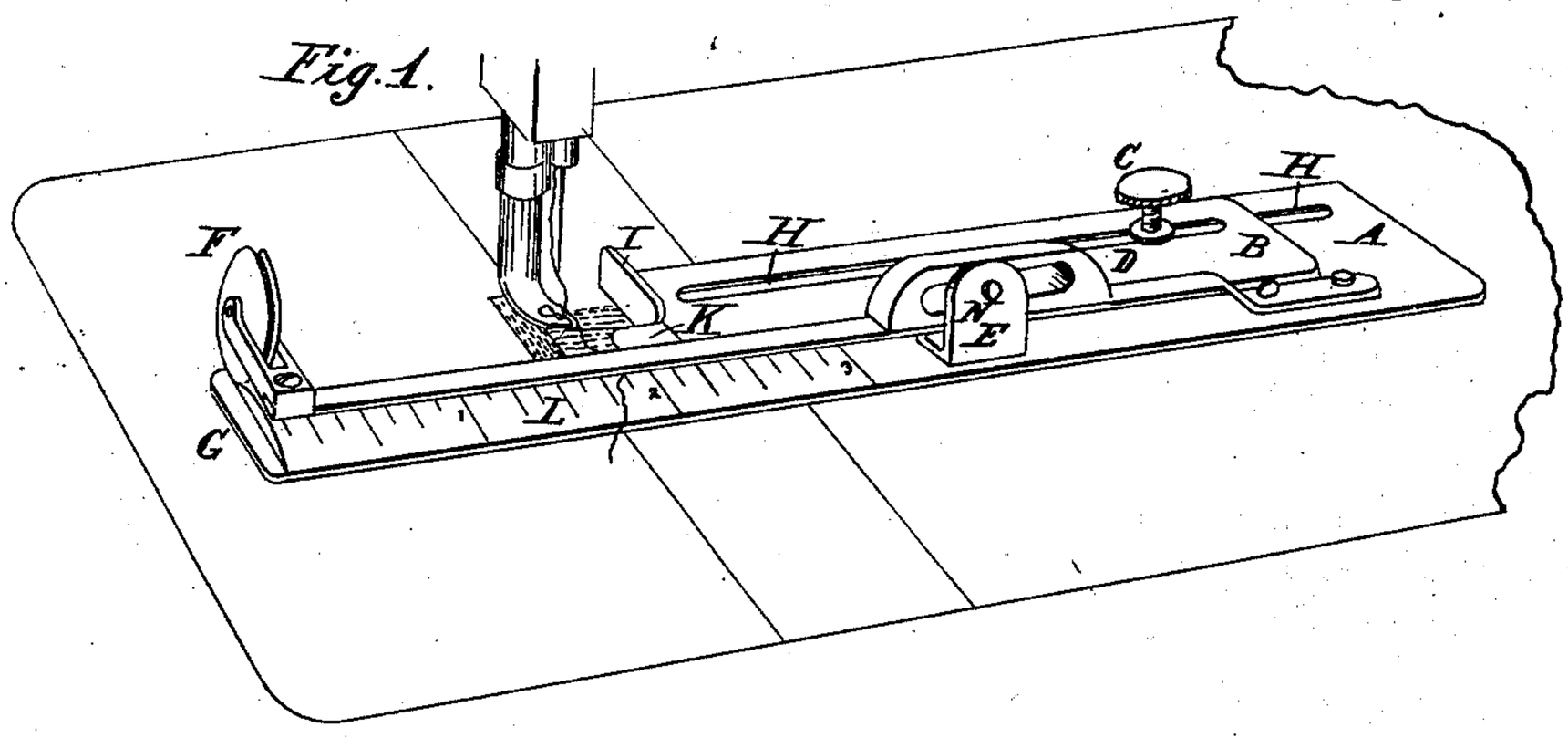
