

(No Model.)

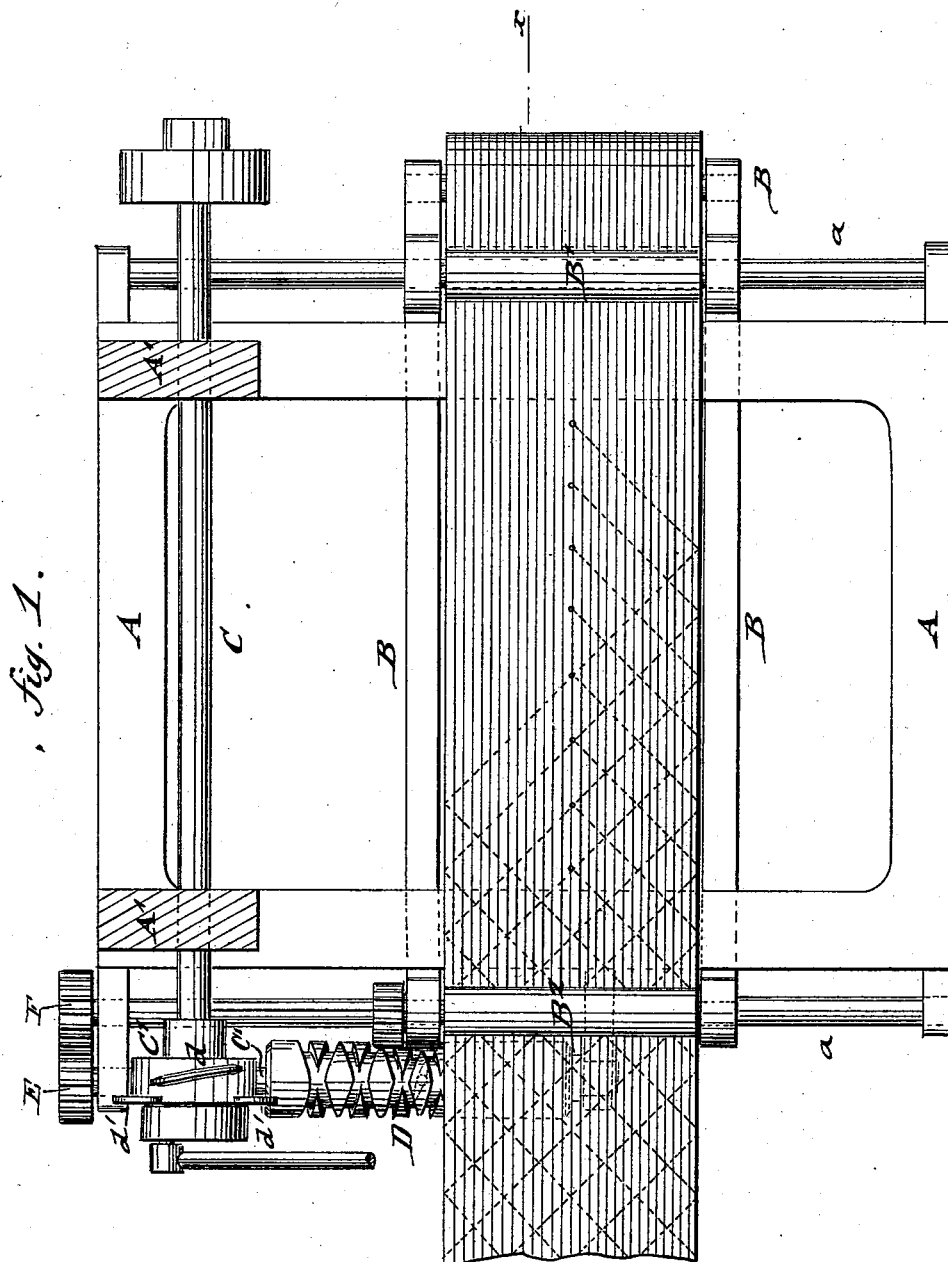
3 Sheets—Sheet 1.

W. KOCH.

QUILTING MACHINE.

