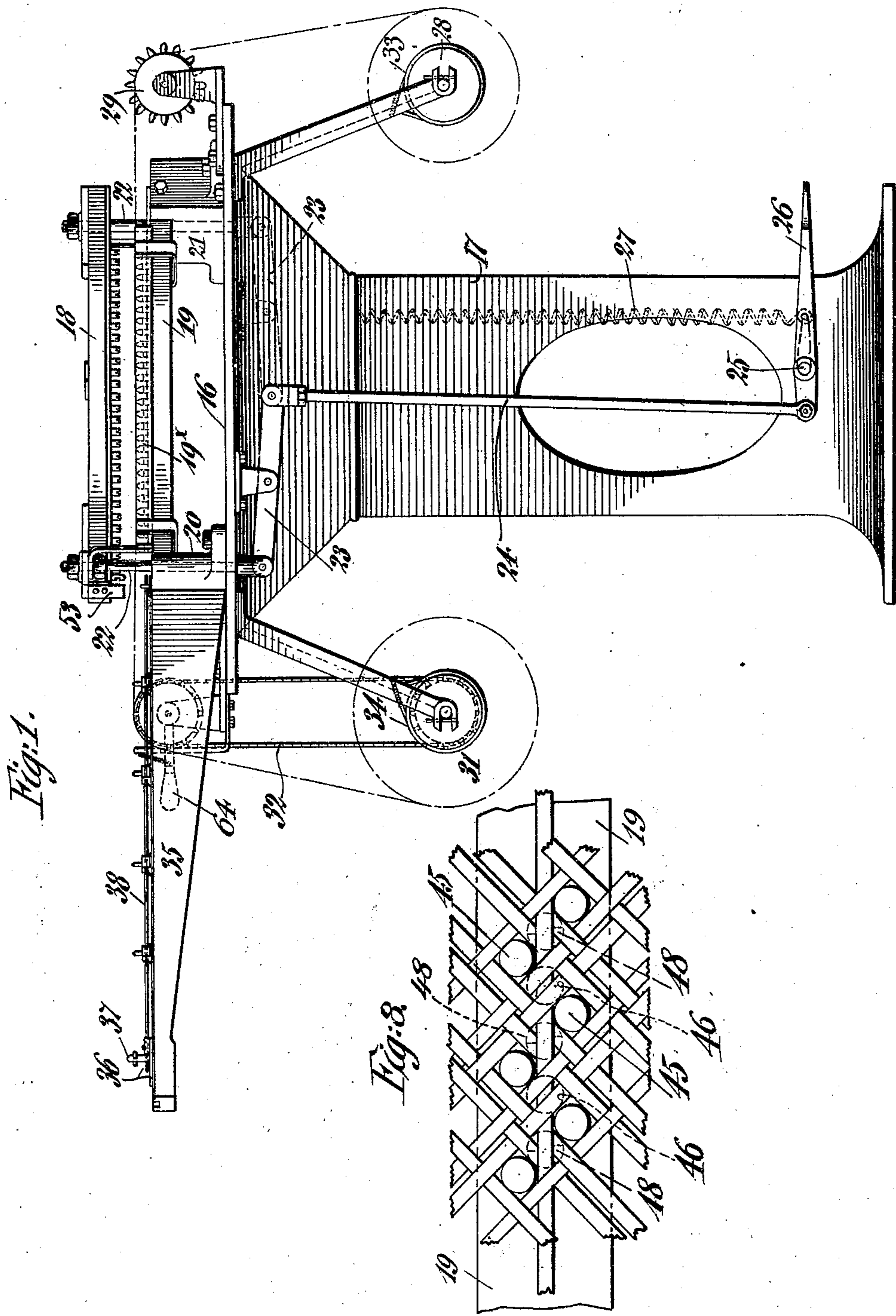


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 MACHINE FOR INSERTING DIAGONAL STRANDS INTO WOVEN CANE FABRICS.
 APPLICATION FILED JULY 28, 1908. Patented July 27, 1909.
 929,345. 5 SHEETS—SHEET 1.



