

No. 708,III.

Patented Sept. 2, 1902.

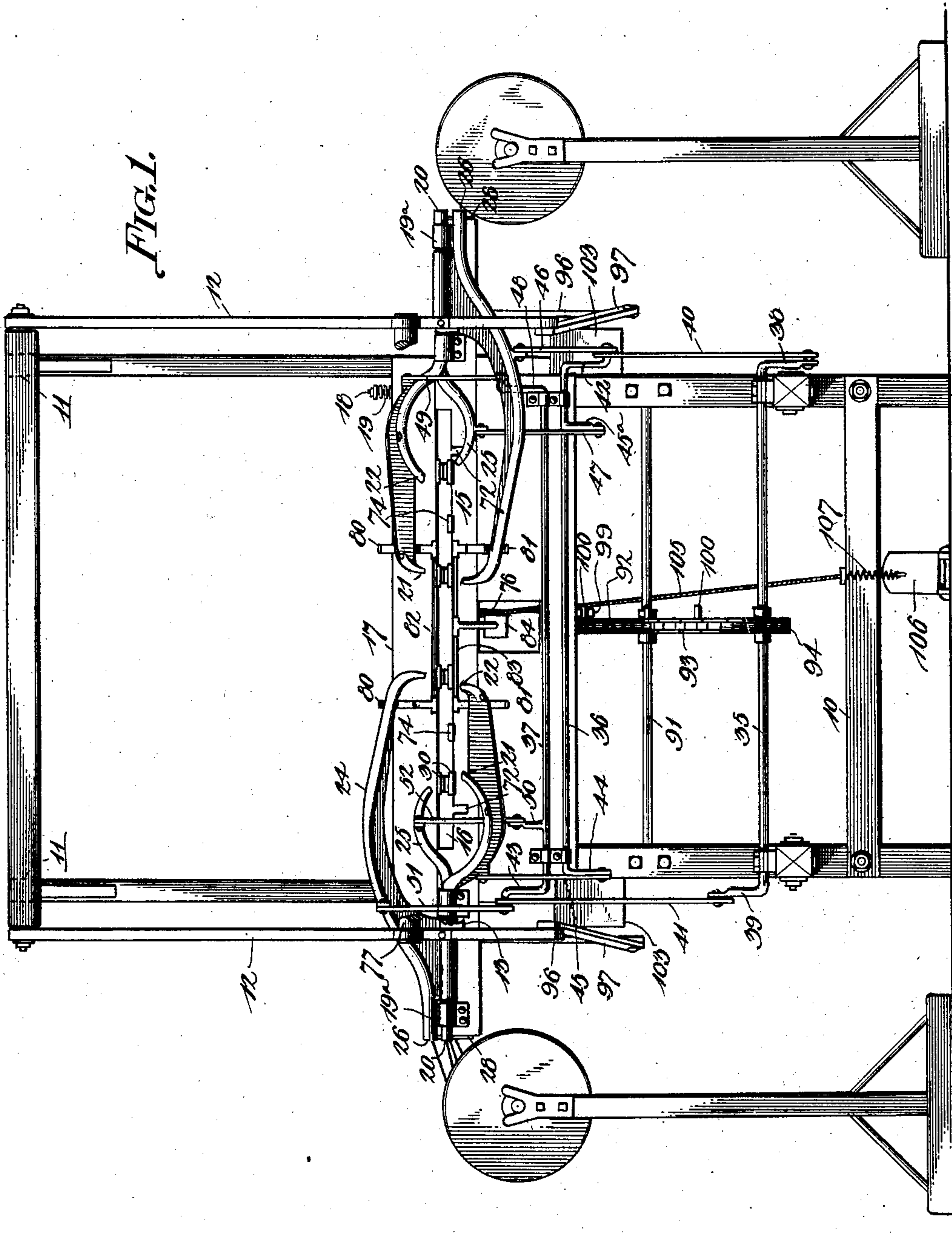
C. M. ALGER.

MACHINE FOR WIRING WOOD SLATS.

(Application filed Nov. 30, 1901.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses

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Inventor.

