

W. WICKERSHAM.
SEWING MACHINE.

2 Sheets—Sheet 1.

No. 9,679.

Patented Apr. 19, 1853.

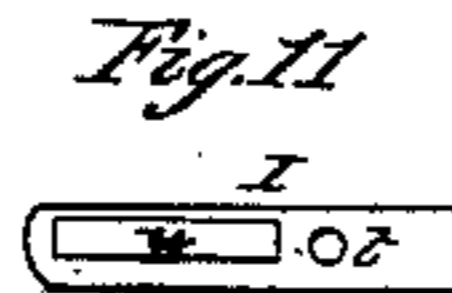
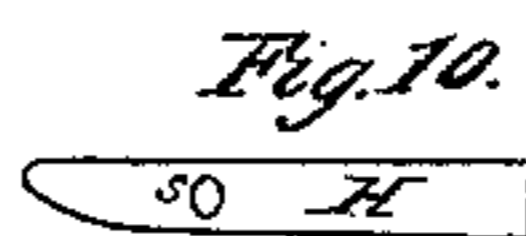
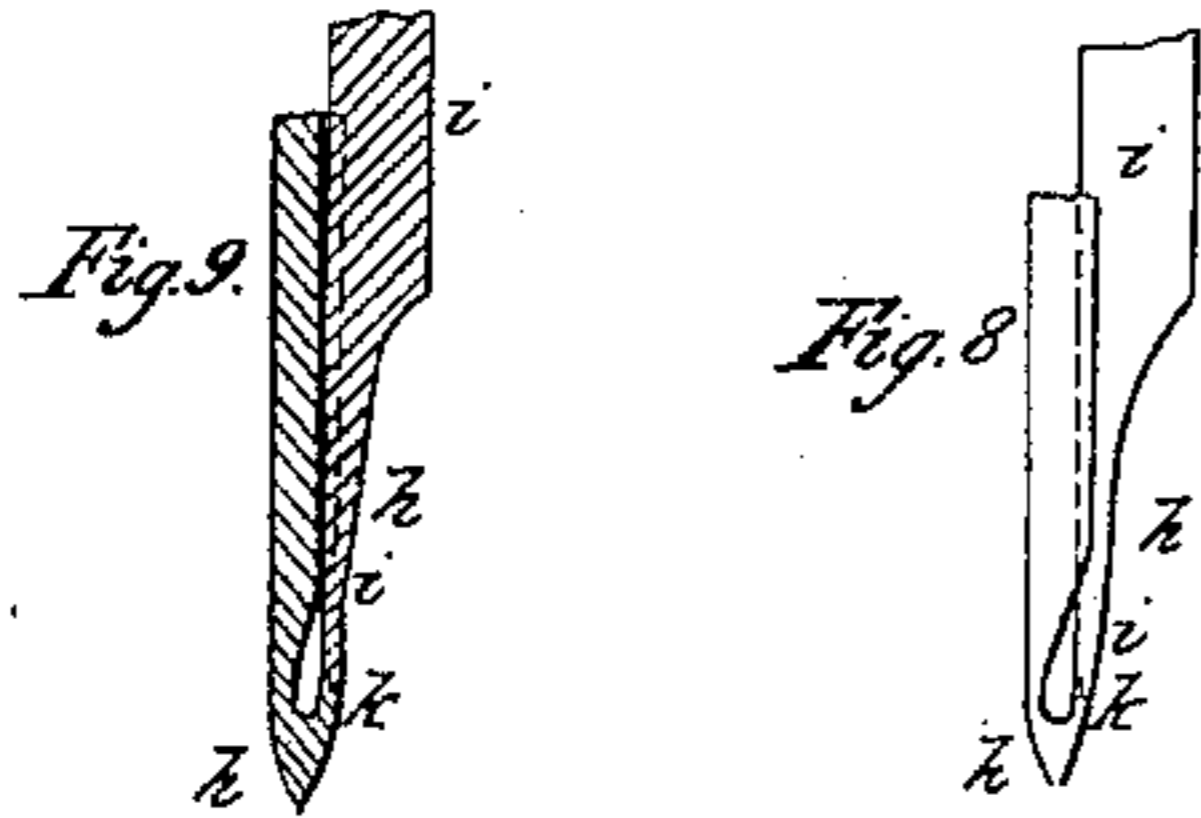


