

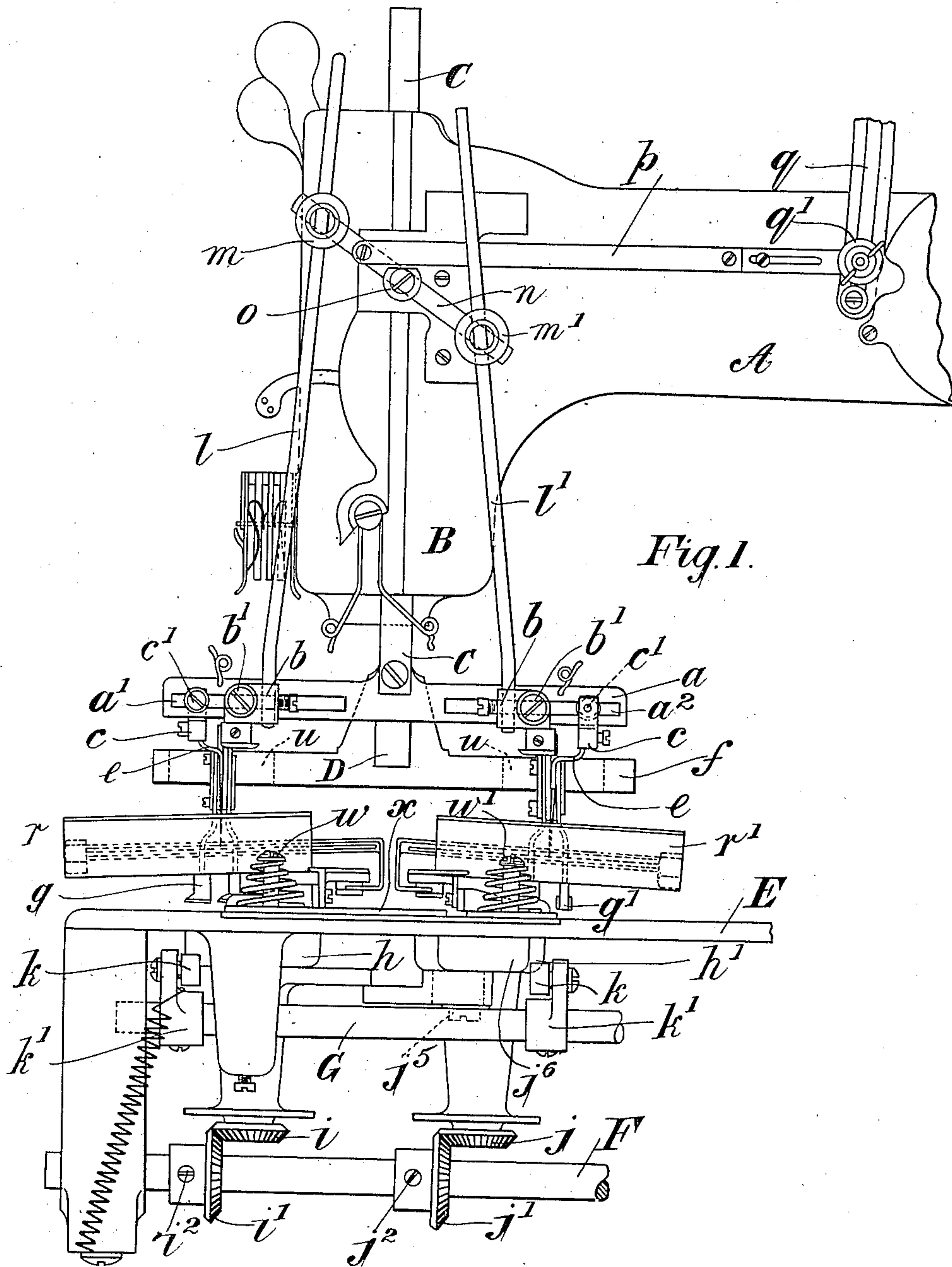
No. 825,741.

PATENTED JULY 10, 1906.

A. A. MacKENZIE.  
SEWING MACHINE.

APPLICATION FILED MAR. 11, 1905.

5 SHEETS—SHEET 1.



Witnesses:-

C. H. Crawford  
L. Waldman

Inventor:-

Andrew Alexander Mackenzie  
by B. Smith

Attorney



No. 825,741.

PATENTED JULY 10, 1906.

A. A. MacKENZIE.  
SEWING MACHINE.

APPLICATION FILED MAR. 11, 1905.