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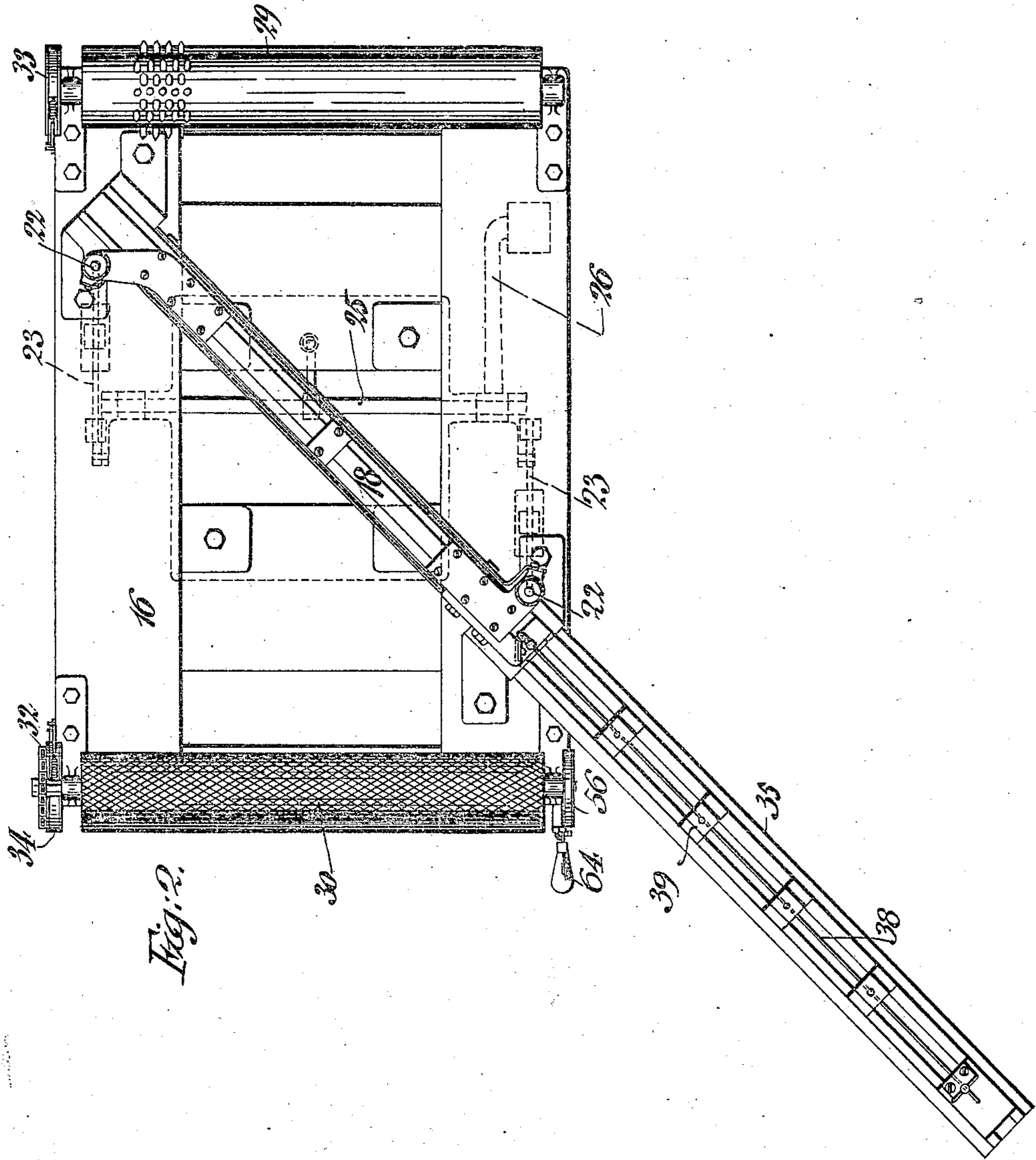
