

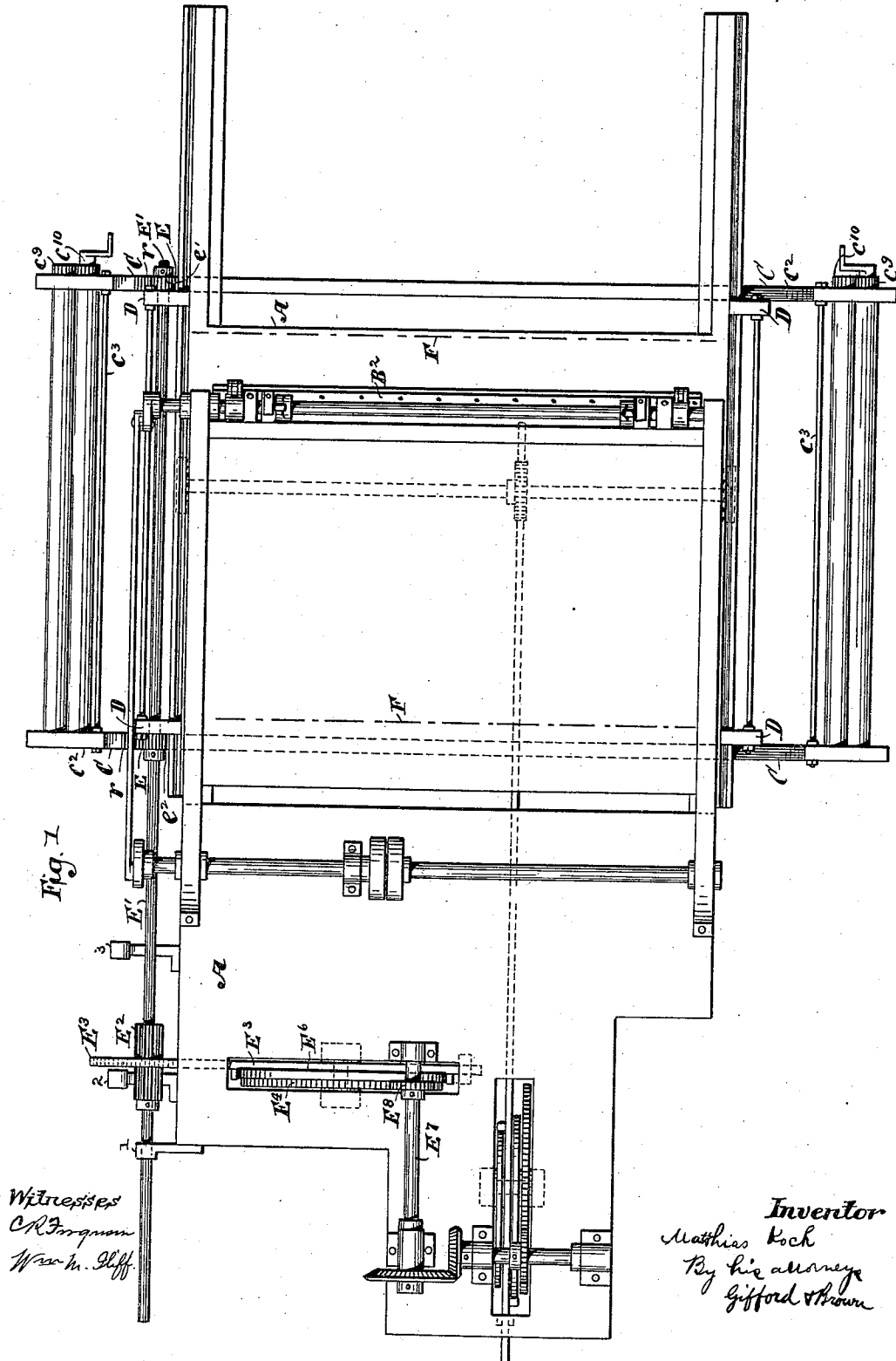
(No Model.)

3 Sheets—Sheet 1.

M. KOCH.
QUILTING MACHINE.

No. 447,571.

Patented Mar. 3, 1891.



