

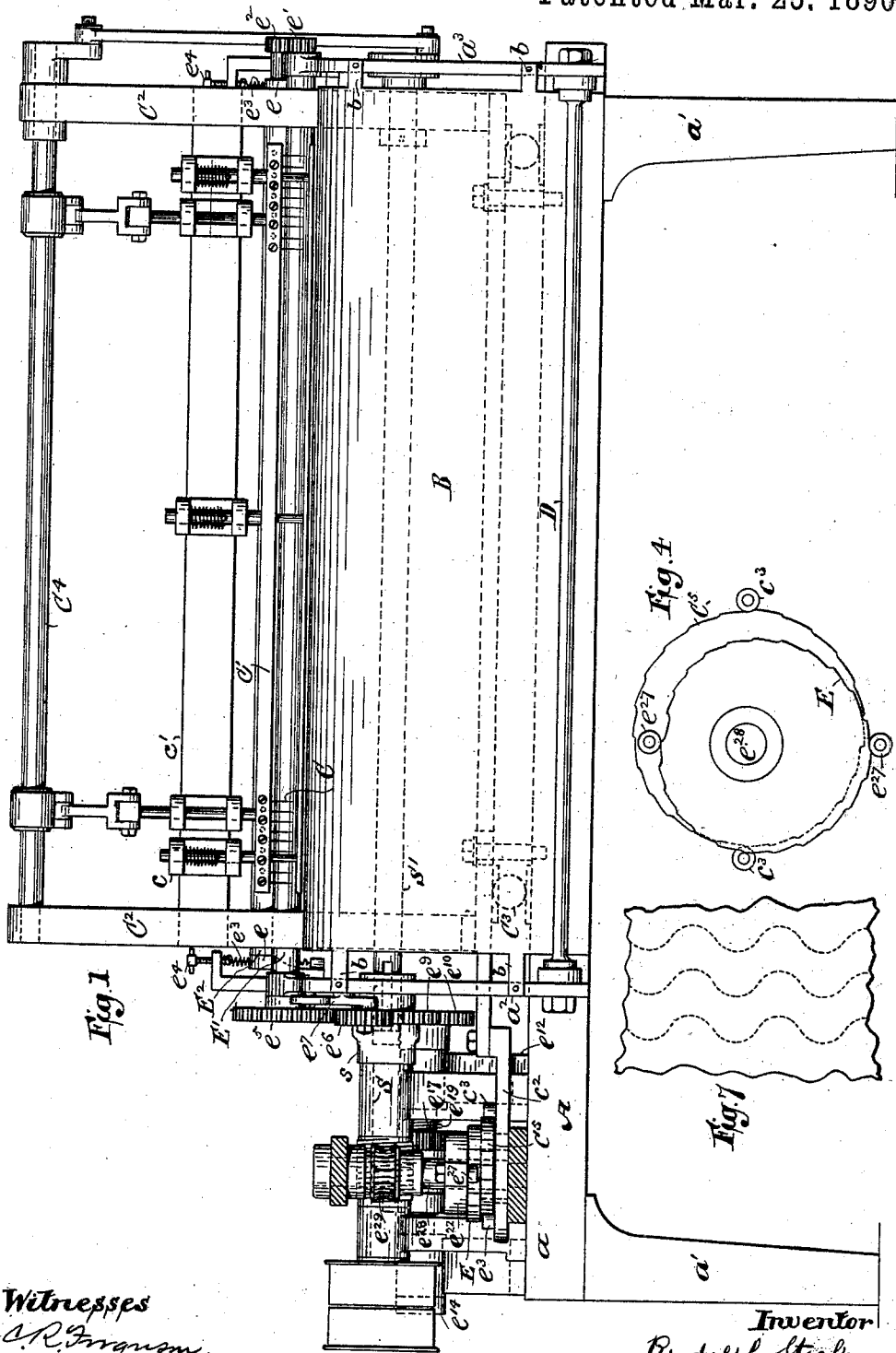
(No Model.)

2 Sheets—Sheet 1.

R. STOCKER.
QUILTING MACHINE.

No. 424,437.

Patented Mar. 25. 1890.



