(No Model.) 2 Sheets—Sheet 1.

A. J. MITCHELL.

QUILTING MACHINE.

No. 504,229. Patented Aug. 29, 1893.

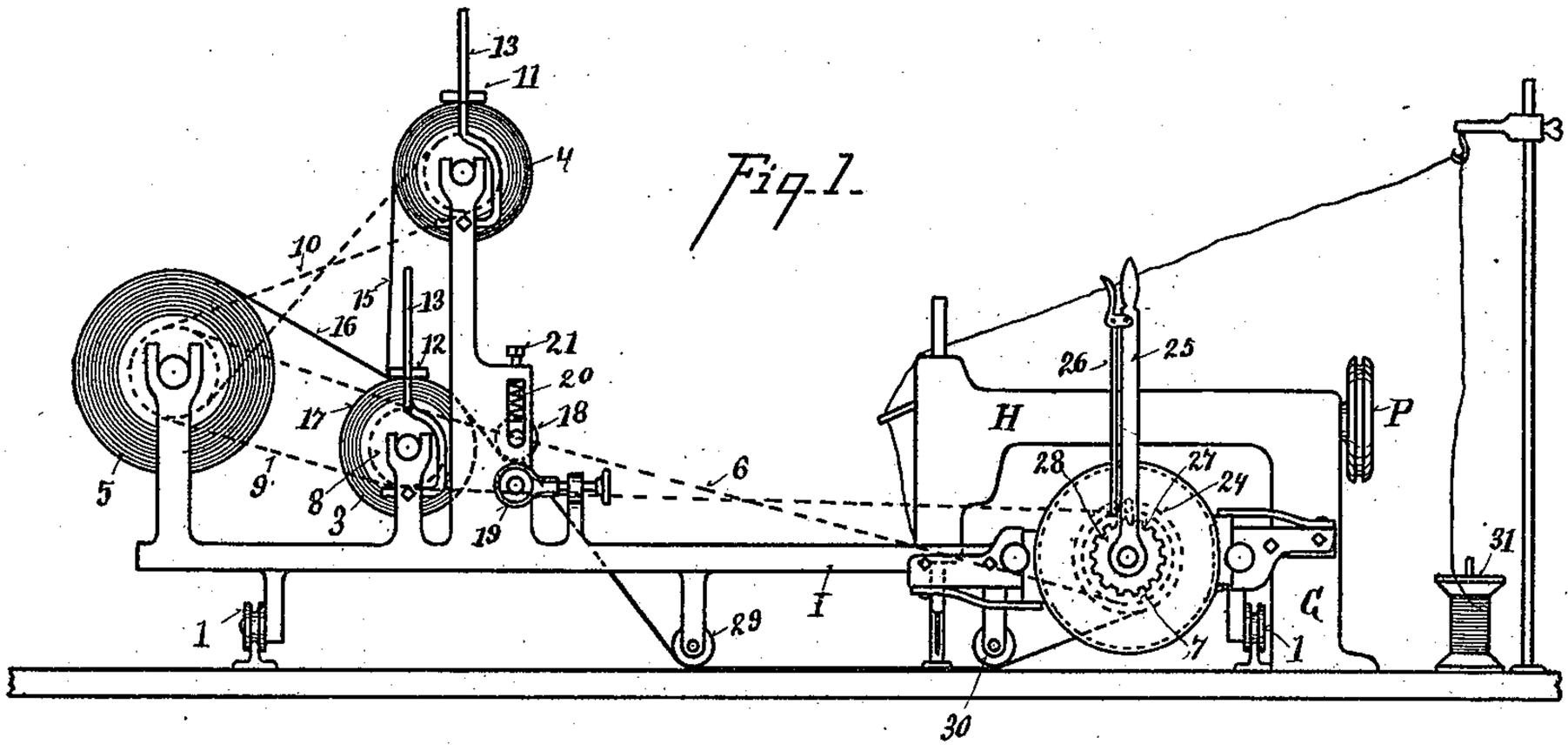

Fig. 1.

