

(No Model.)

4 Sheets—Sheet 1.

C. KOHLER.
SEWING MACHINE.

No. 356,590.

Patented Jan. 25, 1887.

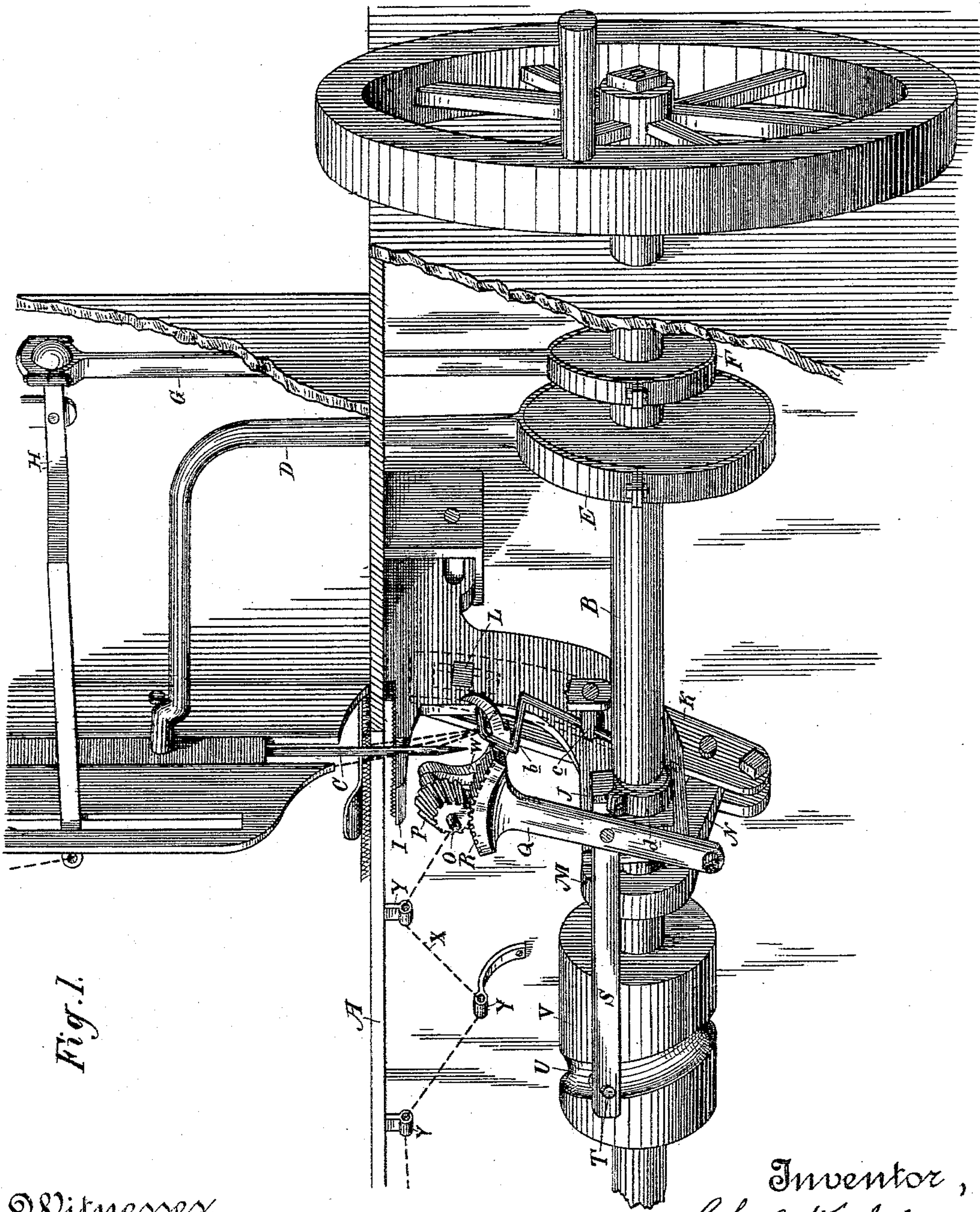


Fig. 1.

Witnesses,
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J. H. House.