5 SHEETS—SHEET 3.

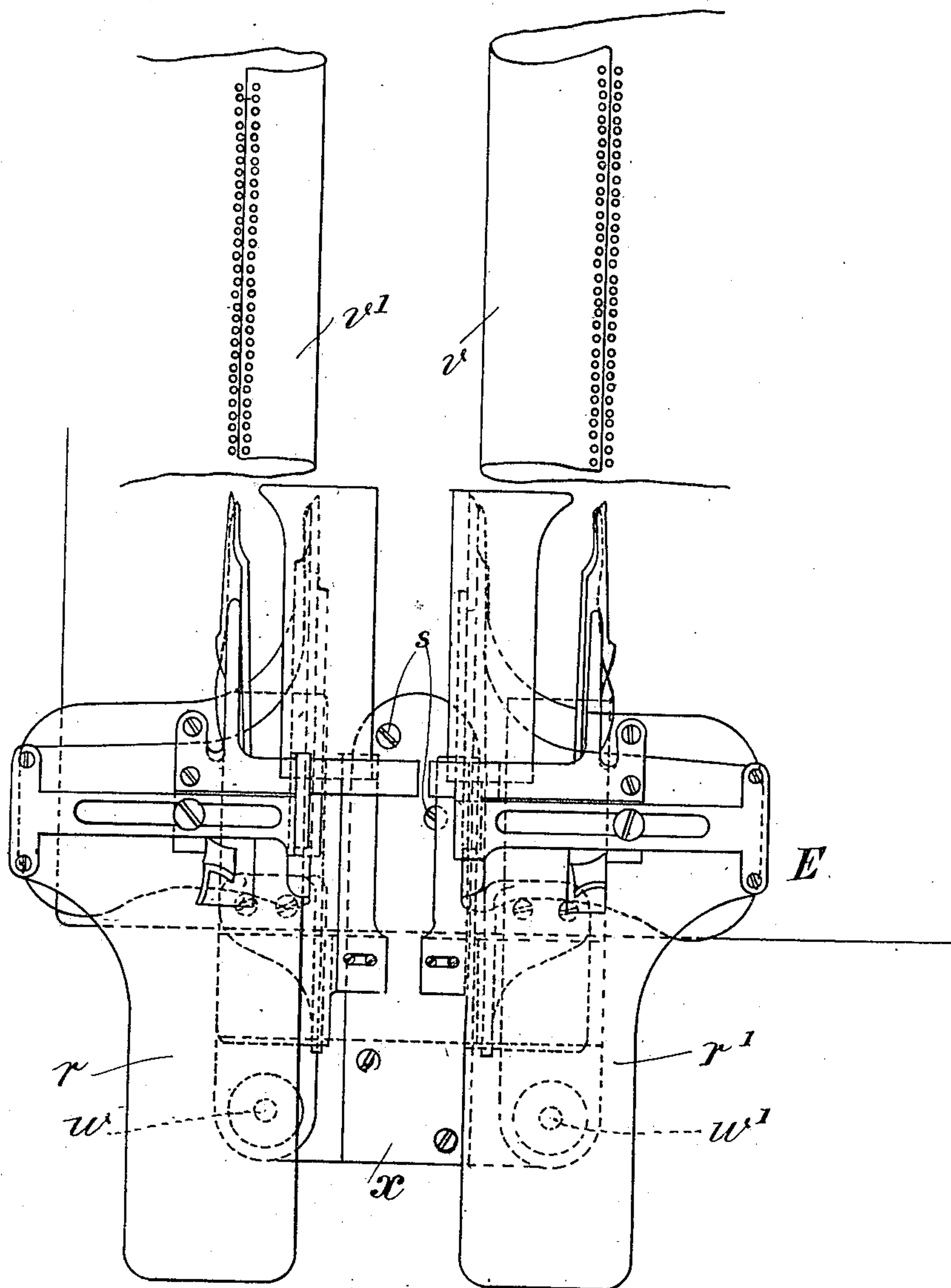


Fig. 3.

