(No Model.)

G. J. COUCHOIS.

TUCKING ATTACHMENT FOR SEWING MACHINES.

No. 354,100. Patented Dec. 14, 1886.

Fig. 1.

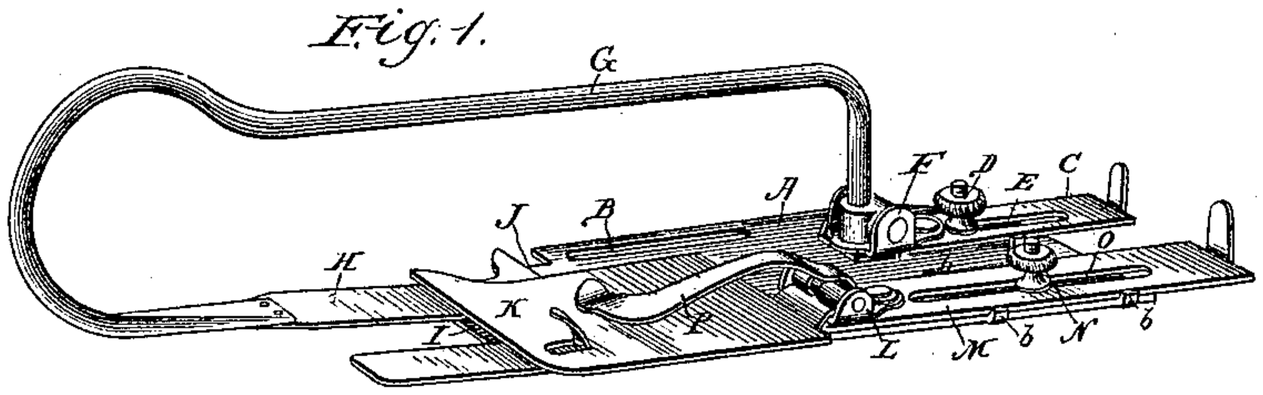


Fig. 2.