Inventor,
Chas. Kohler
By Dewey & Co.
Attys

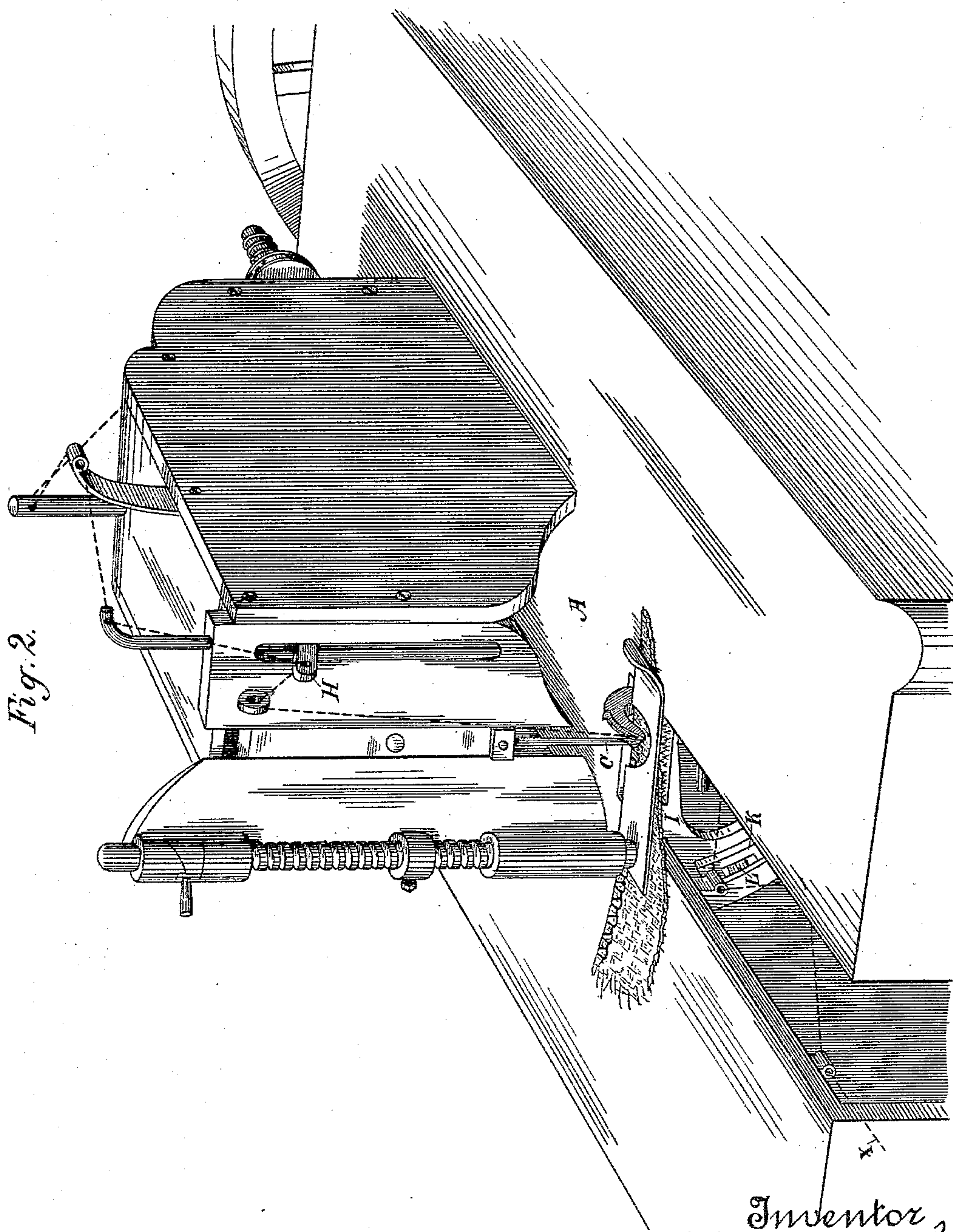
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