Fig. 1

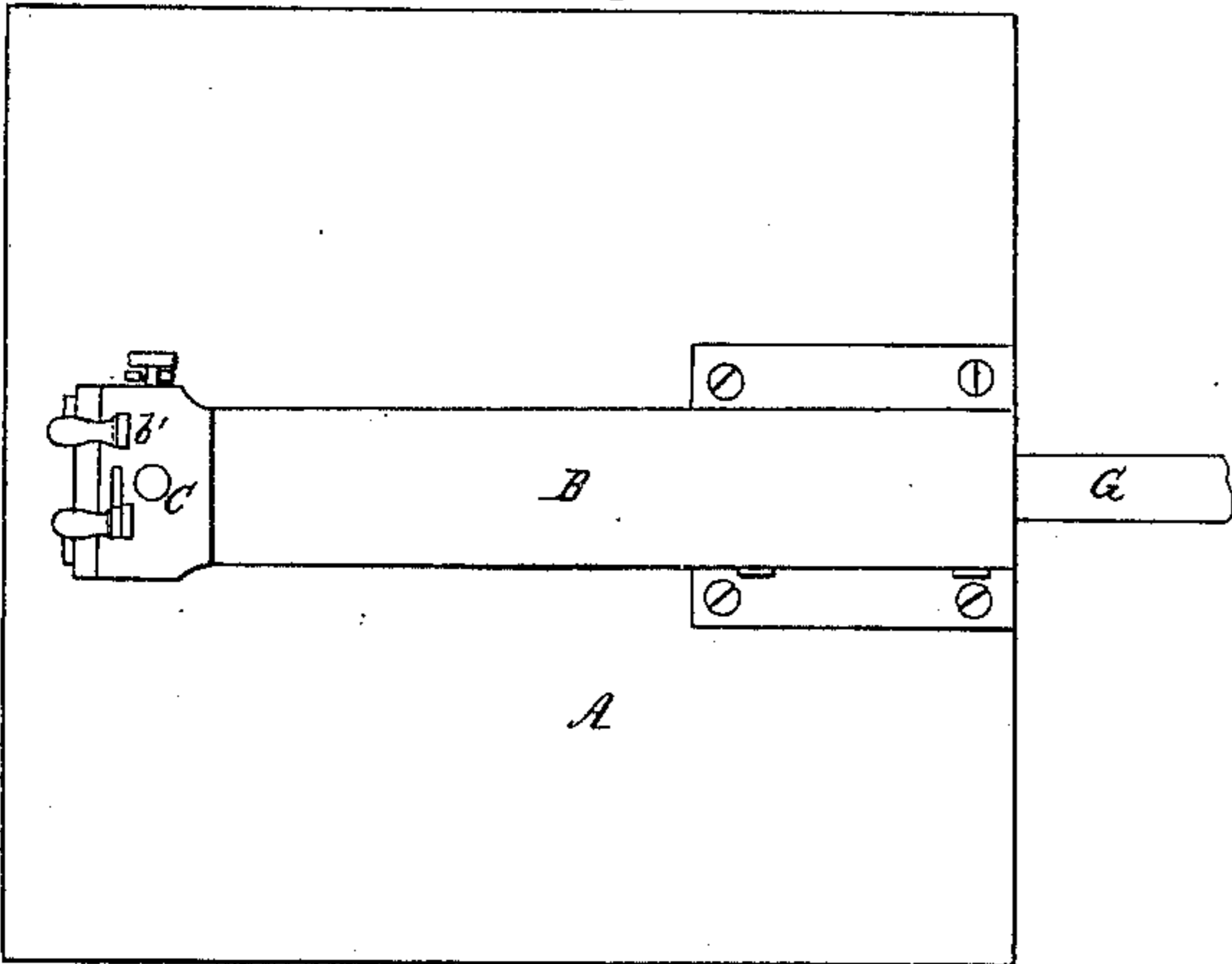


Fig. 4.

