H. HOUSTON.

SEWING MACHINE.

APPLICATION FILED DEC. 10, 1907.

920,141. Patented May 4, 1909.

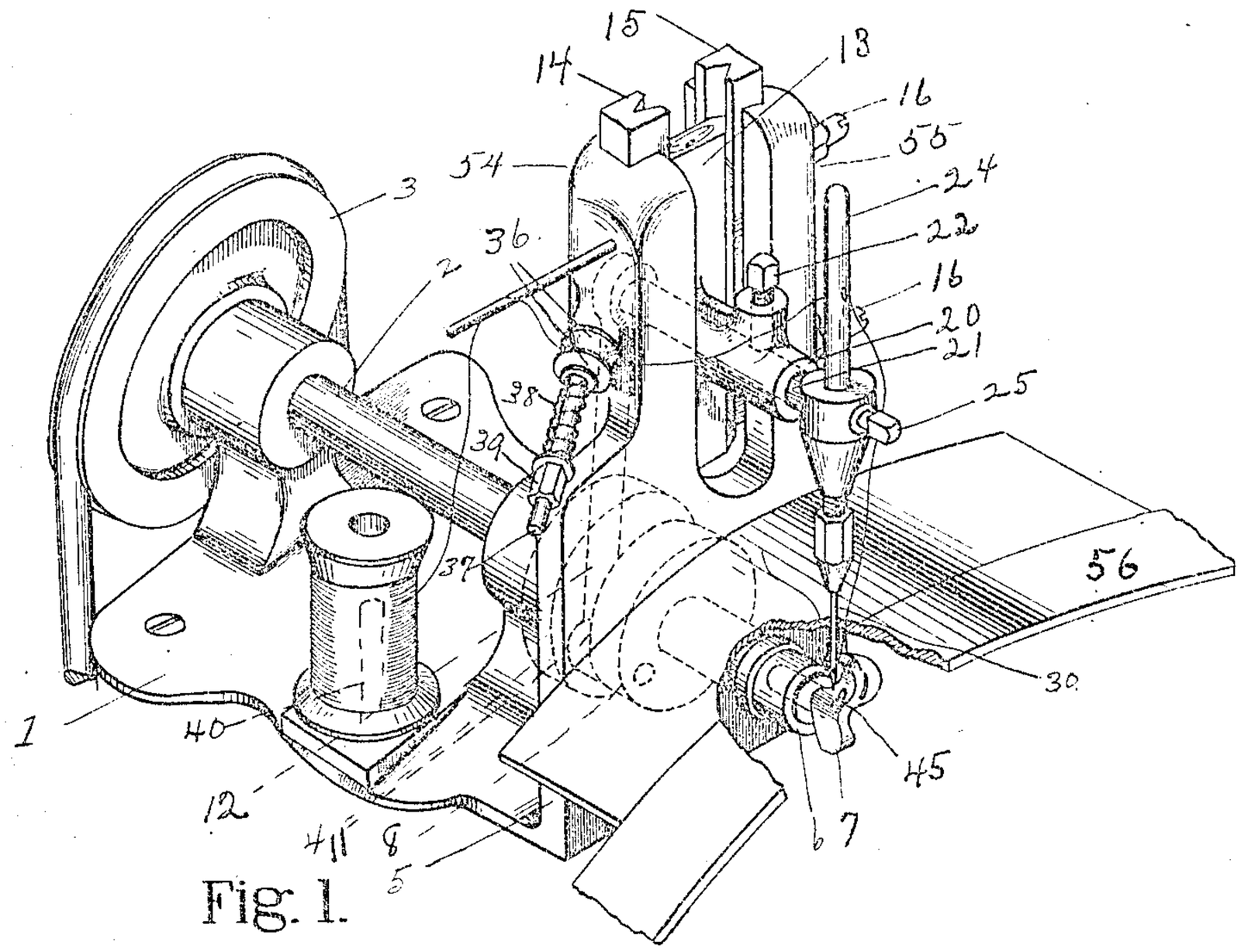

Fig. 1.