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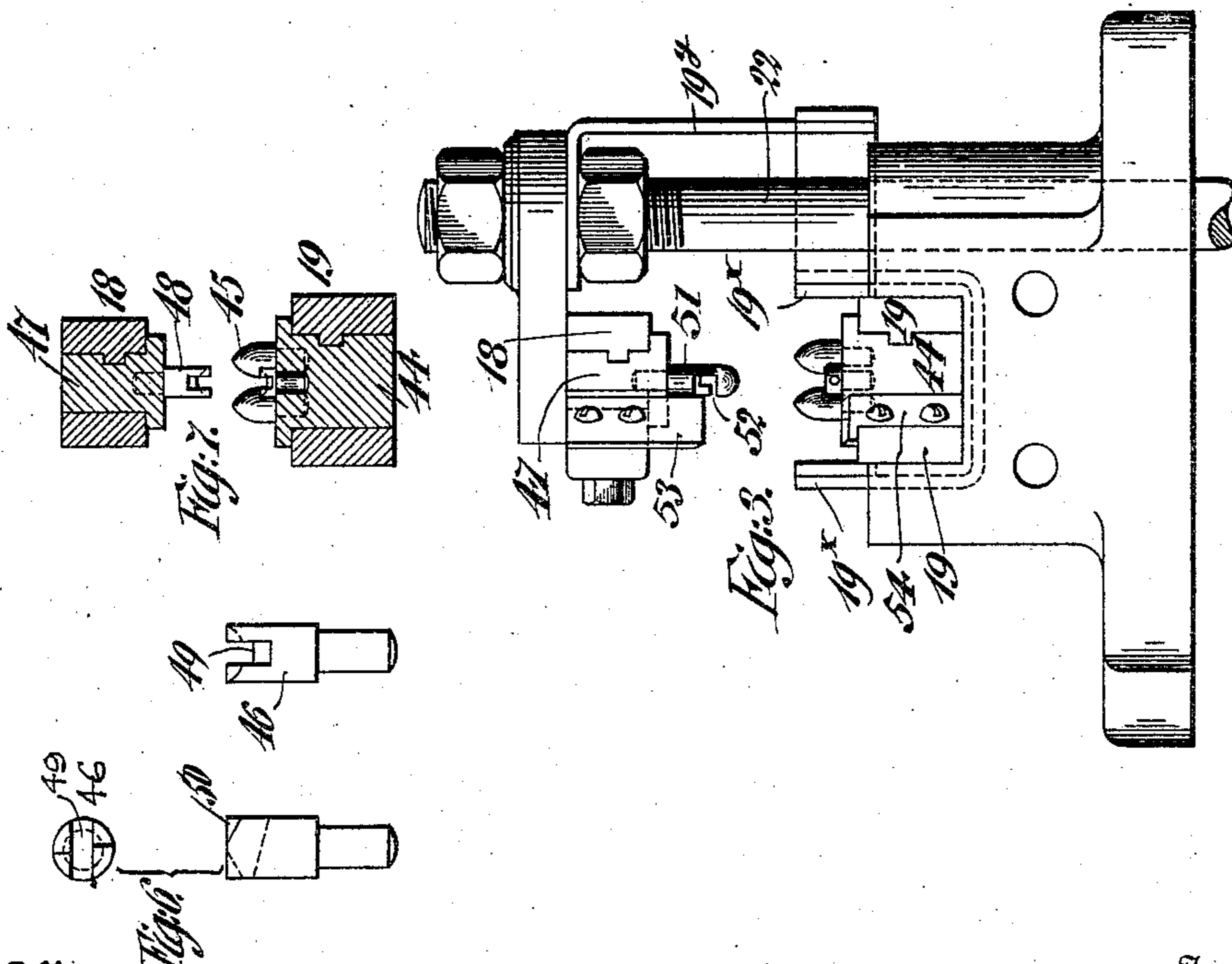