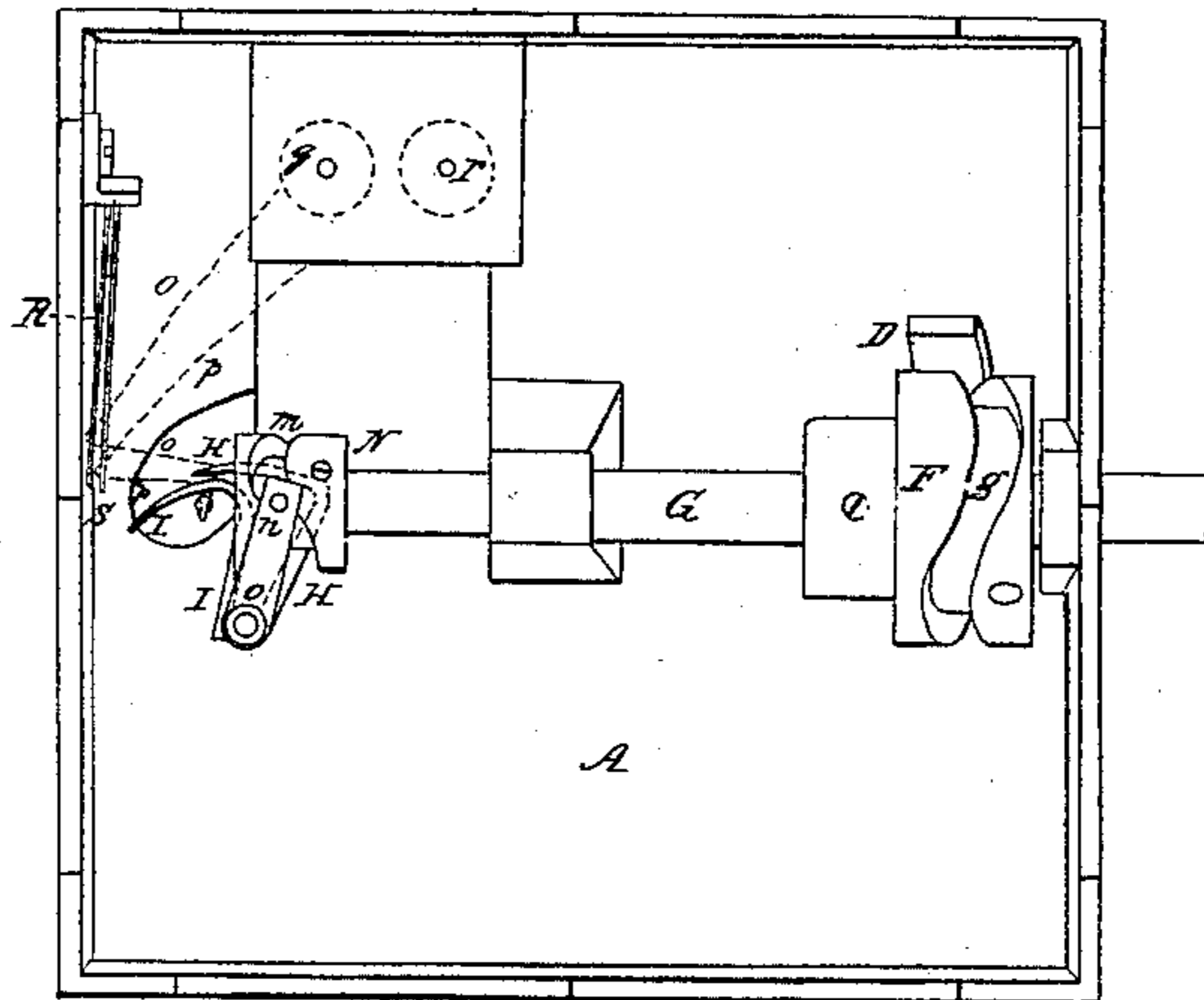


Fig. 2.

