

(Model.)

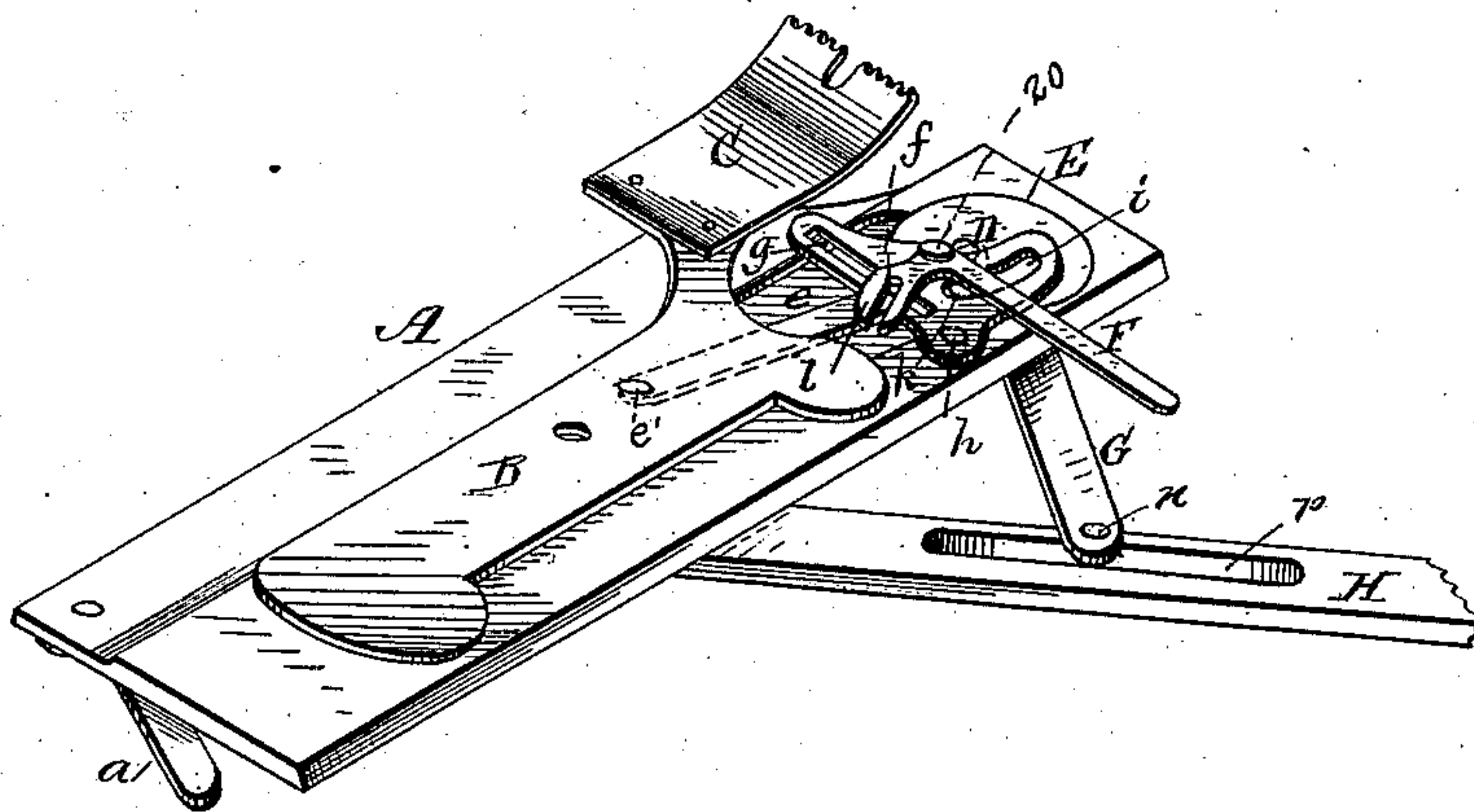
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RUFFLING AND SHIRRING ATTACHMENT FOR SEWING MACHINES.

