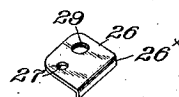


Fig. 4.

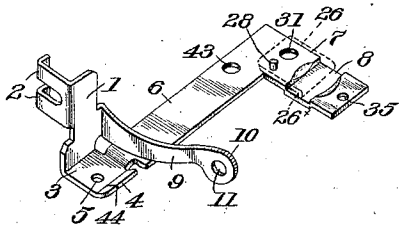


Fig. 6.

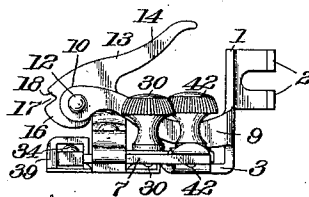
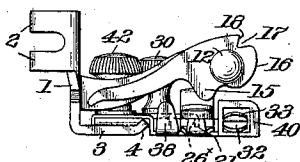


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TUCK-MARKER FOR SEWING-MACHINES.

1,079,329.

Specification of Letters Patent.

Patented Nov. 25, 1913.

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To all whom it may concern:

Be it known that I, PHILIP DIEHL, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Tuck-Markers for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a tuck-marker of simple and effective construction with the smallest possible number of parts so arranged as to be readily assembled and containing the fewest possible close-fitting joints, thus involving a minimum cost of manufacture.

In its preferred form, the attachment comprises a presser-foot having a pressure member formed with a needle aperture and with a laterally and forwardly extending frame member, and constructed with a shank having an integral forwardly extending arm carrying a fulcrum-pin disposed in advance of the needle-aperture upon which is mounted a vibrating operating lever or impact member deriving its operative movements from the needle-bar of the sewing machine, and provided with a depending cam-projection and with a cam-shaped edge adjacent the fulcrum-pin formed with a holding notch. To the frame member is secured for adjustment transversely to the direction of movement of the operating lever a marking device comprising a strip of spring metal bent to form two integral and spaced superposed members the lower of which carries a marking element, and an intermediate spring member secured to the upper member near its connection with the lower member and provided with a cooperating marking element. By this means, the upper marking member has a resilient connection with the lower marking member, and the outer portion of the spring-arm to which the same is connected serves as a buffer-spring or yielding thrust-sustaining member to receive the impulse of the cam-projection of the operating lever and to transmit to the upper marking member operative strokes of substantially uniform strength upon the material operated upon. The thrust-sustaining member may be divergently inclined relatively to the upper marking member, so as to vary its period of contact with the operating lever and its yield-

ing action thereunder correspondingly with variations in leverage consequent upon adjustment relatively to the marking elements. When the operating lever is retracted from operative relation with the needle-bar for the stitching of a final tuck of a series, the cam-shaped inner end of the lever engages the adjacent edge of the resilient thrust-sustaining arm which snaps into its notch and locks it against displacement.

The attachment is preferably provided with a pair of superposed spring smoothing-arms formed of a single strip of spring metal bent so as to embrace between such arms a portion of the frame to which it is secured adjacent the marking device.

The invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the attachment, representing in dotted lines the retracted position of its operating lever. Figs. 2, 3 and 4 are similar views of the marking device, the edge-guide and the presser-foot provided with integral portions of the frame. Fig. 5 is a perspective view of the clamp-plate for adjustably securing the marking device in position. Figs. 6 and 7 are elevations, taken from the opposite ends, representing the attachment with its operating lever in two operative positions.

The attachment comprises a presser-foot which is shown constructed with a shank 1 formed with the backwardly extending slotted lug 2 fitted to the sewing machine presser-bar and with the pressure member 3 having upturned forward end 4 and provided with the needle-hole 5. Upwardly offset from one edge of the pressure-plate 3 is the laterally extending arm 6 provided at its extremity with the forwardly projecting extension 7 formed in its upper face with a transverse recess 8 having abrupt parallel edge walls to afford a guideway for the marking device. The shank 1 has a forwardly extending fulcrum-sustaining arm 9 terminating in an enlargement 10 formed with a transverse aperture 11 for the operating lever fulcrum-pin arranged in advance of the needle-hole 5.

The aperture 11 of the arm 9 embraces the fulcrum-pin 12 upon which is mounted the forwardly extending operating lever 13 whose upper edge 14 receives the downward

thrust of the needle-clamp screw or some other part carried by the sewing machine needle-bar. Intermediate the fulcrum-pin 12 and the outer end of the lever 13 is a depending cam projection 15, and the portion of such lever adjacent the fulcrum-pin is formed with a cam-shaped edge 16 terminating in a deep notch 17 affording an abrupt stop-shoulder 18.

As represented more particularly in Fig. 2, the marking device comprises a strip of spring metal bent over upon itself at 19° to form two integral and spaced superposed members 19 and 20, the lower of which is formed at its outer extremity with the upturned marking lip 21, and the other of which has its outer portion 22 offset upwardly and inclined divergently from the lower member. Secured to the flat inner portion 20 of the upper member near the bend 19°, by means of rivets 23, is an intermediate spring-arm 24 which is provided at its outer end with a transverse notch 25 adapted to be entered by the operative edge of the marking lip 21 with which it cooperates in creasing the fabric. It is evidently immaterial which, if either, of the overlying arms 20 and 24, herein represented of different thickness, is the member integral with the arm 19, this being a matter to be determined by the relative strength required for such members to adapt them best to perform their respective functions.