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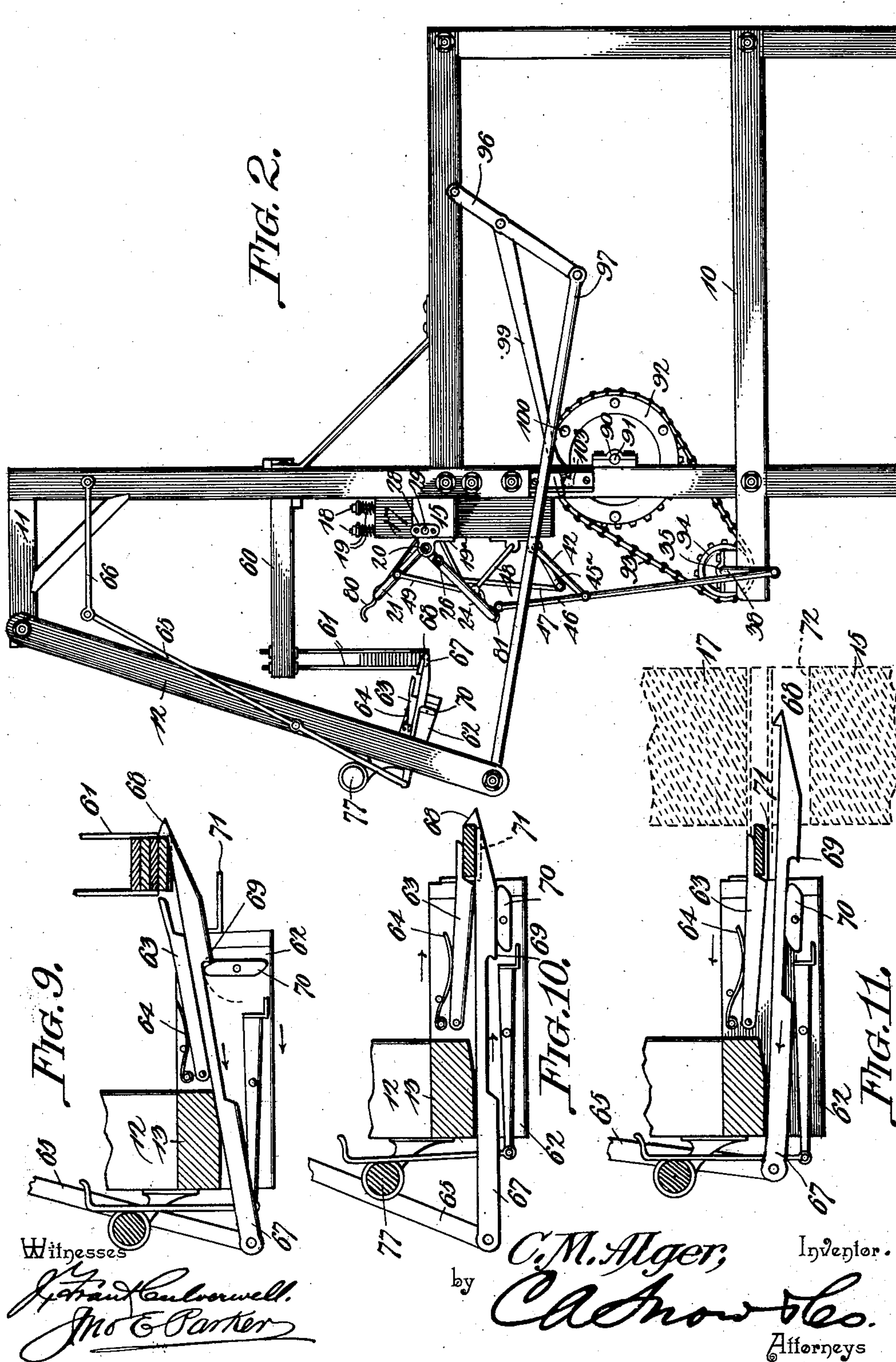
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