No. 840,887. PATENTED JAN. 8, 1907.

A. WOOD.

THREAD CLIP FOR SEWING MACHINES.

APPLICATION FILED JAN. 15, 1906.

Fig. 1,

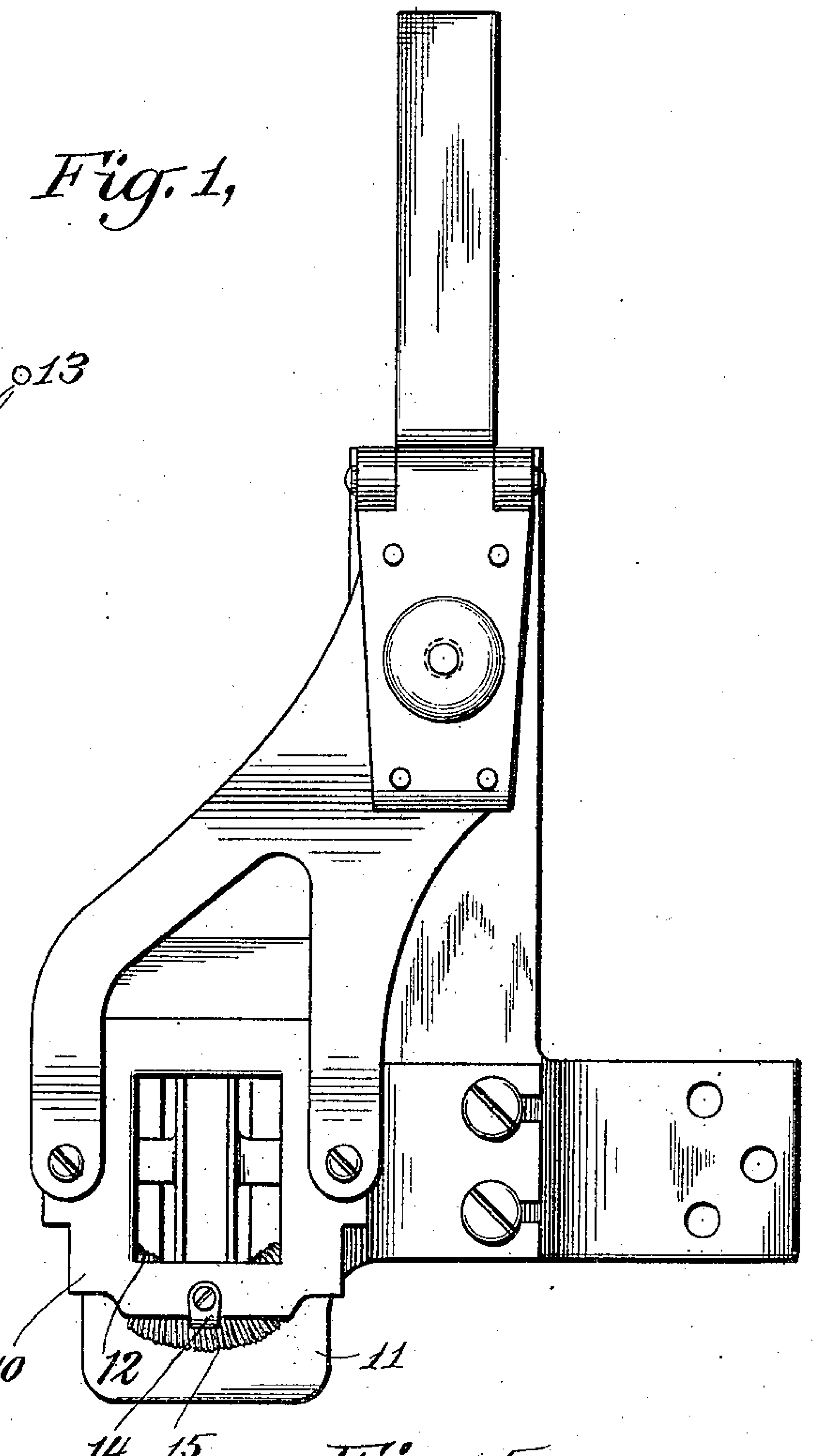