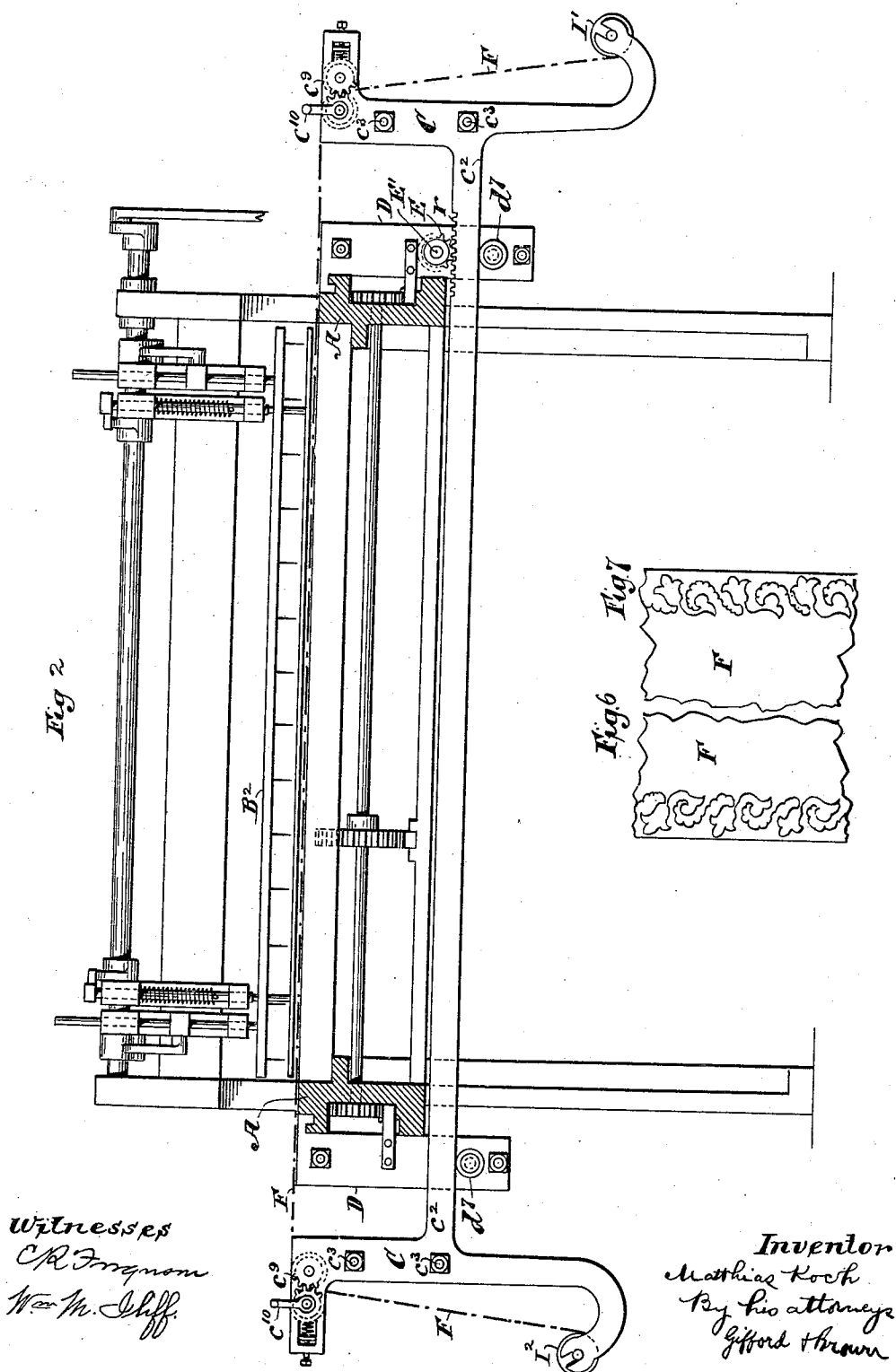
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Fig 3

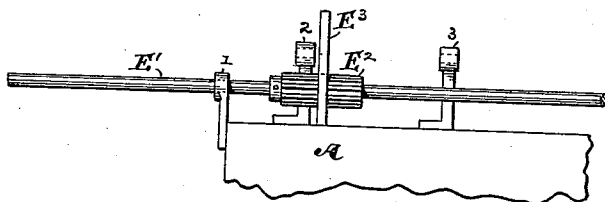


Fig 4

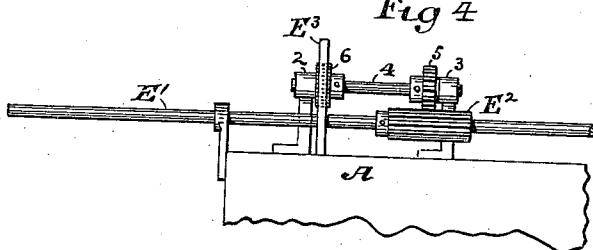
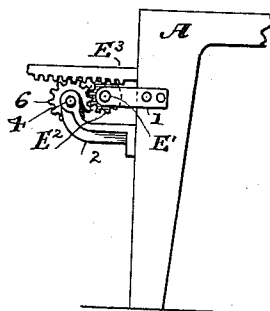


Fig. 5



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UNITED STATES PATENT OFFICE.