No. 260,994.

Patented July 11, 1882.



WITNESSES:

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Carl Karp
Otto Risch.

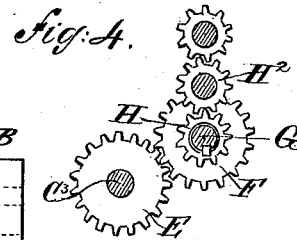
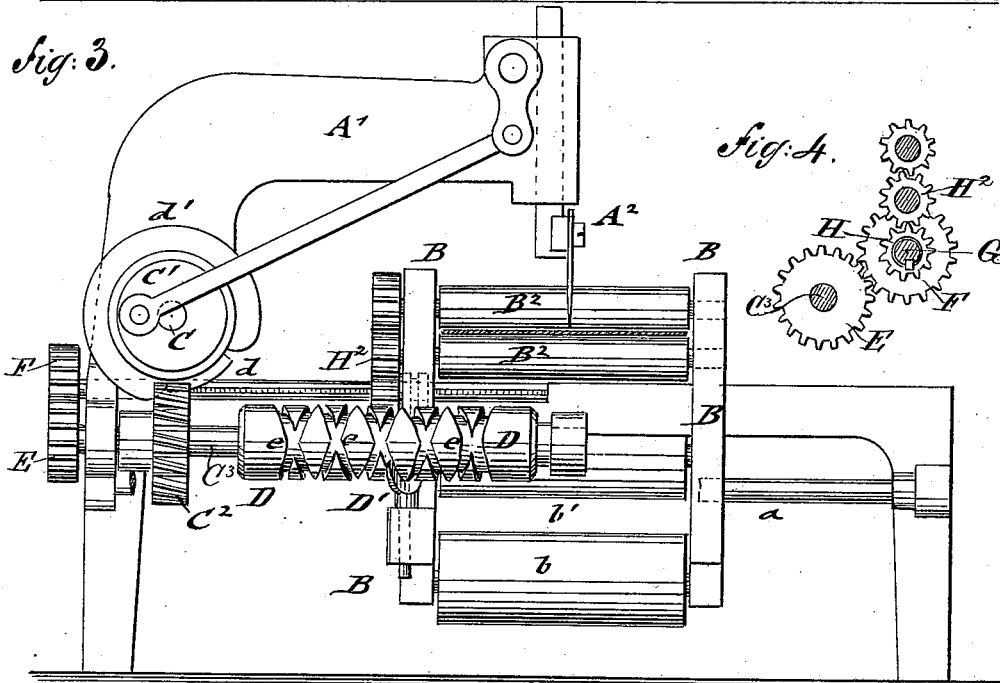
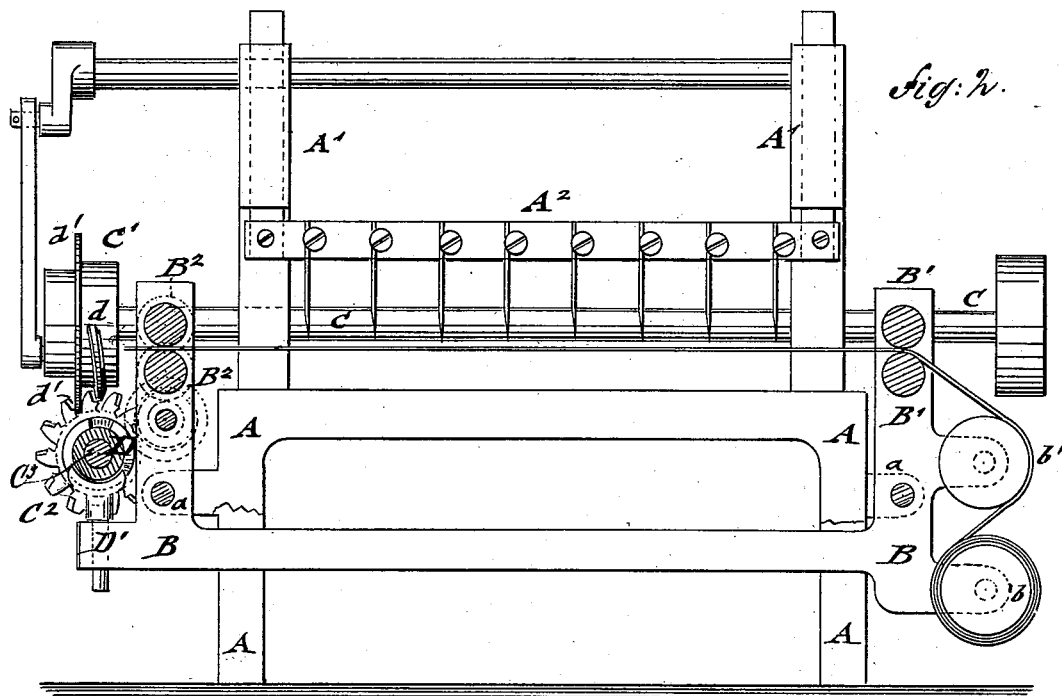
INVENTOR