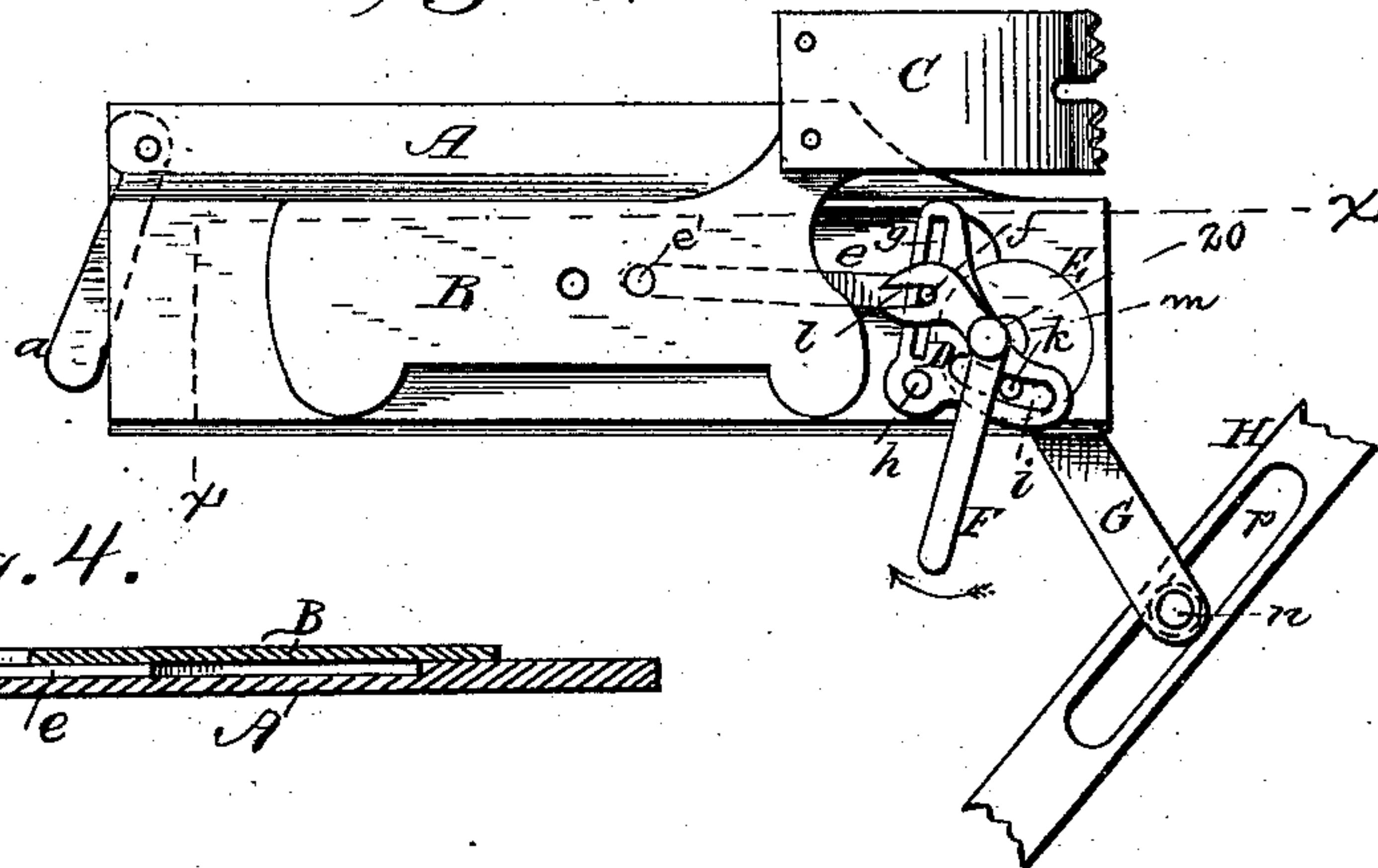
No. 291,052.

Patented Jan. 1, 1884.

