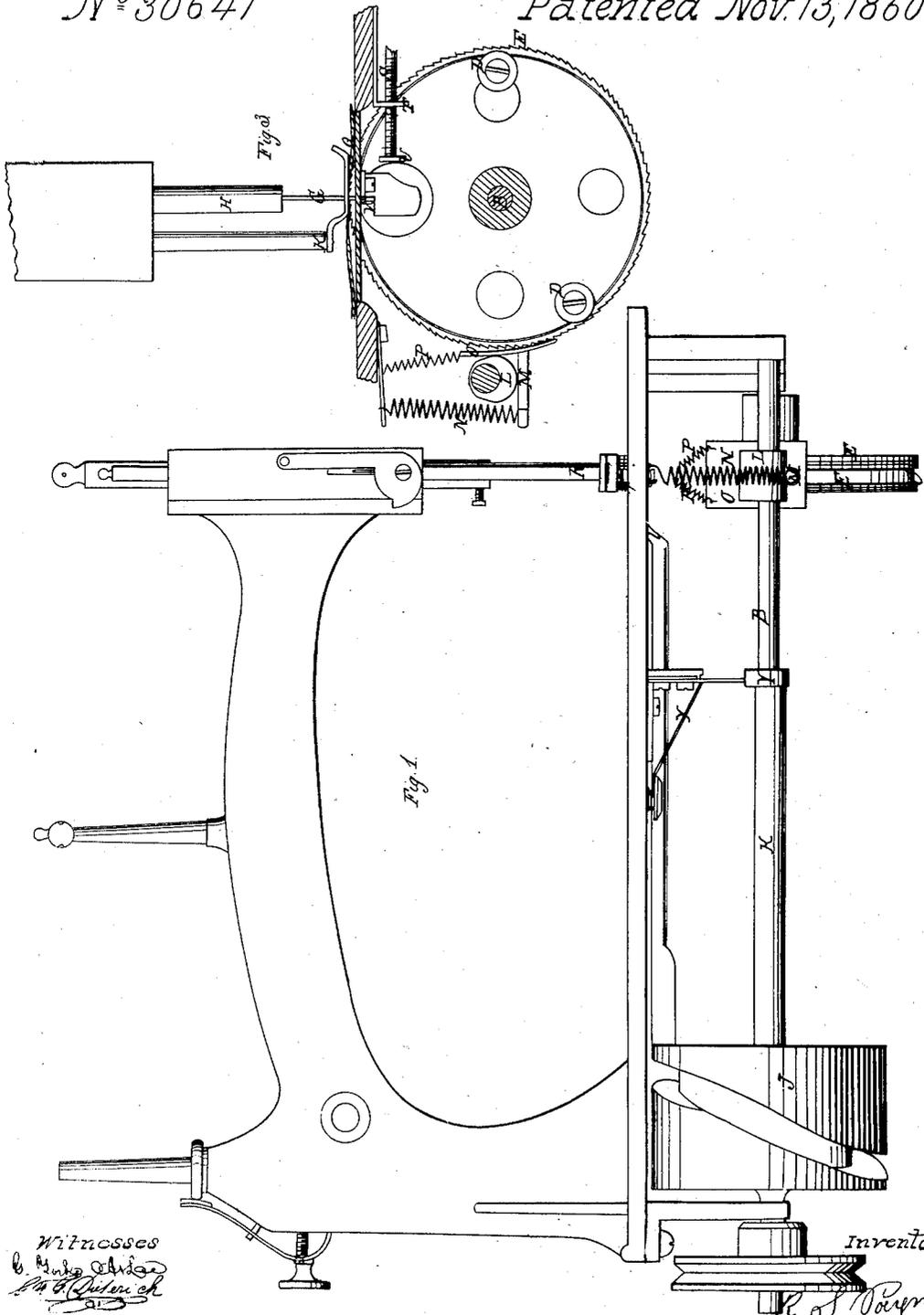


R. S. Payne.
Sewing Machine.

N^o 30641

Patented Nov. 13, 1860.



Witnesses
C. H. ...
W. H. ...

