

(Model.)

3 Sheets—Sheet 1.

L. ONDERDONK.

RUFFLING AND PLAITING ATTACHMENT FOR SEWING MACHINES.

No. 272,309.

Patented Feb. 13, 1883.

Fig. 1.

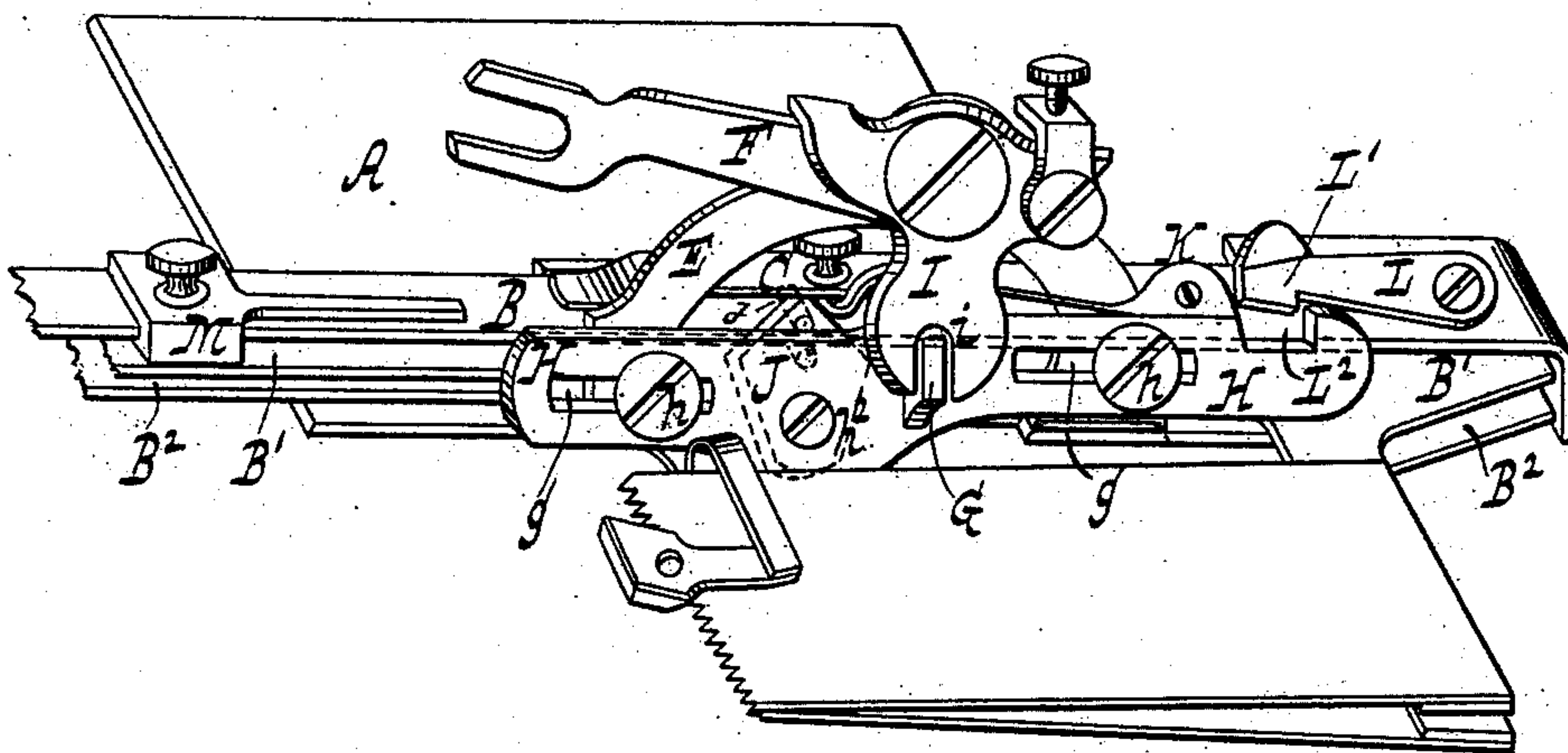
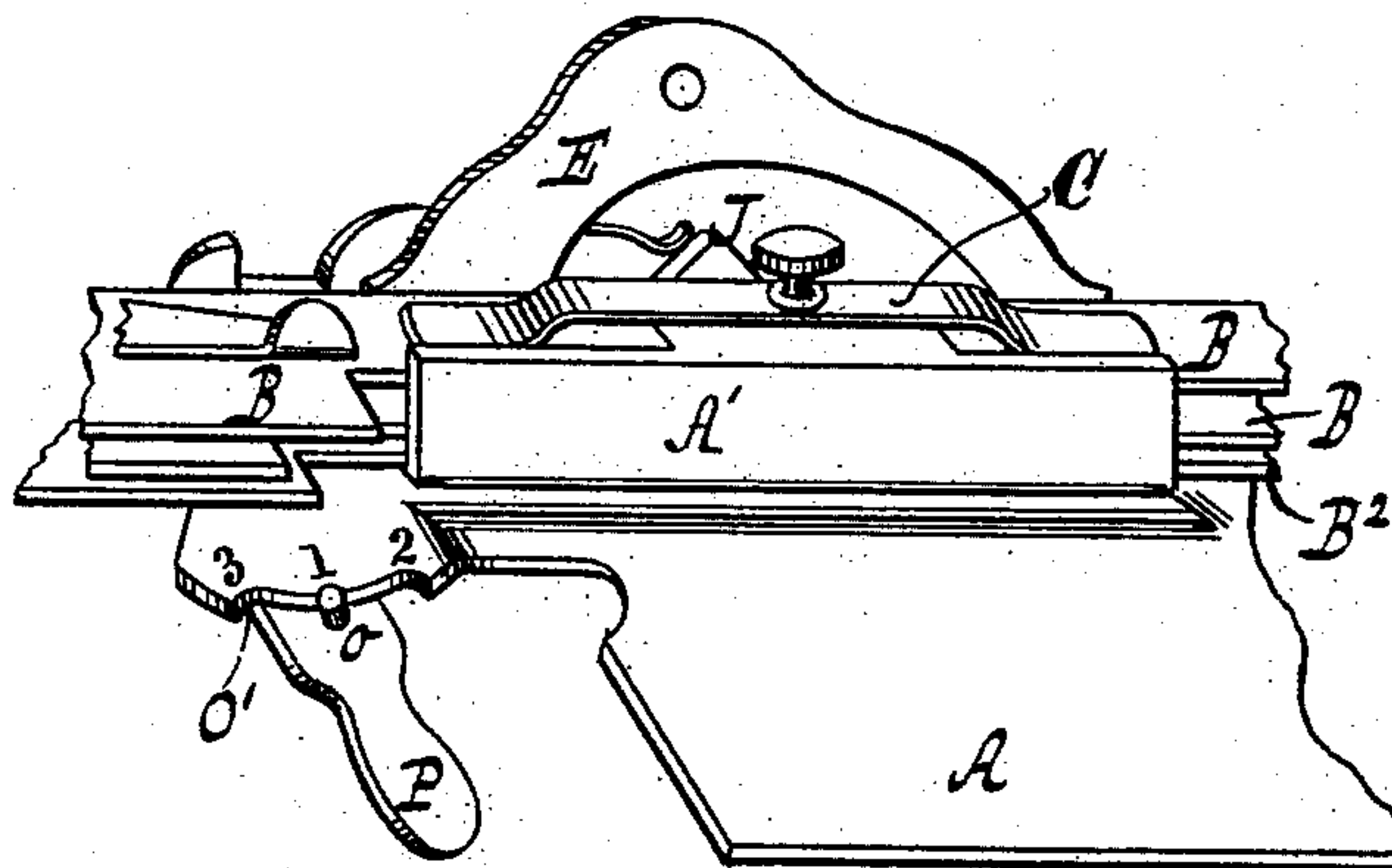