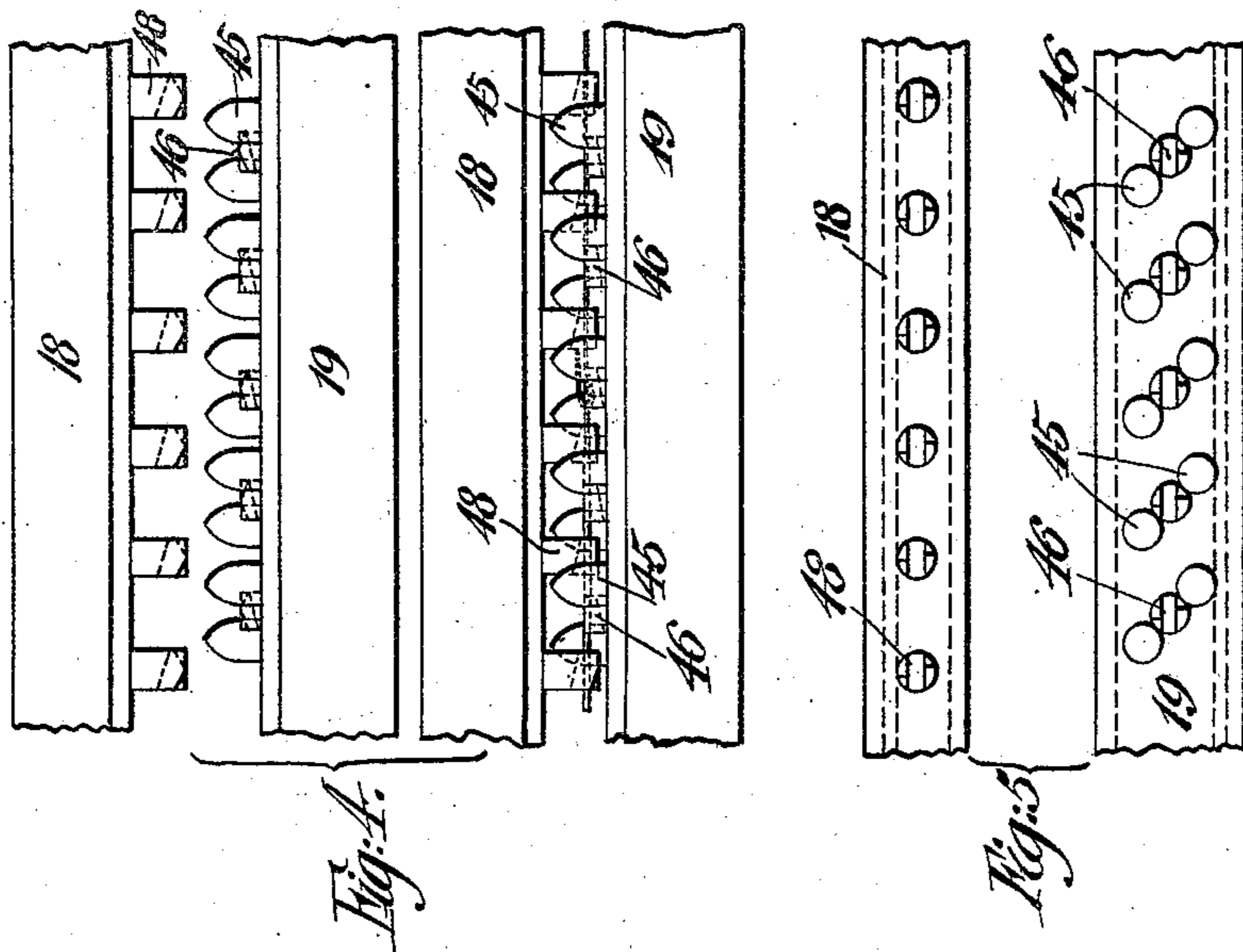
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