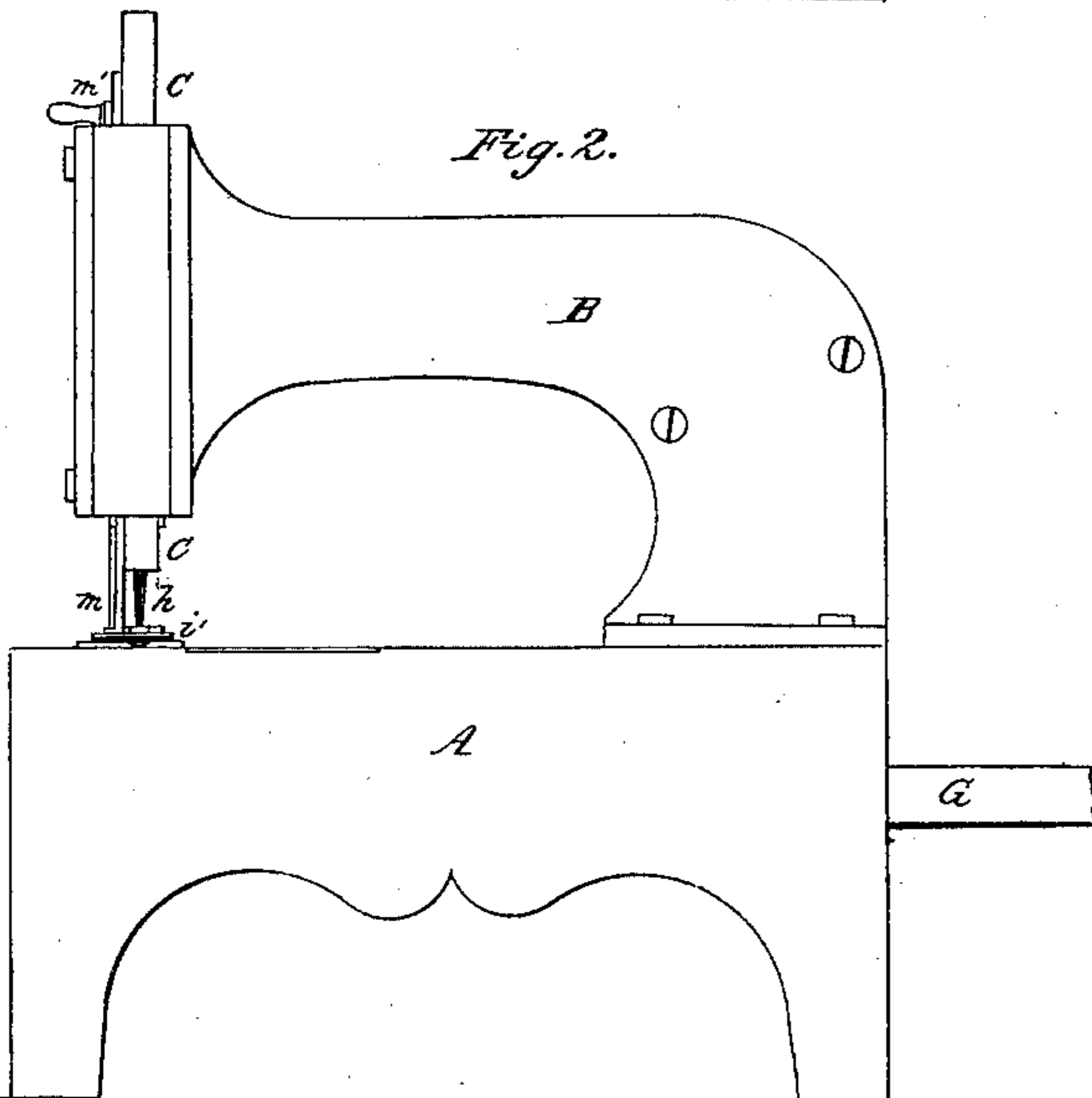
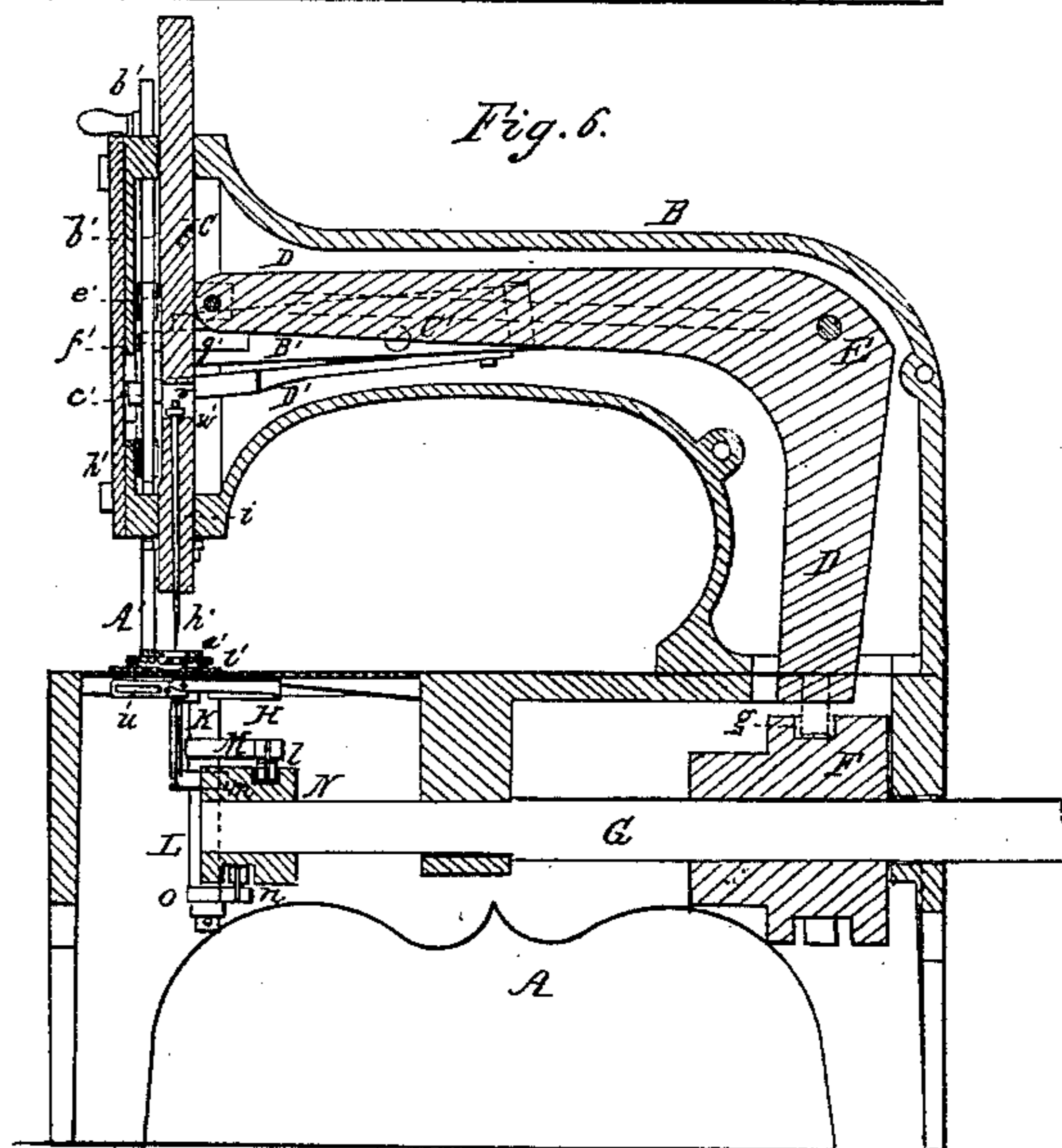


