2 Sheets—Sheet 1.

J. T. BRUEN.

Machinery for Opening and Pressing Seams.

No. 208,458. Patented Oct. 1, 1878.

Fig. 1.

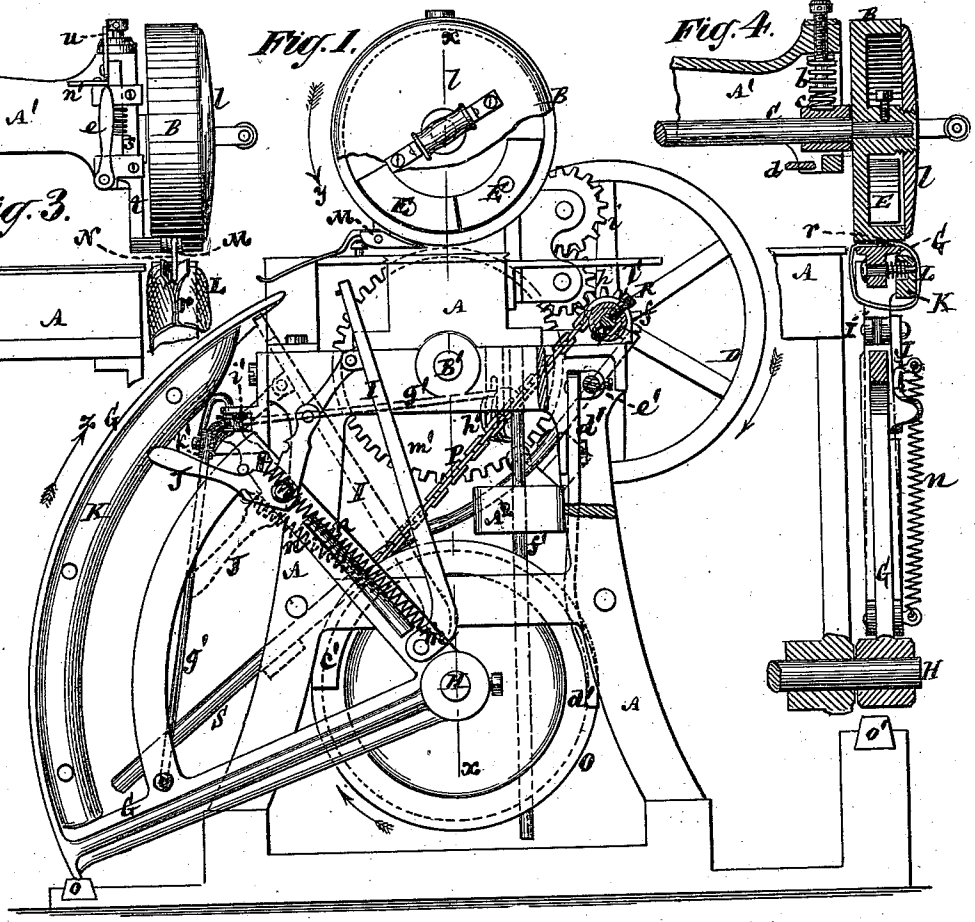

Fig. 4.

Fig. 3.

Fig. 2.