Fig. 5.

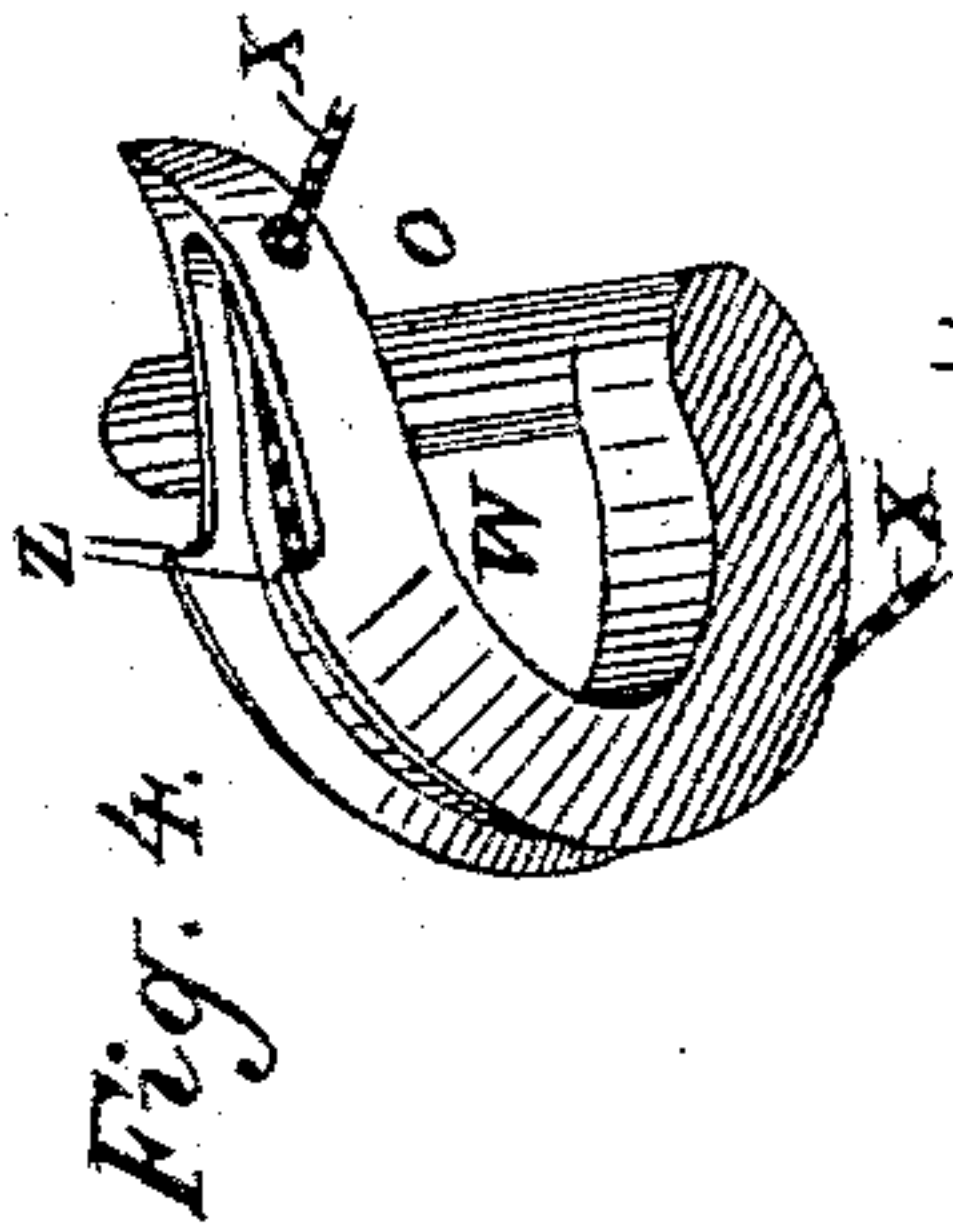
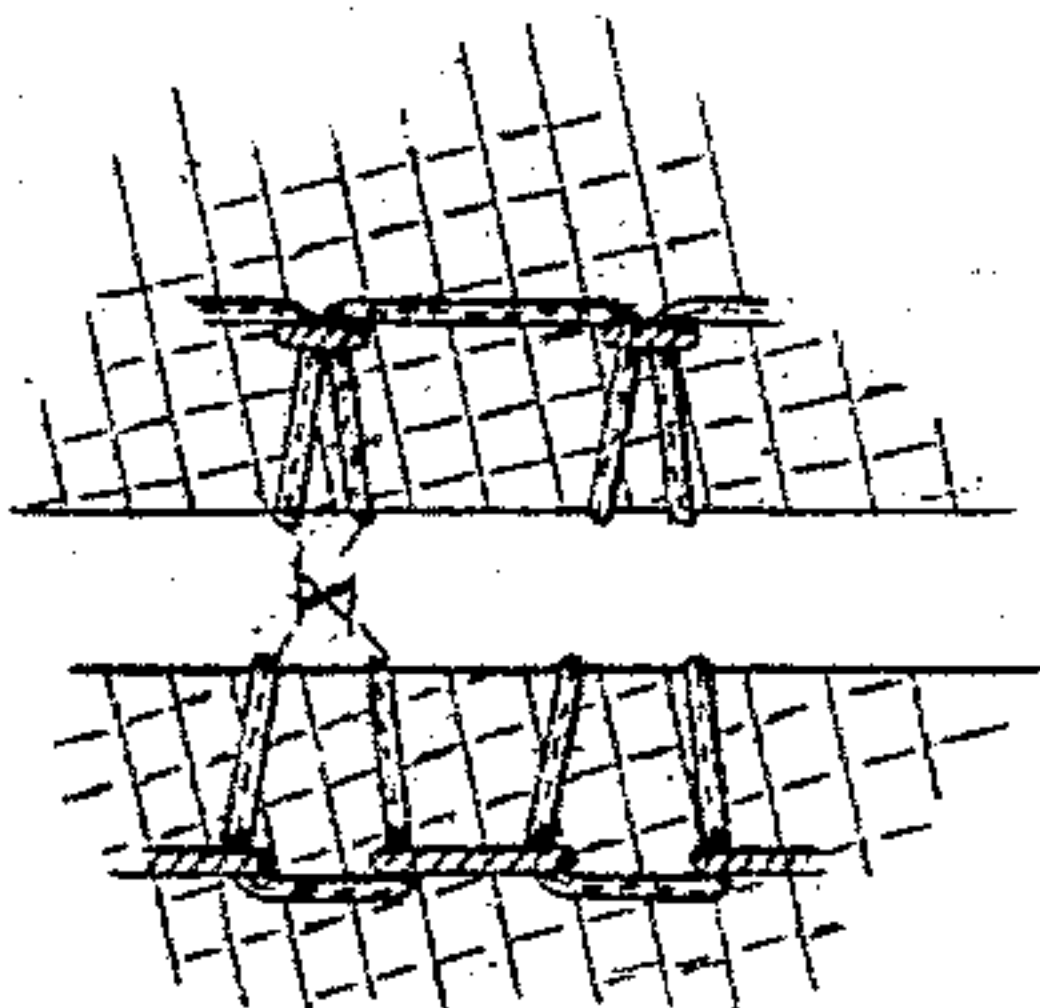


