

(No Model.)

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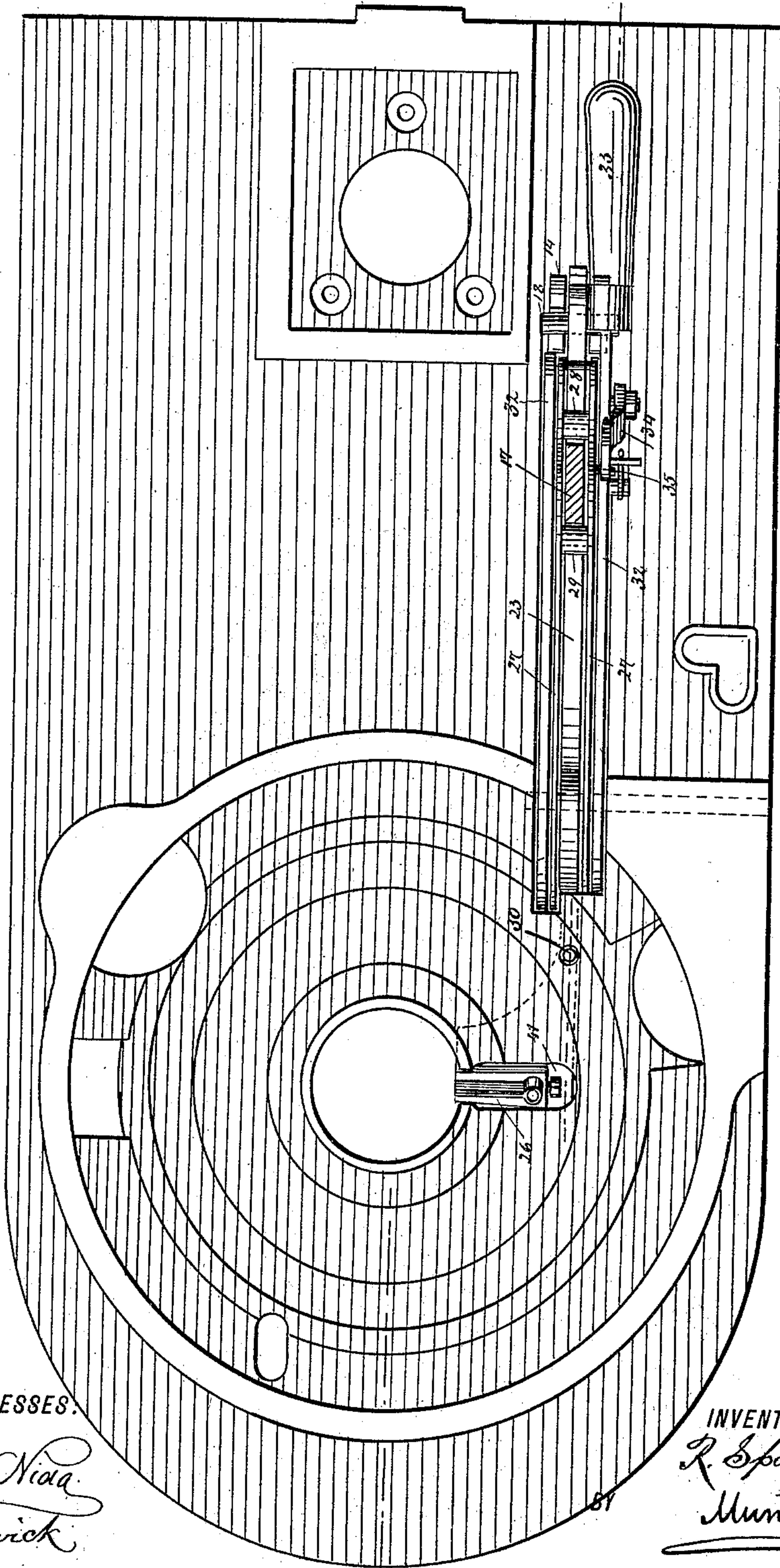
R. SPAHN.

BUTTON HOLE CUTTING ATTACHMENT FOR SEWING MACHINES.

No. 399,638.

Patented Mar. 12, 1889.

*Fig. 1.*



WITNESSES.

*Chas. Nida*  
*Co. Sedgwick*

INVENTOR:

*R. Spahn*  
*Munn & Co*

ATTORNEYS.

(No Model.)

