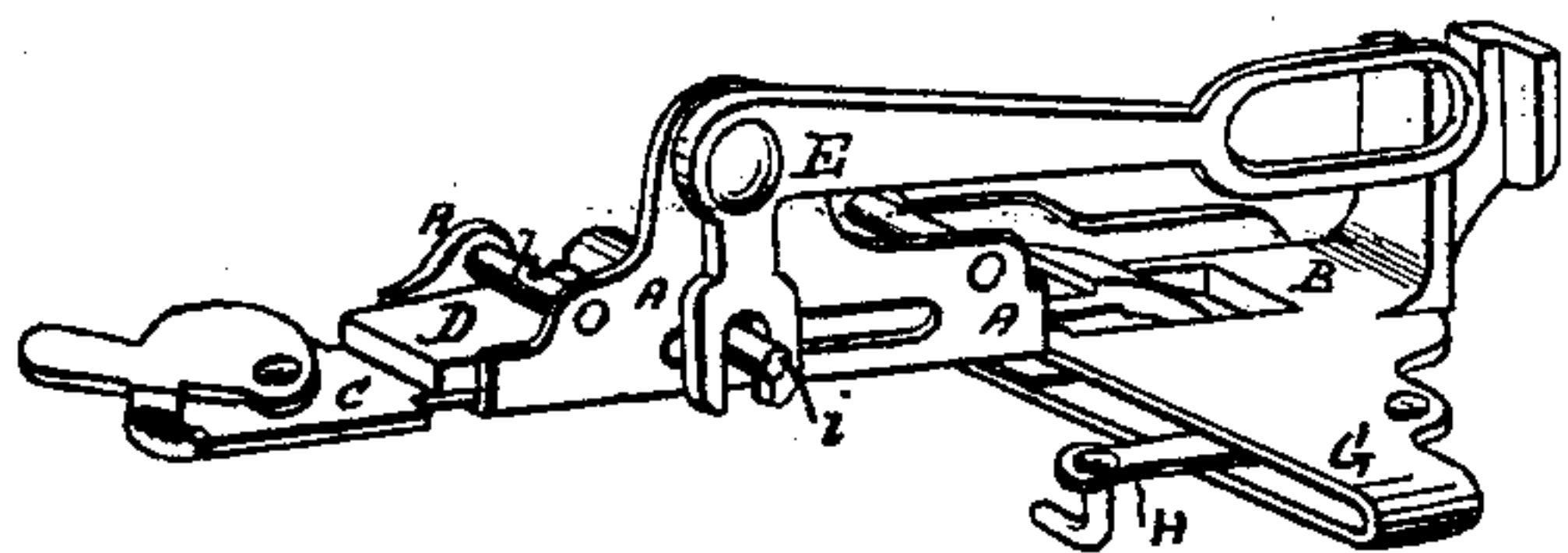


**A. JOHNSTON.**  
**Gathering and Ruffling Attachments for Sewing-**  
**Machines.**

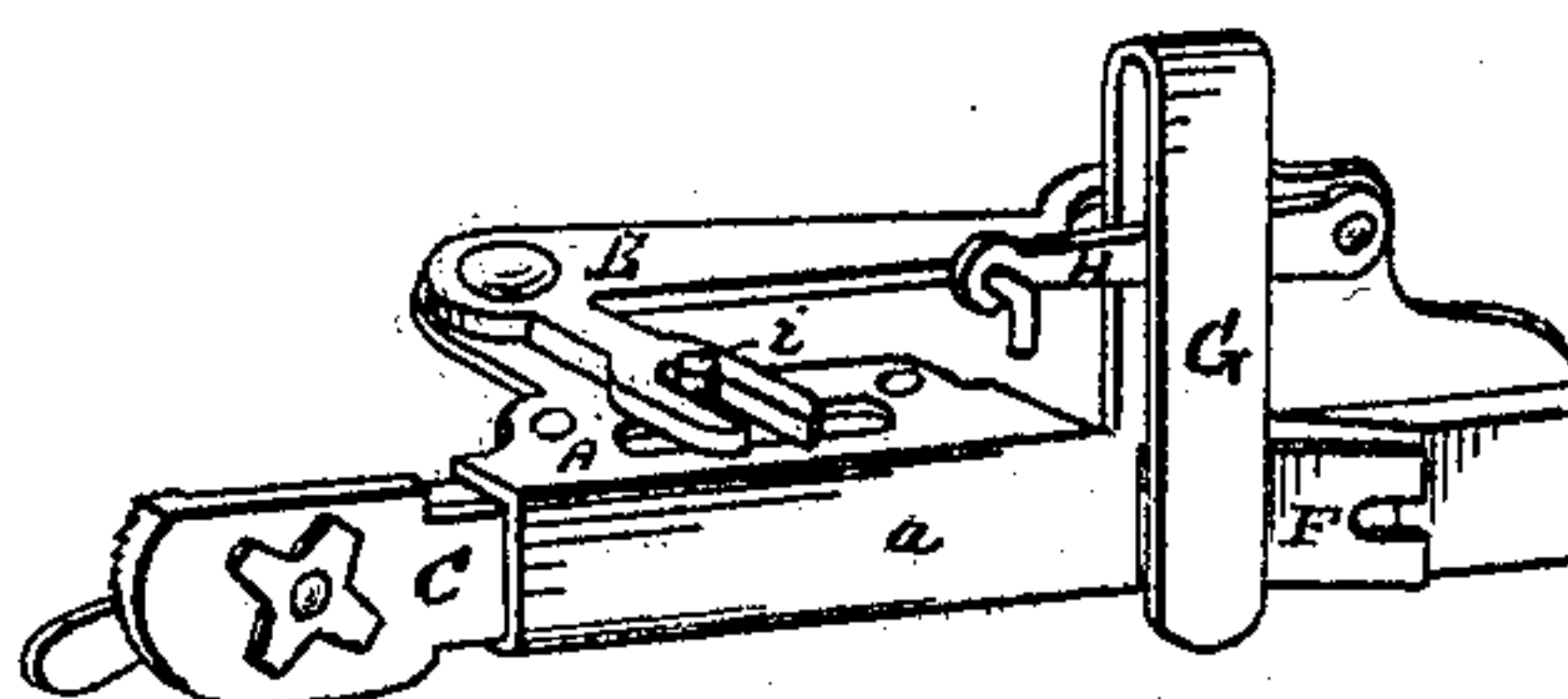
No. 146,005.