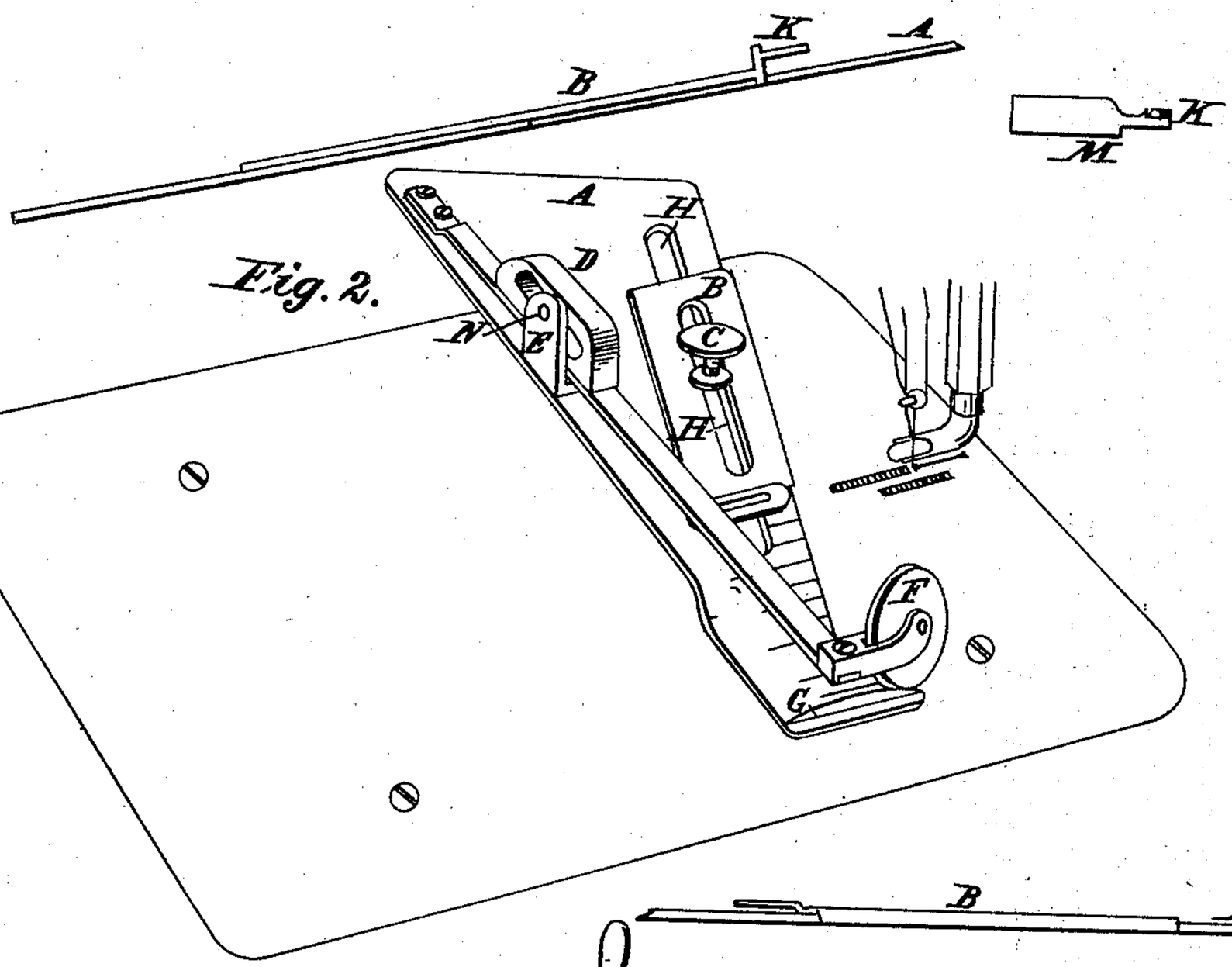
E. BOSTOCK.