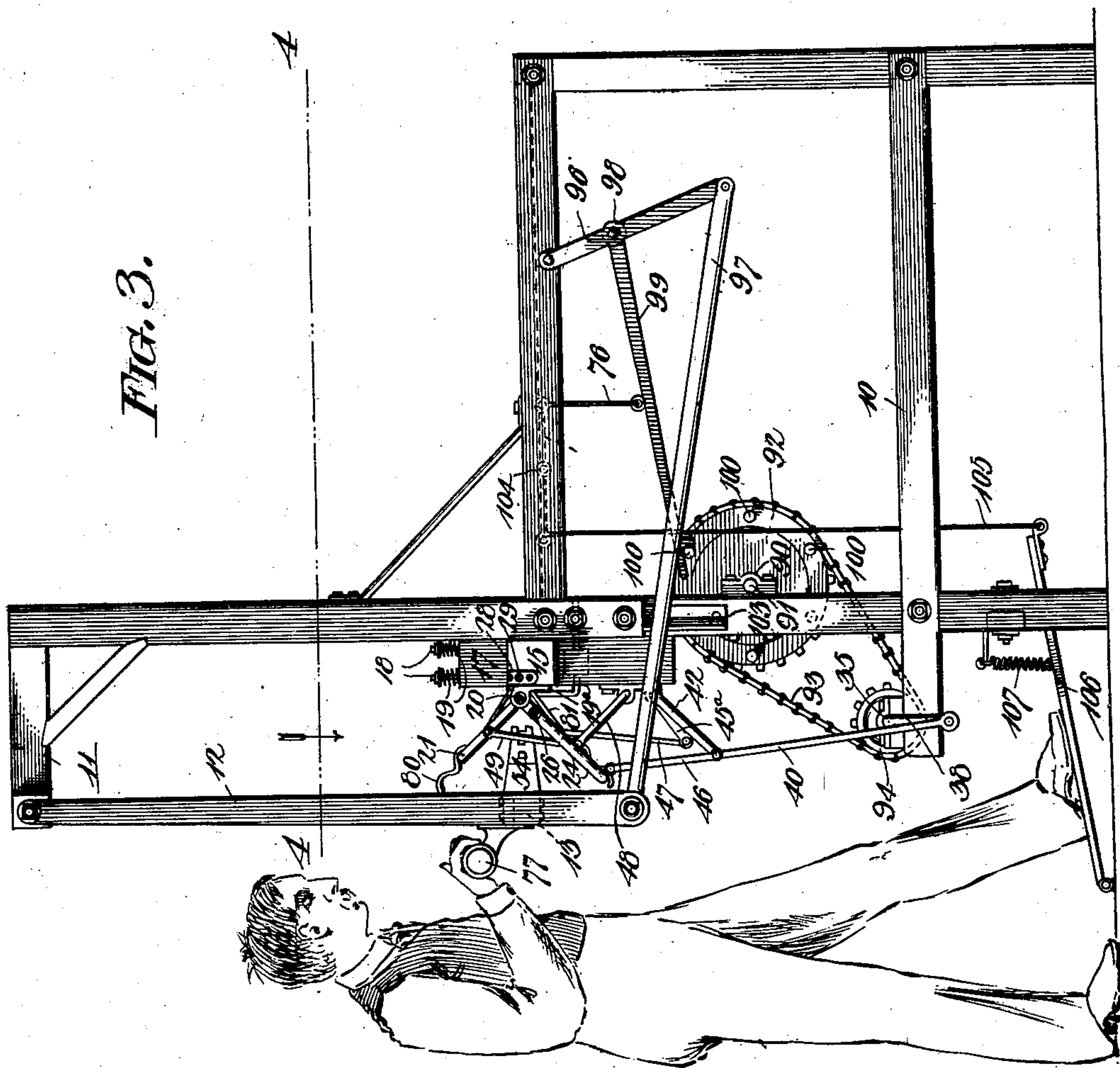
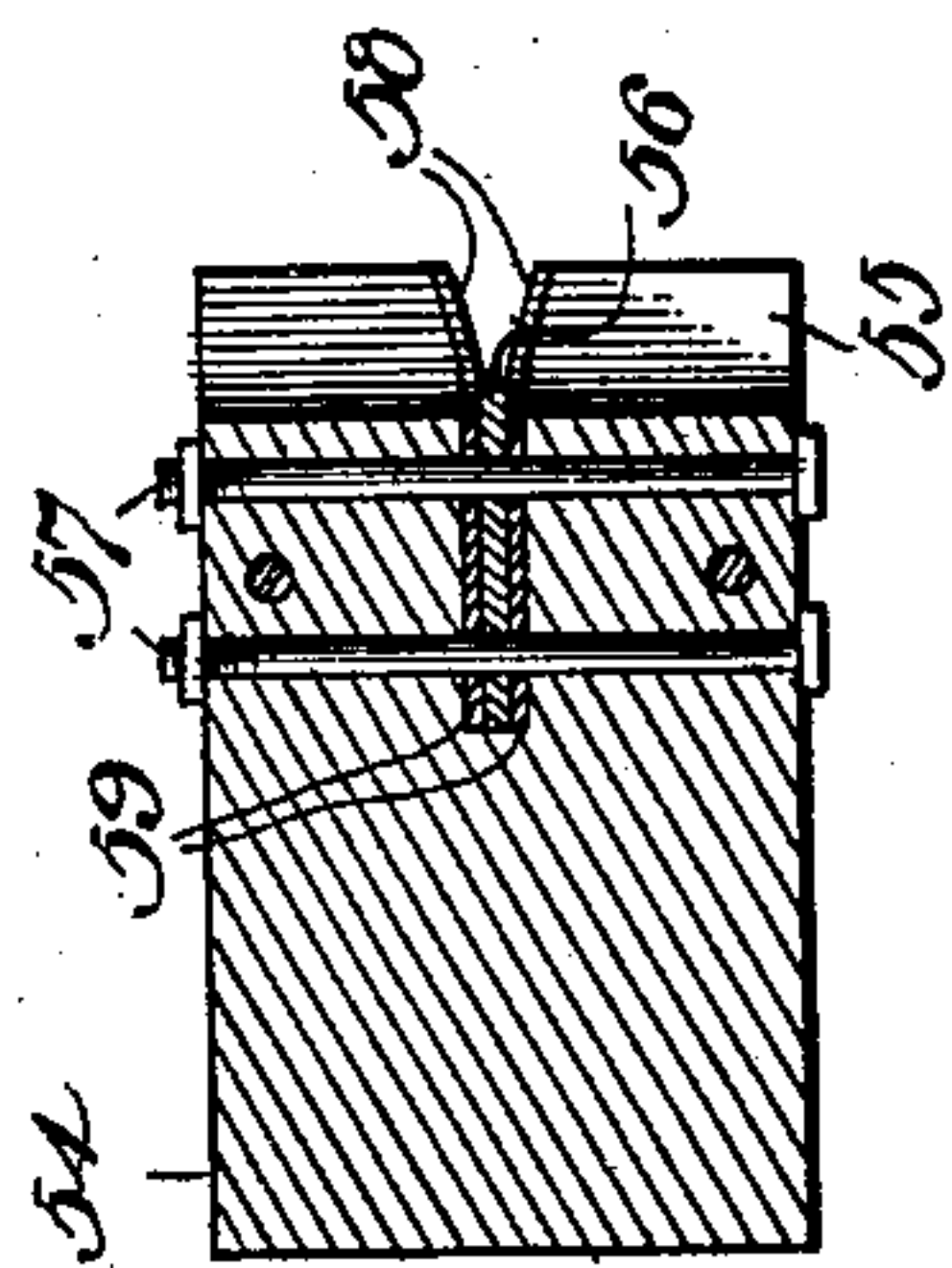
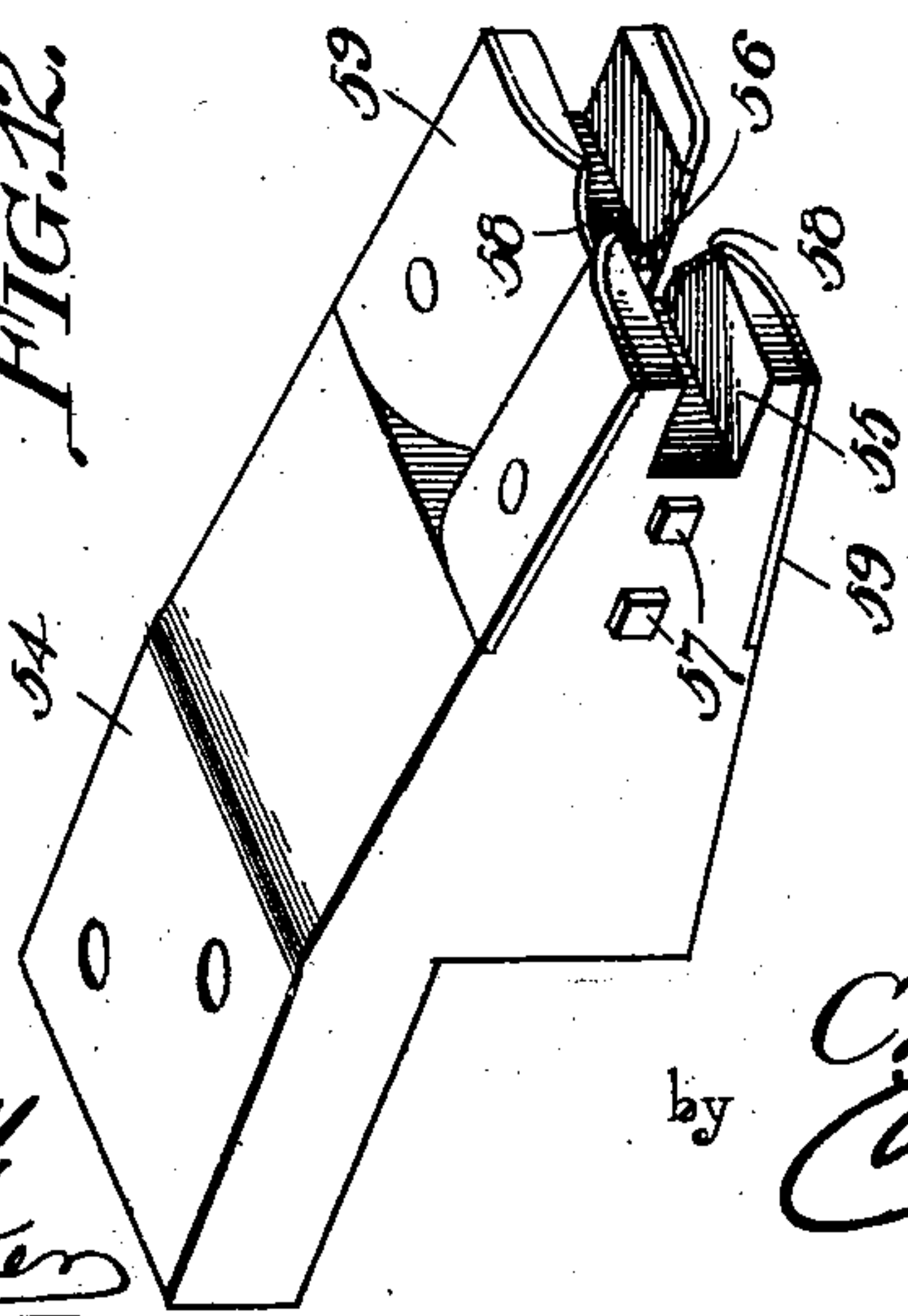