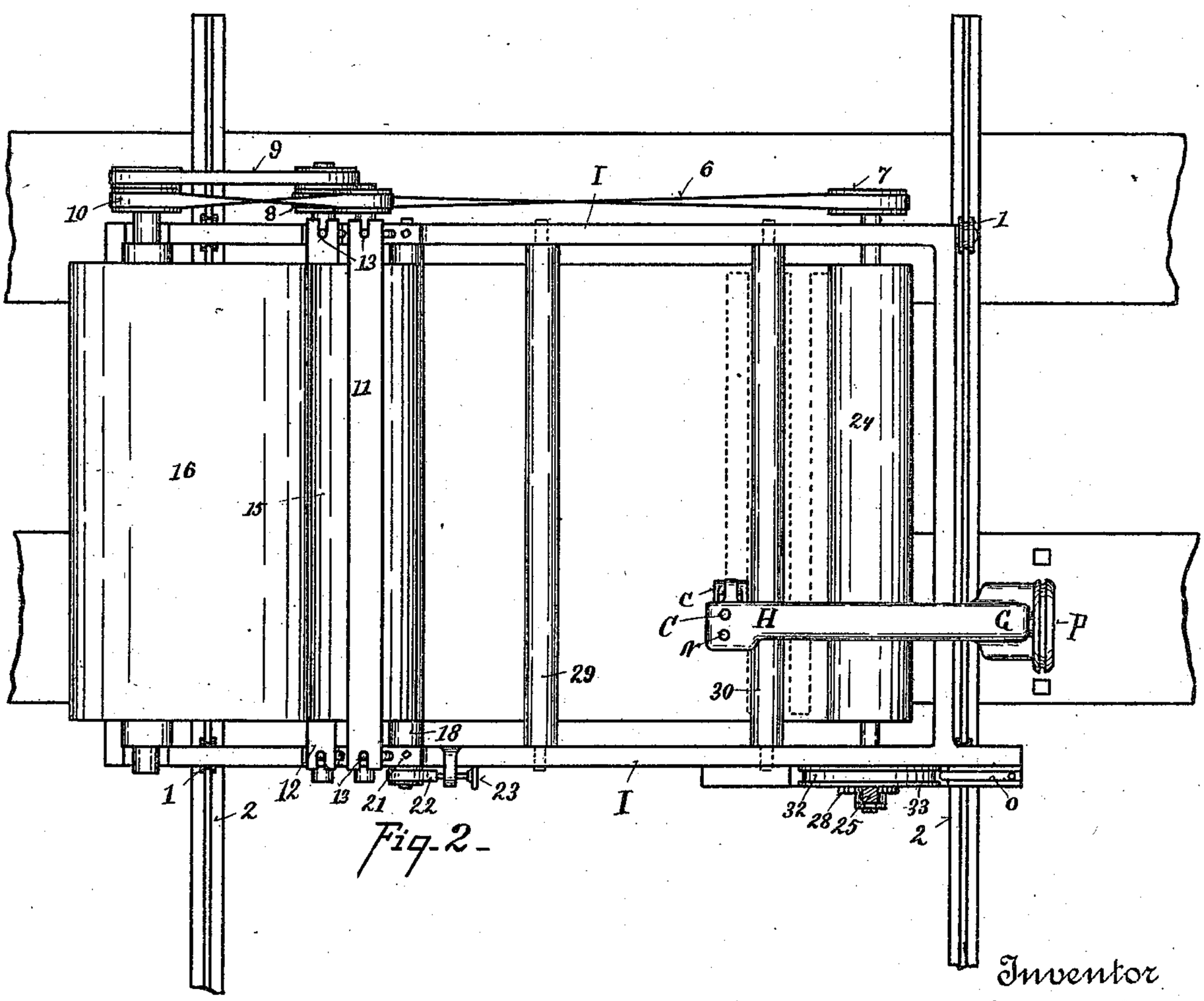

Fig. 2.

