

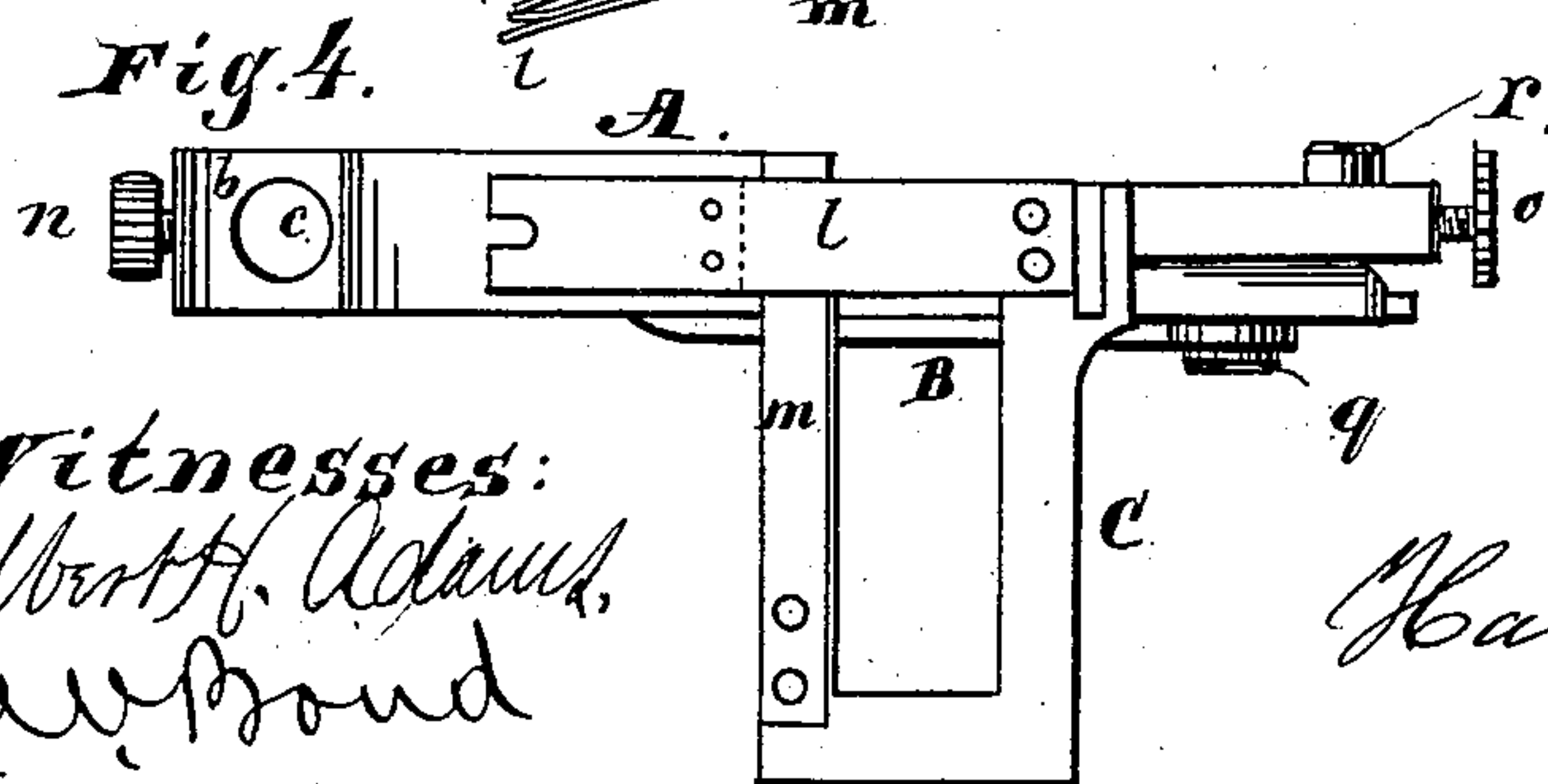