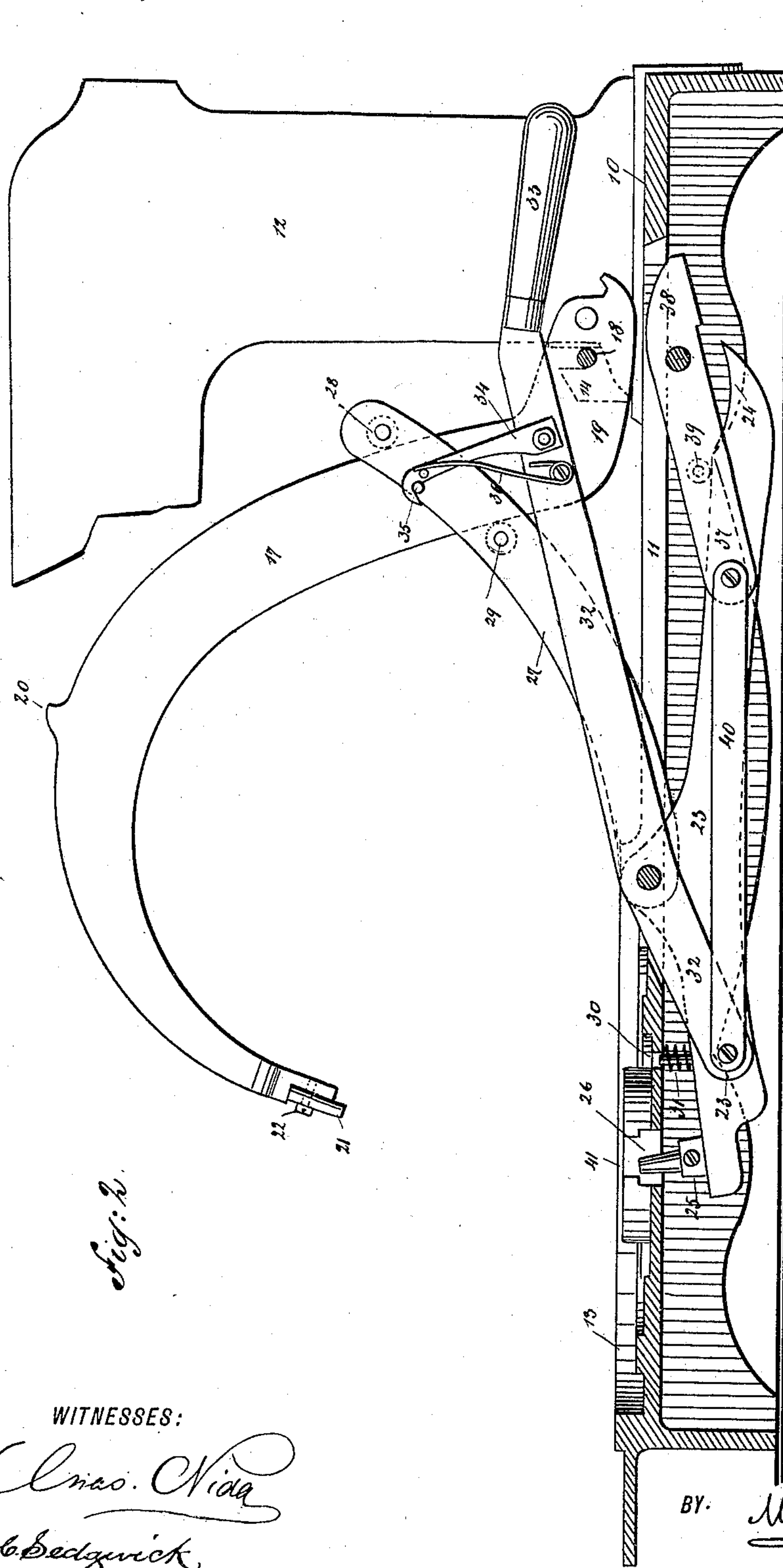
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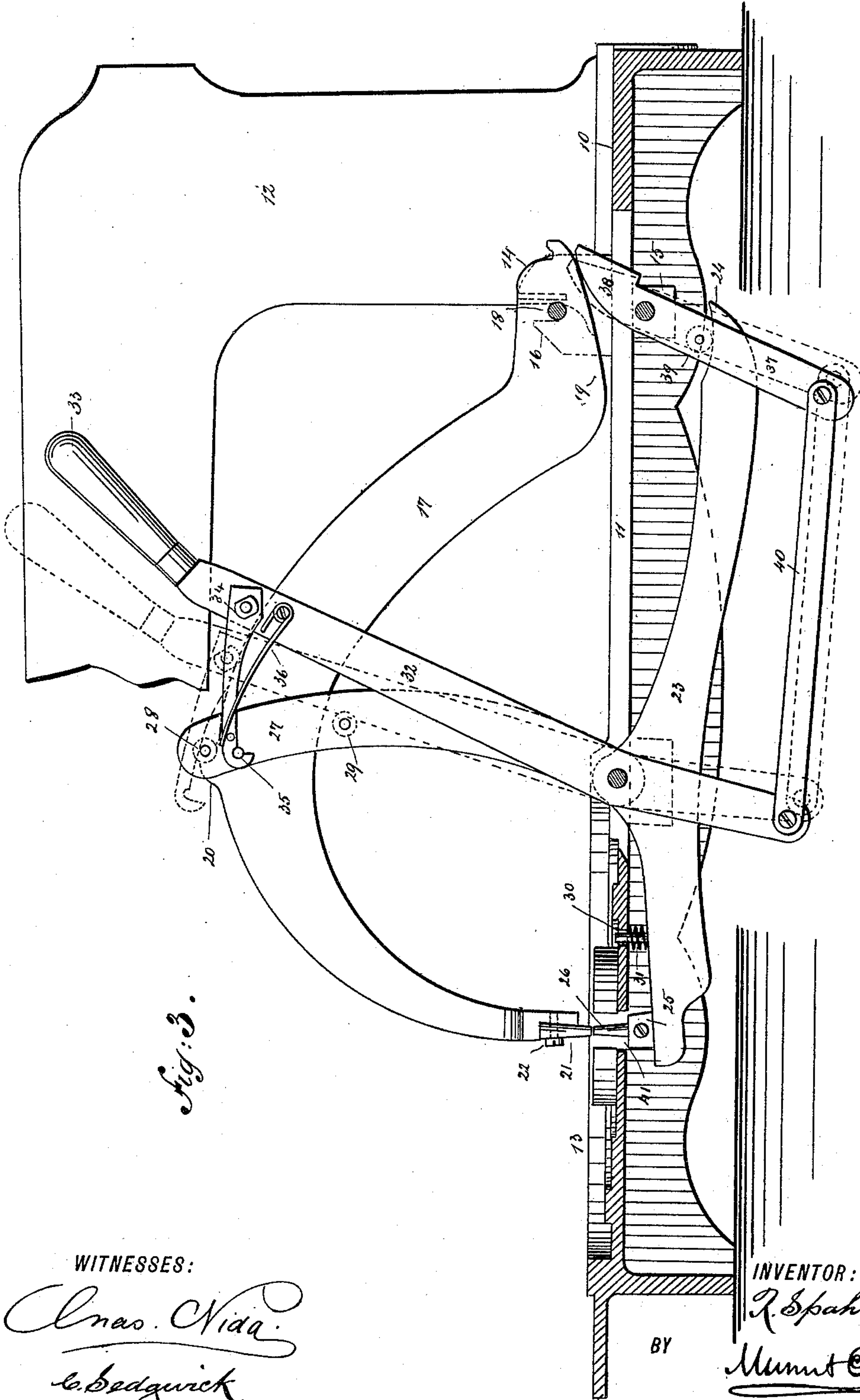
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# UNITED STATES PATENT OFFICE.