Witnesses
C. W. Miles.
T. Simmons

Inventor
Andrew J. Mitchell
By Wood & Boyd
Attorneys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

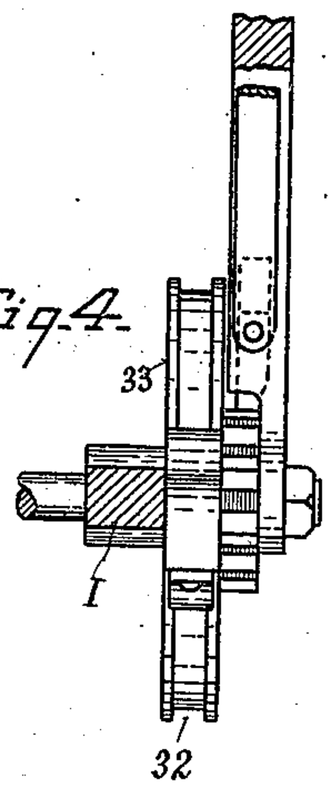
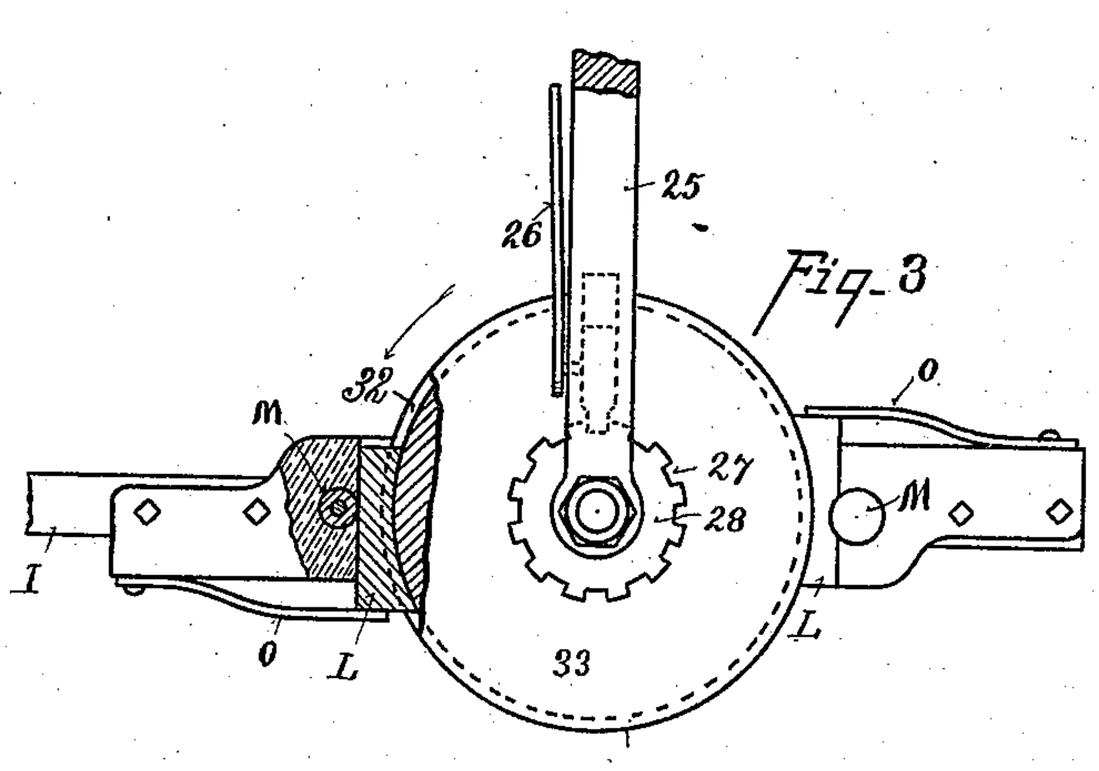


Fig. 3.