Witnesses:-

C. H. Crawford  
L. Waldman

Inventor:-

Andrew Alexander Mackenzie

by B. Singer

Attorney



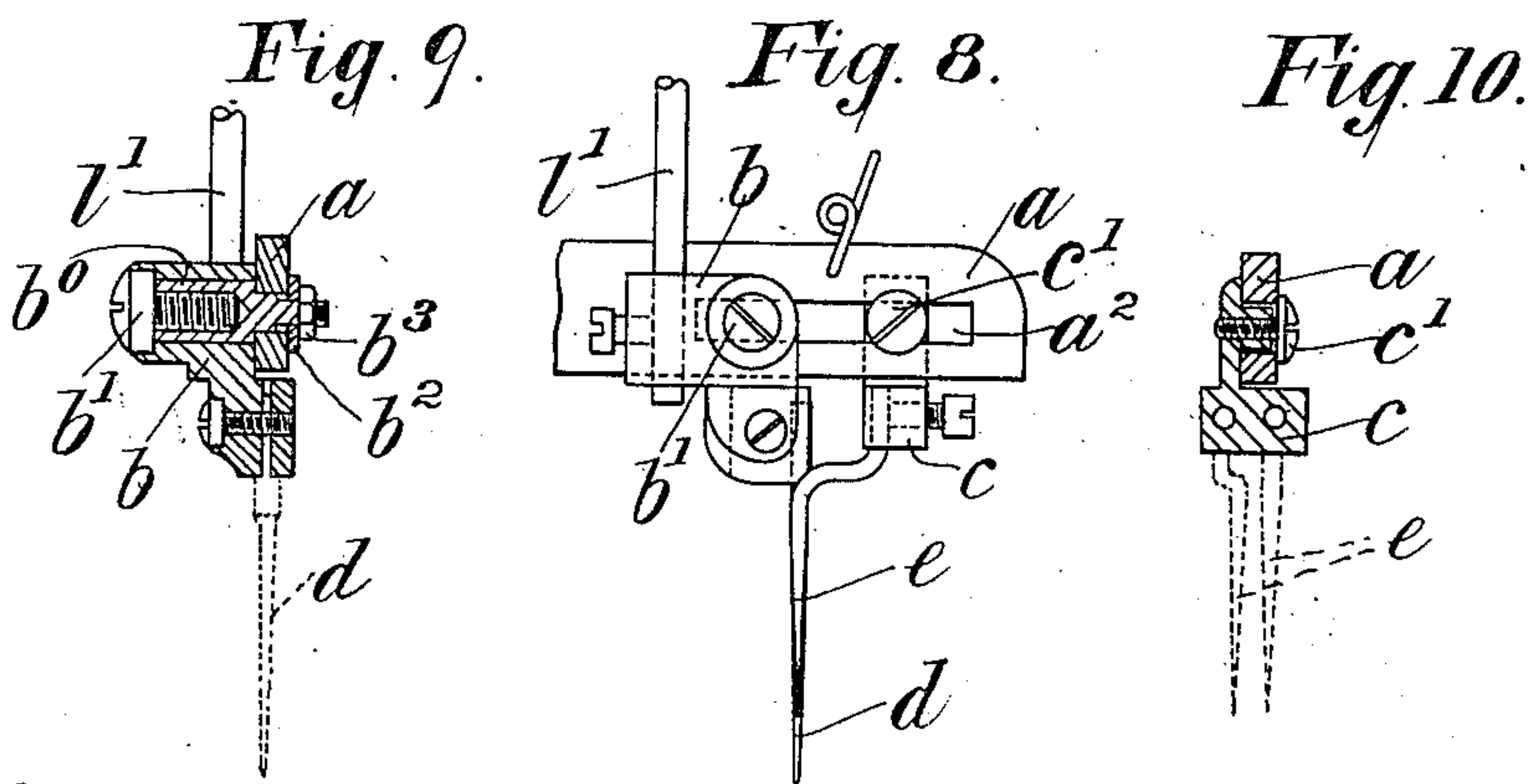