RUDOLPH SPAHN, OF BROOKLYN, NEW YORK.

BUTTON-HOLE-CUTTING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 399,638, dated March 12, 1889.

Application filed October 22, 1888. Serial No. 288,747. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLPH SPAHN, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Button-Hole-Cutting Attachments for Sewing-Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in button-hole-cutting attachments for sewing-machines, and has for its object to provide a button-hole cutter especially adapted for use in button-hole machines, which will be simple and durable in construction and capable of expeditious, convenient, and positive manipulation; and a further object of the invention is to provide a device to which cutters of various sizes and shapes may be attached and detached therefrom.

The object of the invention is also to provide an attachment which will not interfere in the least with the proper manipulation of the work upon the bed of the machine.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the bed of a button-hole sewing-machine, illustrating the attachment applied thereto, the said attachment being in partial horizontal section. Fig. 2 is a vertical horizontal section through the bed of the machine, illustrating the attachment in side elevation and in a position of rest; and Fig. 3 is a similar view to Fig. 2 and illustrates the attachment as in position for cutting a button-hole.

In carrying out the invention the bed 10 of the sewing-machine is provided with a longitudinal slot, 11, at one side of the arm 12 and to the rear of the feed-plate of the machine, which plate is not illustrated, the recess 13, adapted to receive the said feed-plate, however, being shown.