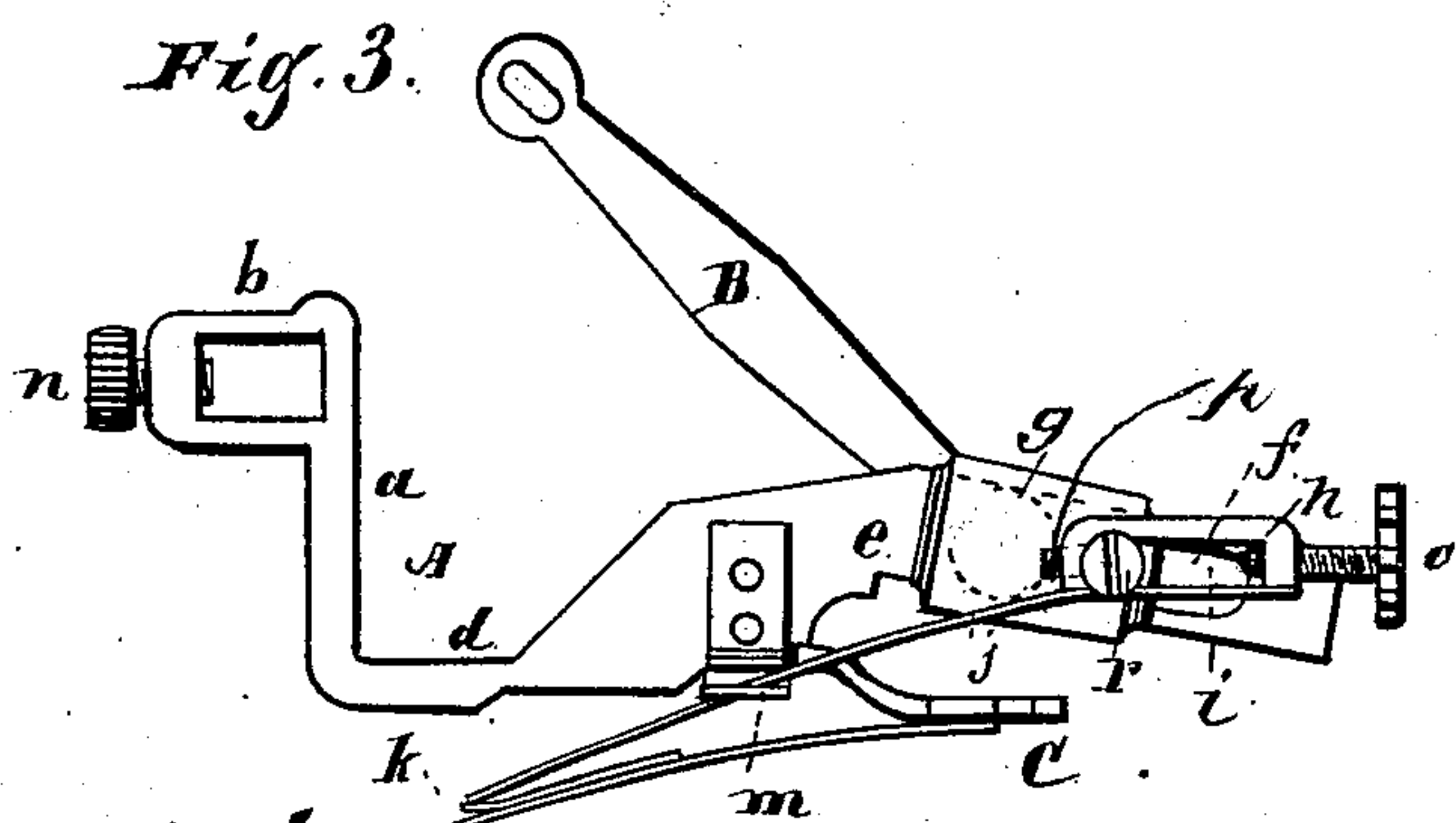