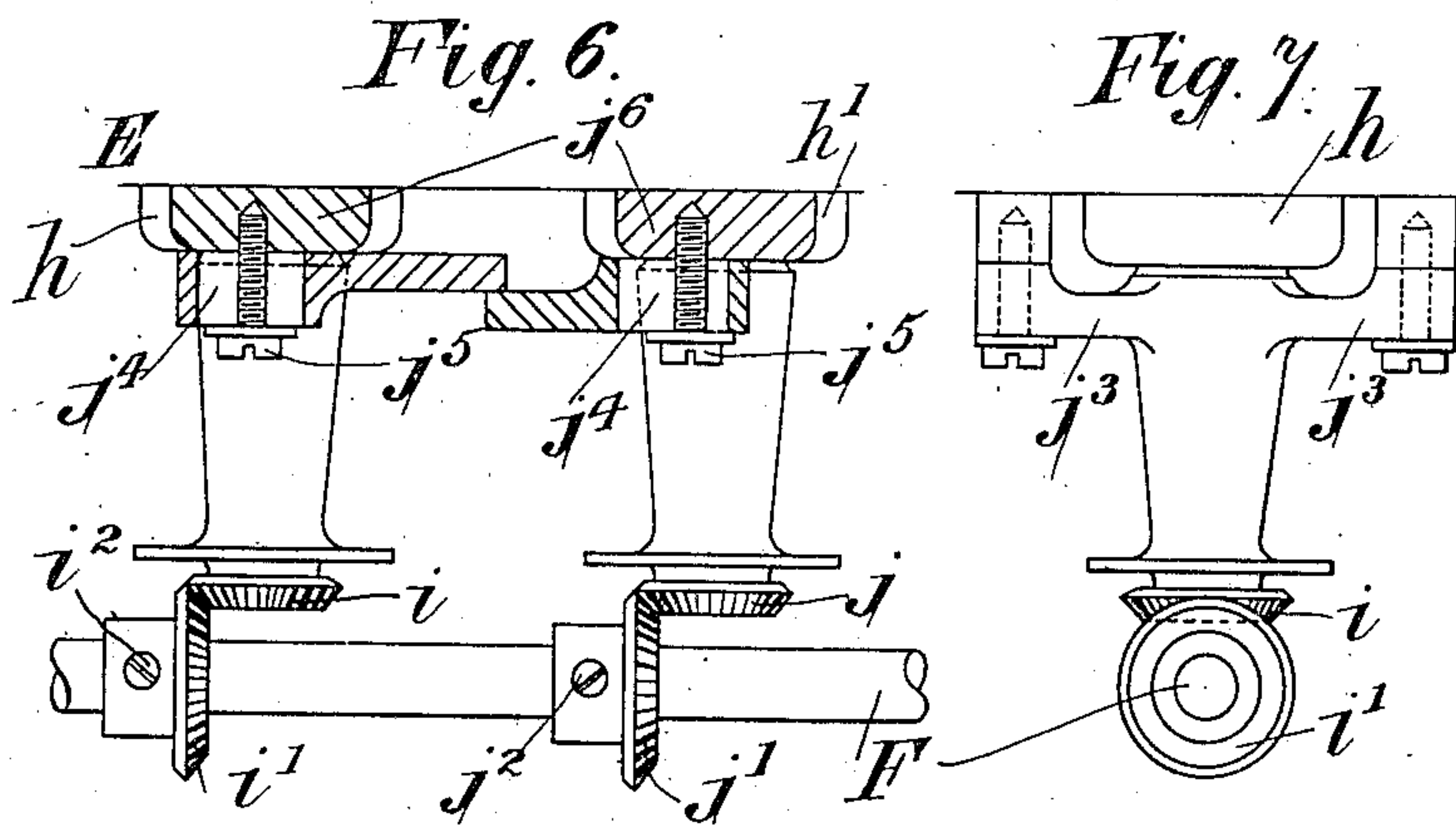
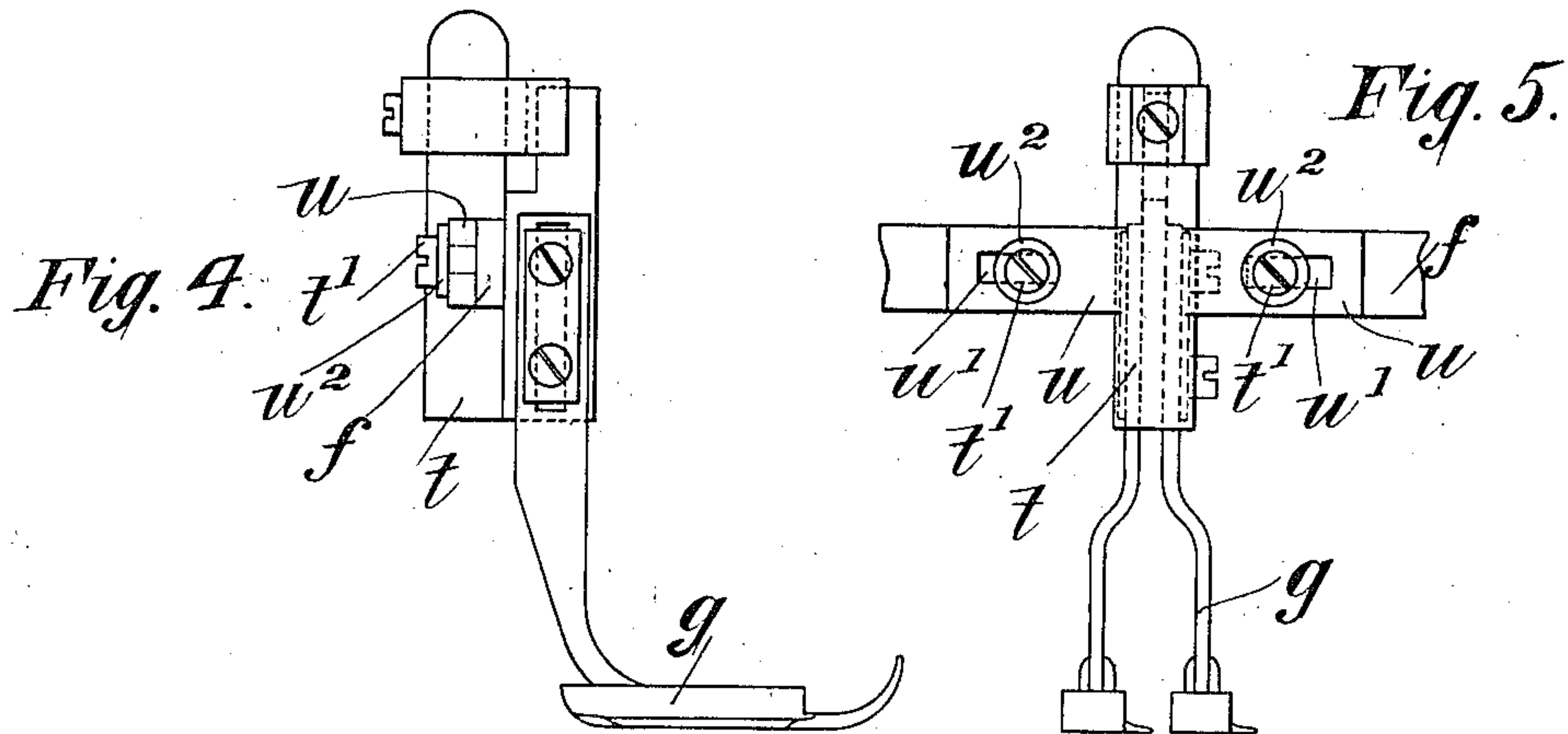
No. 825,741.