At each side of the slot 11 and near the rear end of the same aligning-lugs 14 are produced

upon the upper surface of the bed-plate, and upon the lower face of the bed-plate lugs 15 are provided similarly situated. In the upper lugs, 14, a vertical recess, 16, is produced, in which recesses the rear extremity of a curved arm, 17, is fulcrumed, the fulcrum of the said arm usually consisting of a pin, 18. The rear end of the arm 17 is horizontal and at a right angle to the body, which body is forwardly curved, as best illustrated in Figs. 2 and 3. The horizontal extremity of the arm 17, which for convenience I designate the "heel," is provided with an essentially straight smooth under surface, 19. At or near the center of the said arm 17 a stop, 20, is formed, and the forward extremity of the curved body is recessed to receive any approved form of anvil-block, 21, the said anvil-block being detachably attached within the said recess, preferably through the medium of a set-screw, 22.

An essentially straight arm, 23, is located beneath the bed-plate parallel therewith, which lower arm is pivoted forward of the center in the slot 11, near the forward end of the same, as best shown in Figs. 2 and 3. The upper edge of the rear extremity of the lower arm, 23, is preferably concaved, as shown at 24 in Figs. 2 and 3, and the forward extremity of the lower arm is provided with an integral or attached block, 25, in which block a button-hole cutter, 26, of any desired size is secured in any approved manner.

A rearwardly-curved guide-arm, 27, is pivoted at the lower end in the slot 11 at each side of the pivotal point of the lower arm, 23, and the said guide-arm 27 projects upward at each side of the upper curved arm, 17, being provided at the upper end with a friction-roller, 28, purposed to travel upon the upper edge of the said curved arm, and a second friction-roller, 29, adapted for contact with the under edge of the said curved arm, as clearly shown in Figs. 2 and 3.

The upper friction-roller, 28, when the attachment is manipulated for cutting a button-hole, is brought in engagement with the stop 20, whereby the forward movement of the guide-arm is limited. In constructing the guide-arm 27 the same may be formed of two parallel spaced strips of metal, or a solid bar



may be employed slotted to receive the upper and lower arms, 17 and 23, and the friction-rollers 28 and 29.

The lower arm, 23, is guided through the medium of a pin, 30, integral with the upper edge in advance of the pivotal point, which pin moves freely in an aperture formed in the base-plate. The arm 23 is rendered spring-actuated by coiling a spring, 31, around the pin 30 to a bearing against the upper edge of the said arm and the contiguous surface of the bed-plate.

A compressing-arm, 32, is fulcrumed in the slot 11 by the same pin pivoting the cutter-arm 23 and guide-arm 27. The compressing-arm, which extends downward below the bed-plate at each side of the lower cutting-arm, 23, may be constructed in like manner to the guide-arm 27. The compressing-arm is carried upward from the pivotal point at a slight rearward inclination and made to pass at each side of the guide-arm and the upper curved cutting-arm, as best shown in Figs. 2 and 3.

The compressing-arm 32 is provided with a handle, 33, at the upper end, extending rearwardly at a slight inclination from the body, and the said compressing-arm is further provided upon one side with a pivoted latch, 34, adapted for engagement with a pin, 35, attached to one side of the guide-arm 27, near the upper end and between the upper and lower friction-rollers, 28 and 29. The latch 34 is normally held in contact with the pin 35 through the medium of a spring, 36, attached to the compressing-arm at one end and bearing upon the latch at the other end.

Between the lower lugs, 15, a slotted trip-lever, 37, is pivoted. The upper end thereof is provided with an integral finger, 38, having a curved upper and forward edge, which curved surface is adapted for engagement with the under edge of the heel of the upper curved arm, 17. The trip-lever 37 is carried downward at each side of the rear extremity of the lower cutting-arm, 23, and is provided with a friction-roller, 39, adapted to travel upon the upper edge of the said lower arm. The lower extremity of the compressing-arm 32 and the lower end of the trip-lever 37 are connected by links 40.

A slot, 41, of suitable size and contour, is produced in the recessed portion of the bed-plate, adapted for the reception of the feed-plate, whereby the cutter 26 may be carried upward beyond the upper face of the bed-plate to meet the anvil-block 21 as the said block is lowered.

The normal position of the various parts of the device is illustrated in Fig. 2, from which it will be observed that the arm 17 is elevated a considerable distance above the bed-plate, and does not in the least interfere with the manipulation of the work upon the said bed-plate when the device is not in use.