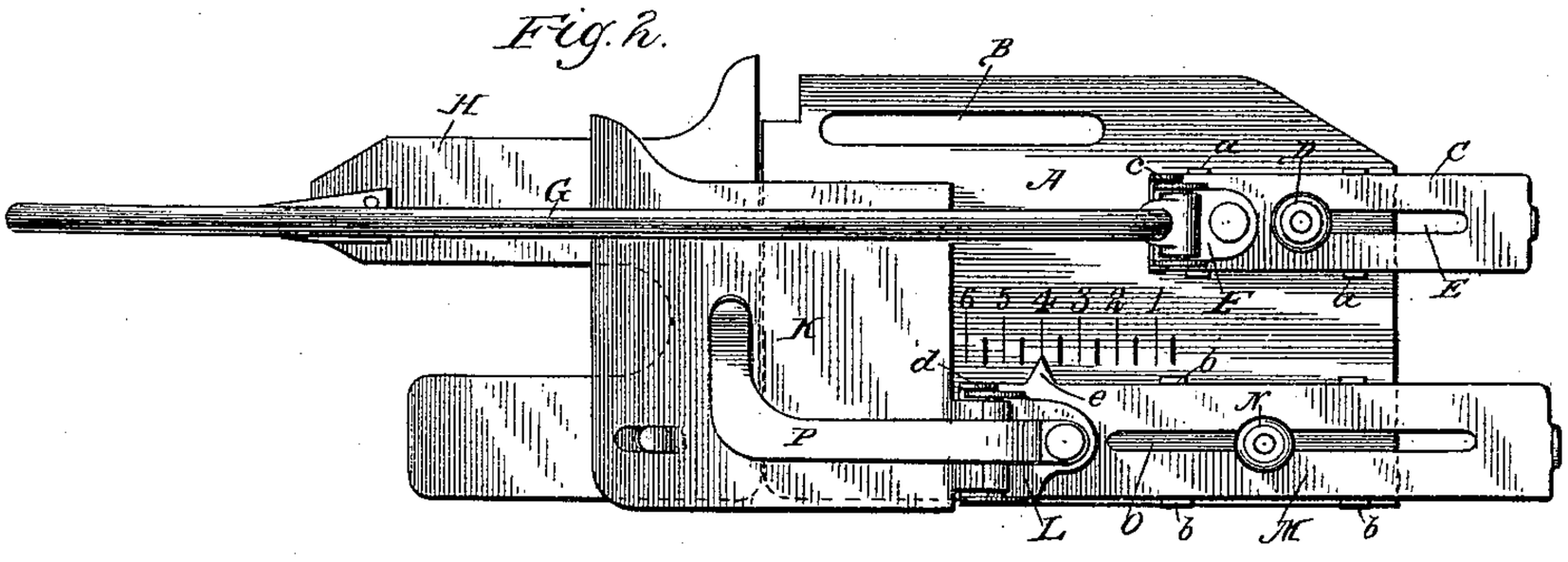


Fig. 3.

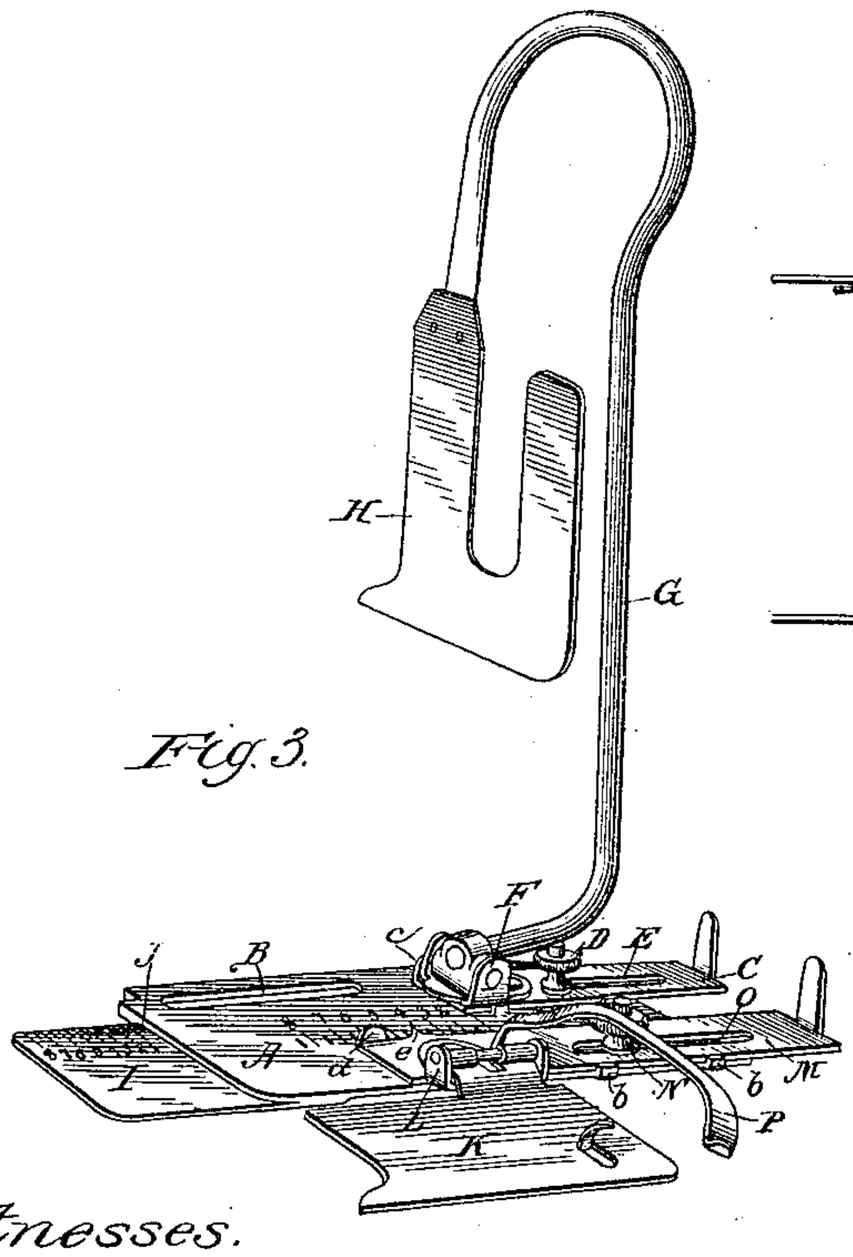


Fig. 4.