FIG. 12.



No. 708,III.

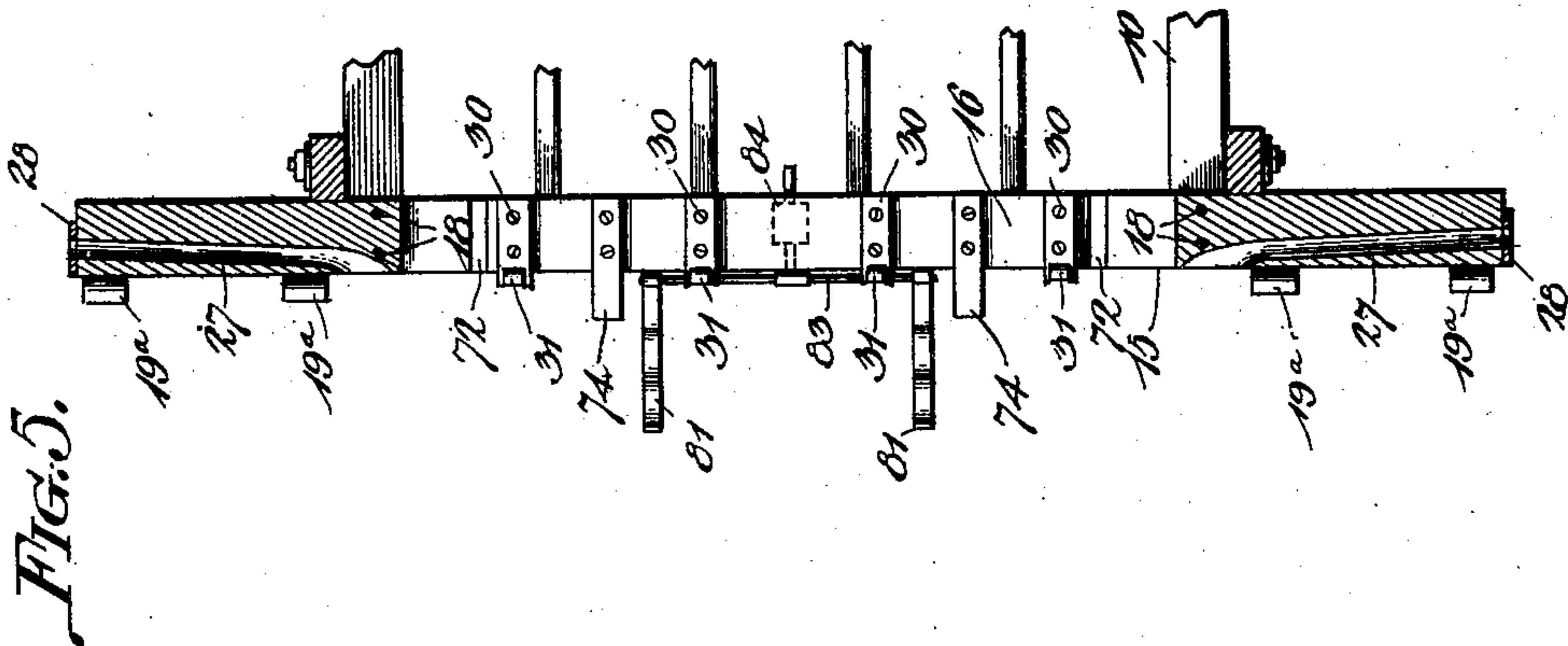
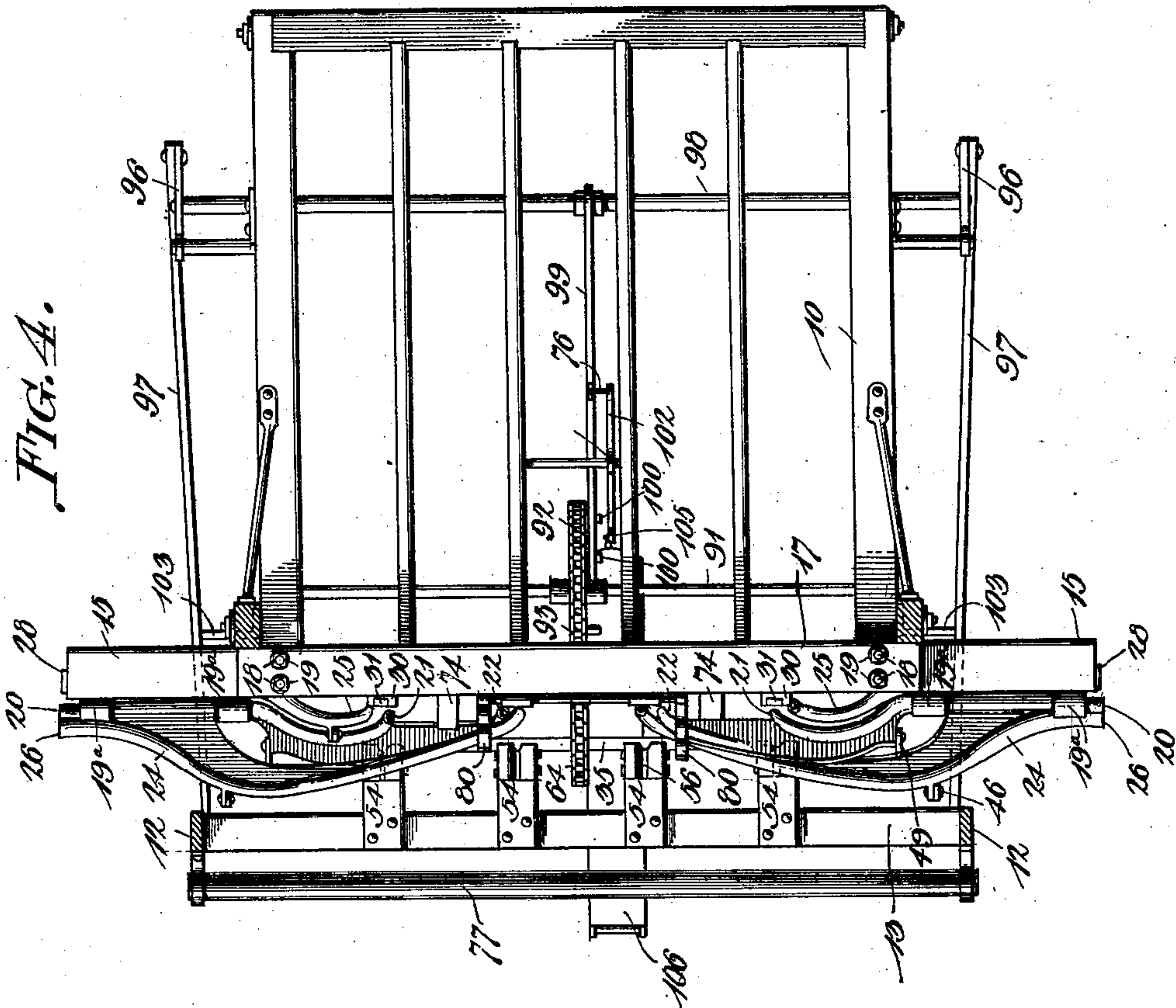
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5 Sheets—Sheet 4.