In operation, the cloth in which the button-hole is to be cut is placed over the slot 41, the handle of the compressing-lever is grasped,

and the said lever carried up from a position at rest upon the heel of the upper arm to the position illustrated in positive lines, Fig. 3—that is to say, the compressing-arm is carried upward until the friction-roller 28 on the guide-arm is brought in contact with the stop 20—and, as two friction-rollers, 28 and 29, are provided for the guide-arm as the compressing-arm is carried upward and forward, the curved cutting-arm 17 is simultaneously compressed and the anvil-block brought downward in the direction of the bed-plate. At the same time the compressing-arm 32, assuming an essentially vertical position, causes the link 40 to act upon the trip-lever 37, and, through the medium of the friction-roller 32, bearing upon the rear end of the lower cutting-arm, 23, the forward end of the said cutting-arm is elevated and brought in contact with the anvil-block of the upper arm. The anvil-block and cutter now bear, respectively, upon opposite sides of the cloth. To produce a clean cut, the compressing-arm is carried still farther forward, whereupon the latch 34 is disengaged from the guide-arm 27, as illustrated in dotted lines in Fig. 2, and the finger 38 of the trip-lever is made to elevate the heel of the upper curved arm, as also shown in dotted lines in Fig. 3, thereby bringing the anvil-block and cutter in close and actual contact.

It will be understood from the foregoing description of the operation that the finger 38 of the trip-lever 37, which is a time-lever, is not made to act upon the heel of the upper cutter-arm until the compressing-arm is essentially carried over the guide-arm, as illustrated in dotted lines, Fig. 3.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the bed of a sewing-machine and a curved cutter-arm fulcrumed at one end upon the upper face of the bed, of an essentially straight cutter-arm pivoted beneath the bed, said cutter-arms being provided with an anvil and cutter, respectively, a pivotal slotted guide-arm embracing the upper cutter-arm, a compressing-arm, a trip-lever engaging the upper and lower cutting-arms, and a link connecting the compressing-arm and trip-lever, substantially as shown and described.

2. The combination, with the bed of a sewing-machine and a curved cutter-arm fulcrumed at one end upon the upper face of the bed, of an essentially straight cutter-arm pivoted beneath the bed, said cutter-arms being provided with an anvil and cutter, respectively, a pivotal slotted guide-arm embracing the cutter-arm, a compressing-arm slotted to receive the upper cutter-arm, a spring-actuated latch connecting the compressing-arm with the guide-arm, a trip-lever engaging the upper and lower cutter-arms, and links connecting the compressing-arm and trip-lever, substantially as and for the purpose specified.

3. The combination, with the bed of a sewing-machine, a curved cutter-arm fulcrumed



upon the upper face of the bed, provided with an essentially straight heel, and a pivoted slotted arm embracing the upper cutter-arm, of an essentially straight spring-actuated cutter-arm pivoted beneath the bed, said cutter-arms being provided with an anvil and cutter, respectively, parallel therewith, a compressing-arm slotted to receive the guide-arm and upper cutting-arm, a trip-lever provided with a finger and friction-roller engaging, respectively, with the upper and lower cutting-arms, and a link-connection between the compressing-arm and trip-lever, substantially as shown and described.

4. The combination, with the bed of a sewing-machine, a curved cutter-arm fulcrumed upon the upper face of the bed, provided with an essentially straight heel and a stop upon the upper edge, and a guide-arm embracing the cutter-arm, provided with spaced friction-rollers, of an essentially straight cutting-arm pivoted beneath the bed, said cutter-arms being provided with an anvil and cutter, respectively, a reciprocating compressing-arm slotted to receive the guide-arm and upper cutter-arm, a spring-actuated latch pivoted to the compressing-arm, engaging with the guide-arm, a trip-lever provided with a finger and friction-roller engaging, respectively, with the

upper and lower cutter-arms, and links connecting the compressing-arm and trip-lever, substantially as shown and described.

5. The combination, with the bed-plate of a sewing-machine and a curved arm fulcrumed at one end upon the upper face of the bed, of an essentially straight arm pivoted below the bed, a detachable anvil-block attached to the upper arm, a detachable cutter secured to the lower arm, a pivoted slotted guide-arm embracing the upper curved arm, and a reciprocating arm embracing the guide-arm and upper arm, a trip-lever, and a link-connection between the trip-lever and the compressing-arm, all combined to operate substantially as and for the purpose specified.

6. The combination, with an upper cutter-arm and a lower cutter-arm provided, respectively, with an anvil and cutter, of a guide-arm engaging the upper cutter-arm, a compression-arm having a latch at its upper end detachably engaging the guide-arm, and a time trip-lever engaging the said cutter-arms, substantially as and in the manner set forth.

RUDOLPH SPAHN.

Witnesses:

HENRY SCHIEFER,  
I. STEIL.