

A. JOHNSTON.

Rufflers and Gatherers for Sewing-Machines.

No. 139,064.

Patented May 20, 1873.

Fig. 1.

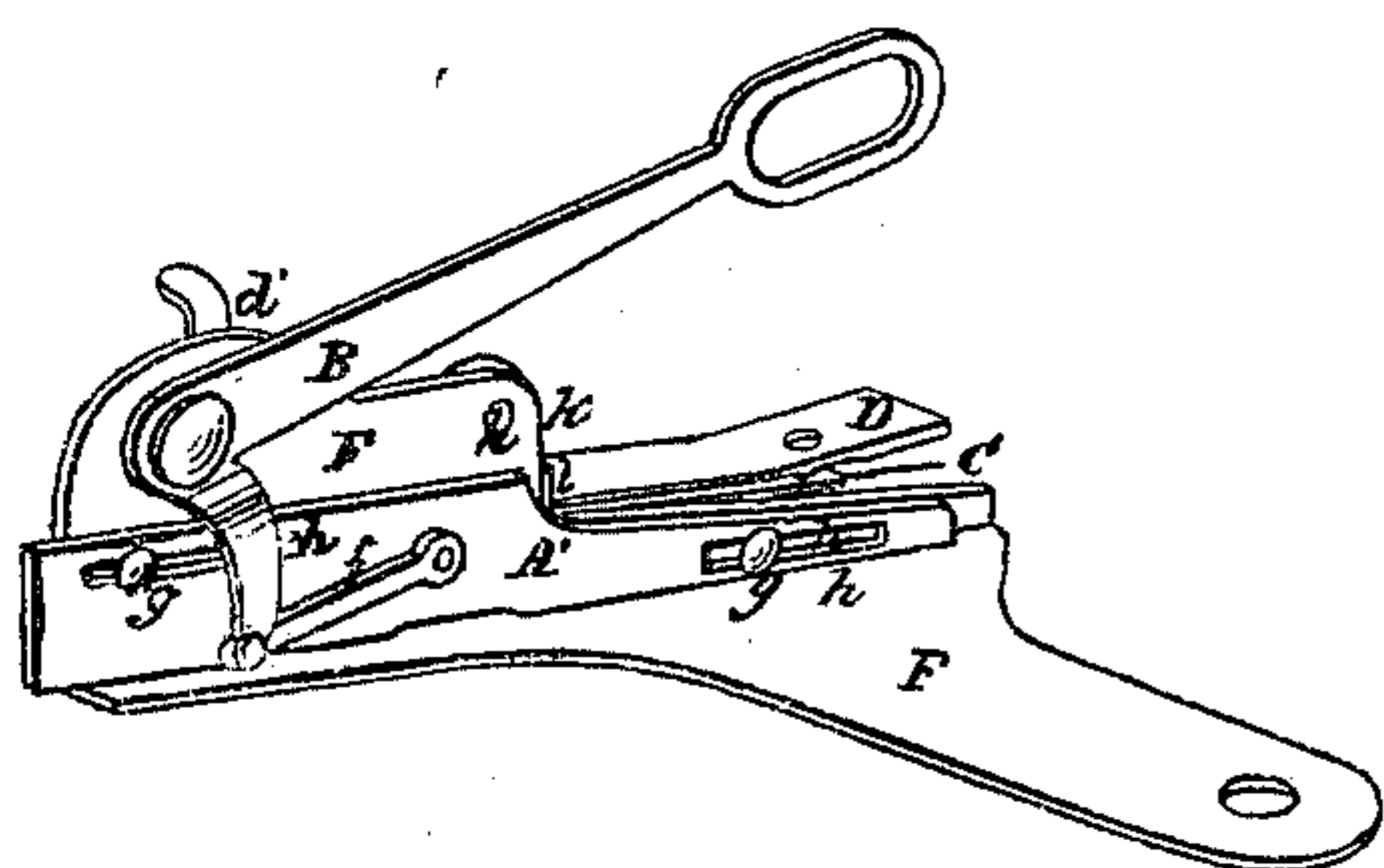


Fig. 2.