Witnesses

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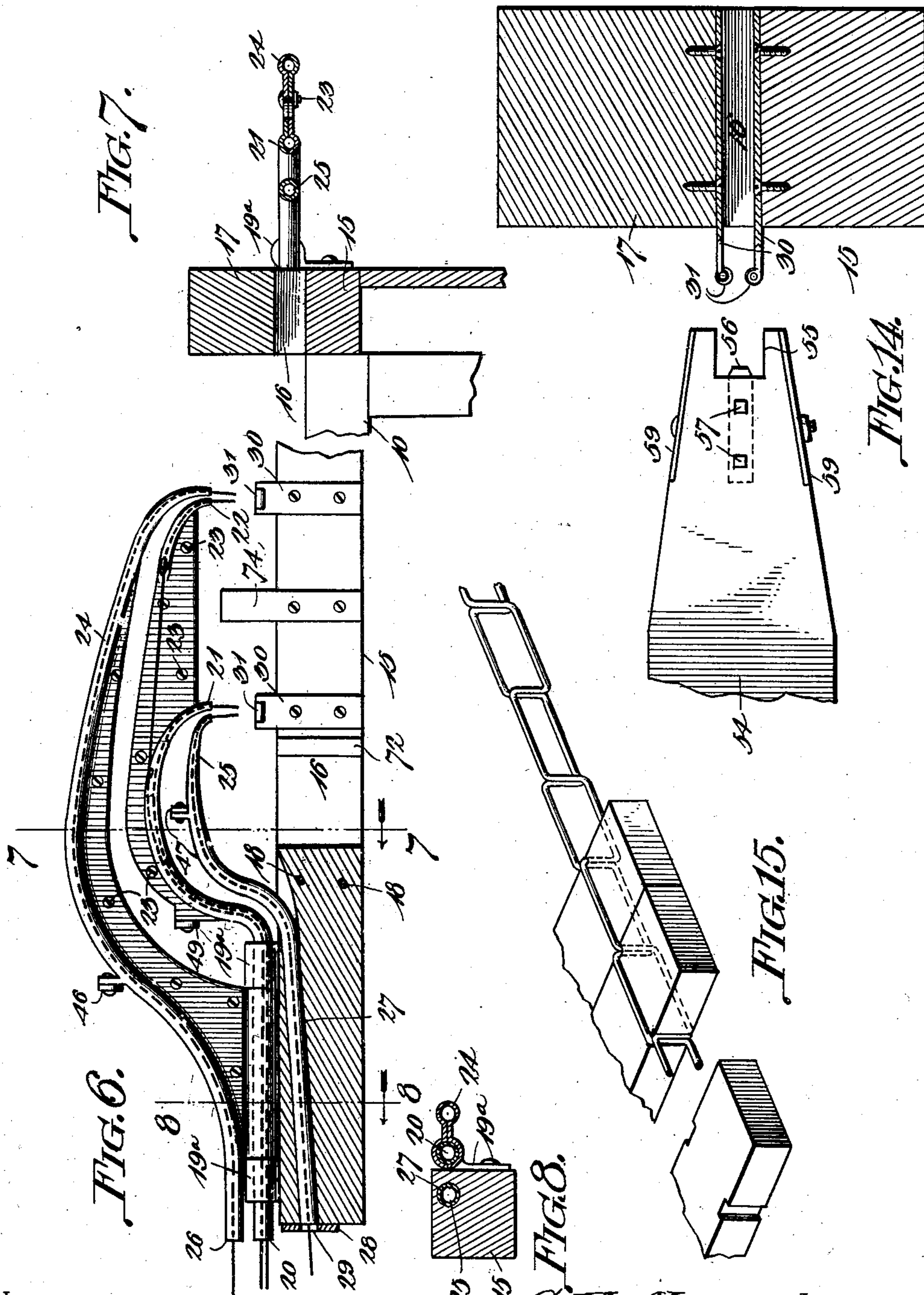
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5 Sheets—Sheet 5.



Witnesses

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FIG. 8.

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UNITED STATES PATENT OFFICE.

CHARLES MOULTON ALGER, OF HANNIBAL, MISSOURI.

MACHINE FOR WIRING WOOD SLATS.

SPECIFICATION forming part of Letters Patent No. 708,111, dated September 2, 1902.

Application filed November 30, 1901. Serial No. 84,241. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MOULTON ALGER, a citizen of the United States, residing at Hannibal, in the county of Marion and State of Missouri, have invented a new and useful Machine for Wiring Wood Slats, of which the following is a specification.

My invention relates to certain improvements in machines for wiring wood slats; and has for its principal object to provide a machine by which small strips of wood may be woven into lumber suitable for the manufacture of boxes and for other purposes.

A further object of the invention is to so construct a machine of this class as to enable the feeding of the wooden slats directly into the open end of the shed formed by the crossing wires, avoiding the necessity of the endwise feed commonly employed in machines of the class.

A further object of the invention is to so construct the machine as to provide for the production of lumber in which the meeting edges of the slats will be joined tightly together and at the same time be sufficiently flexible to permit of bending without the necessity of cutting the material.

Further objects of the invention are to improve and simplify the construction of machines of this class by the reduction of the number of operating parts and to render the machine in a measure self-adjustable to enable it to operate upon strips of any desired length, width, and thickness within the limits of the machine.

A still further object of the invention is to provide for the automatic feed of the slats to the machine.

Further objects and advantages of the invention will be apparent from a reading of the following description.

In the accompanying drawings, Figure 1 is a front elevation of a slat-wiring machine constructed and arranged in accordance with my invention, the batten being broken away in order to more clearly illustrate the construction. Fig. 2 is a side elevation of the machine, illustrating the arrangement of the batten and the automatic slat-feeding devices. Fig. 3 is a view similar to Fig. 2, illustrating the construction of the device when the slats are fed by hand. Fig. 4 is a

sectional plan view on the line 4 4 of Fig. 3. Fig. 5 is a detail sectional view of the head-block of the machine. Fig. 6 is a detail plan view, on an enlarged scale, of two sets of wire-carrying fingers in the positions which they assume in passing each other. Fig. 7 is a transverse sectional elevation of the same on the line 7 7, Fig. 6. Fig. 8 is a similar view on the line 8 8 of Fig. 6. Figs. 9, 10, and 11 are enlarged transverse sectional views illustrating the construction and operation of the slat-feeding devices. Fig. 12 is a perspective view of a form of batten-block which may be employed and is of especial value for use in connection with the hand-operated machine illustrated in Figs. 3 and 4. Fig. 13 is a sectional plan view of one of said blocks. Fig. 14 is a transverse sectional elevation, on an enlarged scale, through the head of the machine and illustrating one of the batten-blocks in elevation. Fig. 15 is a detail perspective view illustrating a portion of the wire-and-slat fabric which the machine is designed to manufacture.

Similar numerals of reference are employed to designate corresponding parts throughout the several views of the drawings.

The operating portions of the mechanism are supported in suitable framework 10, comprising suitably arranged and connected beams of wood or of metal, the vertically-disposed beams at the front ends of the frame being provided at their upper ends with arms 11, in the outer ends of which are supported the side arms 12 of a batten-bar 13.