*Fig. 1*



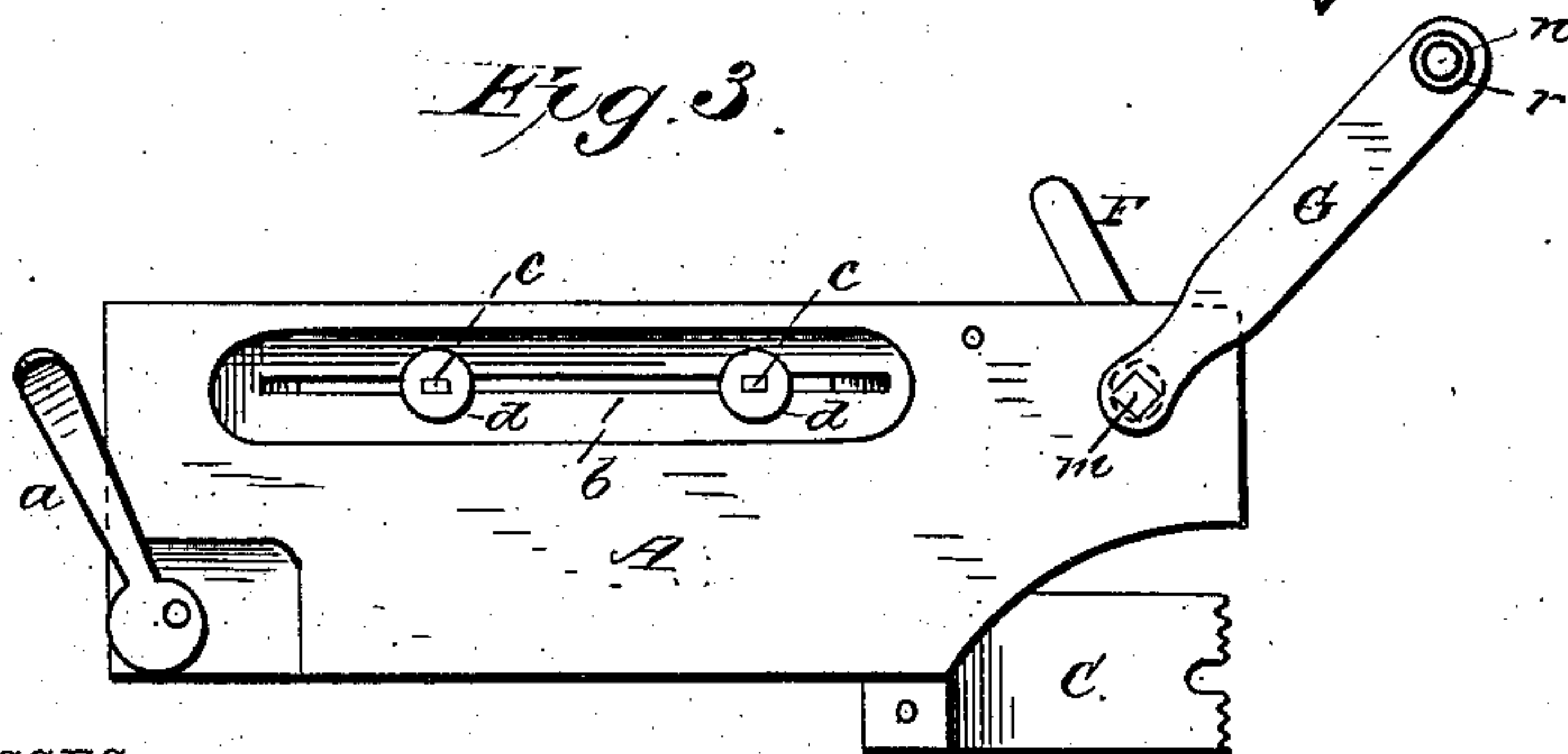
*Fig. 2*



*Fig. 4.*



*Fig. 3.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

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RUFFLING AND SHIRring ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 291,052, dated January 1, 1884.