TUCK CREASER FOR SEWING MACHINES.

No. 80,270. Patented July 28, 1868.

Fig. 1.





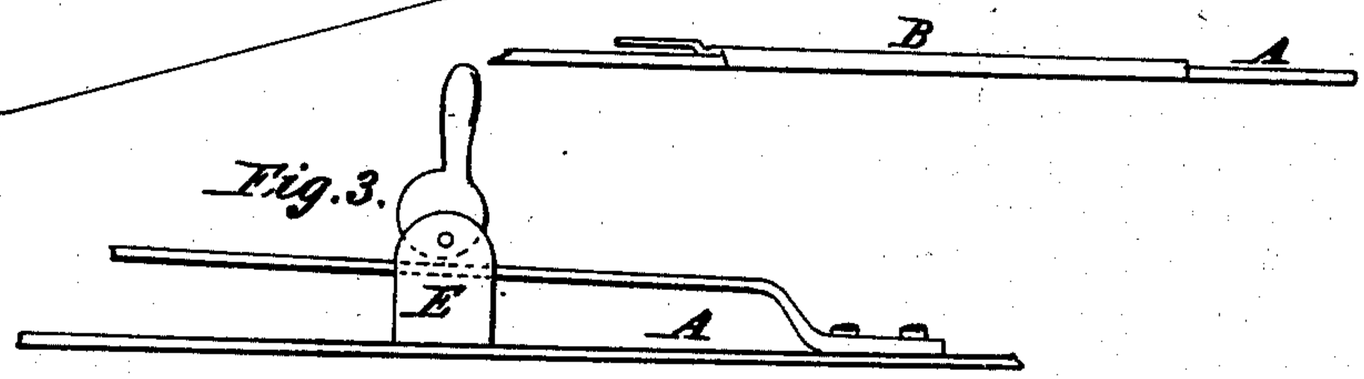


Fig. 4.

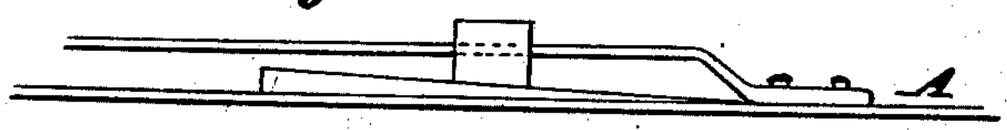
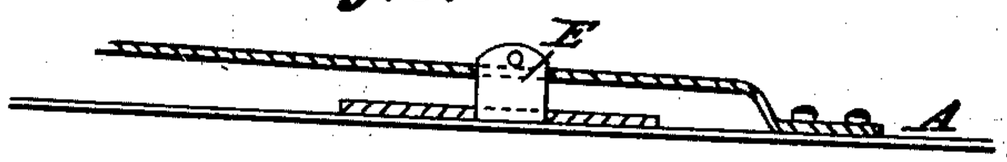


Fig. 5.



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EDWARD BOSTOCK, OF ALBANY, NEW YORK.

Letters Patent No. 80,270, *dated July* 28, 1868.

IMPROVEMENT IN TUCK-CREASER FOR SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD BOSTOCK, of the city of Albany, county of Albany, and State of New York, have invented certain Improvements in Tuck-Creasers; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

My invention relates to that class of implement designed for indenting a well-defined crease in fabrics, preparatory to folding down and stitching the same, in the formation of tucks, and is intended for either hand or machine-sewing. It is more particularly useful, however, in sewing by machinery, and will, therefore, be described with reference thereto.

The object of my present improvements is to render such devices more generally and practically useful than they have hitherto been, by making them of fewer parts or pieces, imparting to them greater certainty and efficiency of action, adapting them for creasing the finest fabrics without danger of cutting, and yet with but little pressure or "drag," rendering the creasing-edge more permanent and durable, and in so constructing them that, instead of being capable of use upon only one class or style of machine, they may be used successfully upon all the leading and most popular machines in the market, viz, the Howe, Singer, Grover and Baker, Weed, Wheeler and Wilson, Elliptic, Florence, Wilcox and Gibbs, and others.

My present invention is also an improvement upon some of the features of my tuck-creaser, patented to me, May 7, 1867, and which Letters Patent are numbered 64,404, and is simpler in construction, and more reliable in action.

Figure 1 represents my improved creaser applied to a Howe machine.

Figure 2, the same, as adapted to a Wheeler and Wilson machine.

Figure 3 represents a modification of the pressure-adjusting device.

Figures 4 and 5 represent other modifications of the pressure-adjusting device.

The other figures represent some of the details more clearly.