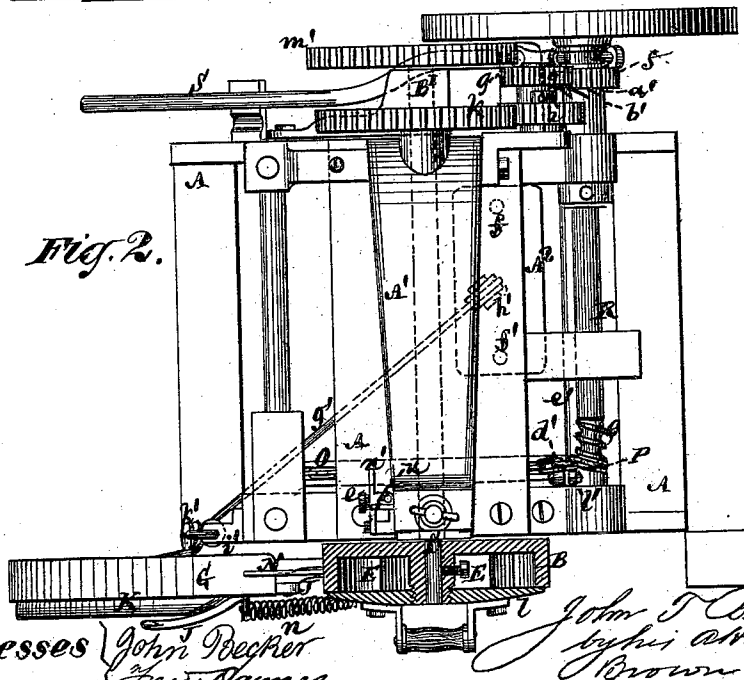

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Fig. 5.

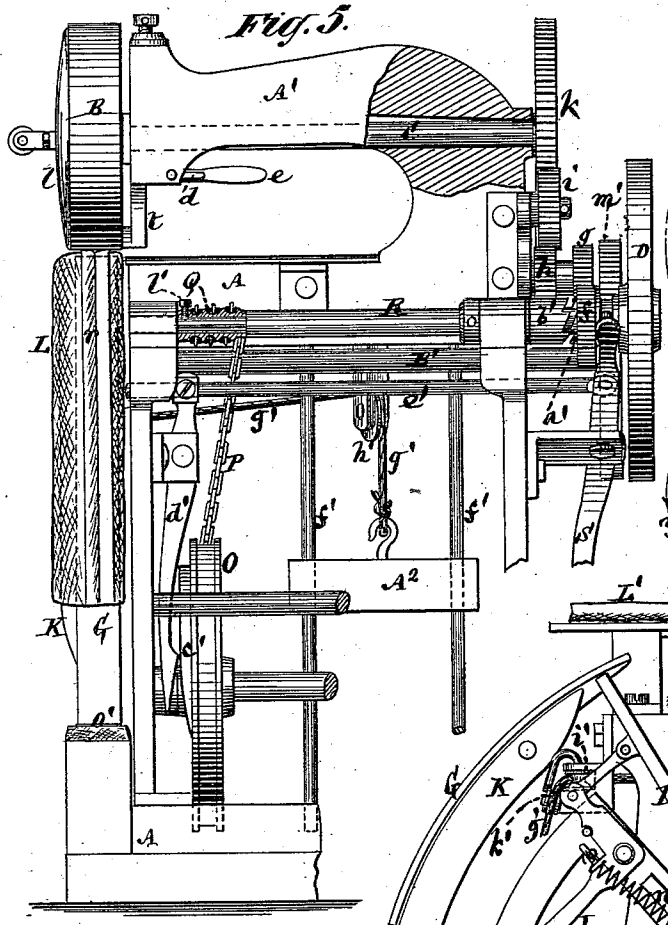


Fig. 6.

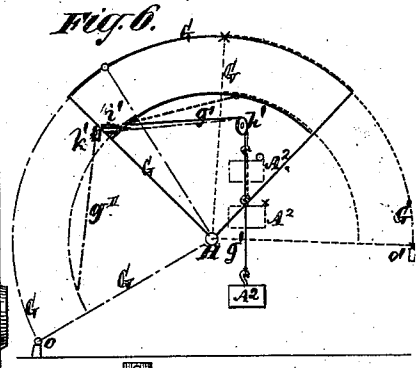


Fig. 7.