Fig. 8.

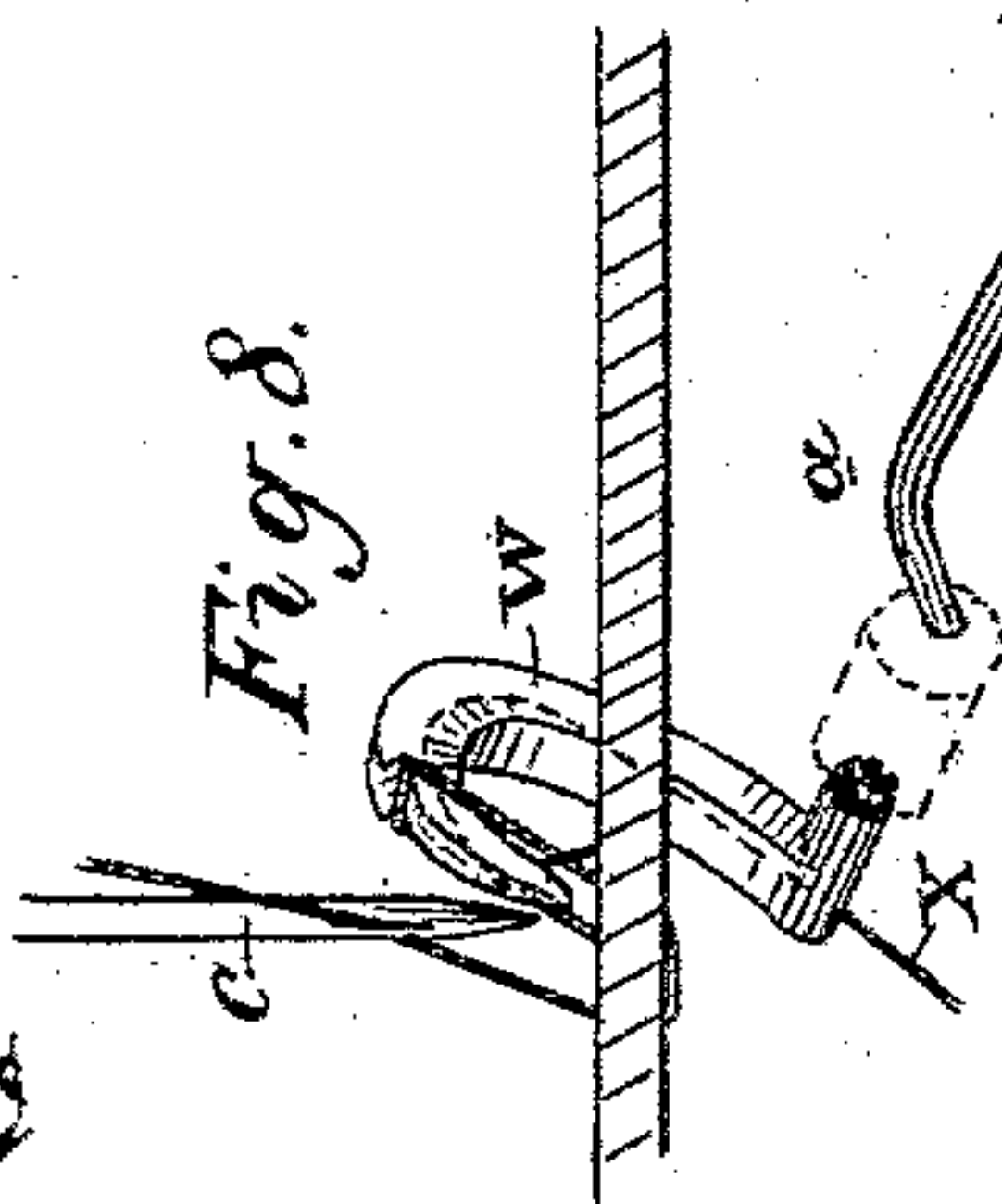


Fig. 9.

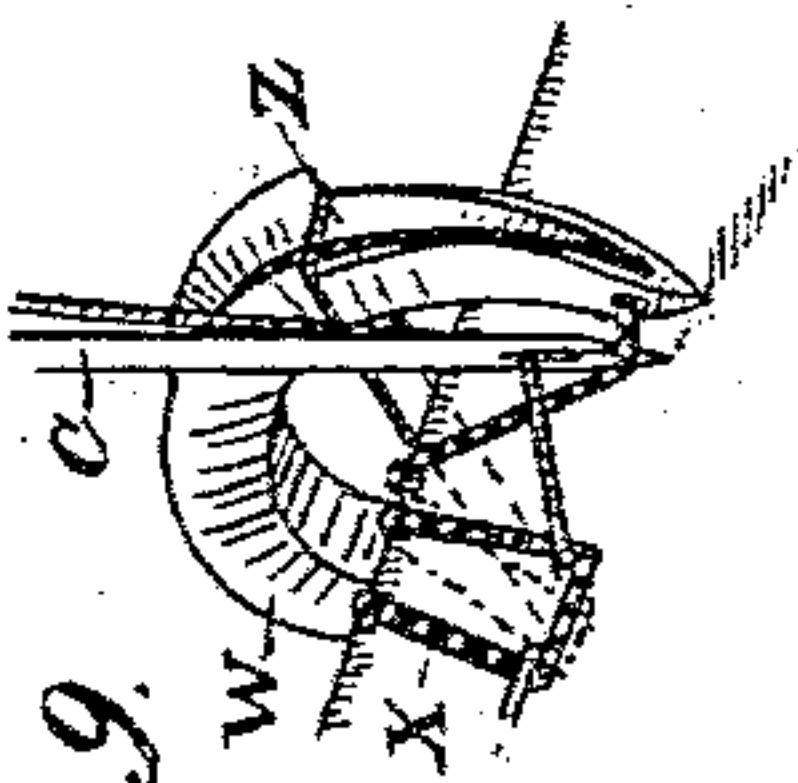


Fig. 7.