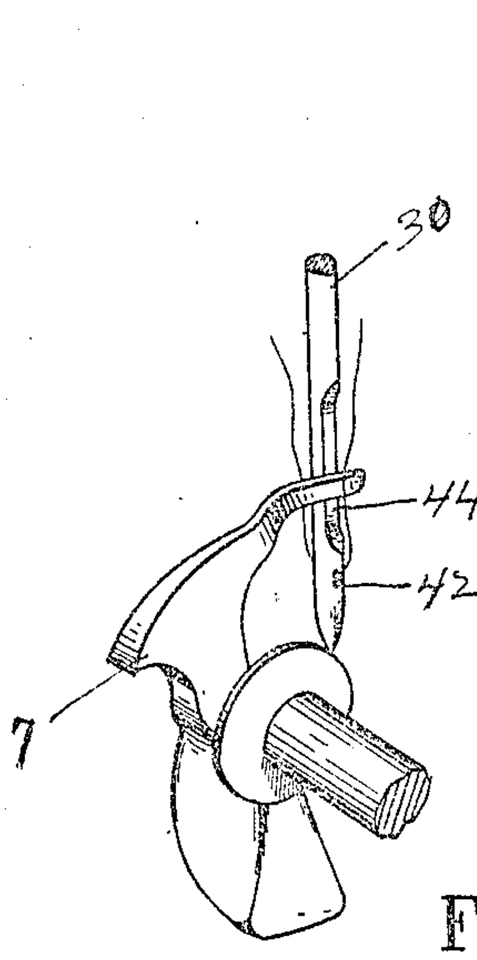

Fig. 3.