Fig. 2.



Witnesses.

*Charles A. Dwyer*  
*Samuel W. Hunt*

Inventor.

*Laurence Onderdonk by*  
*Henry F. Wells his atty.*

(Model.)

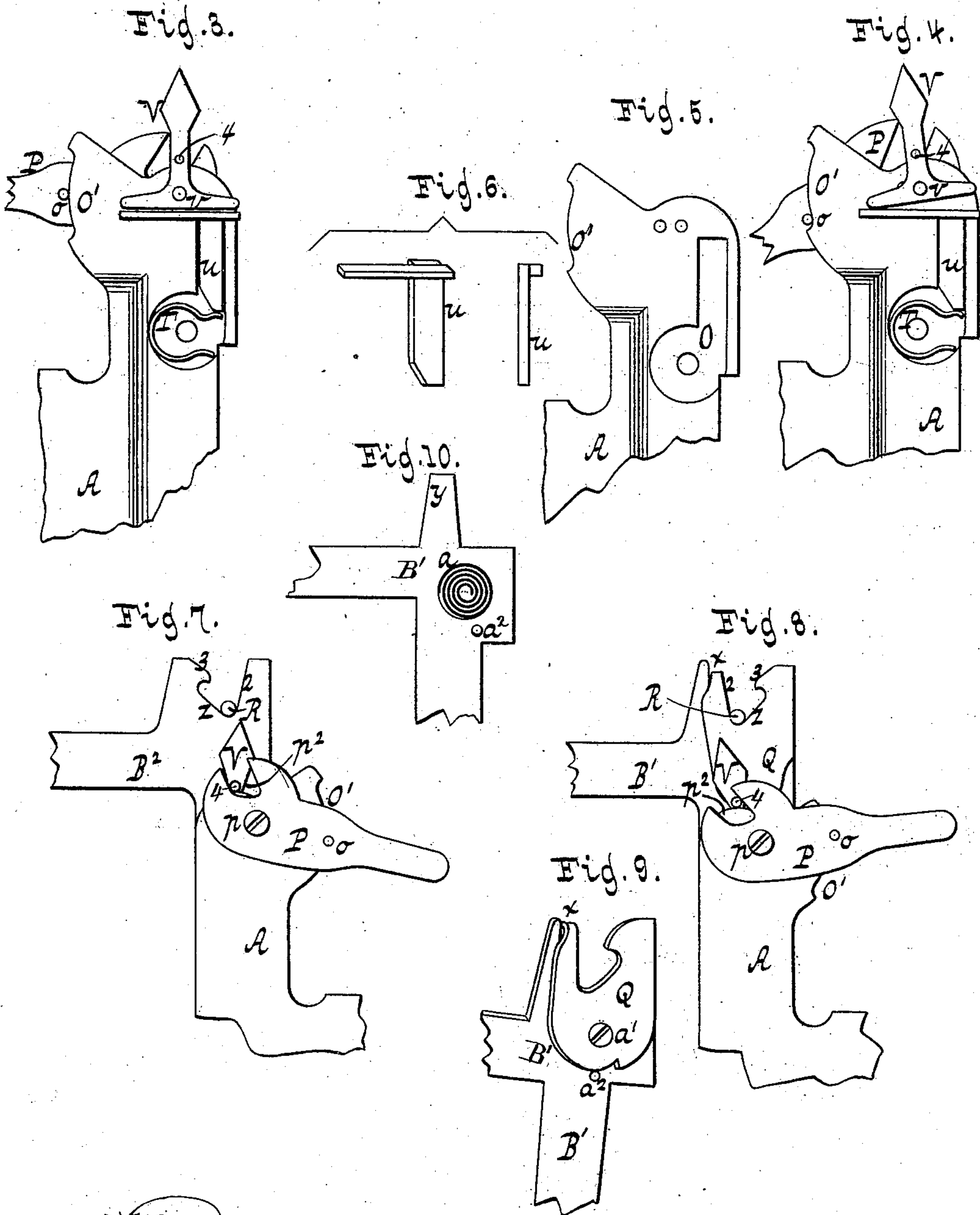
3 Sheets—Sheet 2.