PATENTED JULY 10, 1906.

A. A. MACKENZIE.  
SEWING MACHINE.

APPLICATION FILED MAR. 11, 1905.

5 SHEETS—SHEET 4.



Witnesses:-  
C. H. Crawford  
L. Waldman

Inventor:-  
Andrew Alexander Mackenzie  
by B. Singer  
Attorney

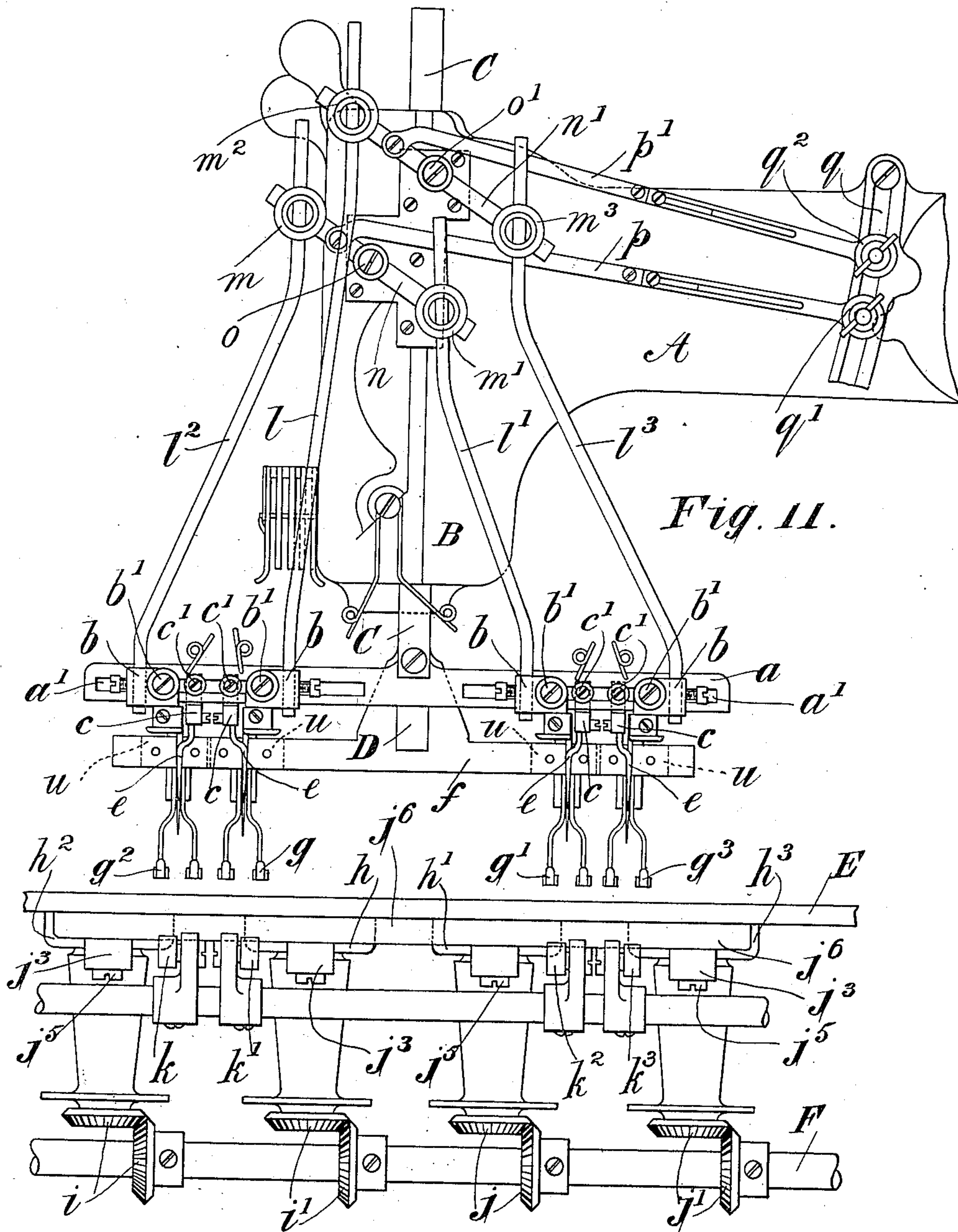
No. 825,741.

PATENTED JULY 10, 1906.

A. A. MACKENZIE.  
SEWING MACHINE.

APPLICATION FILED MAR. 11, 1905.

5 SHEETS—SHEET 5.



Witnesses:-

C. H. Crawford  
L. Waldman

Inventor:-

Andrew Alexander Mackenzie  
by B. Singer

Attorney



# UNITED STATES PATENT OFFICE.

ANDREW ALEXANDER MACKENZIE, OF BELFAST, IRELAND.

## SEWING-MACHINE.

No. 825,741.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed March 11, 1905. Serial No. 249,551.

*To all whom it may concern:*

Be it known that I, ANDREW ALEXANDER MACKENZIE, a subject of the King of Great Britain, residing at 144 Dunluce avenue, Belfast, Ireland, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to sewing-machines; and it has for its object to enable two or more rows of hemstitching or other stitching to be performed at one operation on the machine and in such manner that two (or more) articles, such as handkerchiefs, &c., can be passed through the machine side by side or hem to hem and stitched simultaneously.

The invention is specially adapted for hemstitching two or more handkerchiefs simultaneously.

In carrying out the invention for the purpose of hemstitching, for instance, two handkerchiefs simultaneously it is necessary to have two needles, with their spears or punches, two folders, and two shuttles, with double presser-feet and feed-gears.

On the annexed drawings I have shown, by way of illustration or example, a convenient method of carrying out the invention in connection with a Wheeler & Wilson sewing-machine, the machine being adapted to hemstitch two handkerchiefs simultaneously. Of course the invention can also be adapted to the Singer and other machines having rotary hooks or shuttles.

Figure 1 shows in side view part of the arm A and table E of a sewing-machine with my hemstitching attachment applied thereto. Fig. 2 is a front or end view of Fig. 1, showing the table in section. Fig. 3 is a plan view of the double folder. Figs. 4 and 5 are respectively side and back views showing the adjustment for the presser-feet. Figs. 6 and 7 are respectively a sectional side view and an end view showing the adjustment for the shuttles. Fig. 8 is a front view showing the needle and punch adjustments, while Fig. 9 is a vertical section through the needle-adjustment and Fig. 10 a vertical section through the punch adjustment. Fig. 11 shows an arrangement for four rows of hemstitching.