Fig. 6,

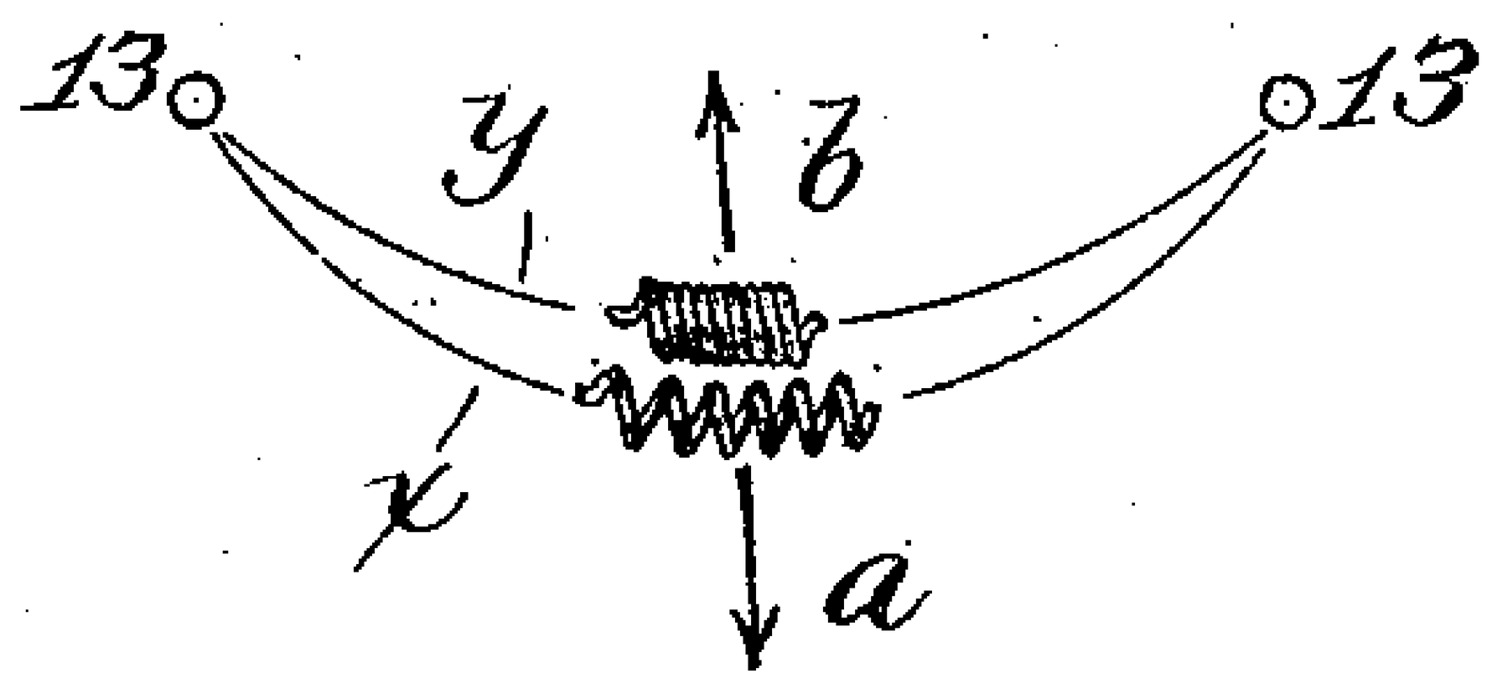


Fig. 3,

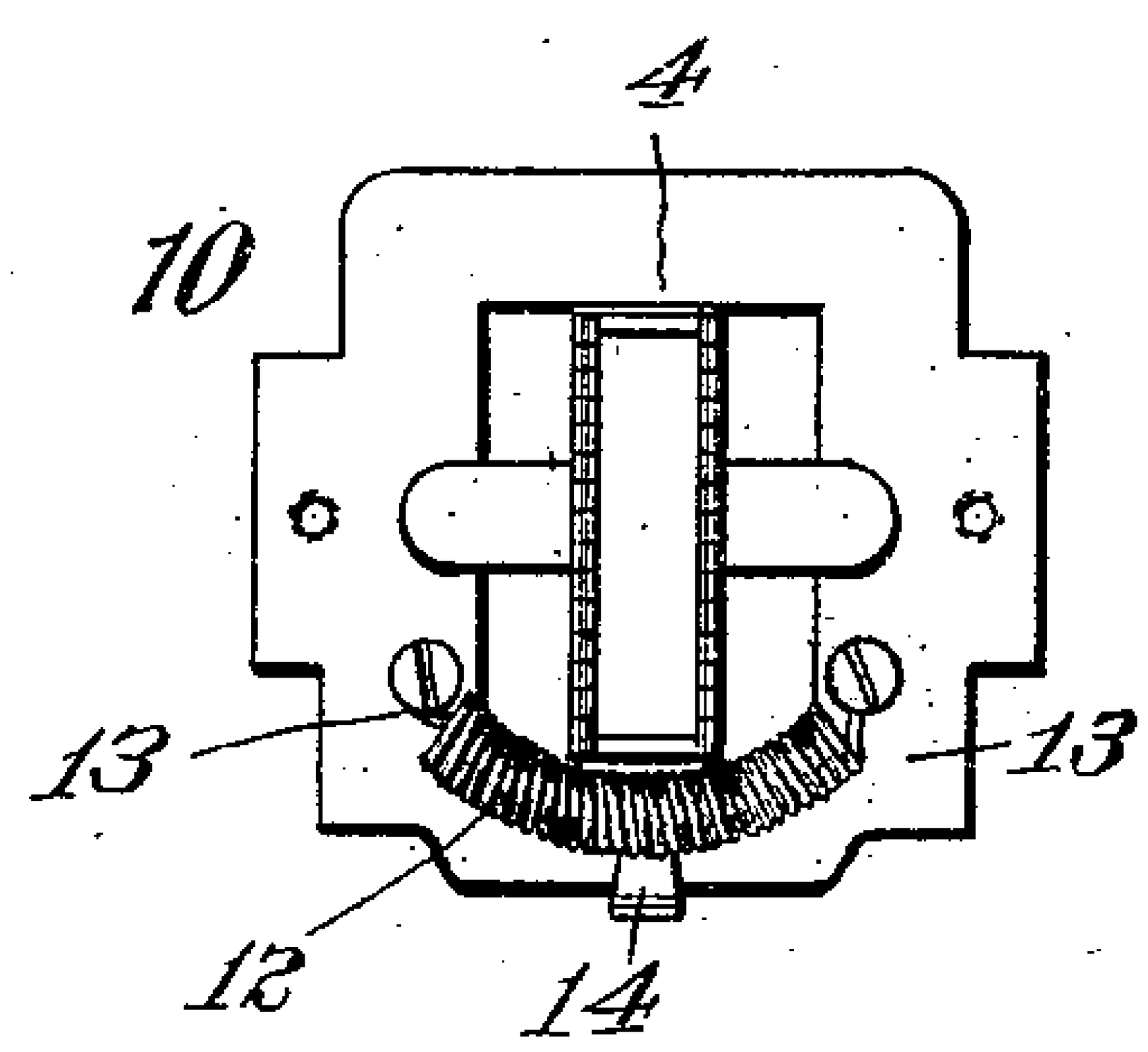