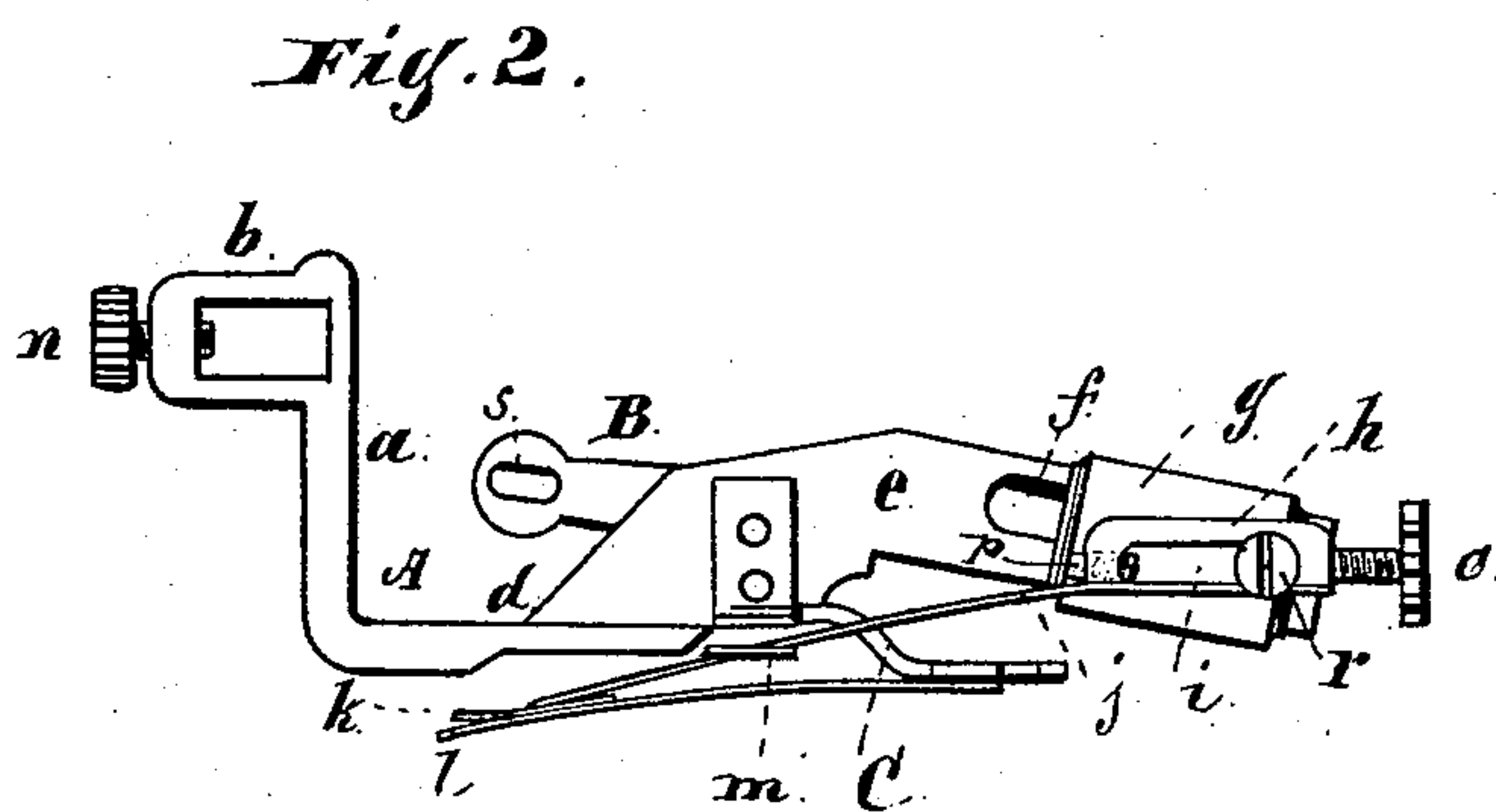