On the drawings the same reference-letters wherever repeated indicate the same parts.

A represents a portion of the arm, and B the head, of an ordinary Wheeler & Wilson or

like sewing-machine. C is the needle-bar; D, the bar for the presser-foot; E, the table of the machine; F, the shaft for rotating the shuttles, and G the feed-shaft. These parts of the machine may be made and operated in the usual manner. In carrying out my invention I attach to the ordinary needle-bar C a cross-bar *a*, which I may term a "subneedle-bar," and this bar is provided at each end with a needle (or needles) and a spear or punch, (or spears or punches.) Preferably I fit at a suitable distance from one another and at each end of the subneedle-bar two blocks *b* and *c*, and each block *b* is capable of swinging or moving on a pivot screw-pin *b'*, whereby it is fastened to the bar and is provided with a needle *d*. The blocks *c* are secured to the bar by screws *c'*, and each is provided with two of the usual punches or spears *e*, arranged one at each side of the needle *d*. (See also Figs. 8, 9, and 10.)

The bar D has at its lower end a cross-bar *f*, provided with presser-feet *g g'*, which are arranged in proper relation to the needles.

There are two shuttles, one in each shuttle-box *h h'*, and they are rotated, as usual, by means of bevel-gears *i i' j j'* from the shaft F. There is a double feed, the one feed being arranged in the ordinary manner below the right-hand presser-foot *g'* (see Fig. 1) and the other being arranged below the left-hand presser-foot *g*. The left-hand feed *k* is made much the same as usual and operated by means of the element *k'* and arm *k<sup>2</sup>* in the usual manner. The other feed is similarly operated.

The needles are vibrated by means of the rods *l l'*, which pass freely through holes in rotatable rings *m m'* on the rocking lever *n*, pivoted at *o* to the head B. This lever *n* is rocked by means of the connecting-rod *p* from the vibrating quadrant *q*, as usual. By adjusting the slide-block *q'* in the quadrant the lateral throw of the needles can be varied as desired, as will be well understood.

There are two folders *r r'* arranged side by side on the table of the machine. They may be fixed in position by means of screws *s*. The left-hand folder *r* (see Fig. 1) may be made in the same manner as an ordinary Wheeler & Wilson folder; but the right-hand folder *r'* has to be made different, as it has to fold the opposite way. The construction of the double folder will be hereinafter referred to.

It is evident that with this machine two handkerchiefs or such like can be folded by



the folders and then fed through the machine and hemstitched simultaneously. The hem on the handkerchiefs would be folded over in opposite ways, as shown at Fig. 3; and both handkerchiefs would travel along and be sewed at the same time by means of the double sets of needles.

It is very desirable to have means whereby the distance apart of the two rows of hemstitching can be varied so as to suit different kinds of articles being sewed. In order that this may be done, I make the needles, the punches, the presser-feet, the feed, the shuttles, and their bevel driving-wheels  $i' j'$  all adjustable. In the case of the wheels  $i' j'$ , I fit them slidably on the shaft F, and they can be clamped in any adjusted position on the shaft by means of the pinching-screws  $i^2 j^2$ . In the case of the shuttles, the shuttle-boxes  $h h'$ , with their driving-spindles and gear-wheels  $i j$ , are carried by bridge-pieces  $j^3$ , as usual, (see Figs. 6 and 7,) and these bridge-pieces are made with slots  $j^4$ , through which the fastening-screws  $j^5$  are passed and inserted in the supports  $j^6$  at the under side of the table E. On slackening the screws  $j^5$  the shuttles can be adjusted laterally to the extent permitted by the slots  $j^4$  and then be clamped in position again by tightening up the screws  $j^5$ . The feed-plates, with their co-operating parts, are arranged so that they can move laterally in slots in the table of the machine. To adjust them laterally, the elements  $k'$  are shifted along the feed-shaft G and the arms  $k^2$  (there is one for each feed-gear) are shifted along the rock-shaft  $e'$ . On slackening the screws  $k^3$  and  $k^4$  it will be easily seen that the parts  $k' k^2$ , with their feed mechanism, can be adjusted and when adjusted can be clamped again in position by tightening up the screws. The needles and punches can be adjusted by making the bar  $a$  with slots  $a' a^2$  at each end, and in these slots the blocks  $b c$  are slidably fitted in the manner shown at Figs. 8, 9, and 10. It will be seen from Fig. 9 that each block  $b$  has its pivot screw-pin  $b^0$  passed through the slot and fastened by means of a washer  $b^2$  and nut  $b^3$ . On slackening the nut the block can be slid along the bar  $a$  and then clamped in the new position by tightening up the nut. Likewise each punch-block  $c$  has its screw  $c'$  passed through the slot and then tightened up, so as to hold it in the adjusted position, as shown at Fig. 10. The presser-feet are adjustably fitted on the bar  $f$  by securing each presser-foot to a bracket  $t$ , which is provided with arms  $u$ , slotted at  $u' u'$ . Screws  $t'$  are passed through the slots into the bar  $f$ , and of course on slackening the screws the bracket can be adjusted on the bar  $f$  to the extent permitted by the length of the slots  $u'$ .  $u^2$  represents washers.