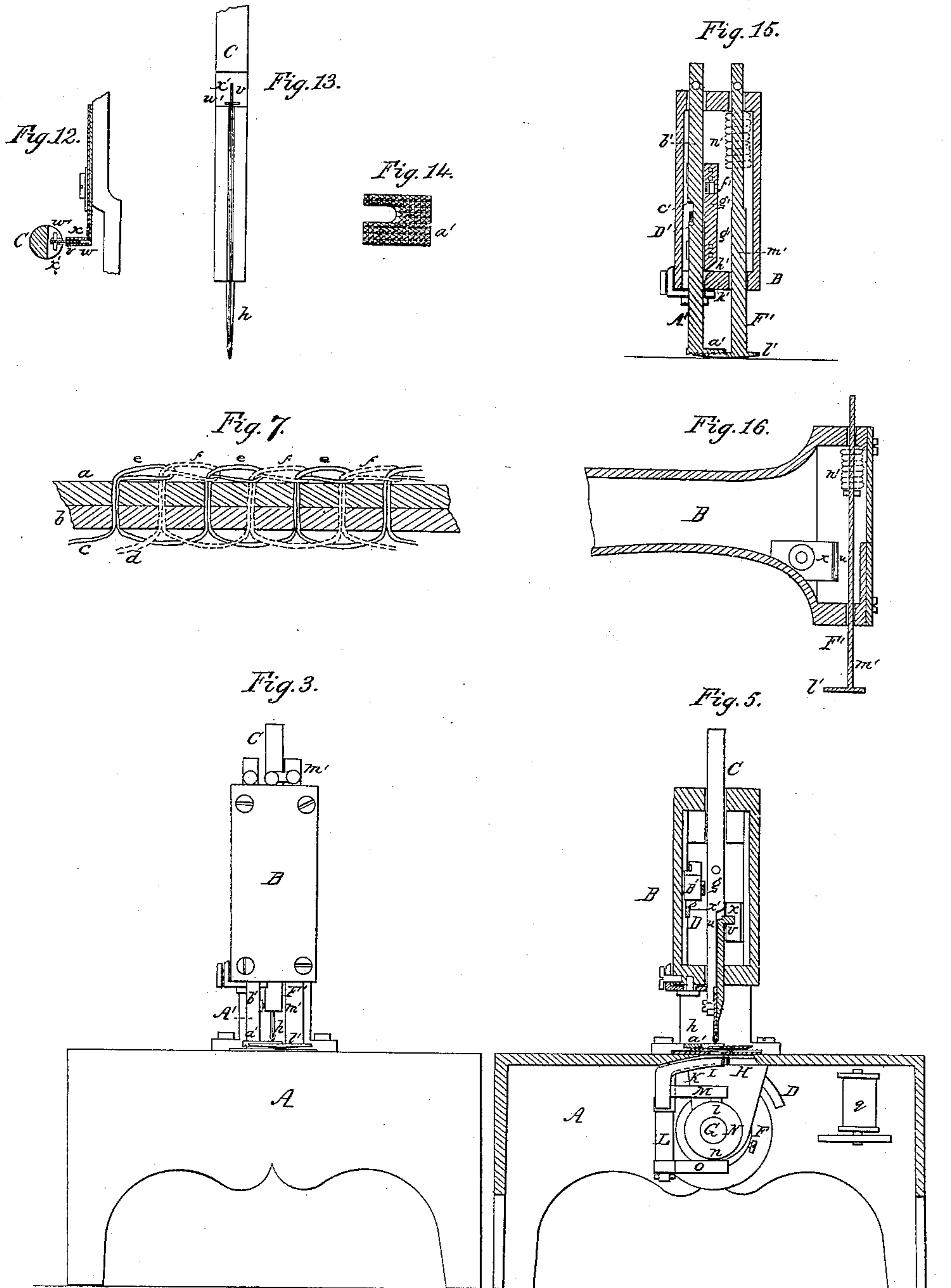
Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM WICKERSHAM, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 9,679, dated April 19, 1853.