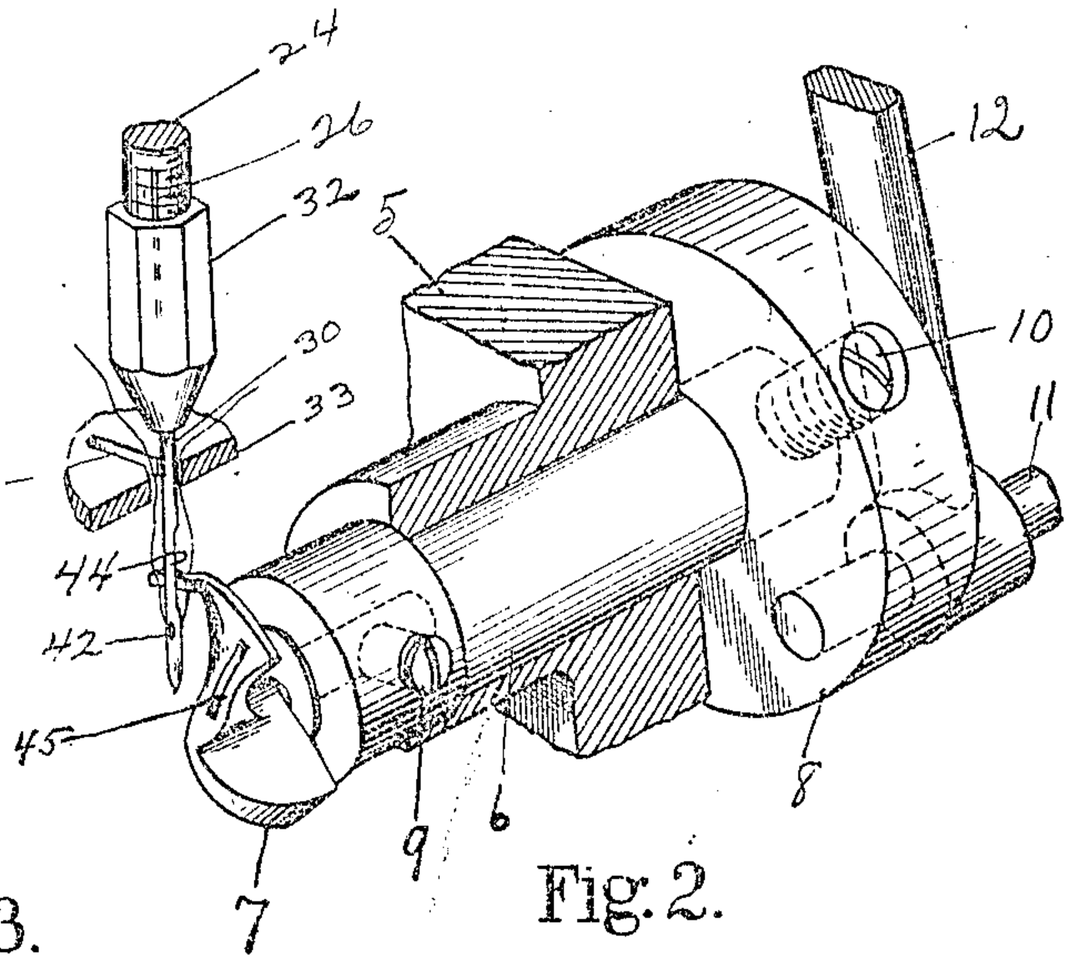

Fig. 2.

WITNESSES.

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HUGH HOUSTON, OF LAWRENCE, MASSACHUSETTS.

SEWING-MACHINE.

No. 920,141. Specification of Letters Patent. Patented May 4, 1909.

Application filed December 10, 1907. Serial No. 405,962.

To all whom it may concern:

Be it known that I, HUGH HOUSTON, a citizen of the United States, residing at Lawrence, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to mill sewing machines for use in textile and other mills for uniting the ends of lengths of cloth for the purpose of adapting them to be operated upon as a single strip.

The object of the invention is to provide a simple and durable machine which is not likely to get out of order, which will form a chain-stitch seam with great rapidity, and in which the needle and looper can be adjusted quickly and easily to suit different conditions.

The several features of the invention, including certain details of construction and arrangement of parts, will be fully explained in the following description and then pointed out in the claims.

Figure 1 is a perspective view. Figs. 2 and 3 are detail views.

The base 1 has bearings for the shaft 2, which is provided with the pulley 3 and the crank disk 4. The base also has a post 5 in which is journaled the looper shaft 6, carrying the looper 7 and the crank disk 8. The looper is adjustable lengthwise on its shaft and is held thereon by the screw 9. This shaft 6 is adjustable rotatively in the crank disk 8 and is held by the screw 10, which is arranged as shown in Fig. 1 to be in convenient position for the operator to manipulate it while he is adjusting the point of the looper with relation to the needle. The screw 10 passes radially through crank disk 8 and bears on shaft 6, and as disk 8 is relatively large, a very fine adjustment of the looper can be made by loosening the screw 10, while shaft 6 is held by one hand, and disk 8 is moved by the other. The crank pin 11 connects the two crank disks and is joined by a link 12 to the needle slide 13 which reciprocates vertically in the post. The slide has knife edges and is guided in the post in gibs 14, 15 which have grooves shaped to correspond with the edges of the slide. The gib 14 is fixed in the post, while the gib 15 is adjustable edgewise of the slide by the screws 16, 16 to perfect its alinement and to take up wear between the slide and the gibs. The needle slide has a boss 20 on its front side which is bored to receive the stud 21, which is adjustable both endwise about a horizontal axis and is held in place by the binding screw 22. The head of the stud has an opening to receive the combined needle bar and thread guide 24, which is adjustable rotatively about a vertical axis and also endwise and is held in position by the binding screw 25. The lower end portion of the bar is split as at 26 and is recessed to receive the needle 30. The split portion of the bar forms a clamp which is closed on the needle by a nut 32 which has screw-threaded engagement with it. The needle is guided through the work plate 33, which has a headed slot at 34 for this purpose. The post 5 also supports the thread tension device which comprises glass friction disks 36 mounted on the stud 37 and held yieldingly toward each other by the spring 38 and nut 39.