MATTHIAS KOCH, OF CHICAGO, ILLINOIS, ASSIGNOR TO LOUIS SCHULTZ, OF
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QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 447,571, dated March 3, 1891.

Application filed May 25, 1889. Serial No. 312,082. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS KOCH, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful
5 Improvement in Quilting-Machines, of which the following is a specification.

This improvement relates to an improvement in quilting-machines for which I filed an application for United States Letters Patent on the 22d day of September, 1888, said
10 application having been numbered serially 286,110.

In the machine which is the subject of my said prior application there is a series of
15 needles. The needles may be arranged in one or more rows extending in the direction of the length of the needle-bar. Two carriages are employed. The lower carriage travels in a direction transverse to the length of the
20 needle-bar and series of needles. The upper carriage is carried by the lower and is capable of a movement upon the lower in a direction at right angles to the direction of the movement of the lower, and consequently in
25 a direction parallel with the needle-bar and lengthwise of the series of needles. The lower carriage is capable of moving to and fro in the direction mentioned. Its movements are caused by pattern mechanism. The upper
30 carriage is also capable of movement to and fro in the described direction, and its movements are effected by pattern mechanism. As a result of these capabilities of movement in the carriages the fabric to be quilted, which
35 is secured to the upper carriage, is capable of being moved in any and all directions in a plane at right angles to the reciprocation of the needles.

The machine is particularly designed for
40 ornamental quilting, such as the quilting of flowers, leaves, and other fancy irregular patterns. Sometimes these fancy irregular patterns are of such a nature that it is immaterial whether the strip of fabric containing
45 them is turned one way up or the other way up. In such patterns there is usually a repetition of figures, each of which is composed of two similar halves arranged upon two sides of a center line. Other fancy irregular pat-
50 terns consist of a repetition of figures, each

having two portions or halves on the opposite sides of a center line different in contour or outline.

In patterns of the kind last referred to it makes a very marked difference whether the
55 patterns be held with one end uppermost or in a reverse position. Hence these patterns cannot be used for the right and left edges of a garment and with the corresponding halves or sections of the salient figure of the pattern
60 uppermost on both sides of the garment unless the pattern is reversed, so as to adapt it for the two sides of a garment.

My present improvement has for its object the adapting of the machine of my former ap-
65 plication to work in reverse those patterns which have the two halves or portions of the salient figures of different contour. I will describe such portions of a machine embodying my present improvement as will be nec-
70 essary.

In the accompanying drawings, Figure 1 is a plan of such portions of the machine which is the subject of my said former application as are necessary to an understanding of the
75 present improvement, and in this view I have shown additional parts constituting the present improvement. Fig. 2 is a vertical section taken parallel with the needle-bar of the machine. Fig. 3 is a plan of certain parts specially relating to my present improvement.
80 Fig. 4 is a similar view showing these parts, some of them being in a different position and some other parts being added. Fig. 5 is a view of a portion of the back of a machine. Fig. 6 represents a pattern which may be made by this machine organized in one way. This pattern may be called a "right-
85 handed pattern." Fig. 7 represents a pattern which may be made by this machine organized in another way. The latter pattern may be called a "left-handed pattern."

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

A designates the main frame of the machine. B² designates the needle-bar. This has
95 merely a vertically-reciprocating movement. Any suitable mechanism may serve to impart this movement. The shuttle or looping
100

mechanism will be of any suitable character to co-operate with the needles in the usual manner, and hence need not be shown.

The lower of the two carriages D, whereby the fabric to be quilted is supported, is made in two sections or parts. One section travels along a horizontally-extending portion of one of the side pieces of the frame A and the other section similarly travels along a horizontally-extending portion of the other side piece of said frame A. This carriage, it will be understood, travels in a plane forwardly and backwardly of the machine, or, in other words, in a direction at right angles to the length of the needle-bar.

The upper carriage C is supported by rollers d' on the two sections of the lower carriage D. I term this carriage C the "upper" carriage because it serves to support the fabric.

The upper carriage has a frame composed of two side pieces c^2 , connected by stretchers or cross-bars c^3 . The side pieces of the frame have horizontally-extending bar-like portions which travel upon the rollers d' . The engagement of these bar-like portions with the rollers d' effects the connection of the two sections of the carriage D, causing said sections to travel in unison. The carriage C travels in a direction at right angles to that in which the carriage D travels, and hence the carriage C travels in a direction parallel with the length of the needle-bar. It is free to travel to and fro in this direction.

The fabric to be quilted is designated by the letter F. It is held by work-holders consisting of pairs of rollers c^9 c^{10} , arranged near the opposite ends of the carriage C. Rollers I' I^2 are shown as fitted to this carriage for holding the fabric before and after quilting.