Patented Dec. 30, 1873.

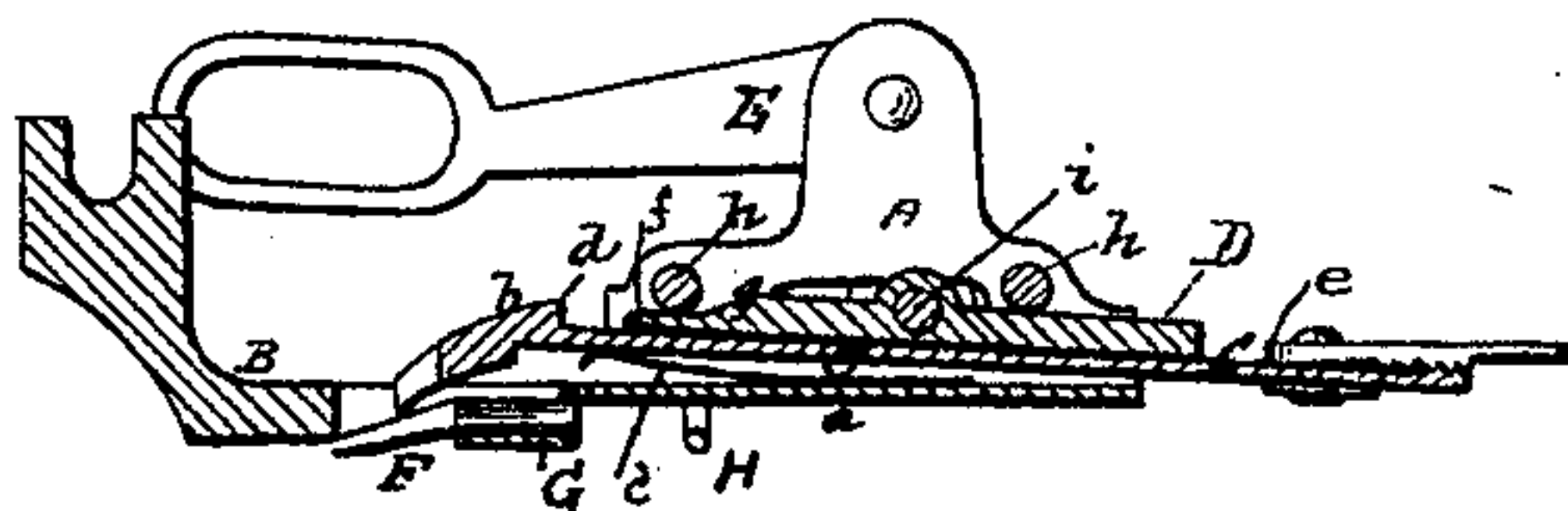
*Fig. 1.*



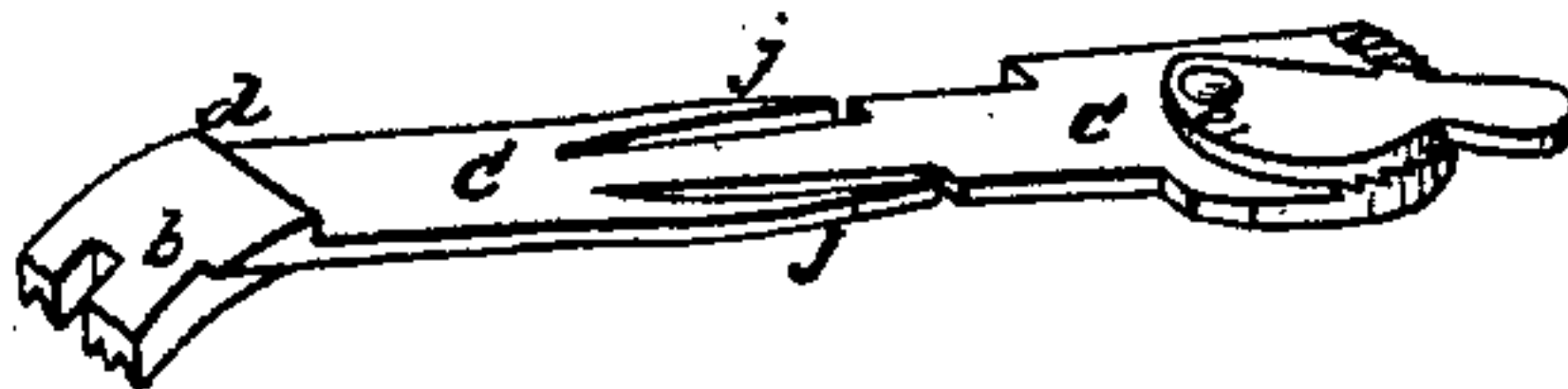
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses*

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# UNITED STATES PATENT OFFICE.

ALLEN JOHNSTON, OF OTTUMWA, IOWA.

## IMPROVEMENT IN GATHERING AND RUFFLING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **146,005**, dated December 30, 1873; application filed December 13, 1873.

*To all whom it may concern:*

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

In the attachment in which my present invention is comprised, the reciprocating gathering bar or blade has a motion analogous to that of the four-motion feed in sewing-machines.

My invention principally consists in the means hereinafter described, whereby such motion is imparted to or obtained for the said blade, the latter being at the same time capable of adjustment to regulate its movement, the length of which determines the size of gather.

The principal advantages attained are that any drawing back of the goods at the time the gathering-blade recedes is avoided, and the gather is left round and full instead of being laid in a flat plait.

The nature of my invention and the manner in which the same is or may be carried into effect, will be readily understood by referring to the accompanying drawings, in which—

Figure 1 is a perspective view from the rear of my improved gatherer. Fig. 2 is a like view of the same when turned over to expose its under side. Fig. 3 is a longitudinal vertical section of the same, the line of section passing through the longitudinal center of the gathering-blade. Figure 4 is a perspective view of the gathering blade or bar detached. Fig. 5 is a like view of the pusher bar or plate for moving the gathering blade or bar back and forth.

I desire to remark here that the attachment may be adapted, as in the case of other attachments of the same class, to the various styles of sewing-machines in the market, and that it may be constructed so as to be attached to the cloth-plate or to the presser-bar, or the head of the sewing-machine, as desired.

The present attachment is designed for use with a Singer machine, the frame A being provided with a socket and substitute foot, B, of a suitable conformation, designed to fit onto