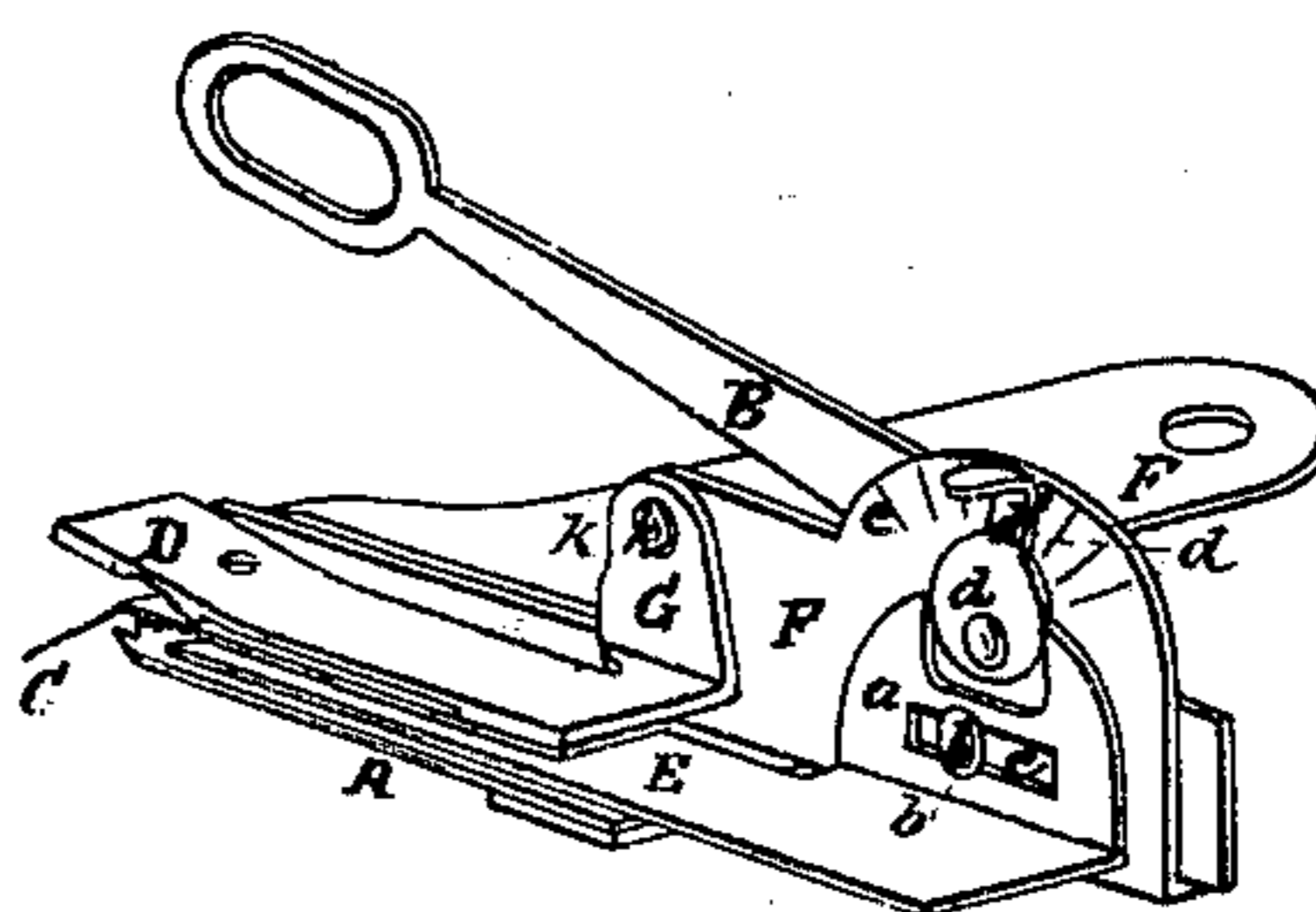


Fig. 3.