L. ONDERDONK.

RUFFLING AND PLAETING ATTACHMENT FOR SEWING MACHINES.

No. 272,309.

Patented Feb. 13, 1883.



Witnesses.  
*Charles D. Dyer*  
*Louis R. Frost*

Inventor.  
*Lousing Onderdonk*  
*Young & Wells in aty.*

(Model.)

3 Sheets—Sheet 3.

L. ONDERDONK.

RUFFLING AND PLAITING ATTACHMENT FOR SEWING MACHINES.

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Fig. 11.

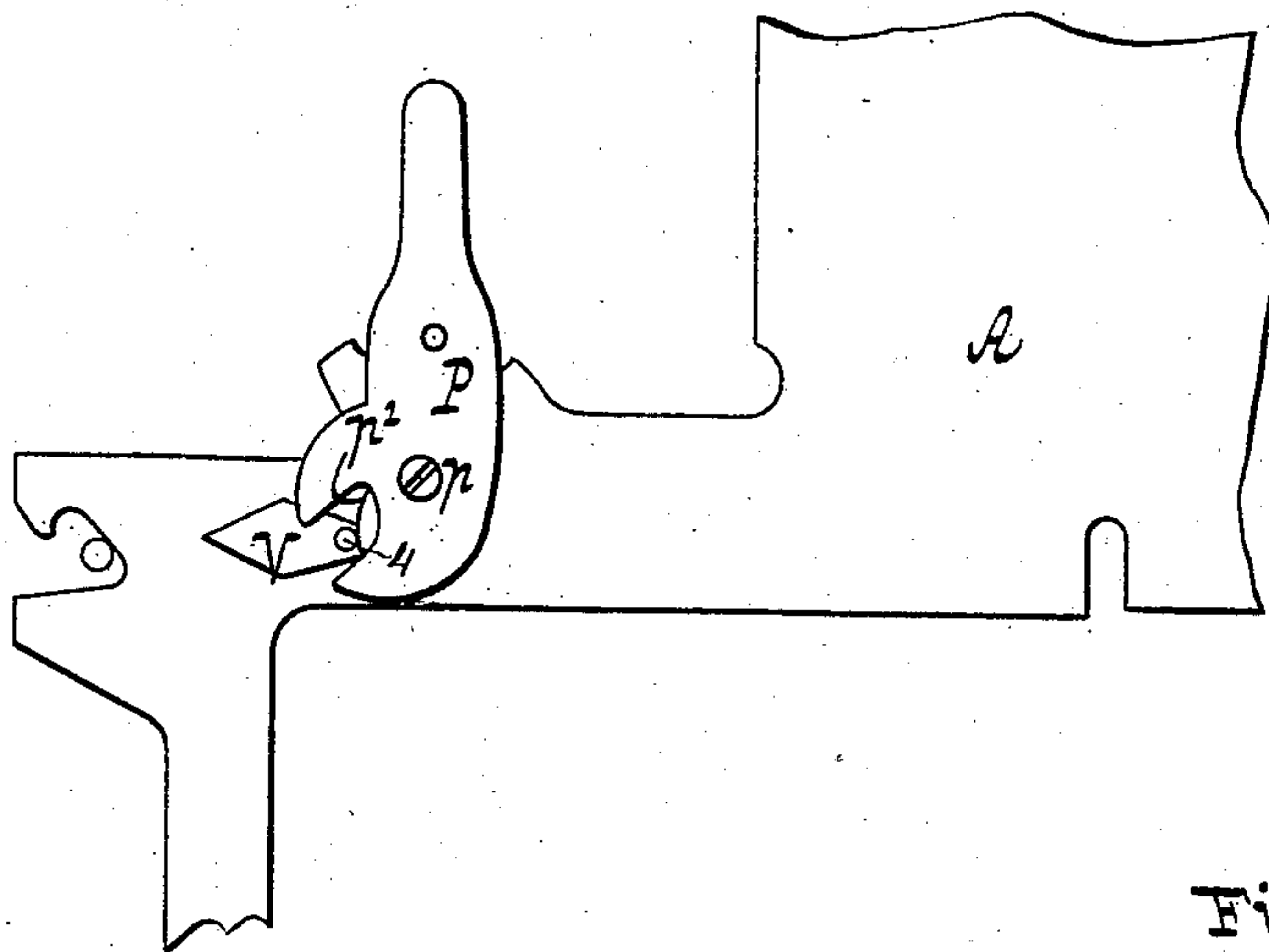


Fig. 12.

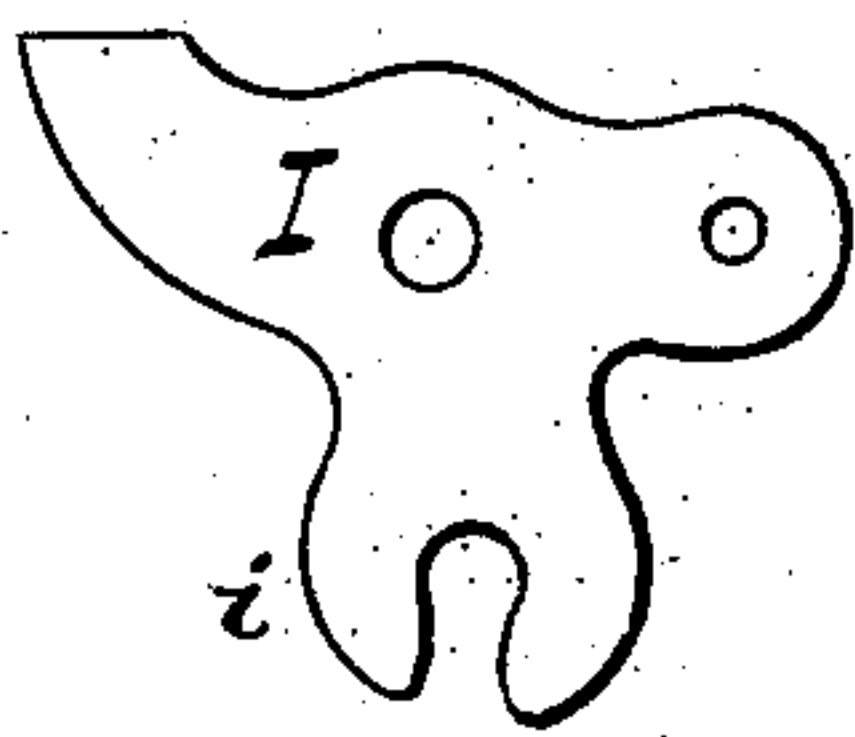


Fig. 16.

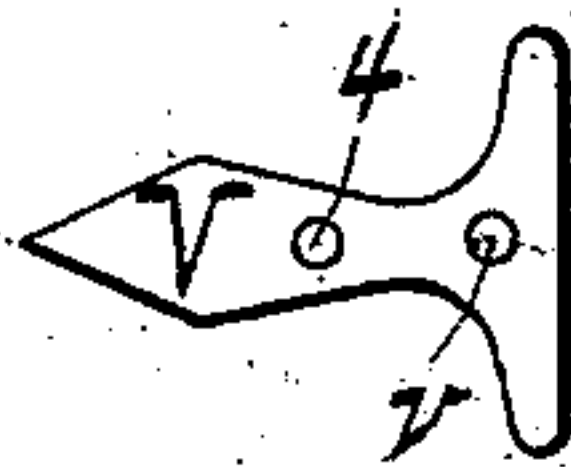


Fig. 18.



Fig. 19.

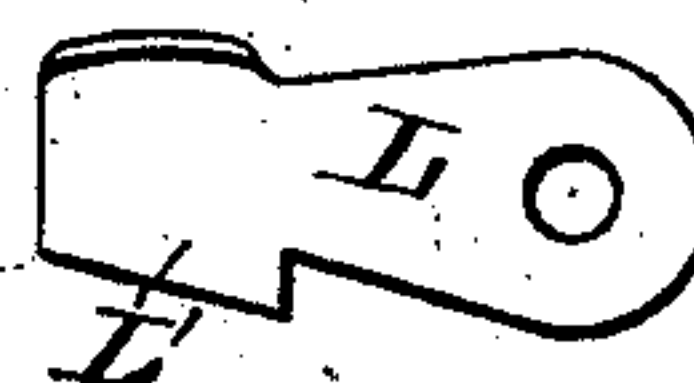


Fig. 13.