Similar letters refer to the same parts in the different figures.

A is a thin flat metal plate, shaped substantially as shown in fig. 1, when designed for use upon the Howe, Singer, Grover and Baker, Weed, and similar machines in which the direction of the line of feed is forward from the operator, and shaped as shown in fig. 2, that is, with one of its sides at an angle of from five to thirty degrees to the line of the arm which supports the creasing-wheel, when designed for use upon the Wheeler and Wilson, Elliptic, and other machines in which the line of feed is from the left to the right-hand side of the operator. This plate, as well as the other parts of the creaser, is shown in the drawings of full size, as made and adapted for use upon the machines.

B represents the gauge-plate; C, the usual thumb-screw, but which secures both plates, A and B, to the table at the same time; D, a slotted adjusting-wedge, for graduating, at will, the pressure of the creasing-wheel upon the creasing-edge; E, a yoke or stand, for the reception of the wheel-supporting arm and the wedge D; F, the grooved wheel; G, the creasing-blade or edge, which acts in conjunction with the wheel; H H, slots in both plates, to admit of their adjustment relatively to the needle and to each other; I, a straight guiding-edge upon plate B, for the folded fabric; K, a projecting lip or tongue, beneath which the folded edge passes, and by which the fold is kept flattened; L, a scale on plate A, to serve as a measure of the width of fold, and of the distances that the wheel and the straight-edge should severally be set from the needle; M is a downward-projecting part of guiding-edge I, so that the same shall be flush with and rest upon the table.

Instead of making the creasing-edge G by merely turning up the end of the plate A, or by indenting the same from beneath, so as to form a ridge, and which can only be done with comparatively soft metal, I first cut a cross-groove near the end of the plate, and then solder therein a strip of case-hardened iron or steel, whose edge has been first sharpened almost to a cutting-edge, and then finished with emery, or otherwise, so as to leave it as smooth and as sharp as possible, without danger of cutting the finest fabrics which may pass over it. This

feature is of great importance, for, unless a sharp and well defined crease can be made with but slight pressure, a creaser cannot, as experience has demonstrated, be of much practical value. If the pressure be considerable, there is a constant drag upon the fabric at that point, which twists and distorts it from its straightforward line of travel; and if the pressure, in order to avoid this, be lessened, the crease then made is not sufficiently deep and indented in the fabric; and if made of any softer metal than steel, and, consequently, less susceptible of taking a high polish, as well as a fine edge, the character of the edge itself, (even when no pressure is applied beyond the mere weight of the fabric,) being more or less serrated, causes it to hold back the cloth. By my improved steel, sharpened edge, very little pressure of the wheel is usually required, and yet the finest nansook or other muslins, as well as the coarsest grades, not only pass with perfect freedom, and no perceptible drag between the edge and the wheel, but receive a crease always sufficient for the purpose intended.

Instead of employing a thumb-screw for adjusting the pressure of the spring-arm, which carries the grooved wheel, and which screw is liable to get lost or mislaid, as well as to have its thread imperfect, or to wear away, I have devised an adjusting-wedge, D, the inclined surface of which passes under the pin or rod N, in the stand or yoke E. This wedge should be so constructed that it cannot be removed without first removing the pin N, and, in the form I have shown it, it has a top piece above the wedge, so that the whole is a single piece of metal, with a straight-faced bottom, and an inclined slot.

As D is shifted to the right or left upon the spring-arm, the latter is pressed downwards, or left free to rise by its own resilience, according as the thinner or thicker portion of the wedge is forced under the pin.

Besides the previously-mentioned advantages of this slide over the ordinary adjusting-screw, it has this additional peculiar action, which such screw or cam, or any other affixed or non-sliding device, has not, viz, when moved, it shifts the position of its bearing-surface upon the spring, so as virtually to shorten or lengthen the operative or yielding portion of the wheel-supporting spring-arm, the effect of which is that the range of adjustment, by means of the slide, is, in amount, equal to all that is due to the inclination of the wedge, added to that which is consequent upon the change of its bearing-surface on the spring-arm. This is important for certain kinds of work.