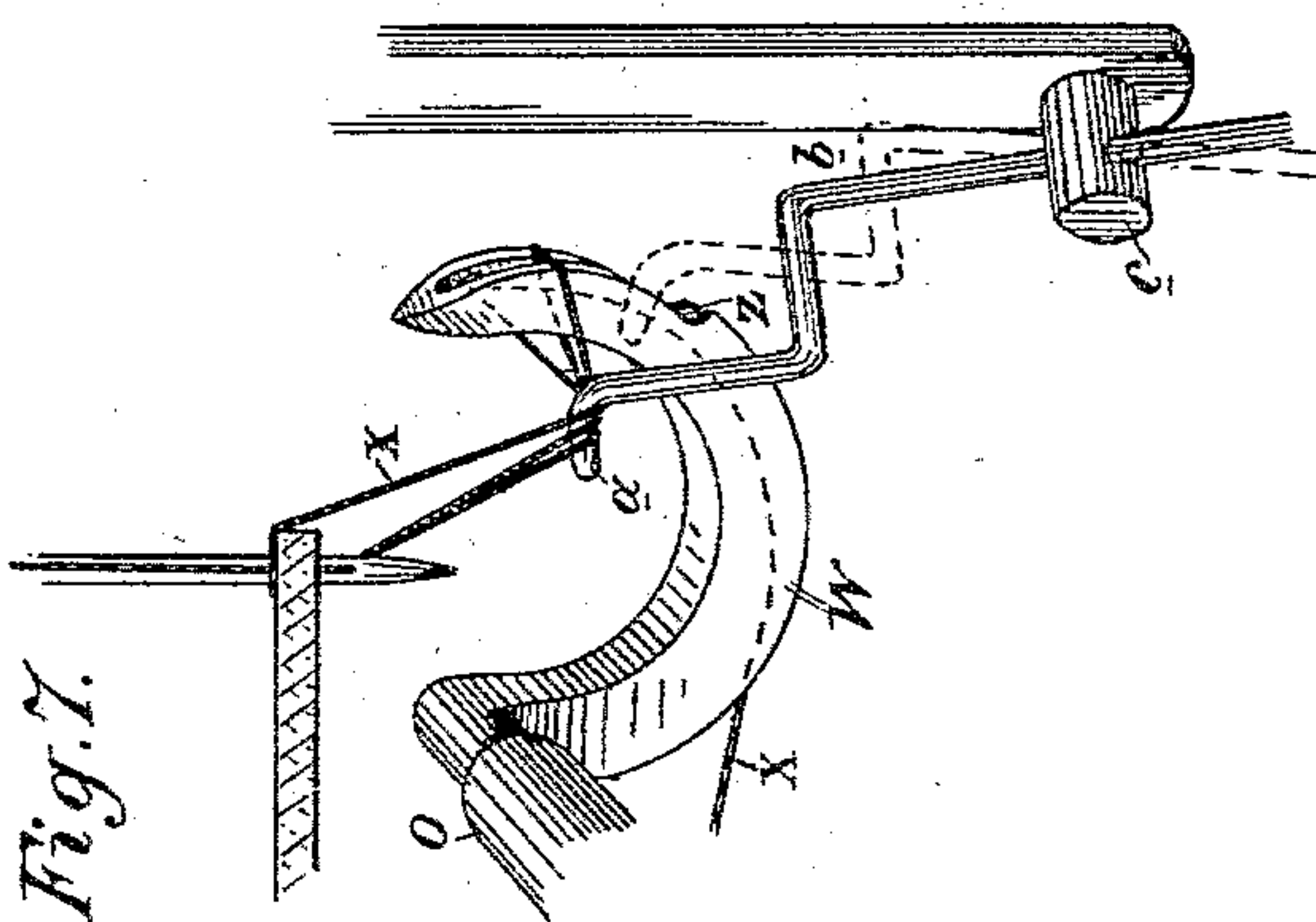


Fig. 6.