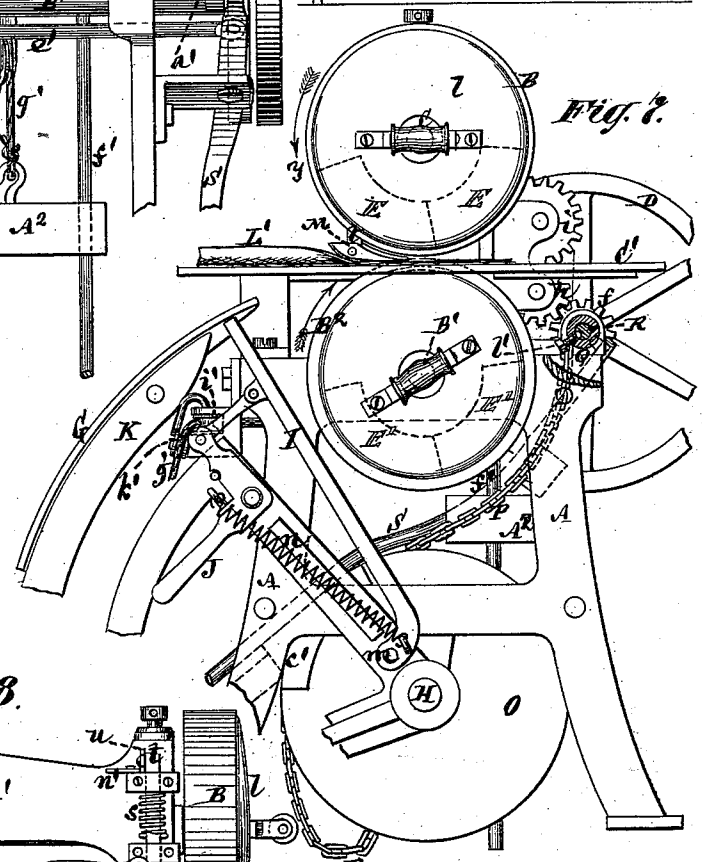
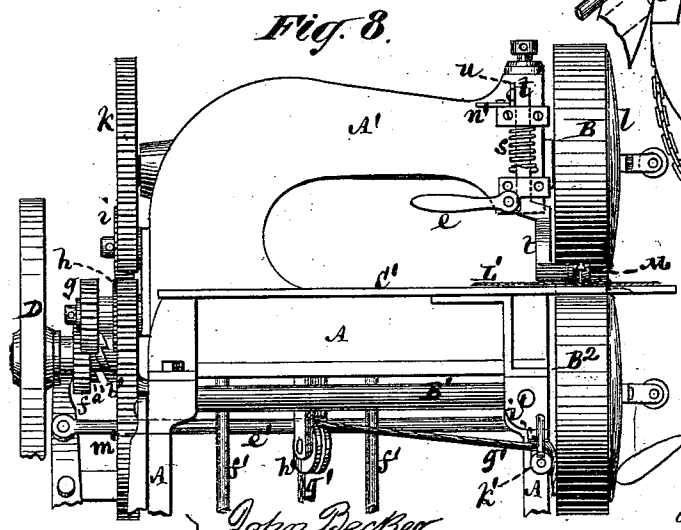


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN T. BRUEN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINERY FOR OPENING AND PRESSING SEAMS.

Specification forming part of Letters Patent No. **208,458**, dated October 1, 1878; application filed February 27, 1878.

To all whom it may concern:

Be it known that I, JOHN T. BRUEN, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ironing-Machines, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention has more particularly for its object the smooth-pressing of the seams of partly-made clothing and other articles, including coat-sleeves, shoes, boot-legs, and other closed or tubular bodies, also the seams of articles or portions of articles which are not closed or tubular. Although said invention utilizes a feature which is common to other ironing-machines—namely, one or more ironing or heated pressure-rollers, which are preferably heated by introducing hot irons within them—it essentially differs from other ironing-machines in several important respects.

The invention consists in various novel constructions and combinations of devices, including a vibrating arc-shaped horn or goods-carrier, for operation in connection with a rotating ironing-roller, and a certain opening and closing construction of said horn or devices connected therewith, for introducing closed goods over the horn and for supporting the latter when in operation.

The invention furthermore consists in an expanding construction of said horn, to adapt it to different-sized goods, and to fill out the goods under operation; likewise in devices for guiding the seamed goods to the ironing or pressure roller, and for spreading or opening the seams; also devices for adjusting the position of the seam opening or spreading shoe, and means for operating and balancing the horn or goods-carrier.

By this invention a perfect smooth-seaming action is obtained for different kinds of goods without risk of scorching the latter, and the seams of the goods may be pressed with rapidity and accuracy at but a slight expenditure of labor.