Witnesses
A. R. Ferguson
Wm. M. Shiff

Inventor
Rudolph Stocker
By his attorneys
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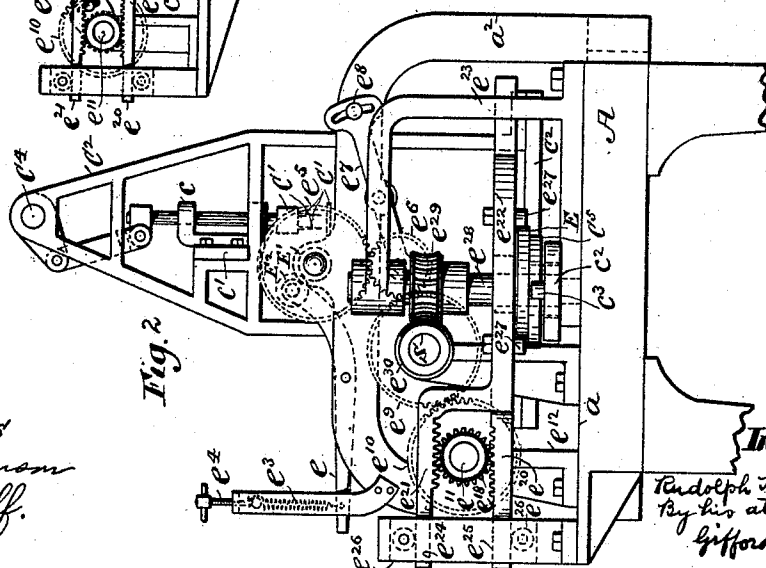
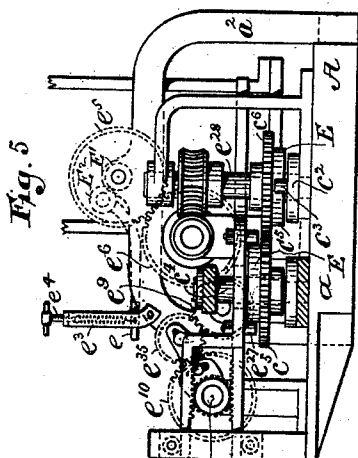
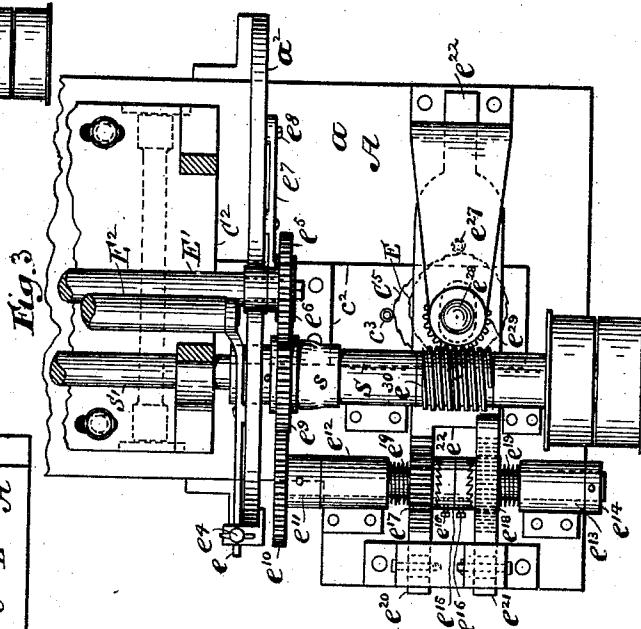
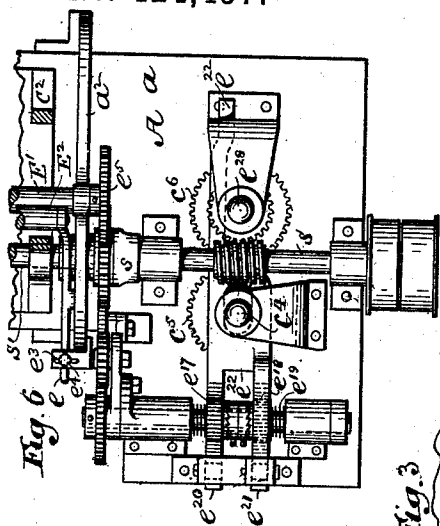
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QUILTING MACHINE.

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UNITED STATES PATENT OFFICE.

RUDOLF STOCKER, OF NEW YORK, N. Y., ASSIGNOR TO LOUIS SCHULTZ
AND JOHN B. HAGENBUCHLE, OF SAME PLACE.

QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 424,437, dated March 25, 1890.