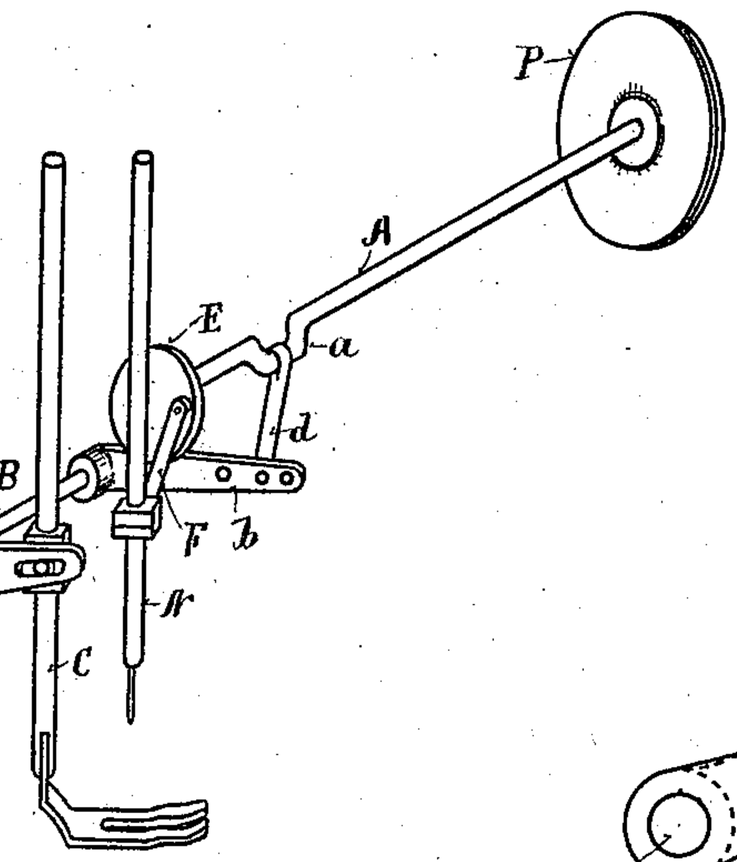


Fig. 5.

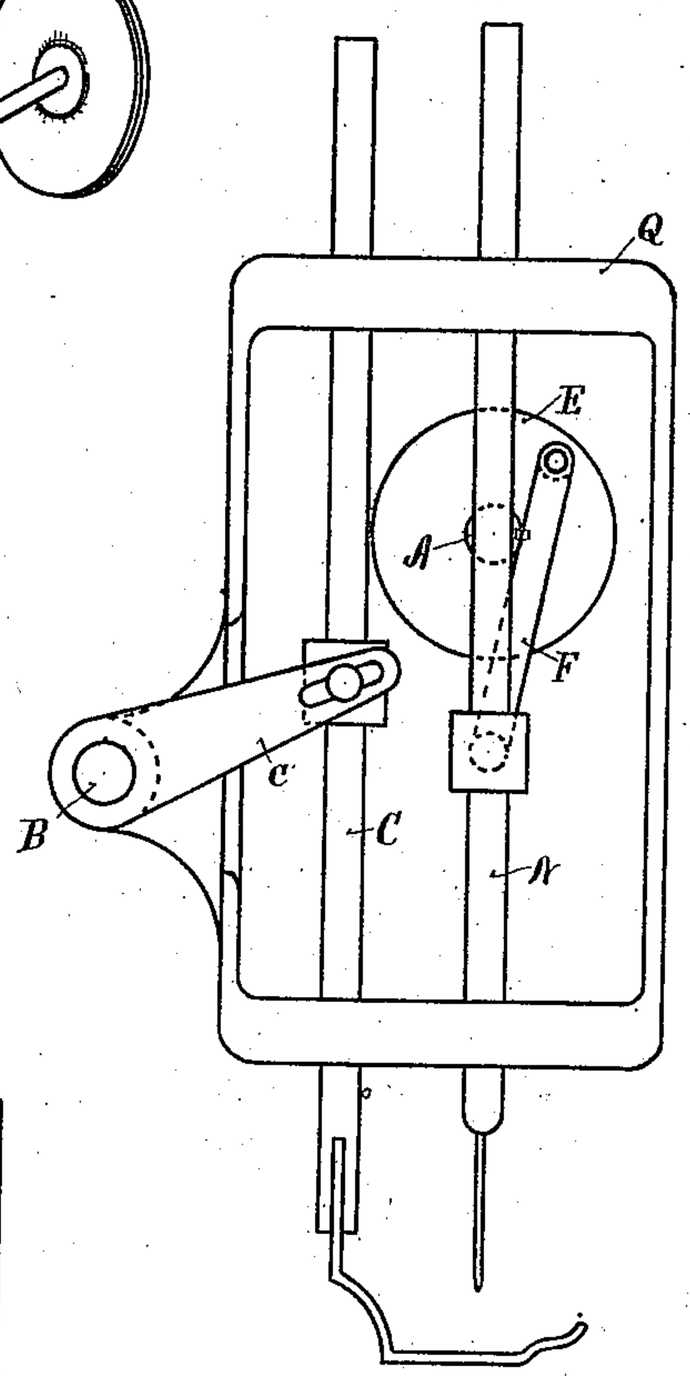


Fig. 6.