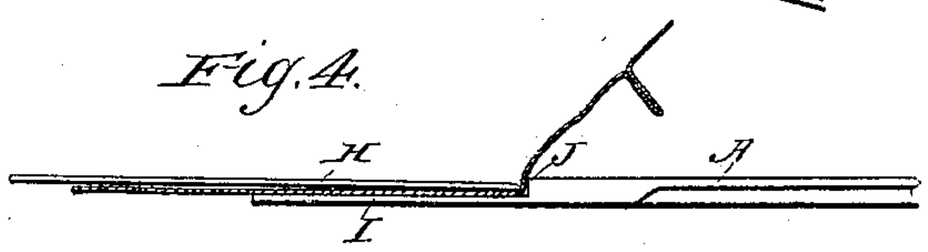
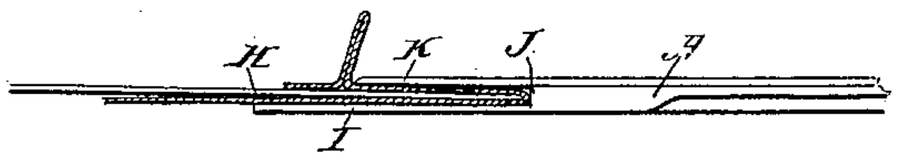


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TUCKING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 354,100, dated December 14, 1886.

Application filed November 24, 1885. Serial No. 183,826. (No model.)

To all whom it may concern:

Be it known that I, GARRETT J. COUCHOIS, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Tucking Attachments for Sewing-Machines, of which the following is a specification.

This invention relates to tucking attachments in which the fold for the tuck is automatically made by the attachment prior to and during the forward feed of the material to the stitching-needle.

One of the objects of this invention is to have such a connection between the bed-plate and presser-plate that the latter may be swung upwardly above the bed-plate, in order that it may present no obstruction to the fabric being inserted in the tucker.

Another object of this invention is to utilize a completed tuck for gaging the distance between it and the next succeeding tuck while the latter is being folded and stitched, without employing a guide projecting above the plane of the presser, and folding-plates whereby an unnecessary element is dispensed with which affords an objectionable obstruction for the successful manipulation of the fabric by the operator.

Further objects are to have a combined hinge and swivel connection between the folder-plate and bed-plate of the tucker, whereby the folder-plate may be swung from under the presser-plate arm before being thrown back upon its hinge in such manner that the presser-plate arm may lie closer to the bed-plate and the length of the folder-plate be independent of the height of said arm above the bed-plate; also, to have a hinged and swivel connection between the presser-plate arm and the bed-plate, whereby the said arm may be first swung upon its pivot and then elevated on its hinge at an oblique angle, thus adapting the tucker for use in the closest possible position relative to the needle, regardless of the construction and relation of the machine-head. Finally, to have such details of construction and arrangement of the several parts of the tucker as will best promote its successful operation.

I attain these objects by devices illustrated in the accompanying drawings, in which Figure 1 represents a perspective view of a device embodying my invention, shown in its operative and therefore normal position, but without the fabric inserted; Fig. 2, a plan view thereof; Fig. 3, a perspective view of the same, showing the parts swung back on their several pivots in position to receive the fabric to be tucked; Fig. 4, an enlarged detail view illustrating the first step taken in inserting the material into the tucker, and showing one tuck as having been formed; Fig. 5, a similar view showing the final position of the several parts and the material in position to be stiched, with the completed tuck working against the edge of the folder-plate to form a guide for the material in its delivery to the needle.

Similar letters of reference indicate the same parts in the several figures of the drawings.

A indicates a bottom or bed plate provided with a slot, B, through which works the usual set-screw employed for securing such attachments to sewing-machines, the said screw passing freely through the slot and engaging a screw-threaded socket provided in the table of the sewing-machine to which the tucker is designed to be attached. By means of this binding-screw and the said slot the tucker is made adjustable in such manner that the point of delivery of the material to the needle may be varied, whereby the width of each tuck is determined, as will hereinafter be more fully explained.