William Koch
BY Paul Grepe
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INVENTOR

William Koch
BY *Carl Goppel*
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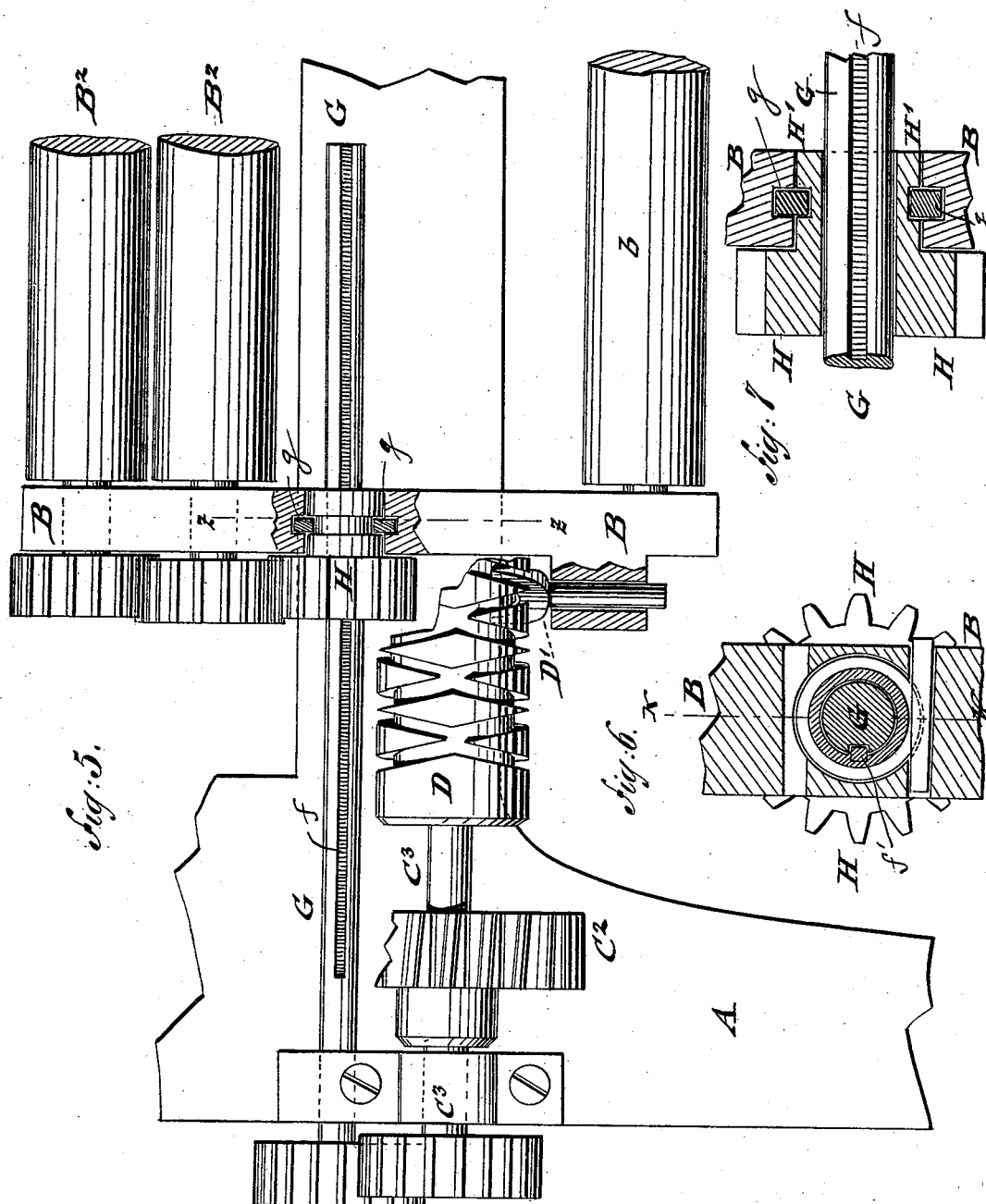
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3 Sheets—Sheet 3.