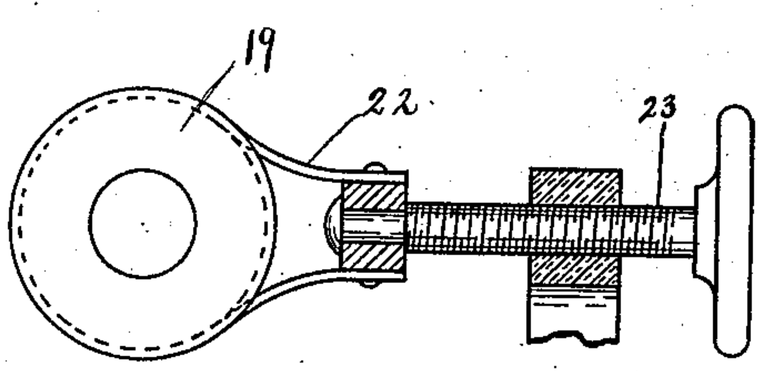


Fig. 7.

Witnesses
C. W. Miles.
T. Simmons

Inventor
Andrew J. Mitchell.
By Woods & Boyd
Attorneys

UNITED STATES PATENT OFFICE.

ANDREW J. MITCHELL, OF WASHINGTON COURT-HOUSE, OHIO.

QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 504,229, dated August 29, 1893.

Application filed March 11, 1893. Serial No. 465,601. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. MITCHELL, a citizen of the United States, residing at Washington Court-House, in the county of Fayette and State of Ohio, have invented certain new and useful Improvements in Quilting-Machines, of which the following is a specification.

My invention relates to a sewing machine and attachments adapted to be operated as a continuous quilting machine.

The various features of my invention are fully set forth in the description of the accompanying drawings making a part of this specification, in which—

Figure 1 is a side elevation of my improvement in position for use. Fig. 2 is a top plan view of the same. Fig. 3 is an enlarged view partly in section of the receiving roll and its attachments. Fig. 4 is an end elevation of Fig. 3. Fig. 5 is a diagram illustrating the needle and foot and their operating mechanism in position for starting to make a stitch. Fig. 6 is a front elevation of the head supporting the needle and foot mechanism. Fig. 7 is a detail view of the friction clamp applied to the tension roll.

In quilting goods it is desirable to stitch back and forth; it is also desirable to stitch longitudinally forward at the edge of the goods without stopping the machine to begin the second line of stitches, thereby making a continuous line of stitches. To accomplish this I dispense with the feed and employ a quilting frame which is moved backward and forward by the attendant to do the feeding. The foot and needle movements are likewise changed so that the foot goes down preferably slightly in advance of the needle, and rises and leaves the goods with the needle. The preferred mechanism to accomplish this is shown in Fig. 5, in which A represents a needle and foot driving shaft. *a* represents a crank, B a rock shaft, and *b* a crank arm connected by a pitman *d* to the crank *a*. *c* represents a crank arm operating a presser-bar C, having a presser-foot. The crank-arm and the presser bar are preferably connected by a slot and pin, as shown in Fig. 6. E represents a crank wheel for operating the needle bar N. F represents the connecting rod. The needle and foot rod are connected to ordinary bars which move in guides causing them to reciprocate positively in vertical planes. These parts are of ordinary construction and not shown in the drawings.

G represents the frame of an ordinary sewing machine and H the overhanging head which supports the needle and foot mechanism.

I represents a quilting frame supported on friction rollers 1, which travel on rails 2 allowing the quilting frame to be moved easily and transversely across the path of the needle.

3 represents a roll supporting the bottom piece of goods.

4 represents another roll supporting the top piece of goods to be quilted.

5 represents the wadding roll. These parts are driven by belts 6 from the pulley 7 on the receiving roll passing around the pulley 8 on roller 3.

9 represents a belt transmitting motion from roller 3 to roller 5.

10 represents a cross belt for transmitting motion from roller 5 to roller 4.

11, 12 represent follower bars on rolls 3 and 4. These bars are held in position by guide pins 13, and serve the purpose of keeping the fabric straight and deliver it smoothly.