Secured to and working upon the bed-plate, near the rear end and to one side of the center thereof, is a sliding plate, C, working between suitable guide-studs, *a a*, struck up from the bed-plate of the tucker. This sliding plate is adjustably secured to the bed-plate by means of a set-screw, D, working through a slot, E, formed in the said plate and engaging a suitable screw-threaded hole in the bed-plate of the tucker, and has pivoted to its forward end a swivel-plate, F, between the upturned ears of which is hinged or pivoted the rear end of a presser-plate arm, G. This arm extends upwardly a suitable distance, thence forwardly at a right angle in an approximately horizontal plane until it projects beyond the forward end of the bed-plate A, where it is bent downwardly to form approximately a semicircle,

with its end projecting in a horizontal plane just above the bed-plate and back toward the pivotal point. To this end of the arm G is secured a presser-plate, H, which also projects in a horizontal plane, overlapping and resting upon the lip I of the bed-plate, with its free end abutting against a shoulder, J, formed upon and extending transversely across at a suitable point of the upper face of the said bed-plate, for the purpose of securing the material in place, as will hereinafter be described.

The essential object in hinging the arm G to the bed-plate is to provide for elevating the presser-plate above its operative position to such an extent that endless bands, the bottoms of skirts and dresses, and other similar and bulky fabrics may, as well as narrow strips of light fabrics, be conveniently inserted in an operative position in the tucker, thereby adapting the tucker for successful use upon a variety of fabrics which cannot be operated upon by the tuckers now commonly employed; but a still more important result is obtained by combining with the hinge-connection just described a swivel-connection between the said arm and bed-plate of the tucker, for, in addition to the important results just enumerated, the tucker is adapted for use on all machines of whatever construction, and in its operative position may be set in such close proximity to the needle as to obviate the possibility of the material operated upon becoming twisted in its passage from the tucker to the needle, as the presser-foot and needle of the machine may operate upon the material as close to the bed-plate as they can without striking it. This result could not be obtained by the employment of the hinge-connection only, for in many machines the construction and relation of the parts of the head are such as to preclude the elevation of the presser-plate and arm to an operative height when set so close to the needle; and, indeed, in some machines its employment would be entirely precluded, owing to the necessary distance required between it and the needle for its perfect operation; but by the employment of the swivel-connection before described, in conjunction with the said hinge-connection, the said arm and presser-plate may first be swung toward the operator in an approximately horizontal plane until away from under the machine-head, when it may be elevated at an oblique or right angle to any desired height and without disturbing the general relation and position of the bed-plate and other parts of the tucker relative to the needle.

The arm, and consequently the presser-plate, is made adjustable to accommodate the differing thicknesses of material by means of the set-screw D and the slot E in the sliding plate C, thereby enabling the operator to adjust the presser-plate longitudinally and vary the space between the end of the presser-plate and the shoulder J on the bed-plate; but the prime object of thus adjustably connecting and securing the presser-plate to the bed-plate lies in the fact that without such adjustment endless bands, skirt-bottoms, and the like cannot be successfully operated upon, but must be withdrawn from the tucker before the tuck can be completed. By the employment of the said adjustable connection in working upon fabrics of this character, when the tuck is almost completed and prevented from passing farther through the tucker by reason of the presser-plate projecting between the fold in the material and in the path of the stitching, by releasing the sliding plate C the presser-plate may be slipped back from between the folds and the tuck completed, after which it may be readjusted in position for forming the next fold.

It is obvious that the particular bending of the arm G, as herein shown and described, is not essential to the perfect operation of my device, for any form of arch or bend which will connect the two plates and extend sufficiently above said plates to leave space enough between them and the said arm for the passage of the tucked material would answer the same purpose.

To measure and regulate the distance between the tucks and to fold and retain the material in proper position while being operated upon, I have provided a folder-plate, K, hinged or pivoted at the rear edge thereof between the upturned ears of a swivel-plate, L, in turn swiveled or pivotally connected to a sliding plate, M, adjustably secured to the bed-plate by means of a set-screw, N, working through a slot, O, and engaging a suitable screw-threaded hole in the bed-plate in the opposite side of the center of said plate to that on which the set-screw D works for adjustably securing the presser-arm, as before described.

Like the sliding plate C, the plate M works between suitable guide-studs, *b b*, struck up from the bed-plate. Both of these plates are respectively provided with ears or lugs *c d* to limit the forward swing of the presser-arm and folder-plate upon their swivels, in order that the feed of the material in passing through the tucker may not draw these parts out of their proper position relative to the bed-plate.