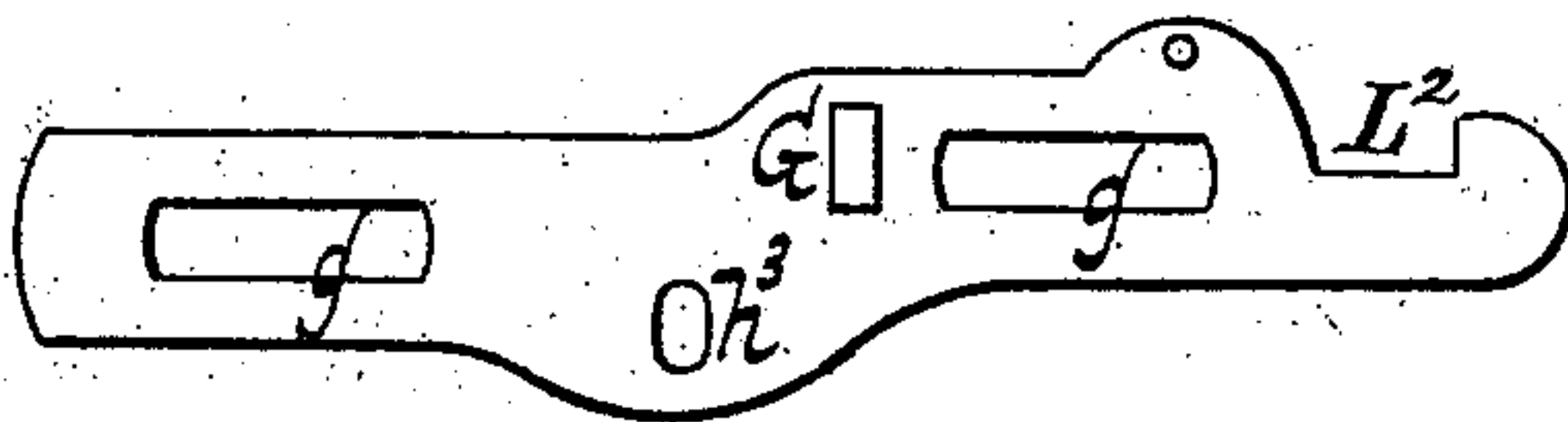


Fig. 14.

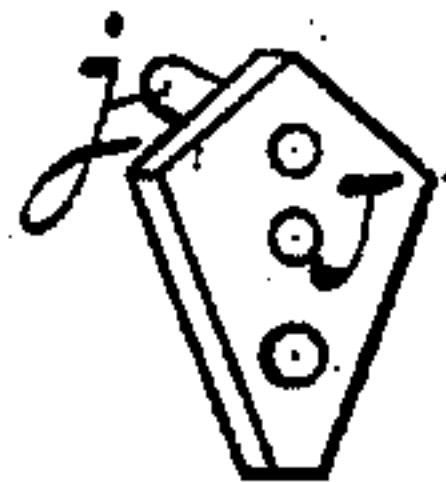
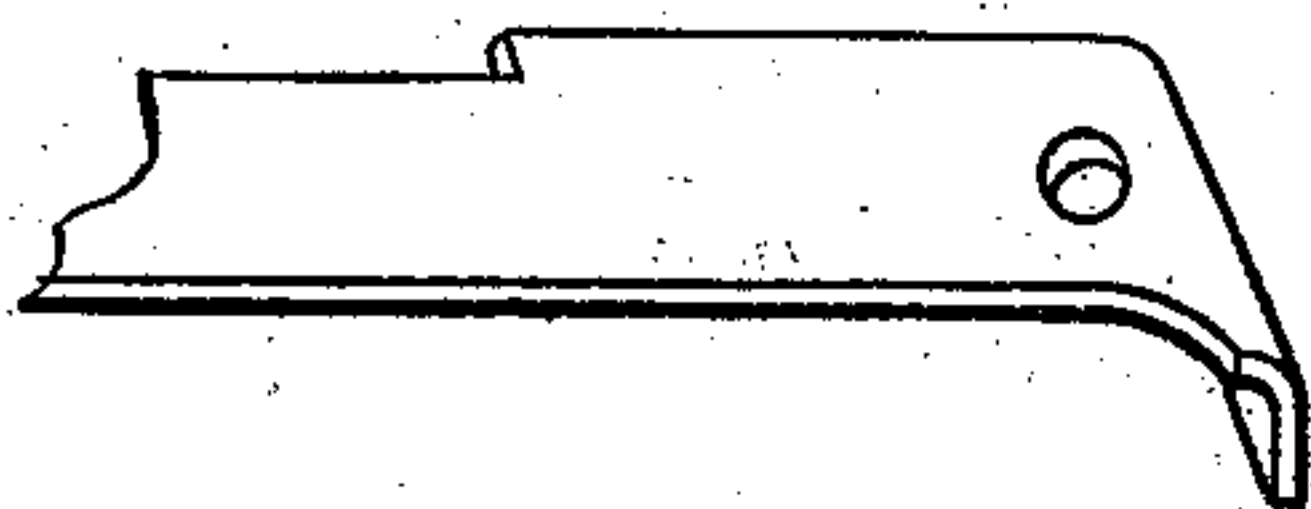


Fig. 15.



Fig. 20.



Witnesses.

*Charles H. Dwyer*  
*Louis H. Frost*

Inventor.

