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Patented Nov. 22, 1898.

J. H. CUNDIFF.  
FENCE WEAVING MACHINE.

(Application filed Oct. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.

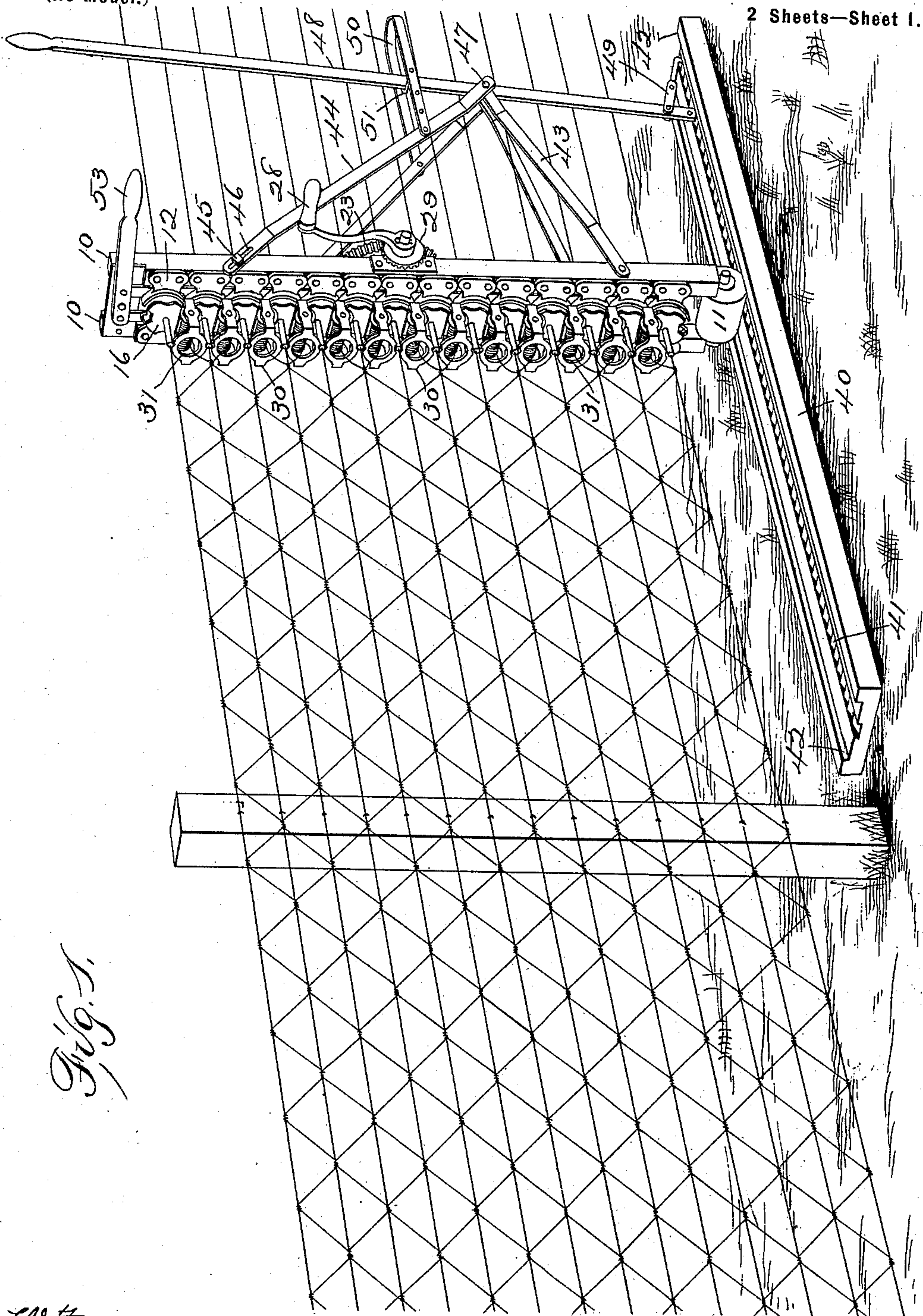


Fig. 1.