At the front of the machine is secured a fixed beam or head-block 15, the central portion of which is cut away to form an elongated recess 16, through which the fabric passes as it is woven. Above the head-block is secured a bar 17, said bar being held from longitudinal or lateral play by suitable bolts 18, but free to move vertically on said bolts and normally pressed downwardly toward the head-block by coiled compression-springs 19, carried by said bolts and extending between the upper surface of the bar and a suitable collar or nut carried by the upper end of the bolt. At the opposite ends of the head-block 15 are secured bearings or thimbles 19 for the reception and support of a tube 20, through which wires are fed to fingers or needles 21

and 22. The structure which forms the fingers or needles 21 and 22 is preferably in the form of a two-part casting, as shown in Figs. 6, 7, and 8, the sections of which may be separated for the insertion of the wire and afterward united by bolts or screws 23. The fingers 21 and 22 move together, with the tube 20 as a center, through an arc of ninety degrees, or thereabout, and pass between two fingers 24 and 25, also provided with wires to form the opposite portions of the shed. The finger 24 is made of two sections, united by bolts or screws and fulcrumed upon the tube 20, there being at 26 an inlet for the wire leading to this finger. The mating finger 25 is provided with a separate bearing in the head-block, as shown more clearly in Fig. 6, and this finger may be formed of a single piece of tubing bent into suitable forms and adapted to an inclined opening 27, formed in the head-block, and held against longitudinal movement by a suitable end plate 28, secured to the head-block and having an opening 29 for the passage of the wire. The arms 24 and 25 are simultaneously traveled in the same direction through an arc of ninety degrees, or thereabout, and are moved simultaneously with the fingers 21 and 22, but in opposite direction, so that the wires carried by the respective fingers may be crossed to change the shed.

The number of sets of fingers employed will depend entirely upon the length of the last sections to be woven together and any suitable number may be employed. In the present machine I have illustrated eight wire-carrying fingers, arranged in four sets at equidistant points. Secured to the head-block 15 and the upper bar 17, in alinement with each pair or set of wire-carrying fingers, are spring-plates 30, which project some distance from the front of the block and bar and are provided at their forward edges with antifriction-rollers 31, between which the slats are successively forced, the rollers acting to depress the wires into the wood and at the same time offering sufficient resistance to the passage of the slats to effect a firm binding of the wires and permit of the slats being closely woven together.

In suitable bearings at the front portion of the machine are mounted three transversely disposed crank-shafts 35, 36, and 37, the lower shaft being provided at its ends with diametrically-opposed cranks 38 and 39, connected by rods 40 and 41 to cranks 42 and 43 on the shafts 36 and 37, respectively. The relative lengths of the cranks 38, 39, 42, and 43 are such that a half-rotation of the cranks 38 and 39 will effect a movement of each of the cranks 42 and 43 through an arc of about ninety degrees, and the arrangement of the cranks is such that they receive simultaneous movement in opposite directions. The crank-shaft 36 is connected at one end by a crank 44 and rod 45 to the wire-carrying fingers 21 and 22 and the opposite end is connected by the

cranks 42 and 45^a and rods 46 and 47 to the fingers 24 and 25, respectively, as will be seen on reference to Fig. 2. The crank-shaft 37 is connected at one end by a crank 48 and rod 49 to a pair of fingers 21 and 22 and at the opposite side of the machine is connected by the cranks 43 and 50 to the fingers 24 and 25 by rods 51 and 52, respectively.

On the cross-bar 13 of the batten are secured a number of batten-blocks 54, equal to the number of sets of wire-carrying fingers, there being four batten-blocks employed in the present instance, each of the construction more clearly shown in Figs. 12 and 13. The forward edge of each block is provided with a transverse slot 55, the rear wall of which is adapted for contact with the edge of the slot and acts, in connection with the feeding devices, to force the same to a point between the antifriction-rollers 31, the vertical height of the slot being such as to permit of the entrance of the spring-plates 30 during this operation. In the center of each batten-block is secured a vertically-disposed knife 56, which projects some little distance from the rear wall of the slot and is confined in place by suitable bolts 57. These knives are arranged in alinement with the various sets of wires, and are designed to be forced into contact with the wooden strip to drive the same firmly against a preceding strip and at the same time to form in the edge of the strip a vertical groove or notch for the reception of the wires, the batten-blocks receiving forward movement to act upon the strips before the changing of the shed. The upper and lower walls of the slot 55 are cut away at their central portions in vertical alinement with the knife to form substantially V-shaped grooves 58, which when the batten is acting upon the wires will act to force said wires closely together and in position to be acted upon by the knife. To facilitate the entrance of the wires into the V-shaped grooves the upper and lower sides of the batten-block are provided with curved metallic plates 59, which act to guide the wires into proper position and at the same time tend to preserve the blocks by preventing their direct contact with the wires.

From the front vertical bars of the supporting-frame extend beams 60, forming a support for a hopper or slat-carrier 61, which may be formed of a pair of vertical bolts arranged at or near each side of the frame and spaced for a distance suitable for the reception of the slats. One of the bolts is bent at its lower end in a horizontal line to form a bottom wall or support, and a space is left between the lower end of the opposite bolt and the bottom to permit of the discharge of the lowermost slat.

Secured to the batten-beam, preferably at points on each side of the outer batten-blocks, are feeding mechanisms of the character more clearly shown in Figs. 9, 10, and 11. To the beam are secured suitable blocks 62, to each of which is pivoted a slat-engaging finger 63,

normally pressed in a downward direction by a spring 64. On the side supporting-levers of the batten are pivoted levers 65, connected at their upper ends by links 66 to pins on the fixed frame and at their lower ends being connected to slat-engaging hooks 67. The hook 67 has two engaging bills, one of which, 68, is arranged near the end of its upper face and is adapted on the outward movement of the batten to engage with the lowermost slat of the hopper and withdraw the same from position. On the bottom of the hook is a bill 69, adapted to engage with a centrally-pivoted dog 70 on the block 62, the arrangement and construction being such that as the batten swings outwardly a slat will be withdrawn from the hopper, the bill 69 of the hook having a movement independent or in excess of that of the batten and engaging with the dog 70, the latter turning on its pivot-point and elevating the hook so that the bill 68 may engage with the lowermost slat of the hopper. On the forward movement of the batten the finger 63 engages with the rear face of the slat, the latter being supported by a projecting finger 71, carried by the inner face of the block 62. When the batten reaches the limit of its inward stroke, the hook 67 passes into a suitable slot 72, formed in the head-block, and the fingers 63 and 71 properly guide the slat to a point between the rollers 31.

In some cases the batten-blocks 54 may be dispensed with, the automatic feed-block 62 being employed in their place and being provided, if desired, with the notch-forming knives 56 of the batten-blocks, or where the machine is to be operated by hand the automatic feed may be dispensed with and the batten-blocks employed in their stead, as illustrated in the structure shown in Figs. 3 and 4. In such cases I prefer to employ slat-receiving plates 74 on the head-block, the plates extending for some distance beyond the roller-carrying plates 30, so that a slat may be placed thereon in convenient position to be acted upon by the batten-blocks. When the device is operated by hand, the batten-arms are provided with a cross-bar 77, forming a handle in convenient position for the operation.

In order to take up the shock and prevent undue vibration of the wire-carrying fingers at the end of each stroke, I employ suitable arms 80 81, arranged in pairs at points slightly above and slightly below the axis of the fingers, said arms being supported, respectively, on small shafts 82 and 83, carried by the bars 17 and head-blocks 15. The shaft 83 is provided with a counterweight 84, which may be arranged at the central portion of the machine or at either end thereof, and the shaft 82 is similarly provided with a weight or spring, the tendency of such weight or spring being to keep the arms in contact with the fingers and to follow such fingers to the central or crossing points, there to meet and receive the fingers traveling in the opposite di-

rection and acting to resist the travel of said fingers to the end of the stroke. The fingers fit loosely in notches or recesses provided for the purpose in the respective arms; but as the fingers travel toward the end of the notches or recesses they tighten up and become firm, owing to the difference in the pivot-points of the fingers and arms.