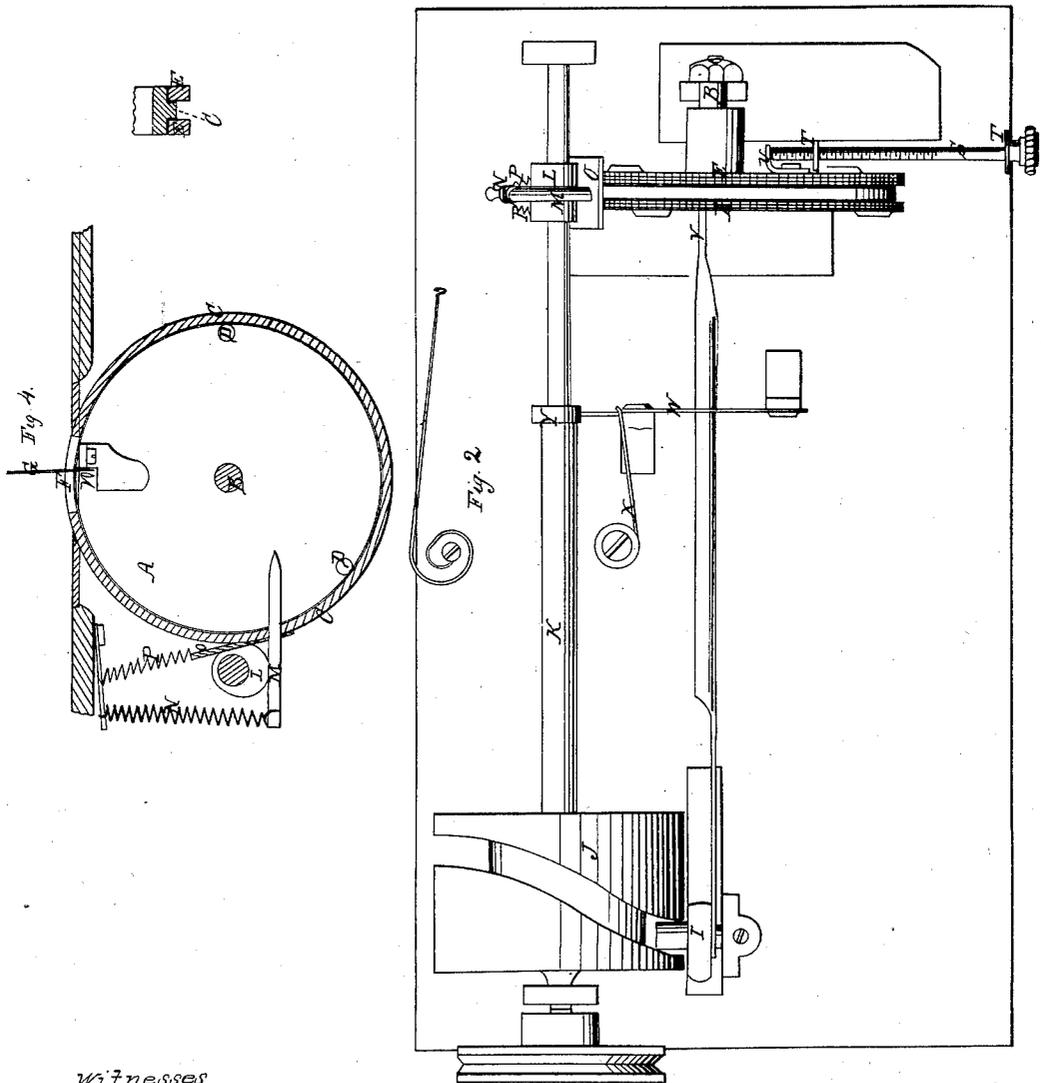
Inventor

R. S. Payne

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Sewing Machine.

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Witnesses
G. B. ...
S. ...

Inventor
R. S. Payne

UNITED STATES PATENT OFFICE.