On one side of the sliding plate M the metal thereof is projected to form a pointed index-finger, *e*, for indicating the adjustment of the said plate upon a scale or gage, stamped or otherwise formed upon the bed-plate, and this gage, in conjunction with a similar and corresponding gage stamped upon the lip I of the bed-plate, enables the operator to accurately adjust these plates and thereby regulate and determine both the width of the tucks and the distance between them.

The folder-plate K is designed to overlap and rest upon the presser-plate H, and the distance it projects forward of the shoulder J on the bed-plate determines the distance between the tucks—that is to say, the folder-plate, more literally speaking, serves to insure that the distance will always be the same between different tucks, and at all parts of the same tuck, for the space between tucks as commonly

formed is generally predetermined, owing to the fact that the said space is generally about equal to the width of the tuck. However, while my device is fully capable of performing all the functions necessary in making tucks as above described, it is at the same time capable of such adjustment as to vary the width of the space between the tucks to any required degree without regard to the width of the tucks, and when so used actually does serve to determine the distances between the tucks.

I may here add that the length of the folder-plate is entirely independent of the height of the presser-plate arm above it, for by reason of its hinge-connection to the swivel-plate L it may first be swung from under the said arm to the position shown in Fig. 3 and then thrown back upon its hinge. To secure this folder-plate firmly in its operative position upon the material, a flat spring, P, is employed, secured at one end thereof upon the pivot of the swivel-plate L and having its free end projecting over and bearing upon the said folder-plate; but I may here add that the form of this spring is immaterial, and may be varied at will, so long as it subserves the purpose intended.

The width of each tuck, as before described, is gaged by the position of the bed-plate relative to the needle of the sewing-machine, and when the bed-plate is at the limit of its forward adjustment the shoulder on the bed-plate should be in a line with the needle, and from this point the adjustment of the bed-plate must be made in one direction, or to right, with reference to the needle; hence it is obvious that the distance the bed-plate is moved to the right of the needle, which is a fixed point, will determine the width of the tuck. For convenience of more readily indicating this width to one unskilled in the use of such devices, the numbered gage is provided on the lip I of the bed-plate, across which is drawn, in a line parallel with the shoulder on said plate, one of the threads of the sewing-machine, and the distance at which this thread crosses the gage to the left of the shoulder indicates the width of the tuck. This gage and the other gage on the main body of the bed-plate are so arranged with reference to each other that when the thread and the index-finger *e* indicate corresponding numbers on the two gages the folder-plate will project just sufficiently beyond the shoulder on the bed-plate to leave no space between the tucks—that is to say, the folded or free edge of one tuck will just touch the base of the next preceding tuck; and it is obvious that any amount of space between the tucks may be readily obtained and gaged by adjusting the index-point *e*, and consequently the folder-plate, forward of this point.

In operation the tucker is first secured in position on the bed-plate with the parts in their normal position, (shown in Figs. 1 and 2,) after which the parts are moved to the positions illustrated in Fig. 3; or, when so required by the construction of the machine-head, they may be swung to any suitable and convenient position upon their several hinge and swivel connections. With the parts in this position the tucker is ready for the insertion of the material to be tucked, but prior to which the width of the tucks and the spaces between them should first be determined by adjusting the bed and folder-plates in the manner before described. The goods may then be inserted in the tucker with the free edge thereof projecting toward the rear of the tucker and beyond the shoulder on the bed-plate a little more than the distance that the folder-plate projects forward of this shoulder. After that bring down the presser-arm and plate until the latter rests upon the bed-plate with its edge abutting against the shoulder on the bed-plate. Then fold the projecting end of the material over to lie on top of the said presser-plate, and swing the folder-plate and keeping-spring upon their hinge and swivel to their normal position. The tuck is now ready for stitching, and the usual feed of the sewing-machine will serve to draw the material through the tucker.

After the first tuck is formed it and each succeeding tuck form a guide for the next following tuck, and the operation of inserting the material to form such tucks, which is identical with that just described, is clearly illustrated in Figs. 4 and 5, by reference to the latter of which it will be observed that the forward edge of the folder-plate works against the base of the next tuck previously formed, and it is by this means that the feeding of the material to the needle in a straight line is insured, and the successful operation of the tucker to produce tucks of a uniform appearance rendered accurate and easy by a novice or one unskilled in the use of such devices.