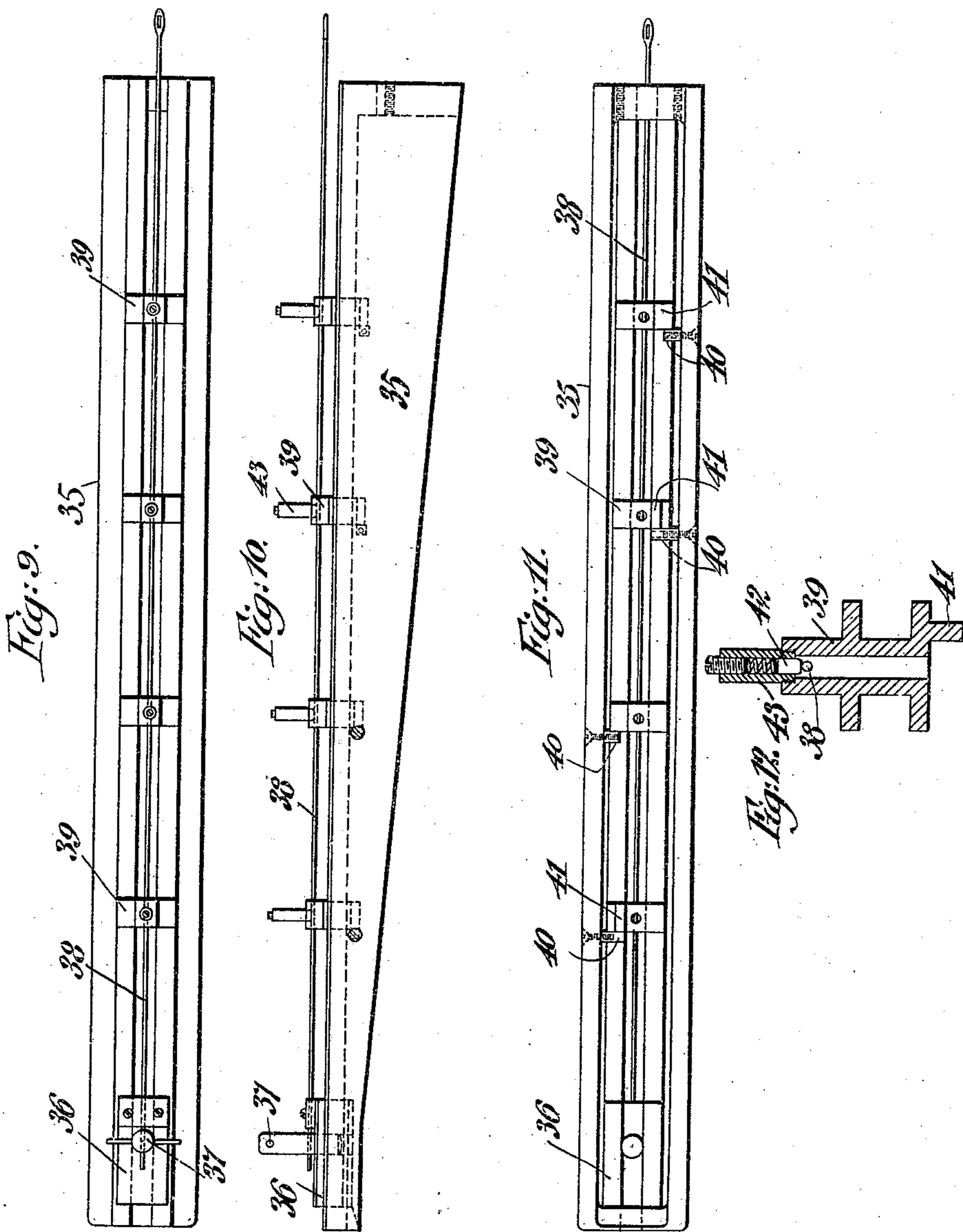
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