Fig. 4,

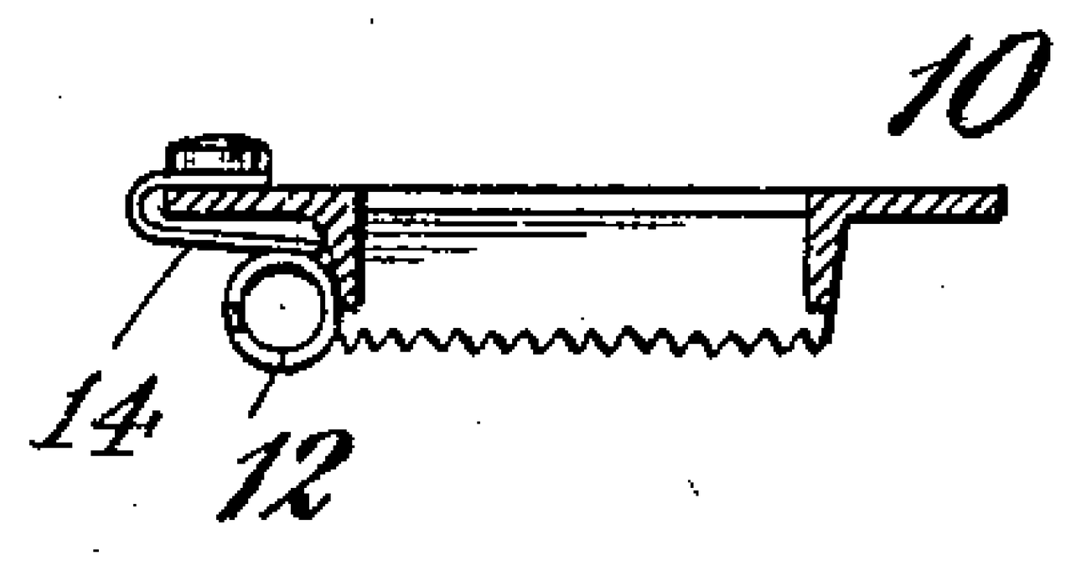


Fig. 5,