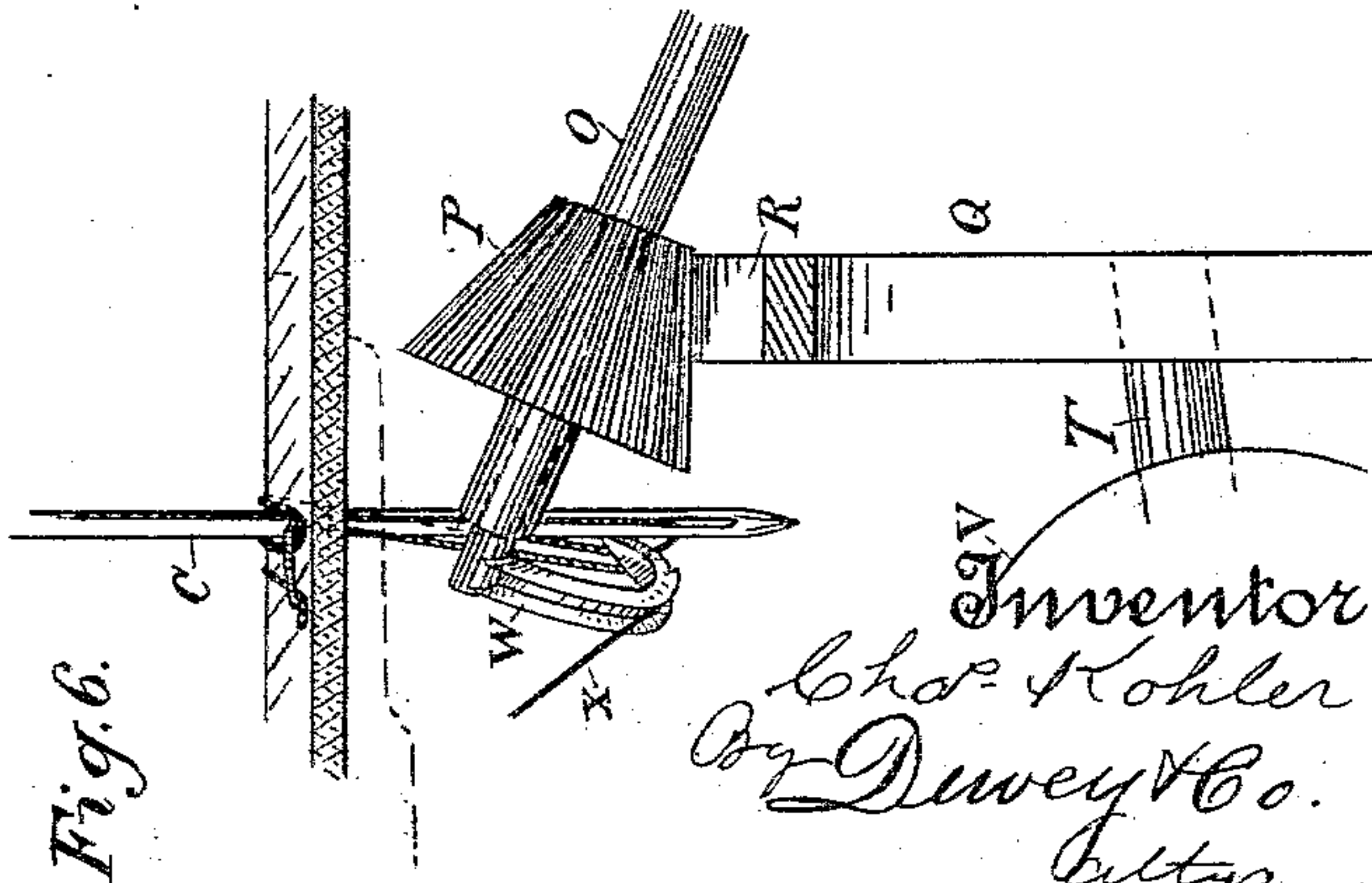
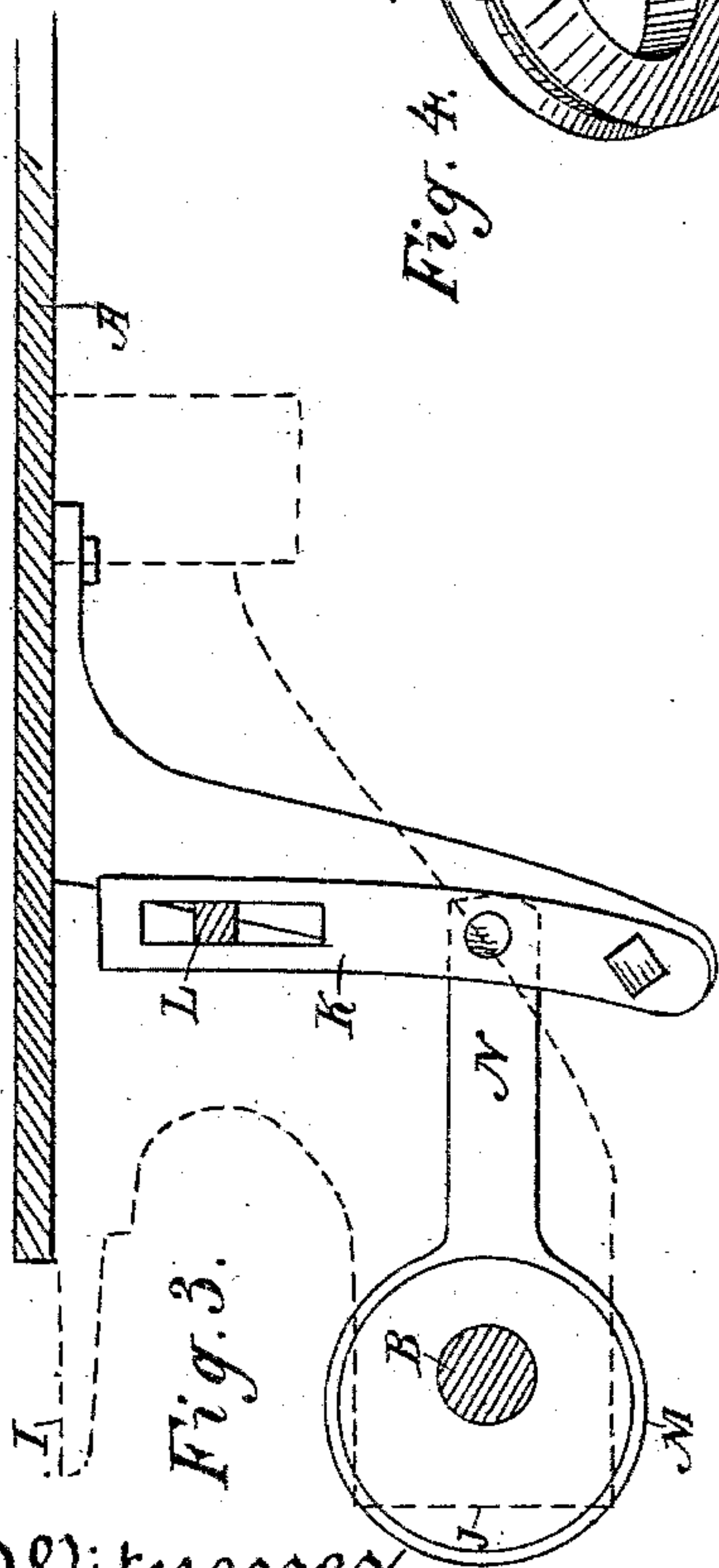