Application filed March 16, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, CHARLES GROTZ, a citizen of the United States, residing at Oskaloosa, in the county of Mahaska and State of Iowa, have invented certain new and useful Improvements in Ruffling and Shirring Attachments for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

My invention has for its object certain improvements, to be hereinafter described, in that class of ruffling and shirring attachment which is adapted to be operated by means of moving parts under the usual cloth-supporting bed of the machine. In this my invention the blade-carrier, provided with an attached upwardly-turned ruffling-blade, is provided with suitable lugs, to run in slots or guideways of a shuttle-covering slide, down upon which the said blade-carrier is held or pressed. The shuttle-covering slide is provided with an opening through it from bottom to top, to serve as the bearing for a short vertical shaft, having attached to it below the shuttle-covering slide an arm, which is extended backward horizontally from the said shaft and the shuttle-raceway, and across the path of vibration of the shuttle-moving arm or lever where the two are loosely connected, so that the latter is made available to vibrate the former at each vibration of the shuttle-mover. The horizontally-vibrating arm of the said vertical shaft rocks the latter and vibrates a crank-pin carried by a disk at the upper end thereof, and the said crank-pin, in engagement with a pivoted throw-lever, vibrates the latter and causes it by an adjustable link-connection to move the blade-carrier a greater or less distance, according to the position of the pin connecting the said link and throw-lever, the position of the said pin being controlled by a regulating-lever carried by the throw-lever, as will be described.

Figure 1 is a view in perspective of a ruffling and shirring attachment embodying my invention, together with a part of a shuttle-moving lever of usual construction; Fig. 2, a

top or plan view thereof with the parts in a different position. Fig. 3 is an under side view of Fig. 2, and Fig. 4 a section of Fig. 2 on the dotted line *xx*.

In the accompanying drawings, in which like letters represent like parts, the shuttle-covering slide or plate A, adapted to take the place of the usual shuttle-covering slide, and also serve as the base-plate for the attachment, has a turn button or lever, *a*, by which to confine the said plate in position. The plate A has a longitudinal slot, *b*, into and through which are extended ears *c c*, turned down from the blade-carrier B, the said ears below the plate A being provided with suitable spring-washers, *d d*, by which to keep the blade-carrier down thereon as it is being reciprocated by means of the link *e*, pivoted to it at *e'*, and provided at its other end with a pin, *f*, extended through a slot, *g*, in the throw-lever D, pivoted at *h* upon the plate A, the said pin being also extended through a slot in the regulating-lever F, pivoted at 20 on the throw-lever. The upper side of the plate A is cut away to form a suitable recess below the under side of the blade-carrier for the reception of the link *e*. The blade-carrier, at its front end, is provided with an upturned blade, C, slotted at its end, the teeth of the said blade being adapted to engage the under side of the strip or piece to be ruffled or shirred, as the latter rests between the said blade and presser-foot, and carry it forward intermittingly for a greater or less distance, according to the fullness of the gather to be made, that being determined by the adjustment of the regulating device or lever F, to be described.

I do not desire to limit my invention to the precise means shown for connecting the blade-carrier and plate A; nor do I desire to limit my invention to the shape or form shown of the blade-carrier or blade. The throw-lever D, (shown as an elbow-lever,) besides its long slot *g*, into which the pin *f* is extended, has a second elongated slot, *i*, which is slightly curved and located nearly at right angles to slot *g*. The slot *i* receives a crank-pin, *k*, of a crank, E, attached to the short shaft *m*, having its bearings in plate A, the said bearing being made by providing the said plate with a vertical



passage from bottom to top. The lower end of the shaft *m* has attached to it a lever-like arm, *G*, which is extended backward horizontally away from the shuttle-race and across the path of vibration of the shuttle-mover *H*, which, as herein shown, is intended to represent what is known as the "shuttle-lever," it being a horizontally-vibrating lever such as commonly employed in the Domestic and that class of machines. The horizontally-extended arm *G* of the crank-carrying shaft *m* is vibrated backward and forward horizontally close under the cloth-plate in a plane substantially parallel with relation to the surface of the cloth-plate by reason of a pin-and-slot connection with the shuttle-mover, and causes the shaft *m* to rock in its bearings on plate *A*, so that the crank-pin *k*, partaking of its movements and entered into the slot *i* of the throw-lever, will vibrate the same uniformly about its fulcrum at each movement of the said crank; but the effective stroke of the said throw-lever with relation to the blade-carrier and blade, and consequently the fullness of the gather, will depend upon the position of the pin *f* in the slot *g*. The pin *f* may be moved toward and from the fulcrum of the throw-lever *D* to decrease or increase the stroke of the blade-carrier by turning the regulating device *F* about its pivotal point on the throw-lever, the slotted end of the said regulating device embracing the said pin.