As a substitute for the sliding wedge, I sometimes employ an eccentric or cam-lever, as shown in fig. 3, and which may either be centred on the pin or elsewhere, and which, being turned, may force downward the spring-arm, or release it, as desired; or, as another substitute, I sometimes employ a sliding block, *a*, through an opening near the top of which the spring-arm passes, so that the block may freely slide thereon. In this case, I dispense with the stand or yoke, and the spring-arm is not prevented from rising by any pin or detent. The spring, in such case, I so affix to the bed-plate that the maximum downward pressure desired will be exerted by it when in its normal position, but, when less pressure is required, it is attained by affixing to the plate A an incline, *b*, as shown in fig. 4, so that, as the slide *a* is moved towards the wheel, it will raise the same as it rides up the incline, whilst, if moved in the opposite direction, the spring will return towards its normal position; or, as another substitute, I may fix the arm so as to have an upward inclination (as shown in fig. 5) from the secured end towards the wheel, and use a yoke or stand, attached to a sliding way or tram on the plate A, as shown in the same figure.

Instead of constructing the spring-arm and its right-angled projection (which carries the wheel) all of one piece, as heretofore, I form the arm of one piece, and the wheel-piece or yoke of another, and secure the latter to the former by screws. There are important advantages in this mode of construction in carrying out my improvements.

It is comparatively unimportant of what kind of metal the yoke or wheel-piece is composed, so long as it is hard and strong enough to support the wheel, and permit it properly to revolve in its bearings therein; but it is of great importance that the spring-arm, in order to be always reliable and efficient, should be made of good hardened steel. To make both these parts of a softer metal, in one piece, would be to lose the springing property, which is so essential in the long arm; and to make them both of steel would much enhance the labor and expense of manufacture, for it is an easy matter to shape a straight steel bar, such as shown, and an easy matter to cast in proper shape, of softer metal, the wheel-supporting yoke, but by no means an easy or cheap matter to construct such an arm and yoke in one piece, of hardened steel. Besides, steel is brittle, and there is much risk, when made entirely of steel, of breaking off the yoke from the arm by any sudden blow, or fall, or hard usage. Such risk is averted by my construction. Every item which tends to diminish cost, render less fragile, make more efficient, or to simplify such attachments, so as to commend them to public favor more extensively than hitherto, is a step towards that perfection which is demanded, but which the public are not yet satisfied has been attained, for it is well known that many of the creasers which have been invented have fallen into disuse.

Inasmuch as the line or direction of the feed, and, consequently, the position of the presser-foot, and of the slots in the cloth-plate, through which the feeding-device projects and moves when in action, are different in some machines from what they are in others, there is needed some adaptation of my improved creaser to the different classes of machines in the market, so that, instead of being limited, like some other creasers, to but one style only, it may be applied, with equal success and simplicity, to all. I accomplish this by a change in form, and some consequential change in details, which render the attachment equally applicable to the Wheeler and Wilson or Elliptic, and similar style of machine, as to the Howe and other structures, and without which, or equivalent changes, no known construction of creaser can be used on both classes of machines.

It is well known that the work-plate of the Wheeler and Wilson and kindred styles of machine is made of a thin plate of metal, which is secured by screws to stout uprights or posts cast upon the framework or foundation. By reason of the thinness of this plate, a hemming, creasing, or other attachment cannot be firmly secured to the cloth-plate, and so as to be readily attachable and removable, at any other place than at one of these

screw-holes, which extend not only through the cloth-plate, but also to a considerable depth into each of these posts. The right-hand back screw-hole is generally used for such purposes, unless the attachment, whatever it may be, be secured to the vibrating-needle arm. The position of this screw-hole, however, relatively to the forward end of the presser-foot, and to the corresponding forward end of the slot, through which the feeding-dog rises, is such that my form of creaser, (as well as all others,) adapted for a feed in the direction of that shown in fig. 2, would not be available in the class of machines shown in fig. 1, because, as will be seen at a glance, and as will readily be understood by all familiar with sewing-machines, the implement would require a position with which both the presser and the feed-slot interfere, and to apply it to the machine would absolutely prevent all possibility of sewing at all; but, by so shaping the plate A, and the slot therein, as that one side of the plate and the slot are at an angle of from five to thirty degrees to the line in which the wheel-supporting arm is placed, all difficulty is removed. The degree of this inclination may vary, according to the machine to which it is to be adapted.