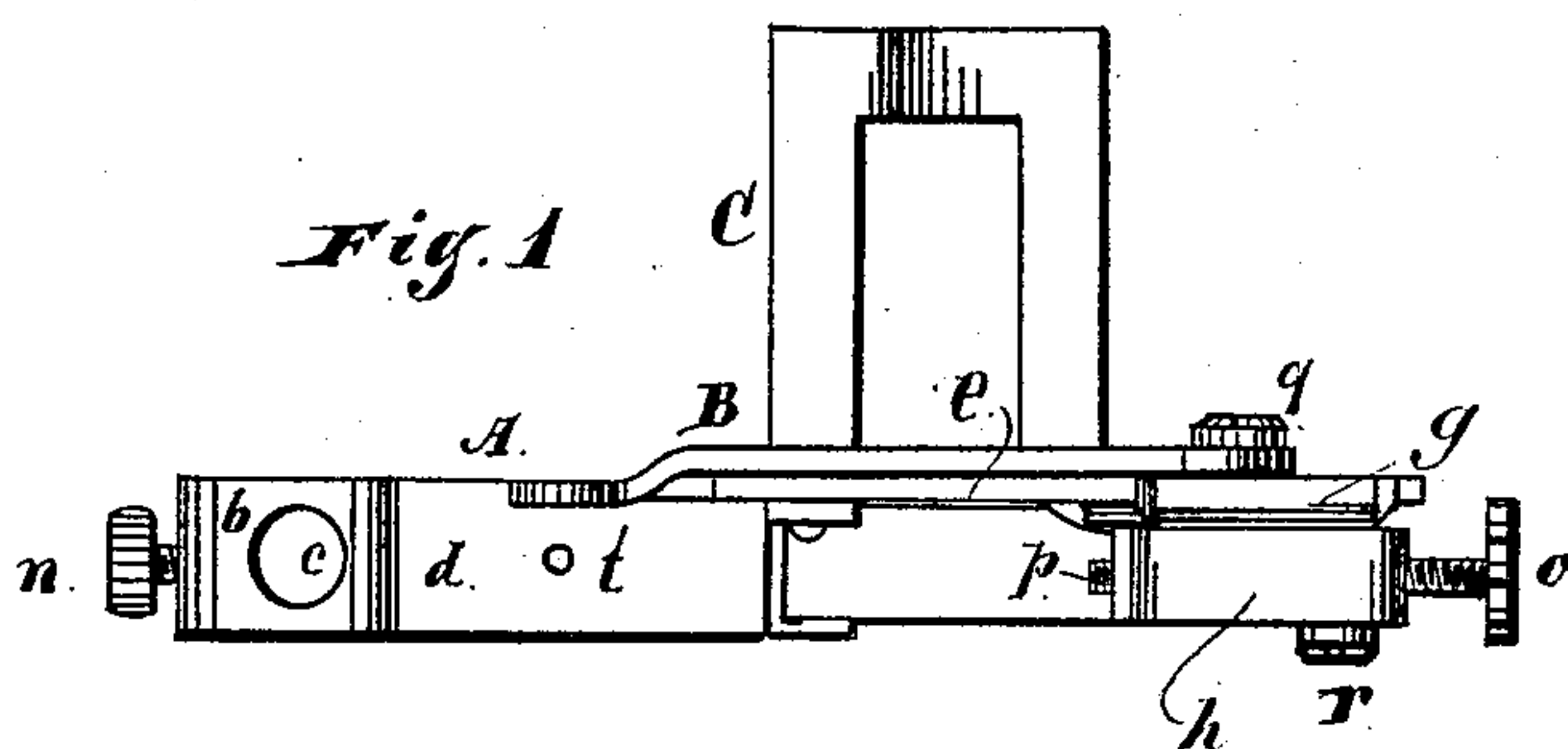
(No Model.)