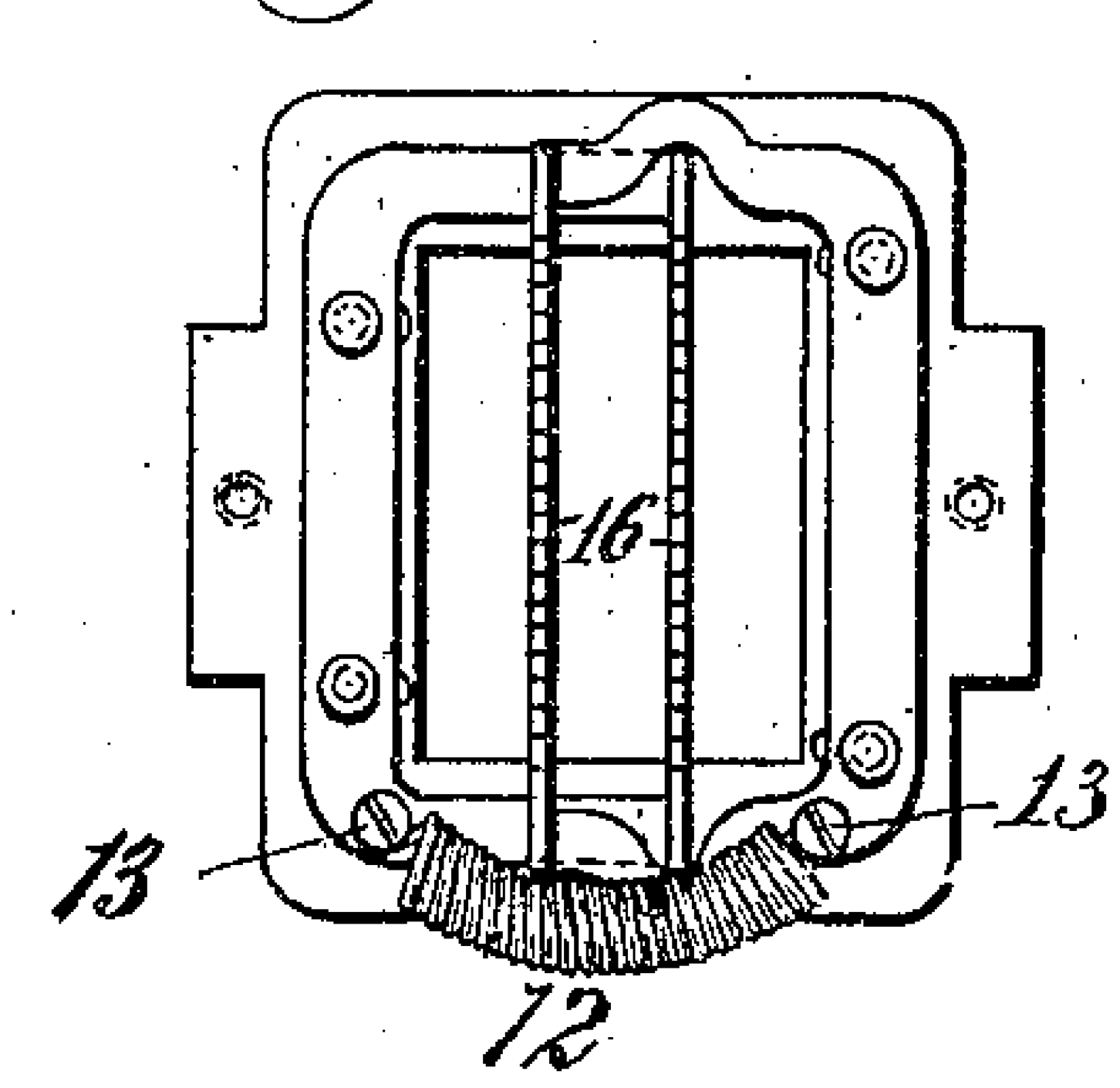
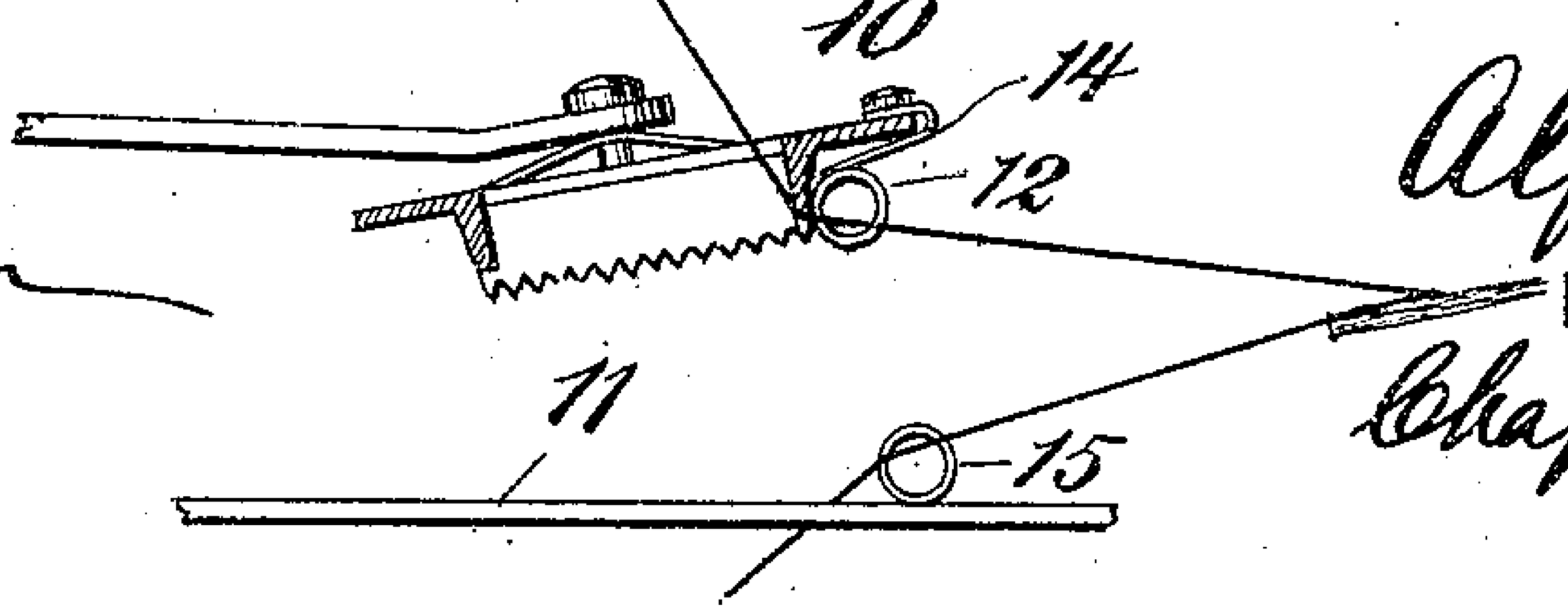