R. S. PAYNE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 30,641, dated November 13, 1860.

To all whom it may concern:

Be it known that I, R. S. PAYNE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side view; Fig. 2, a bottom view; and Figs. 3 and 4 vertical cross-sections, showing portions of the machine.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists in a reciprocating disk and two loose feed-rings arranged upon the circumference of said disk, in combination with a needle working between the two feed-rings.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The feed apparatus of this sewing-machine consists of a disk, A, upon a horizontal axis, B. The rim of the disk is made with a groove on each side around the whole circumference of the disk, so as to form a ridge, C, between the two grooves. Two loose feed-rings, E, the roughened surfaces of which project a little above the ridge C, are placed one into each of the grooves of the disk. Screws D are screwed into the sides of the disk near its circumference, and so that their heads extend somewhat beyond the circumference of the grooves. These screw-heads serve to prevent the feed-rings E from slipping off the disk in a lateral direction parallel with the axis of the disk. A slot, F, is made through the top part of the disk, passing through the ridge C and rim of the disk, in the middle, between the two feed-rings. This slot is somewhat longer than the greatest arc through which the disk may be allowed to reciprocate, and the object of this slot is to open a free passage for the vertical needle G between the two feed-rings and through the rim of the disk. This needle G is attached to a needle-carrier, H, and together with it worked by a lever, I, and cam J, upon driving-shaft K, in the usual manner, all these parts being of the usual construction. A small cam, L, upon shaft K, works in conjunction with a pin, M, projecting radially from the

ridge C of the disk. A spiral spring, N, extending from some point of the machine-frame to the outer end of pin M, holds the pin continually against the circumference of cam L, so that the pin and the disk, together with it, receive a reciprocating motion while the cam L revolves, the axis of the disk being the center of this reciprocating motion. A piece of leather, O, or similar soft material, is placed between the cam L and the surface of the feed-rings, and is at one end fastened to the pin M, its other end being hung to the frame of the machine by spring or springs P, so as to stretch and keep the piece of leather from wrinkling. As the cam L revolves and begins to depress the pin M, causing the disk to make part of a revolution in this direction, the leather is at the same time pressed by the cam against the roughened surface of the feed-rings, and thus the feed-rings are caused to move simultaneously with the leather and disk in the same direction, so as to feed the cloth Q forward, which is placed between the pressure-pad R and the top of the feed-rings; but as the cam L recedes from the pin M, the latter, together with the disk, returns to its original position. As the cam, however, recedes from the pin, it recedes also from the leather, so as to cease to press it against the surface of the feed-rings, and the feed-rings will not participate in the return motion of the disk, the friction between the feed-rings and the rim of the disk being overcome by the friction of the roughened surface of the feed-rings and the cloth Q held down by the pressure-pad. Thus the feed-rings are made to feed the cloth while the disk moves in one direction and to stand still during the return motion of the disk. The object of employing two feed-rings, instead of only one, is to allow the needle G to work between the two and feed the cloth on both sides of the needle. The cloth will thus be fed in a straight line, and the tendency of a single feed-surface at one side of a needle to turn the cloth while feeding it forward, and thereby to feed in a curved line, is effectually overcome by arranging the feed-surface in two sections, as above described.

A set-screw, S, working through female screws in two brackets, T T, extending from the frame of the machine, can be screwed in more or less, so as to come into contact with a flange, U, projecting from the side of the disk.

and thereby to limit or altogether stop, if so desired, the reciprocating motion of the disk, and together with it the feed-motion of the feed-rings.

The horizontal needle V receives a reciprocating motion in the direction of its length from the lower arm of lever I, and is also made to reciprocate in a horizontal and lateral direction in a manner hereinafter to be described, in order to perform the peculiar stitch of the machine in conjunction with a vertical needle G. The needle V has a bearing, near its forward end, in a cross-bar, W, held in suitable horizontal guideways. One end of this cross-bar is, by a spring, X, pressed against and acted upon by a cam, Y, upon the

driving-shaft. By this means the cross-bar, and together with it the forward end of the needle V, are made to reciprocate in a horizontal and lateral direction, as before described.

What I claim as my invention, and desire to secure by Letters Patent, is—

A reciprocating disk and two loose feed-rings arranged upon the circumference of said disk, and operated by mechanism substantially as described, in combination with a needle working between the two feed-rings, substantially as and for the purposes set forth.

R. S. PAYNE.

Witnesses:

GOODWIN Y. AT LEE,
G. F. G. DIETERICH.