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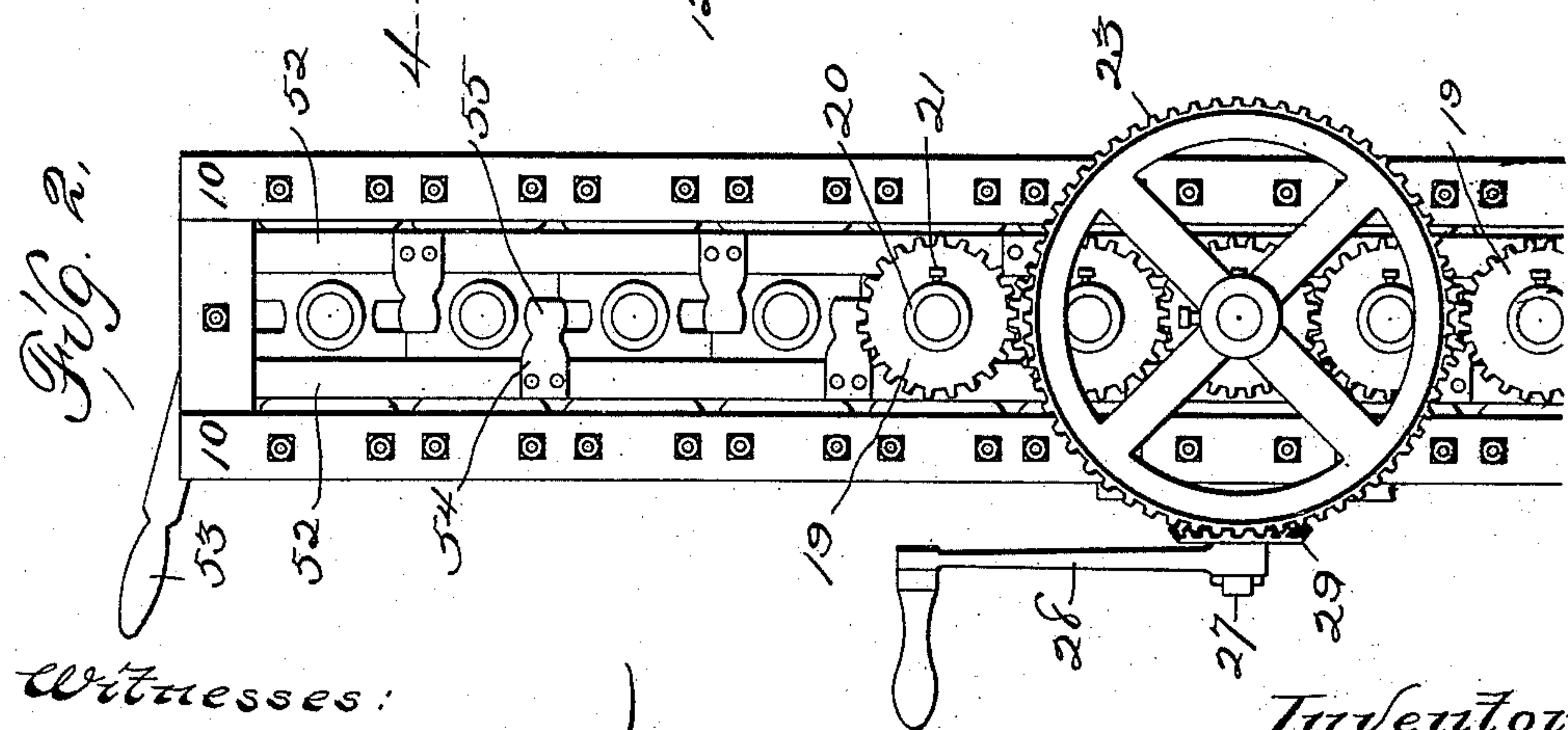
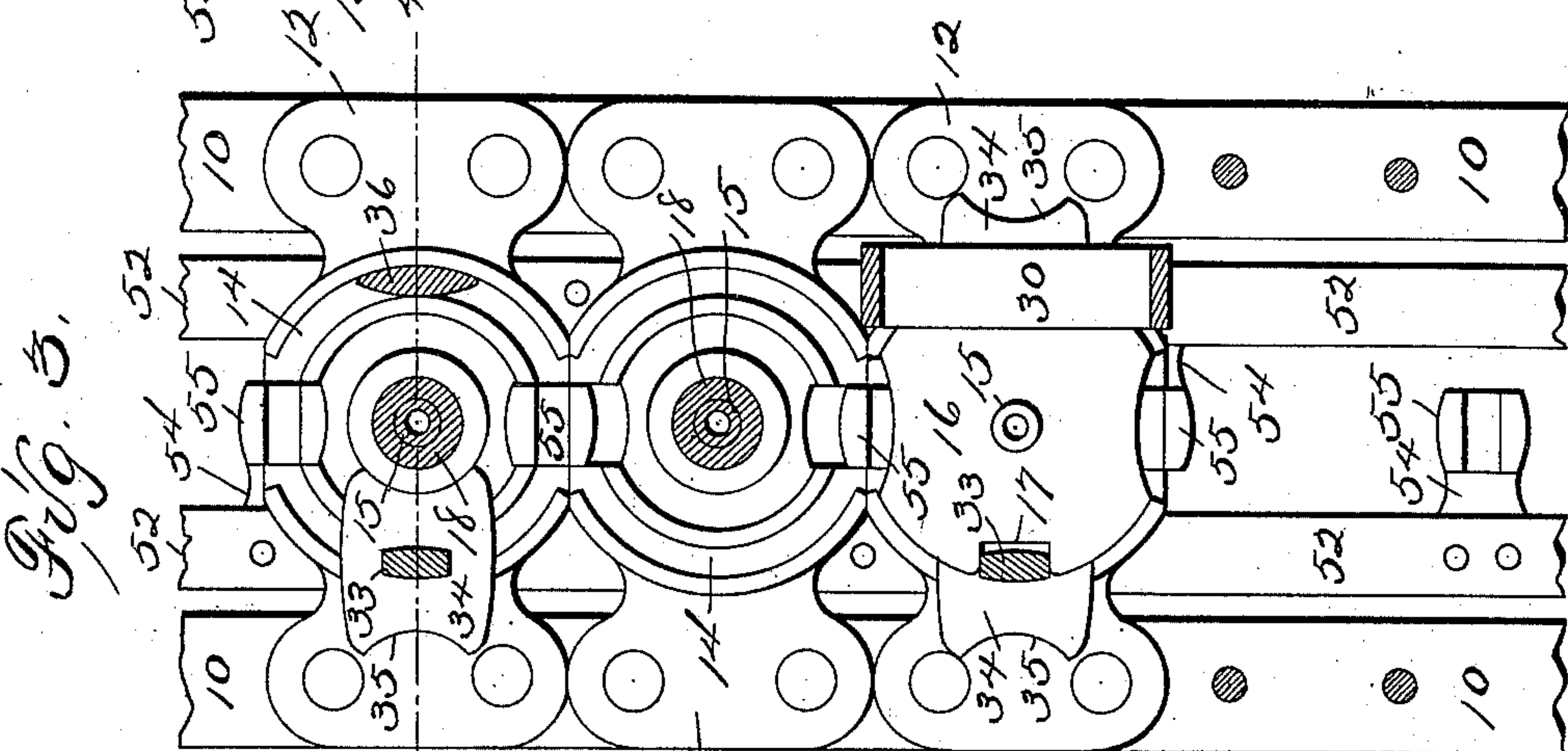