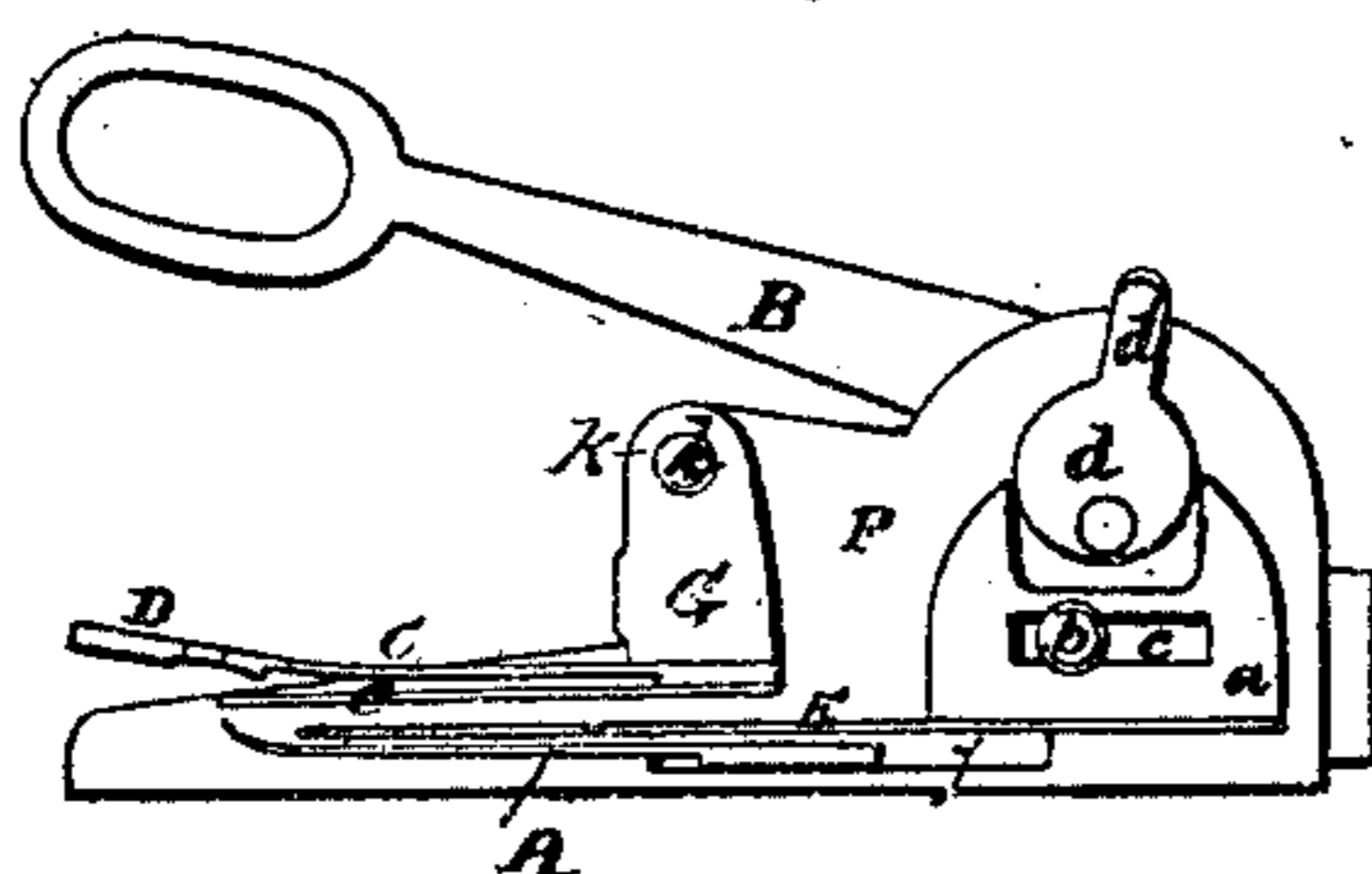


Fig. 4.

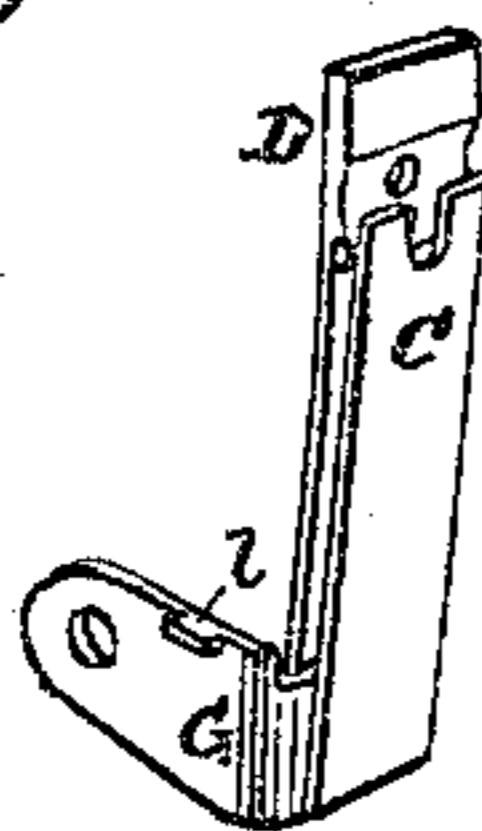


Fig. 5.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN RUFFLERS AND GATHERERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **139,064**, dated May 20, 1873; application filed February 18, 1873.