The lower marking member 19 is fitted within the guideway 8 of the frame-member 7 wherein it is clamped for endwise adjustment by engagement of the depending lip 26° of the clamp-plate 26 formed with an aperture 27 entered by the steady-pin 28 projecting from said frame-member and with a second aperture 29 entered by the shank of the fastening screw 30 which is tapered into the threaded aperture 31 of the frame-member 7.

A smoothing device is formed by two overlying spring-arms 32 and 33 bent from a single strip of spring metal at 32° and secured adjacent such bend by means of the fastening rivet 34 passing through an aperture 35 therefor in the outer extremity of the frame-member 7 adjacent the guideway 8.

Overlying the lateral frame-member 6 is the shank 36 of the tuck-guide formed with a downwardly offset lateral member 37 having at its forward edge the upturned integral guide-lips 38 and 39, the latter being formed with an aperture 40 embracing the smoothing arms 32 and 33. The shank 36 is formed with a longitudinal slot 41 entered by the shank of a fastening screw 42 tapped into the threaded aperture 43 of the frame-member 6 and adapted to secure the guide thereon for longitudinal adjustment. The shank 36 is shown provided at one end with

an upturned lip 36° for convenience in shifting the guide when the screw 42 is loosened for the purpose.

The thrust-receiving arm or spring-buffer 22 has upon its upper face a graduated scale adapted to be used in conjunction with an index mark 44 upon the upturned forward portion of the pressure-plate 3 in setting the marking elements 21 and 25 relatively to the needle for determination of the width of the tucks, and the upper smoothing arm 33 has a similar scale by means of which the operative faces of the guide-lips 38 and 39 may be adjusted to determine the spacing apart of the tucks.

In the use of the attachment, the arms 19, 24 and 22 are normally spaced apart by reason of their resilience, and the cam-projection 15 rests lightly upon the top of the arm 22, the operating lever 13 assuming the inclined position represented in Figs. 1 and 6. The material is introduced successively between the smoothing arms 32 and 33 and the marking members 19 and 24, with the edge of a previously formed tuck, or with the edge of the fabric, in contact with the guide-lips 38 and 39. By the operation of the stitching mechanism the operating lever is successively depressed by contact with the needle-bar, thereby causing the cam-projection 15 to act through the spring-arm 22 in applying a yielding pressure to the upper marking arm 24 by means of which the fabric is thrust upon the operative edge of the marking lip 21 to produce the creasing action.

When the point of contact of the lever 13 with the arm 22 is near the part 20 of the latter rigidly connected with the marking arm 24, the elasticity involved in the engagement of the marking elements is practically confined to the arm 24; but when this point of contact is farther removed from the part 20, the elasticity of the arm 24 is augmented by the intermediate portion of the arm 22, the upward inclination of the latter causing an earlier engagement therewith of the operating lever, so as to produce for different adjustments a substantially uniform pressure of the marking elements. It will thus be seen that while the leverage of the operating lever 13 upon the upper marking member varies with different adjustments of the attachment, compensation is provided therefor by the resilient arm 22, so that the action of the marking elements 21 and 25 is not materially influenced by such adjustment.

In stitching the final tuck of a series, it is undesirable in many cases to form another crease in the fabric. By throwing the operating lever forwardly from its full line operative position into its dotted line retracted position, as represented in Fig. 1, the forward edge of the yielding arm 22

is caused to enter the notch 17, and its positive engagement with the shoulder 18 serves to lock the lever in such position until released therefrom by forcible depression of the arm 22, which thus serves the function of a locking member in addition to that of receiving the thrust of the operating lever in the normal operation of the attachment.

It is evident that various details of the embodiment herein shown and described may be modified without departure from the present invention. Thus, it is immaterial whether the marking arms or the smoothing arms are disposed nearest the presser-foot, and whether the specific means described be employed to hold the operating lever in operative and retracted position relative to the marking arms. Modifications in other respects may also be made within the scope of the present invention. Some of the advantages derived from constructing the marking and smoothing members with overlapping rigidly connected arms as described are, the rigidity of their support upon the frame, the simplicity of the structure, and the ease of assemblage and detachment of the several component members of the attachment.

By sustaining the buffer-spring 22 directly upon the upper marking member, I am enabled to use a simple operating lever 13 having rigidly connected parts respectively receiving the impact of the needle-bar and transmitting motion to the marking member.

Having thus set forth the nature of the invention, what I claim herein is:—

1. In a tuck-marker, the combination with the frame, and an operating lever, of a lower marking member provided with a marking element, an upper spring-retracted marking member provided with a second marking element and a spring-arm overlying and spaced above the same, said upper marking member and spring-arm being connected with the lower marking member laterally of and remotely from and at the same side of said marking elements and extending in the same direction toward the latter.