In the accompanying drawings, Figure 1 represents a front view of a machine constructed in accordance with my invention, with its parts arranged for smooth-pressing the seam of a coat-sleeve or other closed article designed to be introduced over an arc-shaped horn, and showing the latter in position for receiving the goods over it. Fig. 2 is a partly-sectional plan view of the same; Fig. 3, a side view of the upper front part thereof, with a coat-sleeve or other closed article introduced over the horn prior to an upper heated ironing-roller being lowered or adjusted to the work; Fig. 4, a longitudinal vertical section through the front part of the machine, mainly on the line *x x*, and showing the heated ironing or pressure roller as brought down on the work; Fig. 5, a side view of the machine, showing the horn which carries the goods to be smooth-pressed at its seam in its finishing position; and Fig. 6, a diagram in illustration of certain balancing devices applied to the horn, which is oscillated to carry the work under the ironing-roller. Fig. 7 is a front view of the machine, having its parts organized to smooth-press the seams of those portions of a garment or other article which are open or flat, as distinguished from closed or tubular—as, for instance, the skirt or body of a coat—whereby the same machine is made applicable to smooth-pressing both the open or flat, as well as the closed or tubular, portions of a garment; and Fig. 8 is a side view of the same in part. In both Figs. 7 and 8 a piece of goods is shown under operation in the machine.

Like letters refer to like parts throughout the several figures.

Referring, in the first instance, more particularly to the several figures of the drawings from 1 to 6, inclusive, A is the main frame, which may be of any suitable construction, and be formed in part of an upper goose-neck, A^1, at the front end of which a hollow heated ironing or pressure roller, B, is arranged. This roller is fast on the forward end of a shaft, C, that passes longitudinally through the goose-neck, and has its rear-end bearing constructed to admit of the front end of the shaft, and with it the roller B, rising and falling, subject to the control of a spring, *b*, which presses downward on the sliding box or bearing *c*, that carries the front end of the shaft. This provides for an elastic downward pressure of the roller B on the goods, and for the raising of said roller by means of a lifter, *d*, operated by a hand-lever, *e*, when it is required

to introduce the goods beneath the roller or to relieve the latter of contact with the goods. Said shaft is rotated by or from a driving-wheel, D, through the intervention of spur-gearing *f*, *g*, *h*, *i*, and *k*. The ironing-roller B, on the forward end of said shaft, rotates in direction of the arrow *y*, and is of a hollow cylindrical construction internally, in order to receive within it, on removing a screw-head, *l*, with which it is fitted, any number of loose hot irons or heaters, E, of corresponding curvature on their lower surfaces with the cylindrical contour of the interior periphery of the roller, whereby, as the roller is rotated and kept in constant motion, its peripherical or pressing portion is uniformly heated by said irons, which gravitate and rest, and retain a stationary position, or nearly so, on the lower portion of the inner periphery of the rotating roller, and which, as they severally become cool, may be readily replaced from time to time by hotter ones.

G is an arc-shaped horn or goods-carrier, fast to the forward end of a lower longitudinally-arranged shaft, H, and so that as said shaft is oscillated said horn, the radius of which is considerably greater than that of the ironing-roller B, has its plane of oscillating or rocking motion corresponding with that of the said rotary ironing-roller, arranged above it. The outer curved portion of this arc-shaped horn forms the ironing-surface, on which the goods rest, said horn being moved in direction of the arrow *z* to carry the goods under the ironing-roller B when smooth-pressing a seam. The front end of said arc-shaped horn is stayed by a bar or support, I, which is pivoted below, at *m*, to an inner frame, carried by the horn, to permit of said support being opened or closed at its upper end in relation with the horn, as shown by full and dotted lines in Fig. 1, accordingly as it is required to keep the horn from springing when exposed to the strain of the ironing-roller B in the act of smooth-pressing the goods on the horn, or to open the horn at its front end for reception over it of the closed goods prior to passing the latter by the forward motion of the horn under the ironing-roller. Said support I may be kept closed by means of a spring, *n*, connected with a hand-lever, J, which, in its turn, is connected with the support I, the opening of which is effected by said lever. This support I may be dispensed with by making the horn of a sufficient thickness to prevent its springing when in use; but by the use of said support a lighter horn may be used.