the end of the presser-bar, and to take the place of the ordinary presser-foot, which is to be removed prior to fitting the attachment to the presser-bar. Between suitable longitudinal guides on the frame A is located the gathering blade or bar C, which is supported by the base-plate *a* of the frame, said base-plate, at its front, being cut away so as to leave between it and the toe of the foot B a space of sufficient length and size to permit the working end *b* of the gathering-bar, or the gathering-blade proper, to move back and forth in contact with or directly over the goods for the full distance required for the longest reciprocation of the gathering-bar.

The gathering blade or bar need not be made a spring. It is designed to work on top of the goods to be gathered, and its front end, notched for the passage of the needle and serrated, as seen in Fig. 4, is bent or curved downward, so that it may project down into the open space between the front of the plate *a* and the toe of the foot B, where the goods are exposed to the action of said blade. Between the bar C and base-plate *a* is interposed a spring, *c*, fast at one end to the base-plate, with its free end pressing upward against the bar C, in such manner as to keep the front end or blade *b* of the bar C normally elevated away from the goods. On top of the gatherer-bar C is placed the pusher-bar D, which lies flat on the gatherer-bar between a shoulder or stop, *d*, at the front end of the bar, and an adjustable stop, *e*, on the rear end of the bar. The pusher-bar has a certain freedom of movement between these two points *d e*, so that it can travel a certain distance on the bar without moving it along. This distance can be increased or lessened by adjusting the stop *e*, so as to shorten the distance between it and the shoulder *d*. The stop *e*, in this instance, consists of a cam or eccentric plate pivoted on the bar C, and provided with a handle by which it can be turned. It has on its under side a series of small teeth, which engage corresponding serrations on the bar C, the object of this being to hold the cam in any position to which it is adjusted.