In suitable journals or bearings 90 is mounted a shaft 91, to which is secured a sprocket-wheel 92, connected by a link belt 93 to a small sprocket wheel or pinion 94 on the shaft 35 and serving to impart motion to the latter to effect the oscillation of the wire-carrying fingers. On each side of the rear portion of the frame is hung a link 96, the lower ends of which are connected by bars 97 to the lower ends of the batten-carrying arms 12. The links 96 are connected by a rod 98, having a centrally-disposed pawl-bar 99, adapted to act on a series of pins or tappets 100 on the side of the sprocket-wheel 92, so that on each outward movement of the batten the sprocket-wheel will be rotated to the extent of one pin or tappet and will revolve the lower shaft 35 through one-half of a revolution. It will be noted on reference to Fig. 4 that the connecting-bars 97 are disposed at a slight angle to the line of the frame, being somewhat closer together at their point of connection with the batten than at their connection with the links 96, and these side bars are adapted to make contact with guide-plates 103, secured to the opposite sides of the frame and so arranged and disposed that on the inward movement of the batten they will act to center the batten and insure the centering of the batten-blocks.

In the operation of the machine the sets of fingers when in a position of rest are each at an angle of about forty-five degrees to a horizontal line, leaving an open space or shed into which a wooden slat may be readily inserted from the front of the shed either by hand or by the automatic feeding device hereinbefore described, dispensing with the slower end feed, such as is commonly practiced in wire-fence machines and in the weaving of fabrics of various character where only the side edges or ends of the shed are open. When the machine is driven by power and the automatic feed is employed, the inward movement of the batten forces the wooden slat carried thereby between the rollers 31, the latter rolling down the wires and slightly embedding them in the surface of the slats and serving also to exert a tensional spring upon the wires. The inward movement of the batten results in the formation of notches or recesses in the edges of the wooden slats where they are brought into contact with the knives 56 of the respective batten-blocks, and on the outward movement of the batten a partial revolution of the sprocket-wheel 92 is effected, resulting in a half-revolution of the shaft 35 and the changing of the positions of the wire-carrying fingers, the wires being

crossed and forming a new shed. The outward movement of the batten has also effected the operation of the hook 67, the latter engaging with the lowermost slat in the hopper and removing the same from position in readiness to be forced into the newly-formed shed. As the batten is again forced inwardly the wires will be forced within the notches or recesses in the preceding slat and the slats will be forced into close contact, the joint formed being as close as it is possible to join unmatched lumber. When the machine is being operated by hand and when it is desired to employ heavy wire and at the same time to insure the embedding of the wire in the edges of the slat, I employ a treadle-operated mechanism for effecting the disengaging of the pawl-bar 99 and tappet 100 at every alternate stroke of the batten. This mechanism comprises a suitable lever 102, pivoted at 104 to the frame and connected at one end by a wire or cord 105 to a suitable pedal 106, the latter being normally maintained in an elevated position by a tension-spring 107. This structure is illustrated in Fig. 3 of the drawings, and in operation the slat is placed on a supporting-plate 32 and the batten is given a forward movement, the knives 56 of the respective batten-blocks engaging with the edge of the slat and forming therein notches or recesses for the reception of the crossing wires. This movement of the batten takes place while the operator is depressing the pedal 106, and therefore results in no movement of the wire-carrying fingers. When the pressure on the treadle is removed and a pawl-bar 99 again comes into contact with one of the pins or tappets 100, the subsequent outward movement of the batten will effect, through the previously-described mechanism, the changing of the positions of the wire-carrying fingers to form a new shed. The batten is then again forced toward the slats, the wires entering the V-shaped grooves 58 and being pressed toward each other to be operated upon by the knives 56, said knives acting to depress the wires into the previously-formed grooves or notches in the wooden slats. The treadle is depressed during the next outward movement of the batten, so that the fingers will not receive any further movement until a new slat has been forced into the shed.

While the construction herein described, and illustrated in the accompanying drawings, presents the preferred form of the machine, it is obvious that many changes may be made in the form, proportions, size, and minor details of construction within the scope of the claims without departing from the spirit or sacrificing any of the advantages of my invention.

Having thus described my invention, what I claim is—

1. In a machine for wiring wood slats, the combination with wire-carriers, of devices for operating the same to form a shed having a wholly-unobstructed front opening, thereby

to permit of the direct edgewise feeding of successive slats.

2. In a machine for wiring wood slats, a slat-hopper located directly in front of the shed and in line with the woven material, and means for feeding slats directly from the hopper to wiring position.

3. In a machine for wiring wood slats, the combination of wire-carriers, devices operating the same to form a shed having an unobstructed front opening, a batten, and slat-feeding devices carried by said batten.

4. In a machine for wiring wood slats, the combination with wire-carriers, of means for moving said carriers above and below the plane of the material being woven, thereby to form a shed having a wholly-unobstructed front opening.

5. In a machine for wiring wood slats, the combination with devices for forming an open-front shed, of a batten, a slat-hopper, and mechanism carried by the batten for removing the slats from the hopper and feeding the same successively to the shed.

6. In a machine for wiring wood slats, the combination with devices for forming an open-front shed, of a slat-hopper, a batten, a slat-support carried thereby, and a slat-engaging hook carried by the batten and adapted to engage with and remove the lowermost slat of the hopper.

7. In a machine for wiring wood slats, the combination with devices for forming an open-front shed, of a slat-hopper, a batten, a slat-support carried thereby, a slat-engaging hook, and a pivoted dog adapted to be operated by the movement of the hook and to elevate said hook into position for engagement with the lowermost slat of the hopper, substantially as specified.

8. In a machine for wiring wood slats, the combination with devices for forming an open-front shed, of a batten, a slat-hopper, a hook carried by the batten and adapted for engagement with the lowermost slat of the hopper, an operating-lever pivoted to the batten and connected to said hook, and a link connecting said lever to the fixed frame of the machine.

9. The combination with devices for forming an open-front shed, of a hopper, a batten, a slat-support carried thereby, a slat-engaging hook, an operating-dog therefor, a slat-engaging finger carried by the batten, and a locking-lever for moving the slat-engaging hook into inoperative position, substantially as specified.

10. In a machine for wiring wood slats, the combination of the wire-carrying fingers arranged in sets and having a pivotal movement in a plane substantially at right angles to the length of the fabric being woven thereby to form a shed having an unobstructed front opening.

11. In a machine for wiring wood slats, the combination of a series of mating sets of wire-carrying fingers having supporting-pivots arranged in a plane substantially at right an-

gles to the length of the fabric being woven and forming after each operation of the fingers an open shed to permit of the edgewise feeding of successive slats.