*Louising Onderdonk*  
*Henry F. White his atty.*



# UNITED STATES PATENT OFFICE.

LANSING ONDERDONK, OF PLAINFIELD, NEW JERSEY, ASSIGNOR OF ONE-HALF TO HENRY P. WELLS AND CAMPBELL C. BROWN.

## RUFFLING AND PLAITING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 272,309, dated February 13, 1883.

Application filed August 25, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, LANSING ONDERDONK, of the city of Plainfield, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Ruffling and Plaiting Attachments for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in and upon a plaiting attachment for sewing-machines for which Letters Patent of the United States numbered 231,844 were granted to me and to Campbell C. Brown and Henry P. Wells, August 31, 1880.

The improvement consists in the construction and arrangement of parts, as will be hereinafter described in the specification and pointed out in the claims.

Figure 1 illustrates a perspective view of my attachment as improved, looking on the left side of the same, and showing said friction-clutch and the parts co-operating therewith. Fig. 2 represents the bed-piece which sustains and upon which travel the working parts of my invention, as modified, viewed from the right side. Fig. 3 represents the switch-lever, its follower, and its spring, which form part of the shifting device. Fig. 4 represents the same, showing the switch-lever thrown to one side in the position it assumes in the act of throwing over the tumbler attached to the upper slide to lock the same to one of the cloth-carrying slides. Fig. 5 represents a portion of the bed-piece, viewed from underneath, to show the recess, in which are placed the spring and the follower, through which its motion is transmitted to the switch-lever. Fig. 6 shows a perspective and elevation of the said follower. Figs. 7 and 8 show a locking-lever in combination with the switch-lever aforesaid, by which the motion of the latter is controlled, so that the carrying-slide may be made to engage continuously with either cloth-carrying slide at will. Fig. 9 shows a portion of that extremity of one of the cloth-carrying slides to which the crimping-blade is attached, and a hook hinged to the same. Fig. 10 shows the same with the hook removed, and shows a recess and the spiral spring therein for the pur-

pose of erecting the hinged hook when the same is pushed aside. Fig. 11 represents another view of a portion of the bed-piece, when viewed from underneath, as combined with the locking-lever, the switch-lever, and a portion of one of the cloth-carrying slides. Fig. 12 shows a detached view of an auxiliary lever adjustably connected to the operating-lever, and which actuates the carrier to which the friction-clutch is attached. Fig. 13 shows a detached view of the carrier to which the friction-clutch is attached. Fig. 14 represents the friction-clutch. Fig. 15 is a detached view of a spring which, when the parts are assembled, is fastened to the carrier shown in Fig. 13, and bears upon one or the other of the inclined surfaces of the friction-clutch. Fig. 16 is a detached view of the switch-lever. Fig. 18 shows a plan and perspective view of the locking-lever. Fig. 19 shows a latch which is hinged upon the upper surface of the carrying-slide, and which serves to lock the same to the carrier shown in Fig. 13 when it is desired to gather. Fig. 20 shows the extremity and surface of the carrying-slide upon which the latch aforesaid is fulcrumed.

Like parts of this and my former patent are indicated by like letters.

In the drawings, A, as in my former patent, indicates a plate adapted to be secured to the bed of a sewing-machine, to which is attached the casing A', in which the carrying and cloth-carrying slides move back and forth.

B indicates a carrying-slide similar in all respects to the rack-bar in my former patent, except that the teeth forming the rack are omitted.

B' and B<sup>2</sup> represent the cloth-carrying slides, as in my former patent.

C is the friction-spring, as heretofore.

E is the vertical standard, to which, at its upper end, is fulcrumed the levers F and I, as before. These levers are placed on the left instead of the right side of the standard. The form of the standard is also changed, as shown clearly in Fig. 2.

I is the supplemental lever, fulcrumed to the standard E, and connected with the operating-lever F, as before, except that it is attached to



the left side of the standard, as aforesaid. This supplemental lever is of the form shown in the detached view, Fig. 12. Its lower extremity terminates in a fork, *i*, which engages with a stud, *G*, projecting from the reciprocating carrier *H*, which is connected with the bed-piece by two screws, *h h*, passing through the slots *g g*, so that the carrier *H* may move to and fro through a distance equal to the length of the slots. The said carrier *H* carries with it, and fulcrumed to it by a screw, *h<sup>2</sup>*, passing through an oval slot, *h<sup>3</sup>*, Fig. 13, a friction-clutch, *J*, provided with two pins, *j j*, between which the carrying-slide *B* passes. A spring, *K*, is attached to the carrier *H*, its free end bearing on one or the other of the inclined surfaces of the friction-clutch *J*. This friction-clutch is the same invention for which Letters Patent of the United States, dated August 31, 1880, and numbered 231,843, were granted to me, Campbell C. Brown, and Henry P. Wells, for an "automatic reversible clutch," and its form and method of operation are the same as shown and described in that patent, except that in the present application the said clutch is inverted.