To all whom it may concern:

Be it known that I, WILLIAM WICKERSHAM, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new or Improved Sewing-Machine; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view, Fig. 2 a front elevation, Fig. 3 a side elevation, Fig. 4 a bottom view, of my said machine. Fig. 5 is a vertical and transverse section of it, the same being taken through the hooked needle. Fig. 6 is a vertical and longitudinal section of it, the same being taken through the needle, and so as to exhibit the needle-slide and mechanism for operating the same, as well as part of that for feeding cloth along under the needle. Such other figures as may be necessary to a complete description and explanation of my machine will be hereinafter referred to and described.

My machine for sewing cloth, leather, or other material is calculated to sew either a chain-stitch with a single thread (the formation of which is well understood) or a stitch or plegma formed of two threads, and so that the loops of one of the said threads shall alternately pass through or be interlocked with those of the other, as seen in Fig. 7, in which *a* and *b* may be supposed to represent a section of two layers of cloth to be sewed together, *c* and *d* the two threads, one being represented in black lines and the other in red lines. The loops of the thread *c* are seen at *e e e*, &c., while those of the thread *d* are exhibited at *f f f*, &c. In plegma-stitch sewing, made essentially in the manner as represented in Fig. 7, the loops of one thread serve to bind those of the other in the cloth, so as to prevent either thread from being unraveled or drawn out of the cloth. By this improved mode of sewing cloth, or of forming sewing by the interlooping of two threads, so that the loops shall be entirely on one side of the cloth, the great objection to the ordinary chain-stitch is overcome, such objection being in its capability of being readily unraveled or drawn out of the cloth, as is generally well understood by persons skilled in the art of sewing by machinery.

In the said drawings, A represents the frame

or table of the machine, to which a hollow arm, B, is affixed and made to extend above and over the upper surface of the table, as seen in the drawings. The said arm supports the needle slide or carrier C, which is a rod or bar of metal made to slide freely up and down in a vertical direction, and to be jointed to the extreme end of the upper arm of a bent lever, D, that plays vertically on a fulcrum, as seen at E. The movement of the lever D is effected by means of a grooved cam, F, fixed on the driving-shaft G, the lower end of the said lever, or a projection therefrom, being made to extend into the groove *g* of the cam, which is to be formed so as to impart to the needle-carrier its proper movements. The needle is seen at *h*. It is made to extend down from the lower end of the carrier F, and is formed as represented in side view on an enlarged scale in Fig. 8, and in section in Fig. 9. It consists of a hook, *h*. In connection with this hook there is a small slide, *i*, that is arranged as seen in the drawings, and made to work up and down in a groove formed in the shank of the needle. Its lower end, when brought down upon the top *k* of the hook, closes the entrance of the hook, and as such slide *i* is so moved down on the hook previous to its upward movement through the cloth it prevents the hook from catching in the cloth. The mode of operating the slide *i* will be hereinafter more particularly explained.