Fig. 3.



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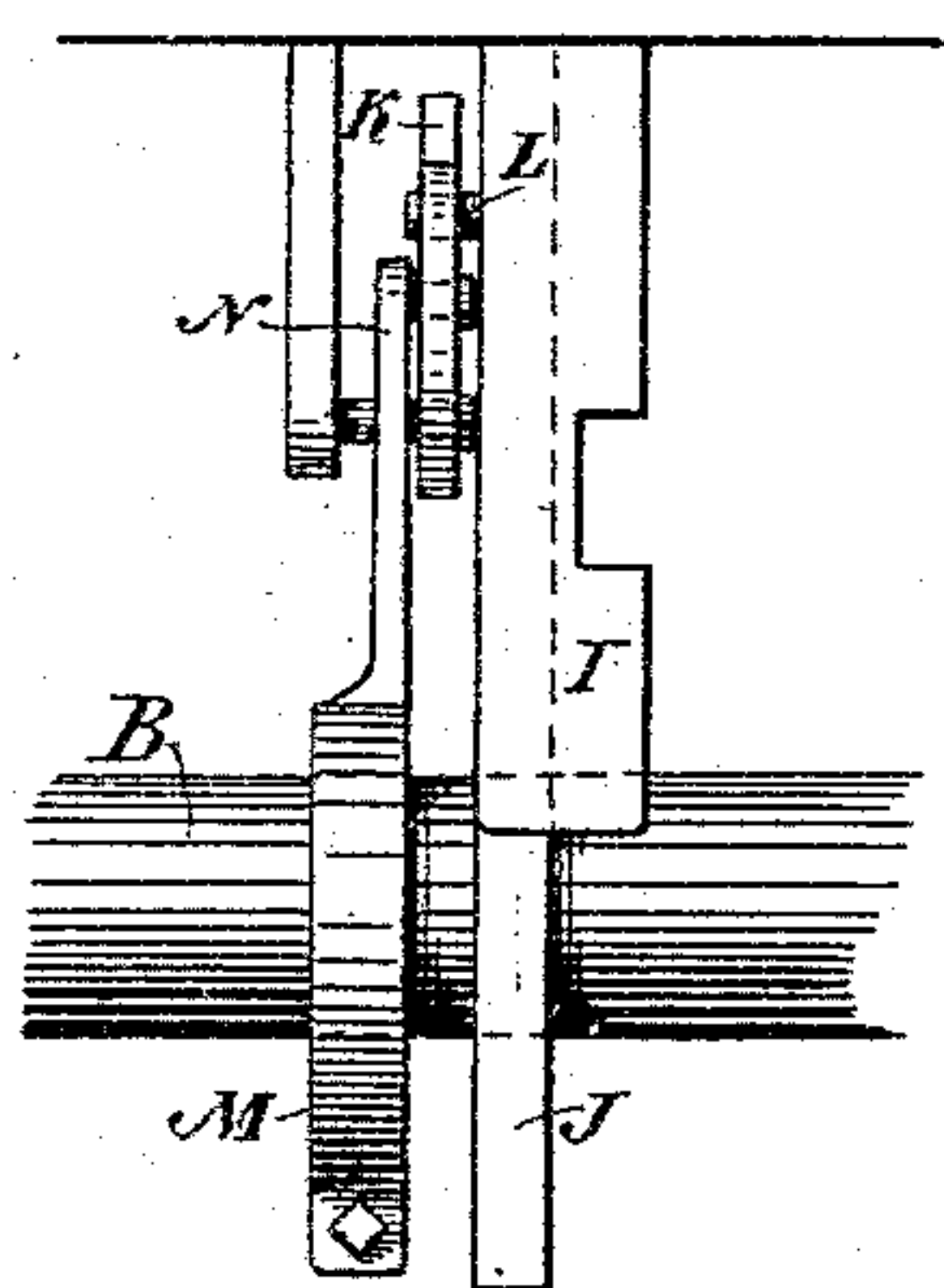
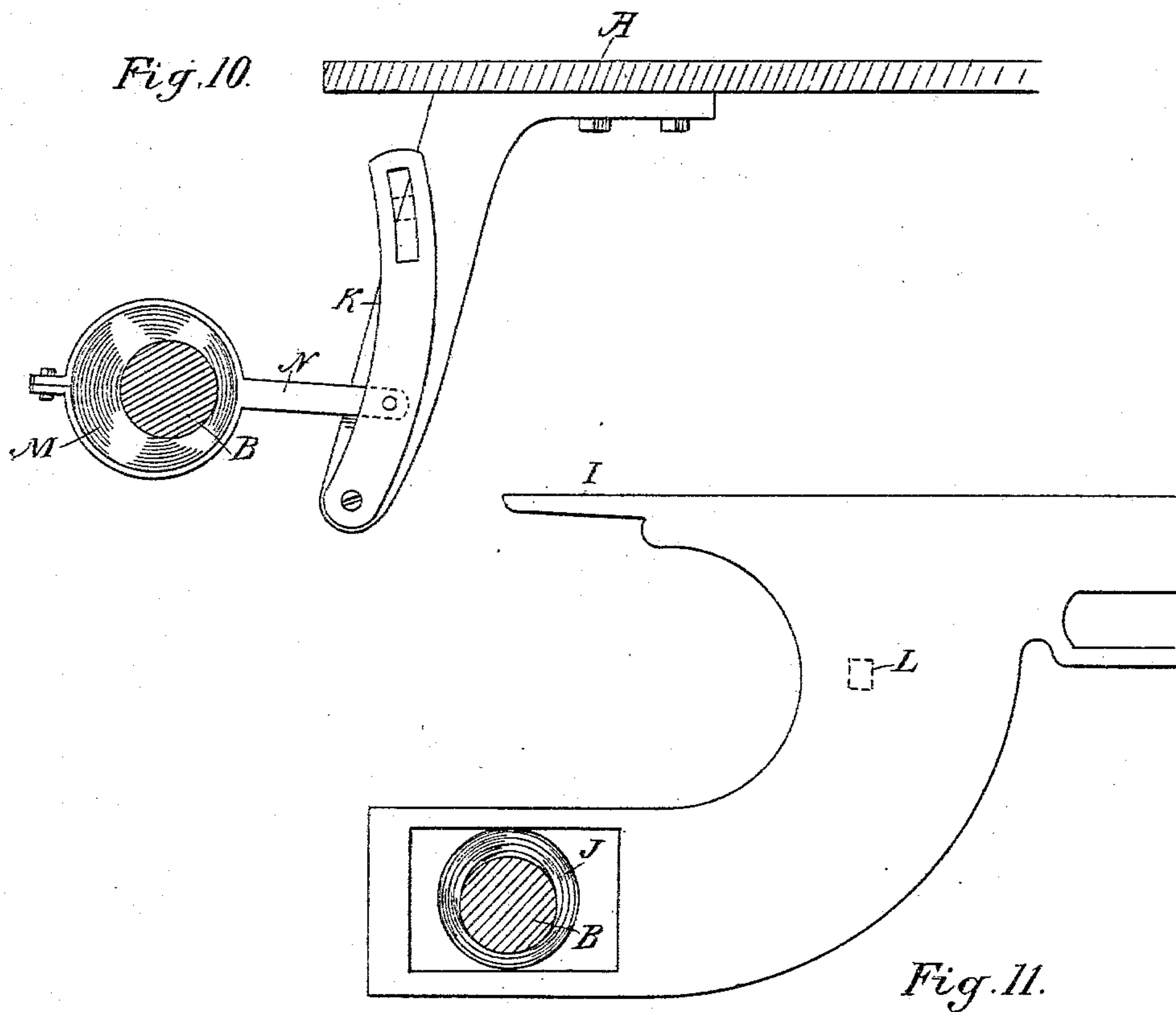
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No. 356,590.

Patented Jan. 25, 1887.



Witnesses,
Geo. H. Strong.
J. H. Morse.

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By Dewey & Co.
attys

UNITED STATES PATENT OFFICE.

CHARLES KOHLER, OF OAKLAND, CALIFORNIA, ASSIGNOR, BY DIRECT AND
MESNE ASSIGNMENTS, TO THE COMMERCIAL OVERSEAMING SEWING MA-
CHINE AND MANUFACTURING COMPANY.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 356,590, dated January 25, 1887.

Application filed February 20, 1886. Serial No. 192,711. (No model.)

To all whom it may concern:

Be it known that I, CHARLES KOHLER, of Oakland, Alameda county, State of California, have invented an Improvement in Sewing-Machines, of which the following is a specification.

My invention relates to certain improvements in sewing-machines, and it is especially adapted to that class of machines which are designed for overseaming or sewing bags and similar goods, in which it is desirable to unite the edges by this particular form of stitch.

It consists in the combinations of devices hereinafter explained and claimed.

Figure 1 is a perspective view showing a portion of the case and table broken away to expose the interior mechanism. Fig. 2 is a perspective view of the upper part and table of the machine. Fig. 3 is a sectional view showing the feed mechanism. Fig. 4 is an enlarged perspective view of the needle and hook. Fig. 5 is a section showing the formation of the stitch. Fig. 6 is an enlarged section showing the relation of the straight needle to the semicircular needle and the hook, and a means for driving the latter. Fig. 7 is an enlarged view of the straight and semicircular needles, with the thread and devices for keeping the thread in place while the stitch is being formed and before the semicircular needle is moved up to a point above the table. Fig. 8 shows the same devices after the needle has moved up to a point above the table. Fig. 9 is a view showing the position of the two needles at the completion of the movement, when both are above the fabric. Figs. 10, 11, and 12 are details illustrating the eccentrics J and M and their connections.