As before stated, the folder  $r$  is made much the same as the usual Wheeler & Wilson

folder, and there is an additional folder  $r'$ , which is made in the same manner as the folder  $r$ , but the parts are reversed. The one folder folds the right-hand handkerchief  $v$  and the other the left-hand handkerchief  $v'$ . (See Fig. 3.) Both folders are secured by the usual screws  $w w'$  to a T-plate  $x$ , which is fastened by the screws  $s$  to the table E.

In the arrangement shown at Fig. 11 for doing four rows of hemstitching simultaneously all the parts are merely duplicated. There are two connecting-rods  $p p'$ , which operate the rods  $l l' l^2 l^3$  by means of the rocking levers  $n n'$ , having rings  $m m' m^2 m^3$ . There are two needle-blocks  $b b'$  and punch-blocks  $c c'$  at each end of the bar  $a$ , and all these blocks are adjustable in the slots  $a' a'$ . There are four presser-feet  $g g' g^2 g^3$ , and these are adjustably fitted on the bar  $f$ . There are four shuttles or hooks, and these are driven by four gears  $i i' j j'$  from the shaft F. There are also four feeds  $k k' k^2 k^3$ . It is evident that with this arrangement four distinct rows of hemstitching or open-work stitching can be performed at once either on a single article or two rows on each of two articles, or the parts may be arranged so as to do a single row of stitching on four separate articles.

The invention can be applied for stitching handkerchiefs and other articles, and to stitch two or more separate articles at a time or make two or more rows of stitching on a single article. The twin folder is of course only used when hemming two articles simultaneously.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, needle-blocks, a pivot-pin in each block, means for clamping the pivot-pins to the cross-bar, and a screw inserted in each pivot-pin.

2. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, needle-blocks, pivot-pins in said blocks having reduced ends which enter the slots of the slotted bar, nuts for securing the pins, screws inserted in the pins and means for vibrating the needle-blocks, substantially as described.

3. In a sewing-machine, the combination with the needle-bar of a cross-bar with two slots therein at the bottom thereof, a needle-carrying block fitted adjustably in each slot of the bar, a punch-carrying block fitted adjustably in each slot of the bar, and means for vibrating the needle-blocks, substantially as described.

4. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, a presser-bar, presser-feet adjustably fitted to the presser-bar, and needle-carrying blocks fitted adjustably in



the slots of the slotted cross-bar, substantially as described.

5 5. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, a presser-bar, a cross-bar at the bottom of said presser-bar, presser-feet fitted adjustably to this cross-bar, needle-carrying blocks and punch-blocks, substantially as described.

10 6. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, a presser-bar, a cross-bar at the bottom of said presser-bar, presser-feet, brackets for the feet, slotted cross-bars  
15 on the brackets, means for securing said slotted cross-bars to the cross-bar of the presser-bar, and needle-carrying blocks, substantially as described.

20 7. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at

the bottom thereof, a presser-bar, a cross-bar at the bottom of said presser-bar, adjustable shuttles, adjustable feed mechanism, adjustable needle-carrying blocks and adjustable punch-blocks, substantially as described. 25

8. In a sewing-machine, the combination with the needle-bar of a slotted cross-bar at the bottom thereof, a presser-bar, a cross-bar at the bottom of said presser-bar, adjustable shuttles, adjustable feed mechanisms, adjustable needle-carrying blocks, adjustable punch-blocks, and folders arranged side by side and removably secured to the machine table, substantially as described. 30

In testimony whereof I affix my signature 35 in presence of two witnesses.

ANDREW ALEXANDER MACKENZIE.

Witnesses:

JAMES BEST,

ROBERT W. GRIBBON.