By reference to fig. 2, it will now be perceived that, whilst the wheel occupies its true and necessary position of parallelism with the line of stitching or feed, yet the plate A, (although secured to the table at the screw-hole indicated,) by reason of this inclination of one of its sides, just clears the slot through which the feed-dog rises, so as never to interfere with the feed, and, consequently, it also clears both the presser and the needle. In adjusting the position of the creasing-wheel nearer to or farther from the needle, preserving always, of course, its parallelism with the line of feed, the relative position of the edge of plate A which is nearest the feed is never changed relatively to it; hence, its adjustment is as simple as in the other form, shown in fig. 1, and with no liability of interfering with the action of the sewing-machine. In this inclined construction of my apparatus, I adopt the form of gauge-plate B, and its slot to it, as shown, and I form upon the outer side a descending flange, which serves always to keep A and B in proper relative position, so that the straight-edge on B shall always occupy its true position for guiding correctly the folded edge of the fabric. The projecting tongue upon plate B admits, in this construction, of being made broader, so as to confine beneath it more of the surface of the folded edge; and this allows of an improvement, which is found to be of great value, and which consists in cutting a long opening or slot in the tongue, the rear of which slot reaches to and comes flush with the vertical face of the straight-edge. The advantage of this feature is that the operator, whilst the machine is working, and the creaser is doing its work, can see, without obstruction of any intervening object, whether the folded edge is being correctly guided (as it must be to do good work) close up to the straight-edge. If, at any time, it runs awry, her eye can detect and correct it. This cannot be done without such opening, and, before the prompt discovery of the first inclination to run aslant, the damage would be done to the work, and beyond remedy, except by taking the stitching apart, and re-sewing the work.

Some of the advantages of my improved creaser may be summed up as follows: It consists of but about seven pieces; can be adjusted for every width of tuck and crease by a single set-screw; the parts most liable to wear are made of hardened steel, and will not wear out by use; it requires no oiling; it makes a fine sharp crease on very delicate fabrics, and with a gentle pressure; the goods do not require to be washed before being tucked or creased; it is made entire, of the best material, and by machinery purposely devised for its manufacture, so that all of a pattern are precise duplicates of each other; its operation does not add appreciably to the power required to run the machine; and, by not interfering with the action of the needle-bar, or other moving parts of the machine, it will not cause the machine to skip stitches, run hard, or wear out, or strain the needle-bar, whilst, by touching the goods at only the contact points of a circle and a fine hardened-edged curve, the crease it makes is continuous, sharp, and yet made with as little resistance or drag, it is believed, as is possible to be attained.

The operation is as follows: The plates A and B having been secured to the bed-plate of the machine by the thumb-screw, as shown, the straight edge of B is to be set as far to the right of the needle as the width of the tuck required, and the creasing-blade as far to the left of the needle as twice the width of the tuck from the needle added to the space required between two tucks. The folded edge of the fabric is now to be placed against the straight edge of gauge B, and under the wheel, and, as a rule, but very slight pressure given to the wheel. The work should be kept straight, by hand, until it has passed the needle, as in ordinary sewing.

1. I claim the combination, with the tuck-creasing devices, of a sliding wedge, eccentric, or a slide and fixed inclined plane, on the base-plate, substantially as and for the purpose shown and described.

2. I also claim, in combination, the spring-arm, and its creasing and pressure-adjusting devices, and the fixed stand or yoke E, substantially as and for the purpose set forth.

3. I also claim the tuck-creaser and its gauge-plate, constructed with their coinciding slots at an angle to the creasing-arm and line of stitching, as described, so that, when affixed to a machine by means of the thumb-screw and screw-hole, and moved in a slanting direction for adjustment, the parallelism of the line of creasing with the line of feed may always be preserved.

4. I also claim the devices herein described, the same constituting a tuck-creaser, constructed as specified.

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