5 12. In a machine for wiring wood slats, a batten having a knife-edge adapted for contact with the slats in advance of the change of the shed to produce a seating groove or recess for the wires.

10 13. In a machine for wiring wood slats, wire-carrying fingers, mechanism for operating the same to change the shed, and pressure-rollers adapted to act on the upper and lower sides of the slat and to force the wires there-
15 into.

14. In a machine for wiring wood slats, the combination of a series of sets of wire-carrying fingers having an oscillating movement in a plane substantially at right angles to the
20 length of the fabric and adapted to change the shed, a batten-bar, a series of blocks carried by said bar, knives carried by said blocks in alinement with the several sets of fingers and adapted for contact with the slats in ad-
25 vance of the changing of the shed.

15. In a machine for wiring wood slats, the combination with a series of wire-carrying fingers having a pivotal axis in a plane at right angles to the length of the fabric, a series of
30 spring-plates arranged in alinement with the series of sets of fingers, and a batten-bar having a series of batten-blocks also arranged in alinement with the sets of fingers, substantially as specified.

35 16. In a machine for wiring wood slats, the combination of a pair of wire-carrying fingers having independent pivotal axes, means for simultaneously moving said fingers, and a pair of connected wire-carrying fingers hav-
40 ing a pivotal center coincident with one of the first-named fingers and adapted to pass between the fingers of the first pair, substantially as specified.

17. In a machine for wiring wood slats, the
45 combination of the wire-carrying fingers, means for operating the same, and independently-pivoted arms or levers adapted to be engaged by said fingers during the movement of the same in changing the shed, substan-
50 tially as specified.

18. In a machine for wiring wood slats, the combination of the wire-carrying fingers, means for operating the same, arms or levers pivoted eccentric to the pivotal axes of the
55 fingers and adapted to engage with said fingers during the changing of the shed to prevent vibration of the same, substantially as specified.

19. In a machine for wiring wood slats, the
60 combination of the wire-carrying fingers, means for operating the same, a pair of independently-pivoted arms or levers movable one with each set of fingers toward a central position, said arms or levers acting to resist
65 the movements of the fingers past the central or crossing point, substantially as specified.

20. In a machine for wiring wood slats, the combination with the wire-carrying fingers, of a pair of independently-pivoted levers hav-
70 ing notches or seats for the reception of said fingers and adapted to resist the movement of the fingers in changing the shed and to steady and support said fingers during the changing movement, substantially as speci-
75 fied.

21. In a machine for wiring wood slats, the combination with the wire-carrying fingers, of a pair of independently-pivoted levers having notches or seats for the reception of
80 said fingers, and counterbalancing weights or springs operatively connected to said levers, substantially as specified.

22. The combination of the head-block, a bar mounted above the same, springs nor-
85 mally tending to move the bar and block into contact, spring-pressed pressure-rollers arranged in pairs on the block and bar and adapted to receive the successive slats, wire-carrying fingers, means for operating the same, and a movable batten for contact with
90 said slats, substantially as specified.

23. The combination of the head-block, a spring-pressed bar mounted above the same, spring-plates arranged in pairs on the block and bar, antifriction-rollers arranged at the
95 outer ends of said plates, supporting-plates carried by the head-block for the reception of the slats, wire-carrying fingers, means for operating the same, and a movable batten for forcing said slats, between the antifriction-
100 rollers, substantially as specified.

24. In a machine for wiring wood slats, a batten-block having in its forward edge a ver-
105 tical and a horizontally-disposed groove, and a knife arranged in alinement with said ver- tical groove.

25. In a machine for wiring wood slats, a batten-block having a horizontally-disposed groove and provided upon its upper and lower
110 faces with curved wire-guiding plates, there being at the juncture of said plates an inclined groove for receiving the wire, and a knife carried by the batten-block in aline-
115 ment with said inclined groove, substantially as specified.

26. The combination of the wire-carrying fingers having pivotal axes in a plane substan-
120 tially at a right angle to the length of the fabric being woven, a revoluble crank-shaft, means for operating the same, a pair of aux- iliary shafts having cranked connections with
said crank-shaft, and mechanism operatively connecting the auxiliary shafts to the fingers.

27. The combination of the wire-carrying fingers having pivotal axes in a plane substan-
125 tially at a right angle to the length of the fabric being woven, a batten, a revoluble crank-shaft operatively connected to the batten, and mechanism for operatively connecting said crank-shaft to the fingers, substantially as
130 specified.

28. The combination of the wire-carrying

fingers having pivotal axes in a plane substantially at a right angle to the length of the fabric being woven, a batten, an operating-pawl connected thereto, a sprocket-wheel having 5 pins or tappets adapted for successive engagement by the pawl-bar, a revoluble crank-shaft operatively connected to the sprocket-wheel, and means for connecting said crank-shaft to the wire-carrying fingers, substantially as 10 specified.

29. The combination of the wire-carrying fingers, a batten, pivoted links carried by the frame and connected to the batten, a pawl-bar pivotally connected between the links, a 15 pedal operatively connected to the pawl-bar, a sprocket-wheel having pins or tappets adapted to be engaged by said pawl-bar, a revoluble crank-shaft, a sprocket-wheel thereon, a link belt connecting the two sprocket-wheels, 20 auxiliary shafts having cranked connections with the crank-shaft and rods and cranks for operatively connecting said auxiliary shafts to the wire-carrying fingers, substantially as specified.

30. The combination of the wire-carrying fingers, a batten, mechanism operatively connecting the batten to the wire-carrying fingers, said mechanism including as one of its 25 elements a pair of connecting-bars inclined at an angle to the length of the frame and adapted for engagement with guides on the side of said frame to assist in centering the batten, substantially as specified. 30

31. In a machine for wiring wood slats, the 35 combination with the wire-carrying fingers and devices for operating the same, of a batten

adapted to operate directly upon the crossed wires after each change of the shed.

32. In a machine for wiring wood slats, the combination of the wire-carrying fingers ar- 40 ranged in sets, mechanism for operating said fingers to cross the shed, a batten adapted for contact with the slats before the crossing of the shed and for direct contact with the crossed wires after each change of the shed. 45

33. In a machine for wiring wood slats, a batten having a knife-edge for contact with the slats in advance of the change of the shed to produce or form in said slats a seating groove or recess for the wires, the knife-edges being 50 adapted for contact with the cross-wires after the change of the shed to force wires into the groove or recess.

34. In a machine for wiring wood slats, the combination of a series of sets of wire-carry- 55 ing fingers having an oscillating movement in a plane substantially at right angles to the length of the fabric and adapted to change the shed, a batten-bar, a series of blocks carried by said bar, knives carried by said blocks 60 in alinement with the several sets of fingers and adapted for contact with the slats in advance of the changing of the shed and for contact with the crossed wires after the changing of the shed. 65

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES MOULTON ALGER.

Witnesses:

ARTHUR L. CHAMBERLAIN,
HERBERT COLLINS.