*To all whom it may concern:*

Be it known that I, ALLEN JOHNSTON, of Ottumwa, Iowa, have invented certain new and useful Improvements in Gathering and Ruffling Attachments for Sewing-Machines, of which the following is a specification:

This invention relates to gathering and ruffling attachments for sewing-machines, in which the goods are gathered by means of a reciprocating gathering-blade working against an upper stationary plate or blade, slotted at its front end for the passage of the needle, between which and said gathering-blade the goods pass. The invention principally has reference to means for regulating the size of the gathers; and it consists in this regard in the employment of a separating-plate located between the two parts above named, and adjustable longitudinally, so that its front end may be at different distances, as required, from the needle-hole or the point at which the needle passes down through the gatherer. The goods to be gathered pass above this separating-plate, and, according as the distance which separates the front end of the latter from the needle hole or passage is increased or lessened, the gathering-blade, which works underneath the separating-plate, is permitted to correspondingly, sooner or later, pass the front end of said plate, and to come in contact with the goods, making a gather, the size of which will thus be regulated and determined by the position of the separating-plate. With a separating-plate of this kind I am enabled to connect the gathering-blade to the lever, which actuates the same by a positive connection, so that the length of reciprocation of the blade may at all times be the same, thus rendering unnecessary and dispensing with the mechanism heretofore required for adjustably connecting the blade and lever, in order to produce the variation in the length of movement of the blade which has heretofore been required; and also rendering it unnecessary to slot the front end of the gathering-blade for the passage of the needle, inasmuch as, by reason of the aforesaid positive connection of the said blade with its actuating-lever, the blade is moved back out of the path of the needle before the latter reaches the cloth. My invention further consists

in hinging or jointing to the frame of the attachment the upper or holding blade, together with the false foot, if one be employed, for the purpose of permitting the movement of these parts to allow of the ready insertion of the goods and for other purposes. It also consists in details of construction and arrangement of the parts of the attachment, as hereinafter specified.

The manner in which my invention is or may be carried into effect will be readily understood by reference to the accompanying drawing, in which—

Figure 1 is a perspective rear view of a gathering attachment embodying my improvements. Fig. 2 is a perspective front view of the same. Fig. 3 is a front elevation of the same. Figs. 4 and 5 are perspective views of detached parts of the attachment.

The attachment, in connection with which my present improvements are represented, is one embracing several of the features shown and described in reissued Letters Patent 5,071 and 5,072, granted to the Johnston Ruffler Company, September 24, 1872—that is to say, the gathering-blade A receives a positive movement in both directions from the needle bar or arm through the medium of a vibratory lever, B, formed to connect at its free end with the needle bar or arm of the sewing-machine to which the attachment may be applied. There is combined with the under reciprocating gathering-blade an upper stationary slotted blade, C, which holds the gather while the under blade is receding, and the two blades are combined with a false foot, D, perforated for the passage of the needle, and so formed that there is between its acting surface and the end of the holding-blade a recess to contain the newly-formed gather pushed forward by the gathering-blade beyond the end of the holding-blade.

The general organization and operation of these parts will be understood by reference to the patents above named, and require no further description here.

Between the reciprocating gathering-blade and the stationary blade C I interpose a separating-plate, E, between which and the blade C the goods to be gathered are designed to pass. The gathering-blade works