Application filed May 25, 1889. Serial No. 312,073. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF STOCKER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Quilting-Machines, of which the following is a specification.

I will describe a quilting-machine embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a front view of a quilting-machine embodying my improvement, certain parts being broken away to enable others to be seen. Fig. 2 is an end view of the machine, certain end bearings and driving-pulleys being omitted. Fig. 3 is a plan of a portion of the machine, illustrating the improvement, the upper portion of the carriage-supporting needles being broken away. Fig. 4 is a top view of cams and bowls which operate in connection therewith, one cam being employed for reciprocating a movable carriage comprised in the machine and the other cam being employed for rotating the feed-rollers. Fig. 5 is a view looking toward the end of the machine and illustrating certain modifications. Fig. 6 is a plan of the parts illustrated in Fig. 5. Fig. 7 illustrates a piece of quilting which may be done with this machine.

Similar letters of reference designate corresponding parts in all the figures.

A designates the main frame of the machine. It consists, essentially, of a bed-piece *a*, supported by legs *a'*. To the bed are secured two side frames *a² a³*. These rise from the front of the bed and extend over rearwardly and downwardly to the back.

B designates an apron over which the fabric to be quilted is fed. This apron may be made of sheet metal, and is shown as secured by rods *b* to the side frames *a² a³*. It extends upwardly from near the front of the bed and then rearwardly on a curve to a plane suitable for presenting the fabric to the needles C.

The apron B is of course stationary. There is a bar D near the bottom of the apron over which the fabric to be quilted may pass before reaching the apron.

The fabric to be quilted is fed beneath the needles C by means of feed-rollers E' E², between which it passes. These feed-rollers im-

part but one movement to the fabric, and that is a movement from the front toward the rear or back of the machine beneath the needles. This machine is not organized to impart to the fabric a lateral movement. The feed-rollers are geared together by pinions *e'* *e²*, affixed to the journals at one end of the rollers. The roller E' is incapable of any bodily movement, it being journaled in the side frames *a² a³*. The roller E² is journaled in arms *e*. There are two of these arms, and they are fulcrumed between their ends to the side frames *a² a³*. At the front end they receive the journals of the roller E². At the rear end they are connected with springs *e³*, which pull them upwardly, and hence force the roller E² with greater or less force toward the roller E'. The springs *e³*, being connected to screws *e⁴*, may be varied in tension at will. The feed-rollers are driven through a gear-wheel *e⁵*, affixed to one of the journals of the roller E'. With this gear-wheel *e⁵* a gear-wheel *e⁶* engages. This gear-wheel *e⁶* is supported at one end of a lever *e⁷*, which is fulcrumed between the ends to the side frame *e²*, and at the other end has a slot which is concentric with this fulcrum. A screw *e⁸*, passing through this slot and entering the side frame *a²*, serves to clamp the lever in different positions. By mounting the gear-wheel *e⁶* upon an adjustable lever provision is afforded for taking off the gear-wheel *e⁵* and substituting for it one of a different size. The gear-wheel *e⁶* engages with a gear-wheel *e⁹*, which is mounted loosely upon the driving-shaft S. As here shown, this gear-wheel is not mounted upon the driving-shaft proper, but is mounted upon a socket *s*, which is fastened to the driving-shaft and interlocks with a shaft S', which is, in fact, a part of the driving-shaft, but which slides longitudinally relatively to the driving-shaft proper, although interlocked so as to rotate with the latter.

The gear-wheel *e⁹* does not derive any motion from the driving-shaft; but the latter simply affords a support for it. One side of its hub rests against a shoulder on the socket *s* and the other side against a pin or pins, it being thus held in place.

The gear-wheel *e⁹* engages with a gear-wheel *e¹⁰* and it derives motion from the lat-