2. In a tuck-marker, the combination with the frame, and an operating lever, of three overlapping arms normally spaced apart, of which two carry cooperating marking elements and a third receives the impact of the operating lever and all are connected together remotely from said marking elements, and means for securing said arms upon the frame adjustably crosswise of the direction of movement of said operating lever.

3. In a tuck-marker, the combination with the frame and an operating lever, of a marking device comprising a strip of spring metal bent to form two integral and spaced

superposed members one of which carries a marking element, and an intermediate spring member secured to the upper member intermediate its ends and provided with a cooperating marking element, and means applied to the lower of said integral members for securing the same upon the frame adjustably transverse to the direction of movement of said operating lever.

4. In a tuck-marker, the combination with the frame and an operating lever, of a marking device provided with cooperating marking elements within the range of action of said operating lever, and a smoothing device constructed separately from and arranged adjacent said marking device and comprising a pair of integral spring-arms formed of a strip of spring metal with its end portions bent in overlapping relation, said arms embracing near their integrally connected ends a portion of the frame to which they are secured.

5. A tuck-marker comprising a presser-foot having a pressure member formed with a needle aperture, a forwardly extending arm provided with a fulcrum-pin in advance of said needle-aperture, and a laterally and forwardly extending frame member, an operating lever mounted upon said fulcrum-pin and extending backwardly therefrom and provided with a depending cam projection, a marking device comprising a lower member adjustably secured upon said frame member and carrying a marking element, a superposed spring-retracted marking member connected therewith and provided with a cooperating marking element, and a spring-arm having one end secured to said superposed member and disposed within the range of action of the cam projection of said operating lever.

6. A tuck-marker comprising a presser-foot having a pressure member formed with a needle-aperture, a forwardly extending arm provided with a fulcrum-pin in advance of said needle-aperture, and a laterally and forwardly extending frame member, an operating lever mounted upon said fulcrum-pin and extending backwardly therefrom and provided with a depending cam projection and with a cam-shaped edge adjacent the fulcrum-pin formed with a holding notch, a marking device comprising a lower member adjustably secured upon said frame member and carrying a marking element, a superposed spring-retracted marking member connected therewith and provided with a cooperating marking element, and a spring-arm having one end secured upon said superposed member and disposed within the range of action of the cam projection of said operating lever and adapted to enter the notch of said lever when the latter is retracted from operative position.

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7. In a tuck-marker, the combination with a presser-foot having a pressure member formed with a needle-aperture, a forwardly extending arm provided with a fulcrum-pin in advance of said needle-aperture, and a lateral frame-member provided with a forward extension having a transverse guideway, and an operating lever mounted upon said fulcrum-pin and extending backwardly therefrom and provided with a depending cam projection, of a marking device comprising a lower member slidably fitted within said guideway of the frame-member extension and carrying a marking element, a superposed spring-retracted marking member connected therewith and provided with a cooperating marking element and a spring-arm having one end secured to the superposed member and disposed within the range of action of the operating-lever cam-projection, means for clamping the lower marking member adjustably within said guideway, and a smoothing device comprising a pair of integral spring-arms formed of a strip of spring metal bent to embrace between said arms the said frame-member extension and secured thereto.

8. In a tuck-marker, in combination, superposed marking members connected together and provided laterally of and remotely from their point of connection with cooperating marking elements, an operating lever sustained independently of the marking members and adapted to force them into marking relation, and a buffer-spring secured to and overlying one of said marking members and positioned to receive directly the impact of the operating lever between the point of connection of the marking members and said marking elements.

9. In a tuck-marker, in combination, a presser-foot, superposed marking arms sustained by and disposed crosswise of the length of said presser-foot and carrying cooperating marking elements, an operating lever also pivotally mounted upon said presser-foot crosswise of said marking arms and having rigidly connected parts for re-

ceiving and imparting, respectively, the marking impulse, and a buffer-spring carried by one of said marking members and adapted for engagement by said operating lever.

10. In a tuck-marker, in combination, superposed marking members carrying cooperating marking elements and one being formed as a resilient vibratory arm, an operating lever sustained independently of said marking members and adapted to force them into marking relation, a buffer-spring arm rigidly secured to said resilient marking arm at a point remote from its marking element and overlying the same to receive the thrust of the operating lever, and means for securing said marking members for endwise adjustment relatively to the impact-member.

11. A tuck-marker comprising a presser-foot formed with a forwardly projecting fulcrum-carrying arm and with a rigid lateral arm provided at its outer extremity with a forwardly projecting extension, superposed pairs of smoothing and marking arms secured in parallelism upon said extension, and an operating lever pivotally mounted upon said fulcrum-carrying arm and adapted to thrust said marking arms into marking relation.

12. A tuck-marker comprising a presser-foot formed with a forwardly projecting fulcrum-carrying arm and with a rigid lateral arm provided at its outer extremity with a forwardly projecting extension, superposed pairs of smoothing and marking arms secured in parallelism upon said extension, said marking arms extending beneath the fulcrum-carrying arm, and an operating lever pivotally mounted upon said fulcrum-carrying arm and adapted to thrust said marking arms into marking relation.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

PHILIP DIEHL.

Witnesses:

HENRY J. MILLER,
HENRY A. KORNEMANN, Jr.