H. C. GOODRICH.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 284,628.

Patented Sept. 11, 1883.



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RUFFLING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 284,628, dated September 11, 1883.

Application filed November 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. GOODRICH, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Ruffling Attachments for Sewing-Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view; Fig. 2, a side elevation, showing the actuating-link depressed and the ruffling-blade drawn back; Fig. 3, a side elevation, showing the actuating-link elevated and the ruffling-blade advanced; Fig. 4, a bottom or under side view.

This invention relates to rufflers or ruffling attachments for sewing-machines, and has for its objects to simplify the construction and perfect and improve the operation of the several parts composing the device or attachment, and to render the action of the ruffling-blade more certain and sure, and have its movements readily, accurately, and easily adjustable to give the required length of stroke, and have the blade so arranged and located with relation to its carrying and actuating mechanism that any failure to operate properly, either by reason of lost motion in any of the parts, irregularity of stroke of the ruffling-blade, or improper time between the stroke of the ruffling-blade and the movements of the needle, can be remedied and the device be made to work in a satisfactory manner in these respects. These objects I accomplish by the novel construction and arrangement of devices hereinafter described and claimed.

In the drawings, A represents the frame or support; B, the actuating-link; C, the support for the stationary cloth-retaining blade; *a*, the standard or upright of the frame; *b*, the socket for attaching the frame to the presser-foot bar; *c*, the opening for the passage of the presser-foot bar; *d*, the base-plate of the frame; *e*, the side piece or arm of the frame on which the slide or head moves; *f*, the slot in the side piece or arm; *g*, the main slide or head; *h*, the secondary slide or head; *i*, the slot in the slide or head; *j*, the ruffling-blade; *k*, the secondary stationary cloth-retaining blade; *l*, the main cloth-retaining blade; *m*, the support for the forward end of the ruffling-blade; *n* *o* *p* *q*

r, set-screws; *s*, the slot in the free end of the link B; *t*, the needle-opening in the base *d*.

The support or frame A may be made of brass or other suitable material, and may be formed from a single piece, or from several pieces suitably united together to produce a frame or support which can be attached to the presser-foot bar and support the ruffling-blade and other devices forming the ruffling attachment in their proper relation to each other and to the needle-bar and needle. As shown, this frame or support is made from a single piece, bent or formed into shape to have a standard or vertical portion, *a*, a base or horizontal plate, *d*, and a side piece or arm, *e*. The standard or upright *a* projects up from the forward end of the base or bottom plate, *d*, and its upper end is provided with a head or socket, *b*, in which is an opening, *c*, for the passage of the end of the presser-foot bar. This standard or upright *a* is of the requisite length to be attached by its socket and have the under face of the base-plate *d* rest over the material when the presser-foot bar is down, the same as an ordinary presser-foot, and when attached and properly adjusted the attachment is made secure by means of the set-screw *n*, passing through the socket *b* on one side, so that its end will engage the face of the presser-foot bar.

The base or bottom plate, *d*, stands at right angles, or nearly so, to the vertical standard or upright *a*, and projects out from such standard sufficiently far to furnish a support for the side piece or arm, *e*, and leave a clear space between the inner end of such arm and the standard. This base *d* is provided with an opening, *t*, located at the proper point, for the passage of the needle, and to allow the needle-bar to operate clear of the standard or upright *a*, and its rear portion is slightly elevated, so as to leave a clear space for the movements of the ruffling-blade and the passage of the cloth or material being ruffled.

The side piece or arm, *e*, is located, as shown, at the extreme edge or side of the base *d*, on the rear portion thereof, and has its forward or attached end bent or curved upward to bring the main portion or body in a higher plane than that of the base. The main portion or body of this arm extends out suffi-

ciently far to furnish a track of the required length for the travel of the main slide, and is given a downward inclination, so that it will stand at such angle with reference to the stroke of the needle-bar as to allow the slide to have perfect freedom of movement, prevent binding between the slide and arm, and keep the pivots of the actuating-link from coming in line and creating a strain on the parts.

The slide or head *g* is provided with a groove or recess on its outer side or face to receive the body of the arm *e*, and is held in place, so as to slide freely back and forth thereon, by means of the set-screw or pin, *q*, the shank of which passes through a longitudinal groove, *f*, in the body of the arm; or it may be held in place in some other suitable manner.

The slide or head *h* is located on the inner side or face of the head or slide *g*, and is held in place by means of a set screw or pin *r*, the shank of which passes through a slot, *i*, in the head or slide *h*. This slot *i* is for the purpose of permitting the slide or head *g* to move in both directions, to a certain extent, without affecting the slide or head *h*, and when the limit of this independent movement of the head *g* is reached, the two heads *g h* will move together, the object being to give the proper length of stroke to the ruffling-blade.