Fig. 2,



WITNESSES:

Harry Goss

H. Lerocheron

INVENTOR

Alfred Wood

BY

Chapin & Raymond

his ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALFRED WOOD, OF WATERFORD, NEW YORK, ASSIGNOR TO THE NATIONAL MACHINE COMPANY, OF MAMARONECK, NEW YORK, A CORPORATION OF NEW YORK.

THREAD-CLIP FOR SEWING-MACHINES.

No. 840,887. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed January 15, 1906. Serial No. 296,020.

To all whom it may concern:

Be it known that I, ALFRED WOOD, of Waterford, county of Saratoga, State of New York, have invented certain new and useful Improvements in Thread-Clips for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to thread-gripping means intended for employment in connection with a sewing-machine, whereby when the work is pulled out of the machine the lower thread or the upper thread, or both, may be gripped and securely held ready for the next sewing operation.

The object of my invention is to hold the end of the thread or threads at the commencement of a new sewing operation, so as to insure tight firm stitching right from the start.

My invention comprises an improved means whereby the thread or threads shall be but lightly gripped while the threads are being drawn in one direction—*i. e.*, while the work is being removed—but that the threads shall be so firmly held against movement in the other direction as to positively prevent the ends thereof from being freed during the commencement of a sewing operation. I have also provided a plurality of independent thread-gripping means arranged across the path of movement of the threads, so that the threads will be gripped whether the work be pulled straight out of the machine or pulled out to one side or the other of a central line. In this form of my invention such means comprises a helix, the adjacent turns of which will serve to grip the thread between them. By supporting this helix at its opposite ends, the portion thereof between the ends being free and arranged in a curve between the points of support, the thread will be securely gripped against movement in one direction, while movement in the other will be freely permitted.

In order that my invention may be fully understood, I will now proceed to describe an embodiment thereof illustrated in the accompanying drawings and will then point out the novel features in claims.

In the drawings, Figure 1 shows a top view of a sewing-machine work-clamp provided with thread-gripping means embodying my invention secured thereto. Fig. 2 is a view in partial side elevation and partial central transverse section of parts of the work-clamp shown in Fig. 1, showing the clamp as opened and the work as being removed therefrom. Fig. 3 is an under side view of the presser-foot removed from the other parts. Fig. 4 is a central sectional view thereof transverse of the longitudinal axis of the helix comprising the thread-gripping means. Fig. 5 is a view similar to Fig. 3 showing the clip as employed on a different kind of presser-foot. Fig. 6 is a diagrammatic view for the purpose of illustrating certain principles of operation.

Referring to the drawings by reference characters, 10 designates a presser-foot, and 11 a cloth-clamp, the same comprising a portion of a sewing-machine or sewing-machine attachment. Secured to the under side of the presser-foot is a helix 12, said helix attached at its opposite ends thereto by means of screws 13 or the like, the portion between its supported ends being free and arranged in a curve, as will be readily understood by reference to Fig. 3. This helix is arranged with its longitudinal axis directly across the path of the upper thread as the work is being drawn from the machine, so that upon attempting to withdraw the work the upper or needle thread will be forced between adjacent turns of the helix, substantially as shown in Fig. 2.