W. KOCH.
QUILTING MACHINE.

No. 260,994.

Patented July 11, 1882.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIAM KOCH, OF NEW YORK, N. Y.

QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 260,994, dated July 11, 1882.

Application filed March 1, 1882. (No model.)

To all whom it may concern:

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

This invention has reference to an improved quilting-machine, by which the quilting is accomplished by a single gang of needles instead of by two gangs of needles, as heretofore; and the invention consists of a vertically-reciprocating needle-bar carrying a single gang of needles, in combination with feed-rollers arranged on a reciprocating carriage at right angles to the needle-bar, said feed-rollers moving the fabric to be quilted, by suitable mechanism, in a direction parallel to the needle-bar, while the fabric is simultaneously carried by the carriage at right angles to the direction of the feed of the fabric. The transverse motion of the fabric is accomplished by means of a flanged wheel having a worm-segment which engages the inclined teeth of a gear-wheel, while the reciprocating motion is imparted to the carriage by a cylinder having spiral right-and-left-hand grooves, which cylinder engages a swiveled fork of the feed-carriage.

In the accompanying drawings, Figure 1 represents a plan, partly in horizontal section, of my improved quilting-machine. Fig. 2 is a vertical transverse section on line *x x*, Fig. 1. Fig. 3 is a side elevation of the same; Fig. 4, a detail view of the gear-wheels by which motion is transmitted to the feed-rollers. Fig. 5 is an enlarged view of parts shown in Fig. 3. Fig. 6 is a transverse section, on line *z z* of Fig. 5, of the shaft G, showing the connection thereto of the sliding gear H; and Fig. 7 is a longitudinal section, on line *k k* of Fig. 6, of the parts shown in said figure.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-frame of my improved quilting-machine. The frame A is provided with forwardly-bent arms A', which serve to guide the vertically-reciprocating needle-bar A², having a single gang of needles.

On fixed side guide-rods, *a*, of the frame A is supported a feed-carriage, B, which carries in bearings of upright side standards at each

end of the carriage a pair of feed-rollers, B' B' and B² B².

The fabric to be quilted is wound upon a roller, *b*, which is supported in suitable bearings at one end of the feed-carriage B, and retained by a suitable tension device; then conducted over a guide-roller, *b'*, to the first pair of feed-rollers, B' B', between which it passes laterally across the carriage, above the shuttles, to the pair of feed-rollers B² B² at the opposite end of the feed-carriage B. Intermittently-revolving motion is imparted to the second pair of feed-rollers, B², by means of a worm-segment, *d*, applied to a flanged wheel, C', on the driving-shaft C, said worm-segment meshing at each revolution with a pinion, C², the teeth of which are placed at an oblique angle of inclination to the axis of the pinion-shaft. The flange *d'* of the wheel C' extends around that part of the wheel C' not taken up by the worm segment, as shown in Fig. 2, and serves as a stop for the pinion C². The shaft C³ is provided at its outer end with a gear, E, which meshes with a gear, F, on an intermediate shaft, G. The shaft G is parallel with shaft C³, and is provided with a small pinion, H, which meshes with the gear H², attached to the shaft of the lower feed-roll, B². This pinion H is adapted to slide longitudinally on the shaft G to correspond with the movement of the carriage, the shaft being provided with a longitudinal groove, *f*, and the hub of the pinion being provided with a fixed spline, *f'*, which moves in the groove. The pinion H is provided with a grooved collar, H', which is secured to a corresponding recess of the adjoining upright, B, of the feed-rollers B² B² by traverse-keys *g g*. By this connection the pinion is compelled to traverse with the supporting-frame of the feed-rollers along the shaft G without being prevented from rotating with the same, so as to transmit motion to the pinions at the end of the feed-roller shafts.