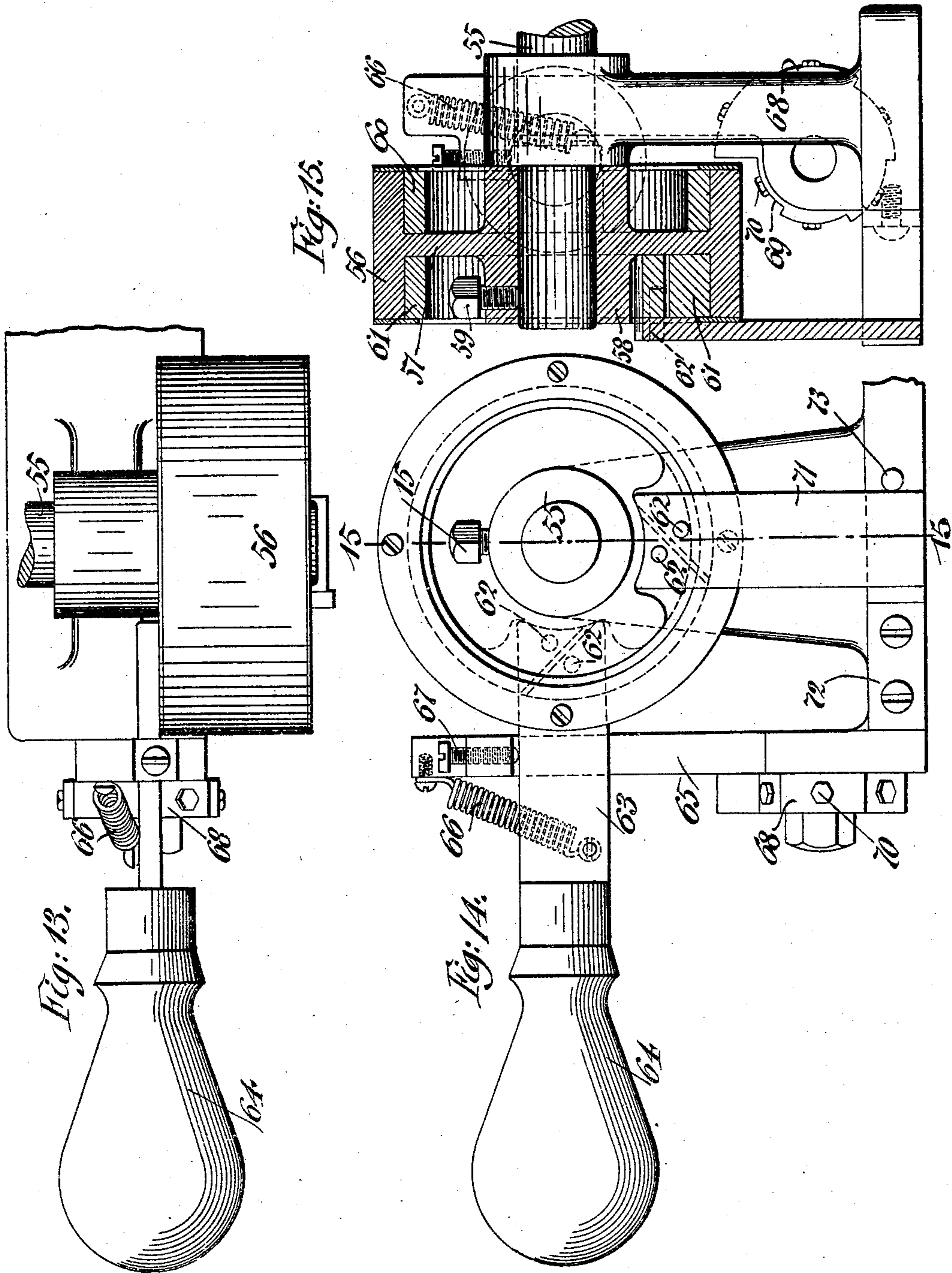
MACHINE FOR INSERTING DIAGONAL STRANDS INTO WOVEN CANE FABRICS.