*M* indicates an adjustable trip, as in my former patent, except that the same is straight and not curved. A short pin fastened in and projecting above the upper surface of the carrying-slide *B* serves to trip the clutch *J* when the slide *B* is moving inward, and it is substituted for the curved trip *L* in my former patent. It is not shown in the drawings; but it is placed just over the forward end of the safety-notch shown and described in my Letters Patent for the clutch aforesaid, so that it will come in contact with the upper pin, *j*, of the friction-clutch when the carrying-slide *B* has moved inward almost to its shoulders, and thus trip and reverse the clutch. In Fig. 1 of the drawings of the present application (with the carrying-slide *B* in the position shown) this pin is concealed by the stud *G* on the carrier *H*. The carrying-slide *B* is provided at its bent extremity, on its lower side, with a tumbler or shifting device, as before.

The forward end of the bed-plate *A* is channeled out, as shown at *O* in Fig. 5. In it (see Figs. 3 and 4) is placed a spring, *T*, one end of which bears against the side of the recess and the other against an L-shaped follower, *u*. (Shown detached in Fig. 6.) The switch-lever *V* (shown detached in Fig. 16) is fulcrumed at *v* on a pin inserted in the bed-piece, and vibrates from side to side on the same in the plane of the bed-piece. A locking-lever, *P*, is attached to the lower side of the bed-piece by a screw, *p*, on which it is fulcrumed, as shown in Fig. 11. (See also Fig. 2.) It is enlarged at its shorter extremity, where it is provided with an opening, *p<sup>2</sup>*, which embraces a pin, *4*, inserted in the switch-lever *V*, so that the motion of said switch-lever *V* may be controlled thereby. The bed-piece *A* is provided with a recess, as shown at *O'*, Fig. 2, so as to form a

stop for and restrict the motion of the locking-lever *P* by encountering the pin *o* when the locking-lever is moved in either direction to its proper limit. The form and method of combination of these parts—to wit, the switch-lever *V* and the locking-lever *P*—will be clearly seen from inspection of Figs. 3 and 4, which show them in operative position when viewed from below, and Figs. 7 and 8, which show them viewed from above.

A latch, *L*, (shown detached in Fig. 19.) is secured to the upper surface of the carrying-slide *B*, as shown in Fig. 1, and is so arranged that its extremity *L'*, when the slides are in the position shown, may be locked into the slot *L<sup>2</sup>* in the carrier *H*.

The forward extremity of the lower cloth-carrying slide, *B<sup>2</sup>*, is provided with a hook, as heretofore, but of the form as shown in Fig. 7, which shows the same viewed from underneath.

The upper cloth-carrying slide, *B'*, terminates as shown in Fig. 10. It is countersunk at *a* to receive a spiral spring, one end of which spring is secured to the slide, and the other end to a hinged hook, *Q*, secured to the lower surface of said slide, as shown in Figs. 8 and 9. The hinged hook *Q* is pivoted to the lower surface of the slide *B'* at *a'*, Fig. 9. A stop and pin, *a<sup>2</sup>*, prevent its moving too far in one direction, while the extremity marked *x* is bent upward so as to strike against the projecting end of the slide, (marked *y*, Fig. 10,) and thus limit its motion in the other direction.

Having now described the various parts of my invention, so far as the same have been varied from my former patent, I will now describe the method of their operation.

The lever *F*, being attached to the needle-bar of the sewing-machine, rises and falls with it, and imparts its motion to the supplementary lever *I*, as before. As the lever *I* oscillates it carries the stud *G* with it, and thus imparts a reciprocating motion backward and forward to the carrier *H*. To the carrier *H* is fulcrumed at *h<sup>2</sup>* the friction-clutch *J*. The fulcrum-screw of said clutch is fastened in the clutch, passing through an elongated opening in the carrier *H*, as shown at *h<sup>3</sup>*, Fig. 13, so that the clutch may rise and fall slightly as its inclination varies. The carrying-slide *B* passes between the pins *j j* of the clutch. The interval between said pins is sufficient to allow the slide to pass freely when the clutch is nearly perpendicular; but when the clutch is inclined to any extent it is clear the pins will grip the slide firmly, and if the clutch moves the slide must move with it. The position of the spring *K*, as it bears upon the one or the other side of the double incline forming the upper edge of the clutch, determines the direction in which the slide *B* will be moved. When the apex of the clutch inclines toward stop *M* the spring *K* will bear upon the incline nearer the latch *L*. (See Fig. 1.) Then, as the lever *F* rises and