Either or each of the sides, also, if desired, the under surface of the arc-shaped acting portion of the horn, may be fitted with one or more elastically-supported expanding-pieces, K, to keep the closed goods on the horn spread or filled out.

To smooth-press the seam of a coat-sleeve, L, or other closed article, the arc-shaped horn G is first thrown back to the position shown in Fig. 1, when it strikes a cushion, *o*. The support I is then opened or adjusted to the position shown for it by full lines in Fig. 1, and the coat-sleeve L slipped, with its reverse side outermost, over the arc-shaped horn from its forward end. The support I is next closed to support the horn, as shown by dotted lines in Fig. 1, and said horn G, having the seam *r* of the sleeve L, Figs. 3, 4, and 5, to be smooth-pressed outermost on it, is moved forward or thrown over in a forward direction till its front end strikes a cushion, *o'*. The speed of the outer or pressing surface of the horn during such movement is preferably about equal to that of the periphery of the ironing-roller B, which smooth-presses the seam passing under it.

To secure a proper smooth-pressing of the seam *r*, or any number of such seams in succession by turning the sleeve or closed article L on the horn, it is very desirable to first spread or open the seam. This is done by causing the seam, as the horn G is moved forward under the ironing-roller, to first pass under an elastically-supported or yielding shoe, M, constructed to act as a spreader or opener, and to direct the seam in a straight course beneath the pressure-roller B, on the advance side of which said shoe is arranged. Fitted on the forward end of said shoe is a spring-finger, N, which, entering the seam in advance of the shoe, serves to guide the seam to the shoe until brought under the roller B.

The means for securing an elastic pressure to the shoe M may consist, principally, of a spring, *s*, applied to an upright sliding shank, *t*, attached to the shoe, and a lever, *u*, to raise the shoe against the pressure of the spring, also, if desired, to stop the shoe at its extreme downward movement, to permit of the goods entering beneath it.

Various means or modes of gearing may be employed for rocking or oscillating, from its shaft H as a center of motion, the arc-shaped horn G, to carry the goods under the ironing-roller B; but the following combination of devices will be found very effective for the purpose: Thus, fast on the shaft H is a sheave or grooved pulley, O, to which one end of a cord or chain, P, is attached, while the other end of said chain is secured to a spiral windlass or winding-barrel, Q, on a shaft, R, upon which the driving-wheel D is fitted loosely. Upon this shaft R is also fitted a sliding half-clutch, *a'*, which, by means of a lever, S, may be made to engage with or disengage from a half-clutch, *b'*, on the driving-wheel D or its pinion *f*, fast thereto, accordingly as it is required to set in motion or arrest the shaft R, and with it the windlass or barrel Q. To smooth-press the seam in the goods L, the lever S is shifted to engage the half-clutches *a' b'*, whereby the horn G is moved forward under the rotating ironing-roller B, by the winding of the chain P on the barrel Q and pull of said chain on the pulley O, until a cam, *c'*, on said pulley strikes a lever, *d'*, and, by means of a rod, *e'*, shifts the sliding clutch *a'* out of

gear with the clutch b', and so arrests the forward motion of the arc-shaped horn G, although the latter is free to fall or be moved farther forward till striking the front cushion, o'. The ironing-roller B may, if desired, then be raised to free it from contact with the goods L, and the arc-shaped horn G be swung back by hand till it strikes the back cushion, o, for a repetition of the action, as before, upon a new seam by throwing the clutch a' into gear with the clutch b' again.

To facilitate the rocking or oscillating motion of the horn G, the latter, which has its center of motion of the shaft H in the same vertical line, or thereabout, as the center of said ironing-roller, has applied to it a balancing-weight, A^2, which is at liberty to slide up and down guide-rods f', and has connected to it a cord or chain, g'. This cord or chain passes from the weight A^2 over a pulley, h', above said weight, and from thence to a pair of idlers or guide-pulleys, i' k', arranged with their axes in planes at right angles, or thereabout, with each other on that side of the main frame which is nearest to the back cushion, o, of the horn G, and said cord or chain ultimately connected at its opposite or remaining end to the rear arm or portion of the vibrating horn G.