ter. The gear-wheel e^{10} is affixed to a shaft e^{11} , supported in bearings e^{12} e^{13} , mounted on the bed-piece a . The hub of the gear-wheel e^{10} at one end of the shaft e^{11} and a collar e^{14} on the other end of the shaft e^{11} preclude any longitudinal movement of this shaft in its bearings. Affixed to the shaft e^{11} is a clutch-piece e^{15} , having on its two ends ratchet-teeth with their faces extending in the same direction, as may be best understood by reference to Fig. 3. I have shown this clutch-piece made in two sections, and as being secured to the shaft e^{11} by set-screws e^{16} . On the shaft e^{11} are loosely mounted gear-wheels e^{17} e^{18} , having hubs furnished with ratchet-teeth adapted to engage with the ratchets on the adjacent ends of the clutch-piece e^{15} . The gear-wheels slide lengthwise of the shaft e^{11} , and are forced toward the clutch-piece by springs e^{19} . The gear-wheel e^{17} engages with a rack-bar e^{20} , extending beneath it. The gear-wheel e^{18} engages with a rack-bar e^{21} , extending above it. These rack-bars connect with a reciprocating plate e^{22} . The main portion of this plate is guided in a bearing e^{23} , and the rack-bars are guided in bearings e^{24} e^{25} , friction rollers being arranged to sustain those sides which will be under pressure. As the plate e^{22} reciprocates it will rotate both pinions; but it will never impart motion to the shaft e^{11} except through one. When it rotates rearwardly, it will impart motion to the shaft e^{11} through the rack-bar e^{21} and the pinion e^{18} , and the pinion e^{17} will run free of the clutch-piece. When the plate e^{22} moves forwardly, it will transmit motion to the shaft e^{11} through the rack-bar e^{20} and the pinion e^{17} , and the pinion e^{18} will then run free. A continuous rotary motion will thus be imparted by the plate e^{22} to the shaft e^{11} .

The plate e^{22} is provided with bowls e^{27} , bearing against a cam E . This cam is mounted upon an upright shaft e^{28} , provided with a worm-wheel e^{29} , engaging with a worm e^{30} , carried by the driving-shaft S . It will be readily understood that the driving-shaft thus imparts a continuous motion to the shaft e^{28} , and that the latter, through the plate e^{22} , reciprocates the shaft e^{11} and through the latter operates the feed-rollers.

The particular cam shown is designed for the production of the pattern illustrated in Fig. 7. The steps of the cam, it will be seen, are more sharply defined at some points than others. This is necessary for the particular pattern illustrated.

The needles C are secured to a needle-bar C' , guided by brackets c , secured to a horizontal bar c' , forming part of a carriage C^2 , which is free to reciprocate laterally or width-

wise of the machine, being supported by rollers C^3 on the bed-piece of the machine. The needle-bar is reciprocated vertically by a rock-shaft C^4 , arranged in the carriage C^2 . The carriage C^2 has a bar c^2 provided with bowls c^3 , which bear against a cam C^5 . This cam is affixed to the shaft e^{28} .

It will be readily understood that the carriage moves the needles laterally over the fabric while the latter is moved longitudinally beneath them. The cams vary the speed of the movements of the carriage and feed-rollers which feed the fabric, and in this way cause sinuous, curved, or angular lines of stitching to be worked upon the fabric.

In Figs. 5 and 6 a slight modification is illustrated. Here only the cam E is affixed to the shaft e^{28} . The cam C^5 is in this modification affixed to a shaft c^4 . The shaft c^4 has affixed to it a gear-wheel c^5 , which engages with a gear-wheel c^6 , affixed to the shaft e^{28} . The other parts are like the principal example of the improvement except that, instead of having the wheel e^6 adjustable, an adjustable wheel e^{35} is used. The wheel e^{10} can therefore be removed and replaced by a wheel of different size.

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

1. In a quilting-machine, the combination, with a series of needles and feed-rollers for moving the fabric to be worked lengthwise beneath the needles, of a shaft for driving the feed-rollers, a clutch-piece affixed to this shaft, gear-wheels loosely mounted on this shaft, constructed to engage with the clutch-piece, reciprocating rack-bars engaging the gear-wheels, one being arranged above its gear-wheel and the other below its gear-wheel, and the two rack-bars being connected, and a cam for reciprocating the rack-bars, substantially as specified.

2. In a quilting-machine, the combination, with a series of needles arranged upon a laterally-reciprocating carriage, and feed-rollers supported on the fixed framing of the machine, of a cam for reciprocating the carriage, a cam for operating the feed-rollers, rack-bars reciprocated by the last-named cam, gear-wheels arranged one below a rack-bar and the other above the other rack-bar, a shaft upon which these gear-wheels are loosely mounted, a clutch-piece affixed to this shaft and with which the gear-wheels may be engaged, and gearing between this shaft and one of the feed-rollers, substantially as specified.

RUDOLF STOCKER.

Witnesses:

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