To add strength to the parts and insure smoothness and ease of movement I have shown the crank *E* made as a disk, which is sunk into a circular recess or cavity of the plate *A*, the top of the crank being flush with the said plate. The regulating-lever *F* is held in adjusted position by frictional contact with the throw-lever; but, if preferred, the latter may be serrated where the regulating-lever *F* bears against it.

The ruffler herein described, having its parts constructed and combined as described, forms a most compact device, taking up but little space above the cloth-plate, and by placing the horizontally-moving lever or arm *G* under the cloth-plate and extending it backward parallel with the surface of the said cloth-plate I am enabled to lessen the number of moving parts above the cloth-plate, leaving the ruffler free from connection with moving parts above the cloth-plate, which connections, if used, obstruct the passage of material over the cloth-plate, and also by extending the said arm *G* back horizontally it is possible to gain for it a long movement, which could not be gained by the employment of a short vertical or upright lever adapted to be struck by the shuttle-mover.

I claim—

1. In a ruffling and shirring attachment, the plate *A*, adapted to serve the purpose of a shuttle-covering slide and be secured in the bed-plate, a blade, and a reciprocating blade-carrier connected with the said plate, com-

bined with a vertical shaft extended through the plate *A* from bottom to top, a crank and crank-pin attached to the same above the plate *A*, a slotted throw-lever vibrated by the crank and crank-pin, and an adjustable connection between it and the blade-carrier, and with a lever or arm attached to the lower end of the said shaft, and adapted to be vibrated horizontally parallel with the surface of the bed-plate by means of the usual shuttle-mover, substantially as described.

2. In a ruffling and shirring attachment for sewing-machines, a base-plate adapted to be secured in horizontal position parallel with the cloth-plate and above the path of movement of the shuttle, and provided with a vertical bearing-passage extended through the said plate from its upper to its under side, a short shaft having projecting from its lower end below the said plate and the cloth-plate of the machine an arm which is extended horizontally backward under the said cloth-plate, to be engaged and vibrated by a shuttle-moving lever, and provided at its upper end with a crank and crank-pin, combined with a blade-carrier and blade, and with suitable means to connect the said crank-pin with the blade, whereby the oscillations of the said shaft impart reciprocating motion to the blade-carrier and blade, substantially as described.

3. In a ruffling and gathering attachment for a sewing-machine, a plate, *A*, adapted to serve the purpose of a base-plate and shuttle-covering slide, and a blade-carrier and blade, and a vertical shaft having its bearings in the said plate, and provided at its lower end with a horizontal backwardly-extended arm adapted to be connected with and actuated by a shuttle-moving lever, and at its upper end with a crank and crank-pin, combined with a pivotal throw-lever slotted as described, and with a link connecting the throw-lever with the blade-carrier, and with the regulating-lever or device to change the position or point of connection of the pin of the said link with the said throw-lever, substantially as described.

4. In a ruffling and gathering attachment for a sewing-machine, the plate *A*, adapted to serve as a base-plate for the attachment and as a shuttle-covering slide, and provided with a recess at its upper side, combined with the vertical shaft *m* therein, the horizontal arm extended backwardly from the under side of the said plate, and with the crank made as a disk fitted into the said recess, the said crank being provided with a crank-pin, by which to impart reciprocating motions to a blade-carrier and blade, with means for operating the horizontally-extended arm under the cloth-plate, substantially as described.

5. In a ruffling and gathering attachment for a sewing-machine, the plate *A*, adapted to serve as a base-plate for the attachment and as a shuttle-covering slide, and provided at its upper side with a recess, combined with a



reciprocating ruffling-blade carrier loosely  
connected with the said plate, and with a link  
attached to the under side of the said blade-  
carrier, the said link moving both longitudi-  
nally and laterally in the said recess, with  
5 means for operating the horizontally-extended  
arm under the cloth-plate, substantially as de-  
scribed.

In testimony that I claim the above I have  
hereunto subscribed my name in the presence 10  
of two witnesses.

CHARLES GROTZ.

Witnesses:

JOHN F. LACEY,  
THOMAS TERRELL.