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5 SHEETS—SHEET 5.

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MACHINE FOR INSERTING DIAGONAL STRANDS INTO WOVEN-CANE FABRICS.

No. 929,345.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed July 28, 1908. Serial No. 445,802.

To all whom it may concern:

Be it known that I, JOSEPH TILP, a citizen of the Empire of Austria-Hungary, residing in Hoboken, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Machines for Inserting Diagonal Strands into Woven-Cane Fabrics.

This invention relates to machines for inserting diagonal strands into woven cane fabrics, and has among its objects to provide a machine having improved mechanism by means of which the fabric is clamped and held while the diagonal strands are threaded through the same by means of the strand-needle.

A further object of the invention is to provide means for automatically releasing the end of the diagonal strand from the needle after the former has been properly inserted in the fabric.

A still further object of the invention is to provide a construction in which the diagonal strands after being woven into the fabric are automatically cut at their ends where they are held by the needle in order to produce a straight edge at that side of the fabric.

The invention also aims to generally improve the construction of machines of this character.

With these ends in view the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings, in which the same reference characters denote the same parts throughout the views, Figure 1 is a side elevation of a machine constructed in accordance with the invention, Fig. 2 is a top plan view of the same, Fig. 3 is an end elevation of the clamping mechanism for the fabric, Fig. 4 is a detail elevation of the clamping mechanism showing it in two positions, Fig. 5 shows the lower face of the upper clamping-bar, and the upper face of the lower clamping-bar, Fig. 6 shows one of the grooved pins of the clamping-bars, Fig. 7 is a detail transverse section through the clamping mechanism, Fig. 8 shows the manner in which the fabric is positioned upon the lower clamping-bar, Fig. 9 is a top plan view of the needle-track, Fig. 10 is a side elevation of the same, Fig. 11 is a bottom view of the needle-track, Fig. 12 is a vertical transverse section through one of the guide-blocks for the needle,

Fig. 13 is a detail plan view of the clutch mechanism for the manually-operated feed-roller, Fig. 14 is a side elevation of said mechanism; and Fig. 15 is a vertical transverse section on line 15—15 of Fig. 14.

The table 16 of the machine and supporting standard 17 are of the usual construction. Upon the table 16 the upper and lower clamping-bars 18, 19, are located, the lower bar 19 extending between brackets 20, 21, upon the table-top while the upper bar 18 is slidable vertically by means of upright rods 22 adjustably connected thereto in the usual manner at its ends. The depressing mechanism for the upper bar 18 is also of the usual construction, consisting of levers 23 and connecting rods 24 connecting said upright rods 22 with the horizontal shaft 25 operated by a treadle 26 against the action of a spring 27. The customary stripping-bars 19^x are placed at opposite sides of the lower clamping-bar 19, these stripping-bars being connected by a bracket 19^y with the upper ends of the upright rods 22.

The fabric is conducted from a supply-roller 28 over a feed-roller 29 with spurs which pass through the meshes of the fabric, and the latter is then conducted between the clamping-bars 18, 19, to a feed-roller 30 having a roughened surface of suitable material. From the roller 30 the fabric is conducted to a winding-up roller 31 connected with the feed-roller 30 by means of a sprocket chain transmission 32. The feed-roller 30 is actuated manually by means which will be hereinafter described. For the purpose of properly tensioning the fabric, the supply-roller 28 is acted upon by a band-clutch 33; and in order to compensate for the difference in diameter of the roll on the feed-roller 30 and the roll upon winding-up roller 31, the latter is connected with its sprocket wheel by means of a band-clutch 34.

The needle-track 35 is formed of a slotted beam extending diagonally from the table 16 in line with the clamping-bars. Slidable on said track is a needle-carrier 36 to which the needle 38 is clamped at its butt-end, said needle-carrier being provided with a suitable handle 37. The needle 38 passes through a number of guide-blocks 39 also slidable on the needle-track, said blocks being freely movable in forward direction so as to be moved up to the front or inner end of the needle-track, but limited in the opposite direction

by means of stops 40, co-acting with lugs 41 extending downward from the guide-blocks 39. Certain of the stops and lugs are arranged at one side of the track while others are arranged on the opposite side thereof, the whole system being so arranged that each stop acts only in conjunction with its corresponding guide-block. The guide-blocks 39 are preferably formed with an upright bore and lateral guide-flanges as shown in Fig. 12. The needle 38 passes through the upper part of said bore and is yieldingly pressed downward by means of a spring-actuated plug 42 inclosed in an upwardly-extending sleeve 43.