15 represents the top piece of the quilt, 16 the wadding, and 17 the bottom piece of goods. These three are drawn together under the bar 12 and are passed between tension rollers 18, 19.

20 represents a spring, and 21 a regulating screw for regulating the pressure of the roller 18.

In order to feed the goods at the desired speed a friction strap 22 operated by the tension screw 23 is applied to the end of the roll 19 so as to regulate the speed of the movement and cause it to move just with the strain imparted to it by the receiving roll 24. This roll is turned by means of the ratchet lever 25 which has a like rod 26 engaging with notches 27 on the disk 28, to hold it in the fixed position for quilting.

29, 30 represent guide rollers under which the three pieces of goods are passed. These

guide rolls are placed on each side of the needle N and serve to hold the three pieces of goods together taut and smoothly.

31 represents the spool of thread threaded in the machine for quilting the goods.

It is essential to hold the goods taut or under tension for quilting and this is accomplished by the rear roll 24 and the tension rolls 18 and 19.

It is necessary also to have the rear roll 24 revolve to take up the goods successively as each line of stitches is made, and to accomplish this a straining device is applied to the roll 24, as shown in detail Fig. 3. In this figure 33 represents a friction drum provided with a groove 32 around the periphery. L represents friction keys of taper form which normally rest in said groove and are held in frictional contact with the periphery of the drum by means of springs O. M represents friction rollers against which the backs of said keys rest. As these keys are tapered when strain is applied to drum 33 through the lever 25, they will move with the drum, and when strain is released the springs will bring the keys back into position and lock the drum against the strain of the goods and hold the same taut to the action of the machine.

P represents a pulley for driving the crankshaft A.

Q represents a head on the overhanging arm of the sewing machine for supporting the driving mechanism.

Mode of operation: Web of appropriate goods is wound upon each of the rollers 3, 4, 5; they are drawn together between the friction rollers 18, 19, smoothly and adjusted in position; the rolls are adjusted to the proper tension; the goods are then passed under the guide roll 29 under the needle N, and the end is attached to the roller 24. The driving belts for the rolls 3, 4, 5, are sufficiently loose to allow the goods to be pulled off of the same by the strain imparted to the web by turning the receiving roll. The friction bars 11, 12, and the friction rollers 18, 19, prevent the goods from being drawn off any faster than is required, and hold the goods smooth and taut. The machine is set in operation, the operator moves the frame transversely across the path of the needle, the frame traveling on the rails 2; the operator, as soon as the goods have reached the edge, moves the receiving roll at the proper speed and distance to sew forward along the edge of the goods; and then a transverse row of stitches is quilted as the frame is pulled back by the operator until it reaches the front edge and the receiving roll is again turned stitching forward until it arrives at the next line of stitches, and so the movement is continued.

Having described my invention, what I claim is--

1. In a quilting machine, the combination with a sewing mechanism, of a movable quilting frame, having the lower fabric-carrying roll 3, the upper fabric-carrying roll 4, the wadding-carrying roll 5, the tension rollers 18 and 19 between the lower fabric-carrying roll and the sewing mechanism, and the receiving roll 24 in rear of the needle of the sewing mechanism, means for intermittently rotating the receiving roll 24, and friction devices having frictional contact with a part of the receiving roll to hold the same against the strain of the taut goods, substantially as described.

2. In a quilting machine, the combination with a sewing mechanism, of a movable quilting frame, having the lower fabric-carrying roll 3, the upper fabric-carrying roll 4, the wadding-carrying roll 5, the tension rollers 18 and 19 between the lower fabric-carrying roll and the sewing mechanism, the receiving roll 24, having at one end a friction drum, friction devices having frictional contact with the periphery of the drum and adapted to move therewith when turned to tighten the goods, and means for intermittently rotating the receiving roll, substantially as described.

3. The combination with a sewing machine, of a quilting frame movable back and forth, and provided with fabric-carrying rolls and a roll 24, having a drum 33, frictional keys L, frictional rollers M against which the keys bear, and springs O acting on the frictional keys, substantially as described.

In testimony whereof I have hereunto set my hand.

ANDREW J. MITCHELL.

Witnesses:
FRANK A. CHAFFIN,
JNO. N. VAUDEMAN.