I am aware that prior to my invention the bed-plate and presser-plate have been connected by an overhanging arm composed of flexible metal and having its ends respectively rigidly secured to said plates; but it is obvious that a connection of this character will only permit the elevation of the presser-plate to a degree so limited that the tucker cannot be used upon bulky goods, nor does such a connection admit of the employment of this tucker in operating upon endless bands—such as skirt or dress bottoms, &c.—and at best is unavoidably soon warped to such an extent as to preclude the possibility of maintaining the presser-plate in its operative position for successfully forming tucks. By my invention these objections are avoided, and a tucker is rendered capable of use upon heavy and bulky as well as light fabrics, together with endless bands, and therefore of a general use not common to those above referred to; and my invention in this particular respect includes, broadly, a hinge and swivel connection between the arm and bed-plate without any limitation by reason of the further employment of the adjust-

ing devices of the arm or bed and presser plates, for it is only by a hinge and swivel connection of the arm that a tucker of this character can be rendered capable of such general use.

I may here add that the employment of the swivel-connection in some cases may be dispensed with without materially interfering with the functions of the other parts, for such a connection is only indispensable where the construction of the head of the machine precludes the direct elevation of the arm upon its hinge.

I am also aware that a tuck-guide has been employed in connection with a folder-plate to guide the fabric to the needle, in which case the completed tuck extends vertically up from the main body of the fabric and is caused to pass between spring arms under tension, and in consequence thereof friction on the moving fabric is increased, which tends to twist the said fabric in delivering it to the needle.

Great skill is required in guiding the fabric through this tuck-guide in a straight line, and unless folded very accurately and exactly on the thread-line a variation in the width of the spaces between the tucks will occur, and the construction of this device is such that it is almost impossible to discover such variation before the fabric is delivered to the needle. By my invention I am also enabled to dispense with this device, which is both useless and objectionable, and guide the fabric through the tucker by means of the completed tuck working against the forward edge of my folder-plate, as before described.

In conclusion I may add that it will be no departure from the spirit of my invention to omit the swivel-connection between the presser-arm and bed-plate, and form the hinge connecting this arm and plate on an oblique angle to the length of said arm and bed-plate.

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

1. In a tucker for sewing-machines, a bed-plate, a presser-plate, in combination with a combined hinge and swivel connection between said bed and presser plates, substantially as described.

2. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm secured to the presser-plate at a point forward of the working edge, and a hinge-connection between said arm and bed-plate, substantially as described.

3. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm secured to the presser-plate, and a hinge and swivel connection between said arm and bed-plate, substantially as described.

4. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm, and an adjustable hinge-connection between said arm and the bed-plate, substantially as described.

5. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm, and an adjustable hinge and swivel connection between said arm and the bed-plate, substantially as described.

6. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge-connection between said bed and presser plates, in combination with a folder-plate, and a hinge-connection between said folder and the bed-plate, substantially as described.

7. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge and swivel connection between said bed and presser plates, in combination with an adjustable folder-plate, substantially as described.

8. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge-connection between said bed and presser plates, in combination with an adjustable folder-plate, and a hinge and swivel connection between said folder-plate and the bed-plate, substantially as described.

9. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge and swivel connection between said bed and presser plates, in combination with an adjustable folder-plate, and a hinge and swivel connection between said folder-plate and the bed-plate, substantially as described.

10. In a tucker for sewing-machines, a bed-plate, a shoulder thereon, a presser-plate, an overhanging arm secured to the presser-plate, and a hinge-connection between said arm and bed-plates, in combination with an adjustable folder-plate, a hinge-connection between said folder-plate and bed-plate, and a keeping-spring bearing upon the folder-plate, substantially as described.

11. In a tucker for sewing-machines, a bed-plate, a shoulder thereon, a presser-plate, an overhanging arm secured to the presser-plate, and a hinge and swivel connection between said arm and bed-plates, in combination with an adjustable folder-plate, a hinge and swivel connection between said folder-plate and bed-plate, and a keeping-spring bearing upon the folder-plate, substantially as described.

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