below the separator, and only commences to act on the goods when, in its forward movement, its front end passes the front end of the separator. Therefore the point at which the gathering-blade takes hold of the goods will be determined by the distance of the front end of the separating-plate from the front end of the plate C, which is at or a little beyond the needle-hole in the foot D. If the separator be advanced toward the needle-hole, this distance will be lessened, and the gathering-blade will take hold of the goods later in its forward movement, and will make a correspondingly smaller gather. If, on the other hand, the separator be retracted, this distance will be increased, and the gathering-blade, coming sooner in contact with the goods, will make a larger gather. I therefore make the separator adjustable, so that it may be advanced toward or retracted from the needle more or less at pleasure. This adjustment can be effected in various ways. One simple arrangement, which on the whole is preferred, is shown in the drawing. The plate is provided with a vertical part, *a*, resting against the upright portion of the base-plate or frame F, and held to the same by one or more headed pins or studs, *b*, which pass through a slot, *c*, in the part *a* into the frame F. The separator can thus slide longitudinally back and forth, and may be adjusted in the required position, as above specified. The movement is effected by suitable means—in this instance by means of a cam or eccentric, *d*, pivoted to the frame F, and working in a recess in the part *a*. The eccentric is provided with a handle, *d'*, which moves in the arc of a circle on the frame F, which may be marked off into a scale, *e*, indicating the size of gather which will be made, according to the position of the handle on the scale. If desired, the handle, for the purpose of being held securely in place at the required point, may be provided with a point or stud, engaging with a curved rack or series of corrugations on the frame, in a manner similar to that in which the adjusting-lever is arranged to be held in place in the reissued patents hereinbefore referred to.

When the attachment is thus provided with a separating-plate, I can connect the lever B positively with the gathering-blade, so that the movement of the latter will be invariably the same, whether a large or small gather is to be made, thus dispensing with the mechanism heretofore employed to provide for lost motion of the lever. This arrangement is shown in the drawing, the support A' of the gathering-blade being connected with the short arm of the lever by means of a simple link, *f*, pivoted at one end to the lever and at the other end to a pin on the part A', as seen in Fig. 1.

When the lever and blade are thus connected and thus move together, the gathering-blade, which, as usual in attachments of this kind, moves up to or beyond the path of the needle, will recede the instant the needle

commences to descend, so as to be removed entirely from the path of the needle before the latter reaches the goods. The gathering-blade, therefore, does not require to be slotted for the passage of the needle, but, as shown in the drawing, can have an edge which, whether serrated or plain, is wholly without the usual needle-slot.

The support A' is shown detached in Fig. 5. It is arranged to slide back and forth on the rear side of the upright portion of frame F, being held in place and guided by pins *g* on frame F working in slots *h*. The horizontal arm *i* of the support extends to the front of the attachment through a slot, *j*, in the frame, of sufficient length to permit the free movement of the blade and its support.

In order to allow the goods to be more readily inserted in the attachment, and also to admit of access to be readily had to the blades, whether for cleansing or other purposes, I hinge or pivot the upper blade C and foot D to the frame F upon a horizontal axis or pin, *k*, as seen in the drawing. Both foot and blade are carried by an arm, G, and are shown detached in Fig. 4. The arm G turns upon the pivot *k*, and is preferably provided with a ledge or flange, *l*, which, when the arm G is turned down to bring the foot and blade into proper position over the under blade, takes against the front edge of the upright portion of the frame F, as seen in Fig. 1, to prevent the arm from moving further in that direction.

The separator-blade is made of a thin strip of metal, which is somewhat yielding and elastic. Its front end is preferably tapered, or is reduced to an edge, so that the passage of the gathering-blade from it to the goods, and vice versa, may be made easily and without jumping or sudden up or down movement.

The construction or proportions of the parts of the attachment, it will be understood, may be varied to adapt it to the different machines in the market. The attachment shown is fitted for a Singer sewing-machine, to the cloth-plate of which the frame F is to be attached.

Having described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The vibratory lever, deriving a positive motion in both directions from the needle-bar, and the reciprocating gathering-blade jointed to said lever so as to move back upon commencement of the downward movement of the needle-bar, in combination with an upper slotted stationary holding blade or plate, and an intermediate adjustable separating-plate, the said holding-blade being arranged with its edge in advance of the separating-plate to hold the gather when the gathering-blade recedes before the needle enters the cloth, said parts being arranged for joint operation as set forth.

2. The separator-plate, supported and ar-

ranged to slide on the frame of the attachment, substantially as described, in combination with the adjusting cam or eccentric pivoted to the frame and working in a recess in the said plate, substantially as and for the purposes set forth.

3. The holding-blade and false foot, carried by an arm pivoted or hinged to the frame, as described, in combination with the reciprocating gathering-blade, substantially as shown and set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALLEN JOHNSTON.

Witnesses:

A. G. HARROW,

B. R. HAMILTON.

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