The movements of the lower carriage D to and fro in a direction at right angles to the length of the needle-bar are effected by pattern mechanism comprising rotary pattern wheels or cams. The nature of these being immaterial to the present improvement, I have not illustrated them.

The to-and-fro motions of the upper carriage C in a direction parallel with the length of the needle-bar are effected by pattern mechanism comprising rotary patterns.

I have illustrated this mechanism as far as necessary to enable me to explain my present improvement. This mechanism as far as illustrated I will now describe. The horizontally-extending bar-like portions of the side pieces comprised in the frame of the upper carriage C are provided with toothed racks r , and with these racks engage pinions E, mounted upon a shaft E' , which is journaled in one of the sections of the carriage D and caused to move longitudinally to correspond with the motions of the lower carriage, collars e' e^2 being secured to this shaft outside the side pieces of the referred-to section of the lower carriage to secure this result. The shaft E' extends in one direction considerably beyond the carriage D, and is supported by

a bearing 1, extending from the main frame A. The shaft E' slides within this bearing 1 when it moves with the carriage D. Affixed to the shaft E' is a long pinion E^2 . I mean a pinion long in the direction of its axis. This pinion engages with a rack-bar E^3 , which is supported from the main frame, and which is capable of a movement at right angles to the length of the shaft E' , and consequently in a direction parallel with the length of the needle-bar. The pinion E^2 is elongated, so that notwithstanding its longitudinal movement corresponding to the movement of the carriage D it will maintain engagement with the rack-bar E^3 . The rack-bar E^3 is reciprocated through a pattern-wheel E^6 , rotated through a main wheel E^4 , deriving motion from a gear-wheel E^8 , mounted upon a shaft E^7 . This shaft E^7 may be driven with a pawl-and-ratchet movement or otherwise from the main shaft of the machine.

On the main frame A of the machine are fixed two bearings 2 3, for supporting a shaft 4. This shaft 4 has affixed to it a pinion 5, for engaging with the long pinion E^2 aforesaid. The shaft 4 has also affixed to it a pinion 6 in such position that it will engage with the rack-bar E^3 . When this shaft 4 is fitted in its bearings, the long pinion E^2 is shifted lengthwise of its shaft nearer the carriage D, so as to prevent its engagement with the rack-bar E^3 and cause it to engage with the pinion 5.

It will be readily understood that the rack-bar E^3 will then impart a rotary motion to the pinion E^2 in exactly the reverse direction from that in which it will impart motion to the pinion E^2 during a direct engagement with the latter.

It will be readily seen that by my improvement I provide for organizing one machine for producing either a right or a left handed pattern. This is very advantageous in that the machine is adapted to do more than ordinary work with a very slight change, because it enables it to produce patterns for two opposite sides of garments or for any other opposite positions where it is desirable to have a pattern arranged with the same ends or portions uppermost.

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 two work-carriages arranged one upon the other for supporting and moving the fabric universally in a plane transverse to the reciprocation of the needles and pattern-wheels for moving said carriages, of mechanism, substantially such as described, between one of the carriages and its pattern-wheel, whereby the direction of certain motions of such carriage may be reversed without reversing the pattern-wheel, substantially as specified.

2. In a quilting-machine, the combination, with a series of needles and two work-carriages arranged one upon the other for sup-

porting and moving a fabric universally in a
plane transverse to the reciprocation of the
needles, of a rack on one carriage, a gear-wheel
engaging with the rack, a shaft carrying the
5 gear-wheel, a rack-bar extending over this
shaft, a long pinion supported on the shaft so
that it may be shifted into or out of engage-
ment with the rack-bar, bearings for a second
shaft, and gear-wheels on the second shaft ar-
10 ranged so that when the second shaft is in
place and the long pinion is shifted one of
these gear-wheels on the second shaft will en-
gage with the long pinion and the other with
the said rack-bar, substantially as specified.

15 3. In a quilting-machine, the combination,
with a series of needles and two work-car-
riages arranged one upon the other for sup-
porting and moving a fabric universally in a

plane transverse to the reciprocation of the
needles, of a rack *r* on one carriage, a gear-
20 wheel *E*, engaging with the rack, a shaft *E'*,
carrying the gear-wheel, a rack-bar *E''*, extend-
ing over this shaft, a long pinion *E''*, supported
on the shaft so that it may be shifted into or
out of engagement with the rack-bar, bearings 25
2 3 for a second shaft 4, and gear-wheels 5 6
on the second shaft, arranged so that when the
second shaft is in place and the long pinion
is shifted one of these gear-wheels on the sec-
ond shaft will engage with the long pinion 30
and the other with the said rack-bar, substan-
tially as specified.

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