The particular clamping mechanism for the fabric is shown in detail in Figs. 3 to 8. The lower bar 19 is provided with a longitudinal block 44 from the upper face of which project two longitudinal rows of spurs 45 arranged in staggered relation, as shown in Figs. 5 and 8. These spurs are of the form common in machines of this character. Between the rows of spurs is located an intermediate row of grooved cylindrical pins 46 as shown in Fig. 5, each pin being in line with spurs in each row so as to form a line extending diagonally across the clamping-bar. The upper bar 18 carries a longitudinal block 47 from which pins 48, of substantially the same form as the pins 46, project in downward direction. The pins 48 of the upper bar are arranged in a single longitudinal row as shown in Figs. 4 and 5, and when the upper bar is depressed occupy the spaces between the pins 46 of the lower bar as shown at the lower part of Fig. 4. The particular construction of the pins 46 and 48 is shown in Fig. 6 from which it will be seen that each pin is provided with a groove 49 in the head thereof, these grooves being directed longitudinally of the bars to which the pins are attached in order to form a guide or raceway for the needle 38. At their sides the pins are beveled as shown at 50.

Fig. 8 shows the manner in which the fabric is positioned upon the lower clamping-bar. The spurs 45 project upwardly through the meshes of the fabric which is held down against the upper surface of the clamping-bar except at the points where the pins 46 project upward, and hold certain strands in elevated position, so that the needle and diagonal strand may be passed beneath the same. At other points of the fabric the same is depressed by the upper pins 48, these depressed portions alternating with and being located between the portions elevated by the pins 46 so that the needle and strand may be passed over these portions at the same time it passes under the portions raised by the pins 46. When it is moved inward by means of its carrier 36 the needle passes through the grooves in the pins 46, 48, which form a guide or raceway for the same, and alternately above and below the strands of

the fabric so as to receive the diagonal strand and while the needle is moving backward pull said strand into proper position in the fabric, as shown in Fig. 8.

In order to release the diagonal strand from the needle, a releasing device is provided which preferably takes the following form: At the forward end of the upper clamping-bar 18 is arranged a finger 51 having a guide-groove 52 through which the needle passes when the upper clamping bar is depressed, said finger being located in advance of the series of pins 48 and also serving as a needle-guide. When the upper clamping-bar is elevated after the insertion of each diagonal strand, such strand is raised at its end adjacent its connection with the needle by means of the finger 51, the groove of which is located at the side of the same so that the strand is raised away from the fabric and needle by the lower projecting part of said finger. As the main portion of the strand is held securely within the fabric this raising of the end of the strand produces its withdrawal from the eye of the needle. Thus at the end of each insertion the releasing of the strand from the needle is automatically produced.

The cutting off of the diagonal strands after they have been inserted in the fabric is produced by applying to the end of the upper bar 18 a knife 53 located to one side of the guide-groove afforded by the guide-pins of the clamping-bars, alongside the releasing device 51 and co-acting with a knife block 54 applied to the end of the lower clamping-bar 19, as shown in Fig. 3. The lower sharpened end of the knife 53 extends parallel with the edge of the fabric at the side of the finger 51 which is nearest the feed-roller 30. The feeding movement of the fabric after each diagonal strand has been inserted causes the strand to be moved over beneath the knife 53, which, on the subsequent depression of the upper clamping-bar for the insertion of a new strand, causes the cutting off of the first named strand. The strands are thus successively cut off automatically so that the completed fabric presents a straight side-edge.

The mechanism for operating the feed-roller 30 is shown in detail in Figs. 13 to 15. On the shaft 55 of the feed-roller 30 is placed a drum 56 having a central web 57, hub 58, and set-screw 59 by which it is secured to the shaft 55. Within the drum and located at opposite sides of the web 57 are split-rings 60, 61, co-acting frictionally with the inner peripheral surface of the drum. The ends of the friction-rings 60 are provided with pins 62 over which fit correspondingly shaped openings formed at the inner end of a lever 63 provided at its end with a handle 64. The lever 63 is arranged horizontally at the side of a bracket 65 to the upper end of which