A thread support projects from the post above the tension device and holds the thread in preferred relation to the tension. Spindle 40 supports the thread spool. The needle has a transverse eye 42 extending from the front to the back, viewing the machine from the end, or at a right angle to the plane of movement of the looper. The needle is also cut away on the rear side from a point at or a little above the eye to some distance above the eye, as at 44. This arrangement is such that as the needle carries the thread downwardly through the cloth an opening will exist between the cut-away side of the needle and the thread to permit the point of the looper to hook into the thread. The point and the blade of the looper are formed thin so as to facilitate the engagement with the thread in the cut-away portion of the needle. As will now be understood, a careful relative adjustment of the looper and needle is essential to obtain this accurate coöperation in the manner required for rapid operation of the machine. The looper has a recess at 45 to receive the point of the needle at the time the looper is engaging the thread.

I prefer to use a convex guide plate or work plate 56 for the cloth which is to be sewed, as, with such a feed, the cloth is carried down from the point of the needle, thus

assisting the result described in the next paragraph which will dispense entirely with the use of a presser foot or feed bar or an intermittent feed of any kind.

The posts 54 and 55 are not joined at the top and the length of boss 20, stud 21, and the needle bar 24, together with the needle 30 is such that at the point of the needle, there will be sufficient give to permit a continuous feed of the cloth, as the point of the needle will travel with the cloth when it has passed therethrough and will spring back when it leaves the cloth so as to take a new stitch. This action does not interfere with the drive through the crank disks, pin 11, link 12, and needle slide 13, as link 12 is close to slide 13 and the deviation thereof is slight. Such deviation in any event is taken up by the rotation of crank disk 8.

The operation of the machine will be clear to those skilled in the art from the foregoing description of the construction, relative arrangement and functions of the several parts, and—

Having indicated the nature of the invention and explained a machine embodying it, I claim as new and desire to secure by Letters Patent of the United States:—

1. In a sewing machine head, the combination with a needle and a looper, of operating mechanism therefor comprising the slide 13, posts 54 and 55, joined at one end and separated at the other in which the slide is moved, a boss carried by the slide and needle bar carried by the boss for holding the needle as described.

2. In a sewing machine head, the combination of a looper and a needle, with actuating mechanism therefor comprising the alined shafts 2 and 6, the crank disks 4 and 8, operative connections between the crank disks 4 and 8 and the needle, and a set screw 10, passed radially through disk 8 to bear on shaft 6, whereby the relative rotative position thereof may be adjusted.

3. In a sewing machine head, the combination of a looper shaft, a looper carried by one end of said shaft, a disk carried by the other end of said shaft, a set screw which passes radially through said disk and bears on the looper shaft, a power shaft alined with the looper shaft, a disk carried thereby, a pin between said disks, and a link carried by said pin, with parallel posts connected at the bottom but free at the top, adjustable gibs carried thereby, knife edge slots in said gibs, a knife edged slide fitted in said gibs and connected with said link, a long boss carried by said slide, and a needle bar and needle carried by said boss in operative relation with the looper.

4. In a sewing machine head, the combination of a convex work plate, with a looper, a looper shaft, a disk carried on said shaft, a radial set screw through said disk which bears on the looper shaft, a power shaft alined with the looper shaft, a disk carried thereby, a pin between said disks, and a link carried by said pin, with parallel open ended posts, adjustable gibs therein, a slide between said gibs operated by said link, a long boss carried by said slide, and a needle bar and needle carried by said boss in operative relation with the looper as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HUGH HOUSTON.

Witnesses:
FREDERICK L. EDMONDS,
ARTHUR L. RUSSELL.