In lieu of the cam an adjusting-screw or other ordinary or suitable means of adjustment may be employed. The pusher bar on



top and for a suitable distance from its front end, is reduced in thickness, as seen at *f*, Fig. ④ Between the reduced part *f* and the main portion of the bar is an incline or bevel, *g*, also seen in Fig. 5.

The pusher-bar is held in position by transverse pins *h* on frame A, under which pins it can move. These pins are so located that when the thick part of the bar is under both, the bar will be held down so as to press the gathering-blade down on the goods, the spring *c* being flattened out between the bar C and the plate *a*. When, however, the pusher-bar is moved so as to bring its reduced part *f* under the front pin *h*, then the spring *c* will be free to recoil, so as to lift or tilt upward the front end of the bar C, as seen in Fig. 3.

The pusher-bar D is actuated by the angle-lever E, which on its free or outer end has a loop to engage a stud or pin on the needle-bar of the sewing-machine. The other end of the lever is forked, and straddles a pin, *i*, projecting from the bar D through a slot in the rear side of frame A, as seen in Fig. 1. The lever receives a positive vibratory movement from the needle-bar, and will consequently impart a positive reciprocatory movement to the sliding pusher-bar D.

The reduced part *f* and incline *g* of the pusher-bar, the front pin *h*, and the shoulder *d* on the gathering-bar, are so arranged and located with respect to one another, that before the pusher-bar in its forward movement comes against the shoulder *d*, and begins to advance the gathering-blade, its reduced part *f* and incline *g* will travel past the pin *h*, which will now be above the thick part of the pusher-bar; consequently, the gathering-blade will be depressed into contact with the goods before it begins to move forward. In like manner, when the forward stroke is completed, and the pusher-bar begins to move back before it strikes the rear stop *e*, its reduced part *f* will be under the front pin *h*, and consequently the gathering-bar will rise away from the goods before it begins to move back. Thus a regular up-and-down and back-and-forth movement will be imparted to the gathering-blade during the reciprocation of the pusher-bar. The length of reciprocation of the gathering-bar, and consequently the size of gather, is regulated by the cam, or its equivalent.

In connection with the gathering-blade, I make use of a notched holding-blade, F, which serves to hold the gather pushed forward by the upper blade. This holding-blade, located as seen in Figs. 2 and 3, is carried on the end of a D-shaped support, G, which extends out back from the frame A a proper distance, and is then bent downward and returns toward the front of the attachment. The goods to be gathered pass between the legs of this piece over the holding-blade and under the presser-foot B. Between the legs of the same piece

G is pivoted a gage-hook, or equivalent device, H, which guides the edge of the fabric, and gages the distance of that edge from the gathering-blade and needle.

In case two pieces of cloth are to be sewed together, one of which only is to be gathered, the piece to be gathered is entered as above specified, while the piece to remain ungathered passes below the support G and the holding-blade F.

In order to prevent the gathering-bar from moving with the pusher-bar, except when the latter abuts against either of the stops *d e*, the gathering-bar is provided with springs *j* on each side, or is split, or has friction-pads, or some equivalent devices arranged to bear against the sides of the frame A, between which the gathering-bar is placed, with sufficient force to prevent said bar from moving back or forth at any time other than those specified.

Having now 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 gathering-bar supported in guides in the frame between an elevating-spring below, and a reciprocating pusher-bar above, said pusher-bar being constructed and operating at the times and in the manner stated, to depress and to permit the elevation of the gathering-blade, and to reciprocate it longitudinally, substantially as and for the purposes shown and described.

2. In combination with the gathering-bar, the pusher-bar resting on said gathering-bar between shoulders thereon, connected with the vibratory angle-lever, so as to be reciprocated by the same, and formed with a reduced part and an incline to operate in connection with a pin on the main frame of the attachment, substantially as and for the purposes shown and set forth.

3. The combination with the reciprocating pusher-bar, the elevating-spring and the gathering-bar, arranged and operating together as described, of friction-springs or pads on the sides of the gathering-bar, adapted to bear against the guides between which the gathering-bar moves, as and for the purposes shown and set forth.

4. In combination, the lower holding-blade, the upper gathering-blade, the pusher-bar, and elevating-spring for giving an up-and-down and back-and-forth movement to the gathering-blade, and the cam, or its specified equivalent, for regulating the length of movement of the gathering-blade, said parts being constructed and arranged together in the attachment for operation, as shown and described.

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Witnesses:

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A. G. HARROW.