In connection with the hook or needle two thread guides or carriers, H I, are employed. They consist of two curved arms or thin blades, of steel, that respectively project from or are connected to two vertical shafts, K L. An arm, M, extends at right angles from one of the said shafts and carries a small projection or stud, *l*, that is made to enter the groove *m* of a cam, N, that is fixed on the driving or main shaft G. There is an arm, O, extended from the other shaft, which arm carries a projection or stud, *n*, that is made to enter the groove of the said cam M, the groove being so made as to impart a movement to each thread-carrier, such as will cause it to operate at the proper time to lay its thread across the hook of the needle after the latter has been moved down through the cloth.

The threads are seen at *o* and *p*. They respectively proceed from bobbins *q r*, suitably placed. Each thread before it is passed through

the eye or hole of its thread guide or carrier is passed through an eye or hole made through one end of a draft-spring, R or S. The object of the said draft-springs is to draw their respective threads into the cloth and to keep them always straight, so that the thread-carriers may throw the threads into the hook of the needle.

In Figs. 10 and 11 I have exhibited separate side views of the thread-guides H I, the holes or eyes for the passage of the thread through each of them being seen at *s* and *t*. In the thread-guide I, having the eye *t*, there is an elongated slot or hole, *u*, made in front of the hole *t*. In sewing with two threads they are carried, respectively, through the eyes *s* and *t*; but in using one thread only, for the purpose of making the ordinary chain-stitch, it is carried from the bobbin through the tension-spring, and thence through the eye *s* of the guide H, and through the elongated slot *u* of the guide I, such slot being essential to the correct laying of the thread over the hook of the needle by the two guides when they are arranged as represented in the drawings, so as also to be capable of operating with two threads, for the slot *u* of the guide I allows the thread to move forward with the guide H, and thus prevents the drag on the thread which would otherwise follow. The needle-slide has a small projection, *v*, that extends from the upper part of it and between two spring-plates, *w x*, (see Fig. 12; which denotes a horizontal section of the needle-slide and its spring-plate,) the said spring-plates being made to strongly press against the projection on opposite sides of it. There is also a small pin or projection, *w'*, that extends through the needle-slide somewhat below the projection *v*, as seen in Fig. 13, which denotes a side view of the needle, its carrier, and slide, the same showing the slide in edge view. The said pin or projection *w'* is arranged within a notch, *x'*, formed in the needle-carrier, the whole being arranged so that the slide during each up-and-down movement of the needle may be caused to operate as follows—that is to say, during the descent of the needle it will pass down entirely through the cloth and far enough to carry the top of its hook a short distance below the lower edge of the cloth. The spring-plates *w x* are made to grasp the projection *v* with sufficient force to prevent the slide from descending with the needle until the top of the slide abuts against the top of the notch of the needle-slide. As soon as this takes place the needle-slide will be moved downward and will pass through the cloth, but not so far through it as will the top of the hook of the needle. The needle may then be said to be opened, so that a thread may be laid in the hook of it by one of the thread-guides. Such thread having been so laid in the hook of the needle, the needle is next raised upward and will pass upward independently of the needle-slide (which, in the meantime, is held down by the action of the plates *v w*) until the lower end of the slide is

met by the ascending hook of the needle, or until the lower side of the notch of the needle-carrier is brought up against the pin *w'*. When this last takes place, the needle is so closed or its hook protected that the said hook can pass freely upward through the cloth and the loop without catching in either. The needle-slide afterward rises upward with the needle until the upward movement of the needle ceases. When the downward movement of the needle next takes place, the clamp-plates *v w* cause its slide to remain stationary a short interval of time until the needle-hook descends away from it, which motion will take place until the top part of the notch of the slide strikes against the top part of the needle-slide, which occurring the needle-slide will move downward with the needle, as before described.