The needle-bar A² is vertically reciprocated by a crank-rod and link-connection from the wheel C' of the driving-shaft, the fabric to be quilted being fed forward in the usual manner during the upward motion of the needles and held in position during the downward motion of the same. The feed-carriage B receives also intermittent motion simultaneously with the

feed-rollers in a direction at right angles to the direction of the feed of the fabric, the forward and backward reciprocating motion being imparted by means of a fixed cylinder, D, on shaft C³, having spiral right-and-left-hand grooves *ee*, as shown clearly in Fig. 3, said grooved cylinder engaging a swiveled fork, D', of the feed-carriage B, so as to impart to the latter intermittent motion until the fork D' arrives at the end of one spiral groove of the cylinder, where the fork is axially turned in its sockets and placed into the path of the second spiral groove of opposite direction with the former, whereby an intermittent motion is imparted to the feed-carriage in opposite direction to the former motion. When the feed-carriage arrives at either end of the spirally-grooved cylinder its motion is automatically reversed by the shifting of the swiveled fork D. In this manner the fabric to be quilted receives an intermittent motion by means of the feed-rollers and their transmitting mechanism, while it is simultaneously carried at right angles to the direction of the feed of the fabric by the intermittent motion imparted to the feed-carriage. The result is that the fabric is quilted by lines extending diagonally across the fabric, the lines of stitches crossing each other by the reverse motion imparted to the feed-carriage, as indicated in dotted lines in Fig. 1. The shuttles, shuttle-carriers, and shuttle-motion are not shown in the drawings, as they are of exactly the same construction as in other quilting-machines.

By my construction a single gang of needles produces the uniform quilting of the fabric in intersecting lines of stitches passing diagonally over the fabric without the use of two gangs of needles and shuttles, the mechanism for imparting motion to the fabric and the feed-carriage being of simple construction and not liable to get out of order. If a different speed is required, a worm-wheel with a greater or less

number of teeth, or any other equivalent transmitting mechanism set in motion by the worm-wheel, may be employed to produce this result.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improvement in quilting-machines, the mechanism which imparts intermittent reciprocating motion to the feed-carriage, said mechanism consisting of a cylinder having spiral right-and-left-hand grooves engaging a swivel-fork of the carriage, in combination with feed-rolls and suitable actuating mechanism arranged to move the fabric in a direction parallel to the needle-bar, substantially as described.

2. The combination of the wheel C' on the driving-shaft C, said wheel having a worm-segment and stop-flange, *d'*, a pinion, C², having inclined teeth which are engaged by the worm-segment and stop-flange, respectively, with intermediate transmitting-gearing and with the feed-rollers B² B² of the feed-carriage, substantially as set forth.

3. The combination of a wheel, C', on the driving-shaft, said wheel having a worm-segment, *d*, and stop-flange *d'*, a pinion, C², having inclined teeth which are engaged respectively by the worm-segment and stop-flange, a right and left hand spirally-grooved cylinder, D, on the shaft of the pinion C², and a longitudinally-guided carriage, B, having a swiveled fork, D', meshing with the grooves of the cylinder, so as to intermittently move the carriage and reverse its motion when arriving at opposite ends of the grooved cylinder, substantially as specified.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WILLIAM KOCH.

Witnesses:

PAUL GOEPEL,
CARL KARP.