A small depressing-spring 14 may be employed, if desired, to force the helix down into a proper position to grip the thread, said spring yielding when the presser-foot is pressed down upon the work, so as not to interfere with the proper operation of the sewing-machine. The thread will move readily in this direction, because the friction between the thread and the adjacent turns of the helix will merely tend to elongate the helix—that is, to increase the total length of the curve between the points of support. Thus there will be little resistance to the movement of the thread, and hence little resistance to the removal of the work. After the work has been thus removed the threads may be severed, and upon the first commencement of new work the needle-thread will be held firmly, so as to enforce the proper stitching from the start. The thread, though

held but loosely in one direction, will be held tightly by the thread-gripping means in the opposite direction, because directly an attempt is made to pull the thread in the direction opposite to which it was pulled when the work was removed the tendency will be to draw the helix-coils together, and thus to shorten the distance between the points of support. This will cause the coils to grip the thread with an ever-increasing pressure, and I have found in actual practice that the thread while moving readily in one direction will ordinarily break before it will be released by attempted movement in the opposite direction. During the first sewing operation the pull upon the thread is of course in the direction in which it will be most firmly gripped.

In Fig. 6 I have shown a diagrammatic view in which 13 13 represent the points of support for the helix, *x* represents the axis of the helix when the thread is pulled in the direction of the arrow *a*, and *y* represents the axis of the helix when the thread is pulled in the direction of the arrow *b*; but a small portion of the actual helix is shown at the center thereof, the rest being represented by a single line corresponding to the axis thereof, and the extent of opening and closing of the helix is greatly exaggerated; but the said view illustrates the principle and is made for this purpose.

Upon the cloth plate or other work-support 11 I may arrange a similar helix 15, arranged in the path of movement of the lower thread as the work is withdrawn, so that by this means both upper and lower threads may be properly taken care of.

The thread-clip herein may of course be employed in connection with other forms of mechanism besides that with which it is illustrated. In Fig. 5 I have shown the same connected with a presser-foot having spring clamping-jaws 16, the ends of the helix being attached by screws or rivets to the arms of the spring-jaws.

What I claim is—

1. Thread-gripping means comprising a helix supported axially across the path of movement of the thread to be gripped, whereby thread may be received between adjacent coils thereof.

2. Thread-gripping means comprising a helix supported in a curve with its axis across the path of movement of the thread to be gripped, whereby thread may be received between adjacent coils thereof.

3. Thread-gripping means comprising a helix supported at its ends in the path of movement of the thread to be gripped, and with its axis transverse to such path of movement whereby thread may be received between adjacent coils thereof, said helix arranged in a curve between its points of support.

4. A thread-gripping device for sewing-machine comprising a plurality of separate gripping-surfaces arranged radially in advance of the point of sewing so that thread drawn from the point of sewing in different radial directions, may be gripped thereby at any one of a number of points.

5. The combination with a presser-foot, of a helix secured thereto, with its axis in a horizontal plane transverse to the path of movement of thread to be gripped, said helix adapted and arranged as a thread-gripping means, substantially as set forth.

6. The combination with a sewing-machine presser-foot, of a helix secured beneath same and disposed in a curve across the path of movement of the needle-thread of the machine while the work is being removed, the said helix being arranged with its axis transverse to the said path of movement of the thread, whereby the thread may be received between adjacent coils of the helix.

7. The combination with a sewing-machine presser-foot, of a helix secured at its ends beneath same, said helix disposed in a curve between its points of support and with its axis across the path of movement of the needle-thread of the machine while the work is being removed, whereby thread may be received between adjacent coils thereof.

8. In a sewing-machine, the combination with a work-support, of a helix arranged thereon arranged with its axis across the path of movement of the thread while the work is being removed, whereby thread may be received between adjacent coils thereof.

ALFRED WOOD.

Witnesses:
HENRY C. GAUNT,
JAMES H. CLARET.