This combination or arrangement of devices secures a balancing action to the vibrating horn G during its motion on both sides of its central position, or as it passes to either side of a dead-center. This is due to the arrangement of the guide-pulleys i' k' for the cord or chain g', as shown by dotted lines in diagram, Fig. 6, in which the upright or intermediate position of the horn, with its attached cord or chain and balancing-weight, is shown by full lines.

When it is required to smooth-press the seams of flat or open goods L′, or of flat or open portions of the same goods—as, for instance, the seams in the skirts or body of a coat (see Figs. 7 and 8)—then the arc-shaped horn G is put out of action, which may be done not simply by disengaging the clutch a' from the clutch b', but, as an additional security, by slacking a screw, l', to free the winding-barrel Q on its shaft R, and the horn G be adjusted back out of the way. A lower shaft, B^1, parallel with the shaft C, is then slid longitudinally forward till a spur-wheel, m', engages with the pinion or gear k', and the forward end of said shaft B^1 projects sufficiently in advance of the main frame to receive on it a lower pressure-roller, B^2, which may in all respects be similar to the upper ironing-roller, B, and may be fitted with similar heating-irons, E′.

This lower pressure-roller forms an under traveling ironing table or surface for the goods L′, and, in conjunction with the upper roller, B, which does the smooth-pressing of the seam, assists in feeding the goods over a table, C′, the contiguous portions of the peripheries of the two rollers B and B^2 both moving in the same direction, and pressing the one on the under side and the other on the upper side of the seam in the goods L′.

The table C′, which is inserted within the machine when operating on the seam of a flat or open portion of the goods, simply serves to support and spread out the goods under operation.

The action of the upper ironing-roller, B, is the same both in closed and open goods, and the shoe M in both cases is used to spread or open and guide the seam to be smooth-pressed; but, when operating on flat or open goods, the shoe M should have its downward motion less than when operating on the seams of closed goods, by reason of the sharper convexity of the lower roller, B^2, than that of the arc-shaped horn G. To this end the lever u, which serves to lift the shoe M, is allowed to come down to its full extent on any suitable fixed stop by the action of the spring s when the machine is operating on tubular or closed goods; but when said machine is operating on flat or open goods, then an adjustable catch or stop-lever, n', is turned or set to intercept or arrest the full drop of the lever u, so as to slightly diminish the downward motion or position of the shoe M, for the proper action of the latter on the seam of the goods, without restraining the free movement of the goods under it.

The spring-finger N may be removed from the seam-spreading shoe M when operating on open or flat goods.

The construction of the machine, as hereinbefore described, is such as to keep the ironing-roller B continuously running, so that the inner periphery of said roller will never remain in contact at any one place with the heating-irons E, whereby the uniform heating of the roller is insured.

I claim—

1. The combination, with the rotating ironing-roller B, of a vibrating arc-shaped horn or goods-carrier, G, for operation in relation with each other, substantially as specified.

2. The opening and closing pivoted bar or support I, in combination with the vibrating horn or goods-carrier G, essentially as specified.

3. The combination, with the vibrating or oscillating horn G, of one or more expanding-pieces K, substantially as and for the purposes specified.

4. The combination, with the ironing or pressure roller B, of a seam opening or spreading shoe, M, having an elastic pressure, essentially as described.

5. The seam-directing spring-finger N, in combination with the seam opening and spreading shoe M, substantially as specified.

6. The combination, with the lever u, which raises the shoe M, and spring s, for depressing the latter, of the catch or stop-lever n', essentially as and for the purposes described.

7. The combination, with the vibrating arc-shaped horn or goods-carrier G, of the sheave or pulley O, the cord or chain P, the winding-barrel or windlass Q, the clutches a' b', the

cam c', and the lever d', controlling said clutches, substantially as specified.

8. The combination, with the vibrating horn or goods-carrier G, of the balance-weight A^2, the cord or chain P, the pulley h', and the guide-pulleys i' k', whereby the weight serves to balance the horn during its motion on both sides of its central position, or as it passes to either side of a dead-center, essentially as described.

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