the carrier H is moved toward the stop M, the pins of the clutch will slip over the carrying-slide B; but when the motion is reversed and the carrier H moves in the opposite direction the spring tends to and does incline the clutch and jam the slide between its pins, and the more the slide resists the more the clutch tends to incline and the tighter it bites the slide. Thus as the carrier H continues to move it drags the clutch, and consequently the slide, with it until the motion of the carrier H is reversed. Then the clutch slips back and with the next change of direction of the carrier H takes a fresh hold and moves the slide, as before. Thus the slide B is moved forward intermittently in one direction as long as the spring K bears on the incline of the clutch aforesaid; but should the bearing of the spring be shifted to the other face it is clear that the clutch will then slip on the downstroke of the lever F and bite on the upstroke, and the slide B will be moved inward. The position of the spring K, and consequently of the clutch, and the direction in which the slide B will move, will all change whenever the pins of the clutch come in contact with anything which arrests the motion of the clutch, while the carrier H continues to move. The adjustable stop M furnishes one such obstacle, and a pin set in the carrying-slide B in a position nearly abreast the stud G (when the slide B is in the position shown in Fig. 1) furnishes the other. Thus the carrying-slide B receives a reciprocating motion of greater or less extent, governed by the position at which the adjustable stop M is placed. The motion of the slide B is transmitted to the cloth-carrying slides B' and B<sup>2</sup>, as follows: The slide B is provided on its under side with a shifting device or tumbler, just as in my former patent, No. 231,844. As the slide B moves outward the pin on the under side of this tumbler engages in the hook of one of the cloth-carrying slides, B' or B<sup>2</sup>, as heretofore, and carries the slide with it. The slide B, having moved its allotted space, reverses and begins to go back. The pin on the tumbler (marked R, Fig. 7) then encounters the incline *z* just below the hook, and is drawn down said incline to the bottom thereof, as shown in Fig. 7. This moves the tumbler over and disengages the pin R from the hook. Both slides (let us say B and B<sup>2</sup>) go inward together until the pin R on the tumbler strikes the straight side of the slot 2 in the end of the slide B'. It is clear (see Fig. 3) from the construction of the switch-lever V and its combination with the follower *u* and spring T that the normal position of the said switch-lever is upright, as shown in Fig. 3. The incline *z* at the bottom of the slot in the slide B<sup>2</sup> is so constructed that when the pin R of the tumbler reaches its bottom it (the pin) will lie outside of the median line of the slide. Since the apex of the switch-lever V is on this line, the pin R of the tumbler is caught between its point and the inclined portion of the hook 3 in the end of the slide

B'. Any tendency to jam is relieved by the hinged hook of the slide B' springing outward. The pin R of the tumbler then strikes against the portion 2 of the slide B<sup>2</sup>, and can go no farther in that direction. Consequently as the pin continues to move inward the switch-lever V is inclined, as shown in Fig. 4; and this continues until the pin R has passed the hook of the slide B'. Then, since it is free to move in that direction, the switch-lever V throws it over into engagement with the hook of the slide B', and on the next trip of the carrying-slide B the cloth-carrying slide B' goes with it, while B<sup>2</sup> remains at rest. Box-plaiting is the result.

It is clear that the switch-lever V controls in great measure the alternate engagement of the pin R with the hooks of the slides B' and B<sup>2</sup>. If, therefore, the switch-lever be locked while inclined in either direction and retained in that position, the pin R of the tumbler will not be thrown over, and will consequently remain constantly engaged with one and the same slide. This is the office of the locking device P. (See Figs. 7 and 8.) If the same is set at the "3" stamped on the bed-piece, (see Fig. 2,) the switch-lever will then be locked, as shown in Fig. 8, and only the slide B' will act on the cloth, and knife or side plaiting will result. If, on the contrary, it is set at the "2" stamped on the bed-piece, (see Fig. 2,) then the lower slide, B<sup>2</sup>, alone will be constantly carried out and in, and knife plaiting, but with the fold the other way, will result. If set at "1," as stamped on the bed-piece, the switch-lever is free, and the attachment is ready to do box-plaiting.

Should it be desired to gather, when the slides are all in the position shown in Fig. 1, place the projection L' of the latch L into the slot L<sup>2</sup> of the carrier H. The carrying-slide will then be moved directly by the carrier H through the latch L, and will move backward and forward a short distance with each rise and fall of the needle-bar, imparting the same motion to the cloth-carrying slide, with which it then happens to be engaged, and gathering will result.

No further directions other than those in my former patent contained are required to operate my invention as improved.

Having now described my invention, what I claim as new, and desire to Patent, is—

1. The combination, with the actuating-levers, one of which is adapted to be attached to the needle-bar of a sewing-machine and to engage with the other, of a reciprocating carrier, a friction-clutch having reversely-inclined bearing-surfaces, and the spring K, adapted to bear against either inclined face of said clutch for the purpose of holding the clutch in position to operate in either direction.

2. In a gathering and plaiting attachment, the combination of a carrying-slide, B, a friction-clutch, J, mechanism for operating said



clutch, the carrier H, and devices connected to and moving with said carrying-slide for tripping said clutch, whereby the said clutch will be prevented from feeding the carrying-  
5 slide beyond a certain point in one direction, and upon being reversed will move the same in an opposite direction, substantially as specified.

3. The combination of the carrying-slide  
10 provided with the latch L, and carrier H, provided with a suitable recess, the operating-levers, and the clutch J, whereby the said carrier may be locked to said carrying-slide for the purpose of gathering, substantially as de-  
15 scribed and shown.

4. The combination, with the carrying-slide and mechanism for reciprocating said carry-

ing-slide, the cloth-carrying slides provided with engaging hooks, a tumbler pivoted to the carrying-slide, provided with a pin, R, the  
20 switch-lever V and its follower u, and spring T, whereby the tumbler is shifted, so that its pin R may be alternately engaged by the hooks of the respective slides, substantially as and  
25 for the purpose specified.

In testimony that I claim the foregoing improvement in plaiting attachments for sewing-machines, as above described, I have hereunto  
set my hand this 22d day of August, 1881.

LANSING ONDERDONK.

Witnesses:

CHARLES G. COE,

R. T. VAN BOSKERCK.