A is the table of a sewing-machine, having beneath it a shaft, B, by which the operating mechanism is driven.

C is the vertically-moving straight needle, operating from above the table and driven by the arm D, which is actuated by an eccentric, E, upon the shaft B, as shown.

F is another eccentric actuating the take-up mechanism of the thread of the upper needle through the arm G and the lever H.

I is the feed mechanism, which is raised and lowered by means of a fixed eccentric, J, and

the forward and backward movements are produced by a lever-arm, K, having a fixed fulcrum at its lower end, the upper end being slotted, as shown, so as to receive a pin, which is attached to the feed-plate at L, and M is an eccentric fixed to the shaft B, the rod N of which connects with a lever, K, and thus causes it to oscillate, so as to produce the forward and backward movement of the feed-plate, which is at the same time raised and depressed by the eccentric movement at J, so as to advance the fabric above the table for each stitch.

Beneath the table is a shaft, O, journaled at an angle with the plane of the table, and this shaft has a beveled pinion, P, fixed to it.

Q is a lever-arm, having at its upper end a segmental gear or rack, R, the teeth of which are so formed as to properly engage those of the beveled pinion P. If desired, the pinion might be made straight and the teeth of the segment might be beveled, either device working equally well.

The lower end of the lever Q is fulcrumed to the machine, and a pitman or arm, S, has one end pivoted to the lever above its fulcrum, the other end being provided with a stud, T, which enters a cam-groove, U, formed in the cam-cylinder V. By this mechanism the arm Q, with the segment-rack R, is caused to oscillate at certain intervals, depending upon the shape of the cam-groove U. This causes the pinion P on the shaft O to rotate and carry with it the semicircular needle W, which is fixed to the end of the shaft O, as shown. This needle is semicircular in form, having a groove or channel in its outer circumference, within which the thread X is led after passing through the tension-loops, (shown at Y, Fig. 1.) A hole is made through one side of the point of the needle, as shown plainly at Fig. 4, and through this the thread X passes. Upon the back of the needle, about one-third of its length from the point, is formed a notch, Z, for a purpose to be hereinafter described.

The position of the needle W upon the end of the shaft O is such that when it is rotated so that the point is below the line of the shaft O, it will also be at one side of the vertical needle C, as shown at Fig. 6, and when the shaft has been rotated so as to carry the point

of the semicircular needle W above the table, it will stand at the other side of the vertical needle. This enables the vertical needle to pass through the loop formed by the semicircular needle below the table and upon one side of the needle, and the loop is then carried above the table by the semicircular needle, as shown in successive views 7, 8, and 9, finally arriving above the table at a point upon the opposite side of the vertical needle, which then passes through the loop upon that side, as shown in Fig. 9, thus completing the stitch.

The notches Z upon the back of the curved needle W serve to hold the loop formed by the thread of the vertical needle and prevent its slipping around the back of the semicircular needle, thus retaining it in place until the loop has been brought above the surface of the fabric for the vertical needle to again pass through it, the stitch being finally completed, as shown in Fig. 5.

a is a hook-shaped arm, which passes over the point of the semicircular needle W after the vertical needle has passed through the thread-loop beneath the table, and this arm holds the loop in place, preventing it from slipping off the point of the semicircular needle, as shown plainly in Figs. 1. and 7. This arm is operated as follows:

The shank b passes through the loosely-oscillating stud c, within which it slides, and the lower end of the shank is attached to the strap of an eccentric or crank, d, formed in or upon the shaft B, so that the hook is given a sort of rotary motion. When the vertical needle has passed through the thread-loop of the semicircular needle beneath the table, this hook a is carried forward over the thread, as shown in Figs. 1 and 7, and remains in that position until just before the semicircular needle passes over the table, when it is withdrawn by the action of the crank d, leaving the needle W free to carry the thread-loop above the table, as before described. By this operation the stitch is accurately formed and completed.

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

1. The vertically-reciprocating thread-carrying needle, the curved angularly-placed thread-

carrying semicircular needle, the hook-shaped loop-retaining arm, and an eccentric on the main shaft, by which the arm is oscillated, in combination with the feed-plate, the lever-arms K and rod N, and the eccentrics J and M, whereby the vertical and horizontal movements are produced, substantially as herein described.

2. The vertically-reciprocating thread-carrying needle and the angularly-mounted curved or semicircular needle having notches or lugs upon its back, in combination with the independently-oscillating arm passing transversely over the curved semicircular needle, so as to retain the thread-loop, substantially as herein described.

3. A vertically-reciprocating thread-carrying needle above and a semicircular or curved thread-carrying needle fixed to an inclined shaft beneath the table, in combination with a toothed segment vibrating in a vertical plane, and a pinion fixed to the inclined needle-carrying shaft and having beveled teeth, so as to engage the segment and be actuated thereby, substantially as described.

4. A vertically-reciprocating thread-carrying needle above and a curved thread-carrying needle fixed to an inclined shaft beneath the table, a pinion upon the shaft, and a toothed segment in a vertical plane with beveled engaging faces, in combination with the cam U upon the main shaft, and the pitman S parallel with the shaft, and having one end connected with the segment-arm and the other with the cam, substantially as herein described.

5. A vertically-reciprocating thread-carrying needle above and a curved thread-carrying needle fixed to an inclined shaft beneath the table, with mechanism for oscillating it, as shown, in combination with a curved hook-shaped arm sliding through a loosely-pivoted stud, c, and having one end extending over the curved needle and the other end connected with an eccentric upon the main shaft, substantially as herein described.

In witness whereof I have hereunto set my hand.

CHARLES KOHLER.

Witnesses:

LOUIS STRAUSS,
DAVID ADLER.