The distance that the slide or head *g* travels independently is regulated by a set-screw, *o*, located in the end of the head *h*, the end of which can be made to project a greater or less distance into the slot *i*, so that in the backward movement of the head *g* the shank or body of the set-screw or pin *r* will strike the end of the set-screw *o* sooner or later in its movement and carry the slide or head *h* also back, and when the backward movement ceases the slide or head *g* will move forward, without moving the slide or head *h*, until the shank of *r* strikes the forward end face of the slot *i*, or the end of the set-screw *p*, when the two slides or heads will move forward together until the limit of the forward movement is reached. On the return or backward movement of *g* the slide or head *h* remains stationary until the body of *r* and the end of *o* engage and cause the two slides or heads to move back together.

The ruffling-blade *j* is made from a piece of spring-steel or other suitable material, and has its forward end provided with notches or teeth to catch the cloth or material, and an opening or slot for the passage of the needle, as usual. This blade, at its rear end, is firmly secured in any suitable manner to the under face of the slide *h*, and its length is such that when advanced by the forward movement of the slide or head to the end of its stroke the needle-opening in its forward end will be in line with the needle-opening *t* in the base or plate *d*, and it is held or supported so as to be free to move and maintain the proper relation to the work by the guide *m*, secured to the under face of the support *C*, in the form of construction shown, which guide has a suitable slot for the

passage of the blade, and is made yielding to conform to the curve of the blade, so that in use the blade will not become straightened or lose its curvature and be rendered non-acting.

The size of the ruffles is varied as desired by giving the blade a long or short stroke, the short stroke producing a fine gather, and an increase in the length of stroke increasing the width or size of the gather accordingly. The length of stroke depends upon the length of travel of the slide or head *h*. To produce a short stroke the end of the set-screw *o* is made to project but slightly, if at all, so that the engagement of the screw or pin *r* therewith or with the end face of the slot *i* will occur near the finish of the return or backward movement of the slide or head *g*, giving the slide or head *h* a small degree of travel and withdrawing the blade *j* to that extent only. To increase the length of stroke the end of the screw *o* is made to project farther into the slot *i*, giving the slide or head *h* a farther length of travel backward by the engagement of the screw or pin *r* with the end of the screw *o* at a point farther forward, withdrawing the blade *j* a greater distance and increasing its stroke, the degree of increase depending on the projection of the screw *o* into the slot *i*.

The retaining strip or plate *k* is made of a thin strip of steel or other suitable material, and is attached to the upper face of the holding-plate *l* by riveting or otherwise, and is given a slight upward bend or curve to raise its forward end above the face of the plate *l*, and this forward end is provided with joints or teeth, which act to catch the cloth or material and prevent it from being drawn back by the withdrawal of the ruffer-blade. The holding-blade *l* is also made of a strip of steel or other suitable material, and is located beneath and in line with the ruffling-blade. Its rear end is attached, by rivets or otherwise, to a support, *C*, and its forward end projects beneath the base or plate *d* in line, or nearly so, with the opening *t*, and this end and the forward end of the plate *k* are each provided with a slot or opening for the passage of the needle, which slots are in line with each other and with the needle-opening *t*.

The actuating link or pitman *B* is made from a single piece of brass or other suitable material having sufficient rigidity to operate the slide or head *g*. One end of this link or pitman is provided with a slot or opening, *s*, for the passage of a set-screw, by means of which it is pivotally attached to the needle-bar, and the other end is pivotally attached to the slide or head *g* by the set-screw *q*. The length of this link or pitman *B* is such in relation to the needle-bar and the slide or head *g* that the upward movement of the bar will advance the slide or head and the downward movement will recede the slide or head, the advance commencing at the commencement of the upward movement, and the recession commencing at the commencement of the downward move-

ment, the advance ceasing when the highest point of ascent is reached, and the recession at the lowest point of descent.

In use there will be more or less wear of the 5 pivots and parts, causing lost motion to some extent, which might produce an insufficient advance of the ruffling-blade. This defect can be remedied and the blade be given the requisite advance by the set-screw *p*, located in 10 the forward end of the slide or head *h*, the end of which can be made to project into the slot *i*, to be engaged by the set-screw or pin *r* in the advance of the slide *g*, at the proper point to advance the slide *h* the distance required 15 to bring the forward end of the blade in correct relation to the needle. In the event the slide *g* does not have a sufficient forward movement to advance the slide *h* far enough to project the end of the ruffling-blade, as required, 20 the end of the screw *p* can be made to project into the slot *i* to give the head *h* the required amount of forward movement by engagement with the screw or pin *r*.