The mechanism for feeding the cloth under the needle with an intermittent movement may be thus described: The cloth rests on the top of the table, and whenever the needle is raised out of the cloth the latter is moved forward a distance equal to the length of each stitch, the cloth remaining at rest while the needle is in it. For this purpose I make use of a propeller, A', which consists of a plate of metal, *a'*, made rough or formed with teeth on its lower edge. This piece of metal rests on the top of the cloth and partly around the needle. It is seen in under side view in Fig. 14. It is affixed to the lower end of a bar, *b'*, that slides freely up and down in the front part of the arm B, and is elevated by means of a lever, B', that turns on a fulcrum at C', and is so jointed or connected at its rear end with the upper arm of the bent lever D as to be caused to play or vibrate on its fulcrum by the said lever D when in motion. A spring, D', has one end affixed to the lower side of the lever B', while the other end is made to pass through a notch, *e'*, made in the bar *b'*, as seen in Fig. 15, which denotes a vertical cross-section of the end of the hollow arm B, taken through the slide-bar *b'*. A bar, *e'*, is made to slide against one edge of the bar *b'*, and to have a notch or slot, *f'*, for the reception of a projection, *g'*, from the lever B'. The lower end of the slide-bar *e'* is made with an inclined plane, *h'*, which, while the said bar is pressed downward by the action of the lever B, will be moved against a surface or stationary part, *k'*, of the arm B, and will move the bar *b'* laterally, so as to move the cloth the distance of the length of a stitch, the spring D' pressing the propeller down on the cloth in the meantime. By the lateral reaction of the spring D' the propeller is moved back to place when the inclined plane *h'* is raised above the part or projection *k'*.

Besides the above, I make use of a cloth-presser, F', which is simply a plate of metal, *f'*, arranged as seen in the drawings, and fixed on the lower end of a vertical bar, *m'*, which slides freely up and down, and is pressed downward by a spring, *n'*. Fig. 16 denotes a longitudinal sectional view of the arm B,

made so as to exhibit the presser and its spring, together with the clamp-plates *w x*, as hereinbefore described. The presser rests on the cloth and merely keeps it down, so that it may not be lifted by the action of the needle.

During the operation of my machine the needle is made to pass down through the cloth, and with its hook a short distance from the lower end of the needle-slide, which is also carried down through the cloth. One of the thread guides or carriers is next moved so as to carry its thread into the opening of the hook, so that at the next rise of the needle the thread will be drawn up through the cloth in the form of a loop. Next, the needle is raised upward and out of and above the cloth, and pulls the thread through it in the form of a loop. Next, the needle descends through the said loop while the needle-slide is stationary. Next, the slide descends with the needle, as before, and the other thread-guide is moved so as to lay its thread into the opening of the hook. The hook or needle again rises and forms a new loop and draws it through the cloth and the loop next before formed. In this way the sewing operation is performed with two threads, one of which will serve as a binding-thread to the other.

I lay no claim to the combination of a single hooked needle and two thread guides or carriers as made to operate together in a knitting-machine, and for the purpose of laying two threads over a needle during the process of the formation of a knit fabric; but

What I do claim as my invention or improvement in machines for sewing is—

1. The combination of a single needle and two thread-guides (carrying separate threads) so operated that during one passage of the needle through and out of the cloth or other material to be sewed one of the said guides shall lay its thread in the hook of the needle,

while during the next passage of the needle through and out of the cloth the other guide shall lay its thread in the hook of the needle, each guide acting alternately, all substantially as hereinbefore specified.

2. For the purpose of enabling a machine of the above description (or one in which two thread-guides and a single needle are employed to sew with two threads) to be used for producing the chain-stitch with one single thread passed through one of the two eyes *s t* of its two thread-guides *H I*, as described, the improvement of making one of the said guides—viz., the guide *I*, with the long slot *u*—for receiving the thread in its passage to and through the other guide, as specified.

3. The above-described peculiar mode of sewing cloth or other fabric—viz., by combining two threads with the fabric by drawing them through from the same side of the cloth and through each other's loops, interlooping them in plegma-stitches, so that the threads alternately bind each other, substantially as specified.

4. I do not claim a hooked needle having a contrivance such as either a lever turning on a fulcrum applied to or a needle or wire made to extend and work through the shank of the hook, as is used in knitting machinery, but what I do claim in a sewing-machine is the improved arrangement of applying the closing slide of the hooked needle to the same side as the barb or hook, so that it may slide in a groove in the needle or carrier parallel to the motion of the needle, in manner and for the purpose as specified.

In testimony whereof I have hereto set my signature this 19th day of October, A. D. 1852.

WILLIAM WICKERSHAM.

Witnesses:

R. H. EDDY,
WM. S. SAMPSON.