The support C may be of the form shown, or 25 of any other suitable form. As shown, it is made from a single piece, bent to have two side pieces or arms connected at one end only. The free end of one arm is attached, by rivets or otherwise, to the side piece or arm, *e*, and 30 the free end of the other arm is left unattached and extends underneath the arm *e* and ruffling-blade *j*, and to its end is attached the holding-plate *l*.

In use the device is attached to the presser- 35 foot bar by the socket *b* and set-screw *n*, and the link B is attached to the needle-bar by a set-screw passed through the slot *s*, or otherwise, and the cloth or material placed beneath the ruffling-blade. As the forward end of the 40 link B is raised by the ascent of the needle-bar the slide or head *g* is advanced, and as the forward end of this link is depressed by the descent of the needle-bar the slide or head *g* will be receded, and these movements of the 45 slide or head will give the ruffling-blade corresponding movements through the slide or head *h*, which movements of the blade form the ruffles, in the usual manner.

The length of the side piece or arm on which 50 the slide *g* travels and its location and arrangement in relation to the needle are such as to allow the slide to move forward and back the distance required to permit the full stroke of the needle-bar to be made, and these parts 55 and the link B have such relation to each other as that their movements will be perfectly free, and so that the movement of one part will not interfere with the movements of the others.

What I claim as new, and desire to secure 60 by Letters Patent, is as follows:

1. The combination of a supporting-frame;

A, provided with an upright side piece, *e*, a slide, *g*, mounted on the side piece, a link or pitman, B, having a direct pivotal connection at one end with the slide, and at its other end 65 adapted to connect with a needle-bar, and a slide, *h*, loosely mounted on and reciprocated by the slide *g*, and carrying a ruffling-blade, substantially as described.

2. The combination of a supporting-frame, 70 A, provided with an upright side piece, *e*, a slide, *g*, mounted thereon, a link or pitman, B, having a direct pivotal connection at one end with the slide, and at its other end adapted to connect with a needle-bar, a slide, *h*, carried 75 by and adjustable on the slide *g*, and provided with a ruffling-blade, *j*, substantially as described.

3. The combination of the frame A, provided with a projecting arm, *e*, arranged in a 80 plane above the base of the frame, a slide, *g*, mounted on and guided by said arm, a link, B, having a direct pivotal connection at one end with the slide, and at its other end adapted to connect with a needle-arm, and a slide, *h*, 85 connected with and reciprocated by the slide *g*, and provided with a downwardly-projecting ruffling-blade, substantially as described.

4. The combination of the frame A, having the projecting arm *e*, provided with the slot *f*, 90 the slide *g*, mounted on the arm, the link B, connected at one end with said slide by a device passing through the slot, and a slide, *h*, having a slot, *i*, and ruffling-blade *j*, and connected with the slide *g* by a device passing 95 through its slot *i*, substantially as described.

5. The combination of the frame A, provided with a projecting arm, *e*, the slide *g*, mounted on the arm, the link B, pivoted at one end to the said slide, the slide *h*, having 100 the slot *i*, the screw or pin *r*, securing the two slides together, and the set-screws *o* and *p* at opposite ends of the slotted slide *h*, substantially as described.

6. A ruffling attachment for sewing-ma- 105 chines, consisting of the frame or support A, constructed as described, link or pitman B, slide or head *g*, slide or head *h*, having a slot, *i*, set or adjusting screws *o* *p*, ruffling-blade *j*, retaining-blade *k* *l*, and support C, all con- 110 structed and arranged substantially as and for the purposes specified.

7. In a ruffling attachment, a link or pitman, B, slide or head *g*, slide or head *h*, having slot 115 *i*, and set or adjusting screws *o* *p*, in combination with a ruffling-blade, *j*, retaining-blade *k* *l*, support C, and yielding guide *m*, substantially as and for the purposes specified.

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Witnesses:

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