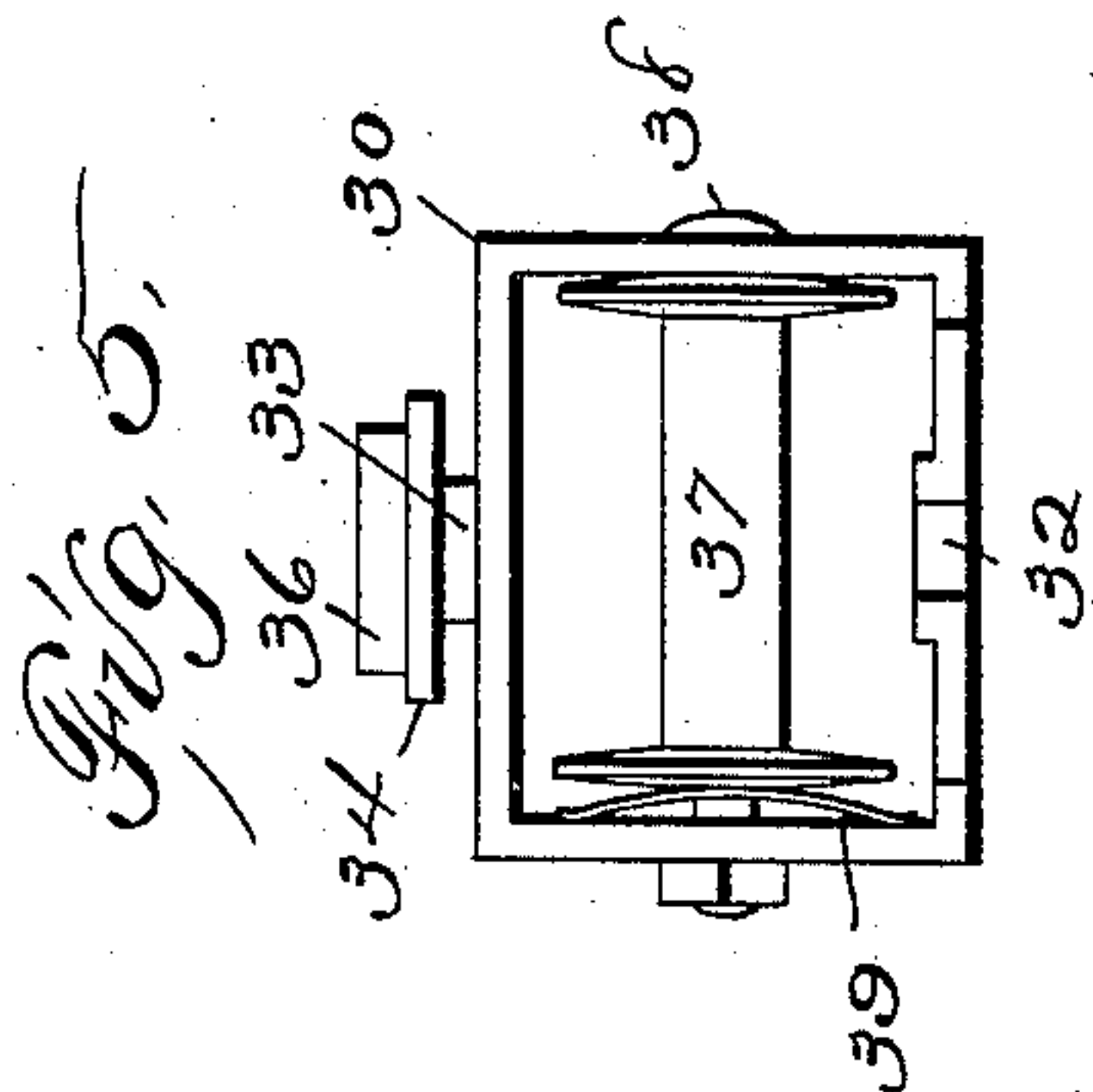
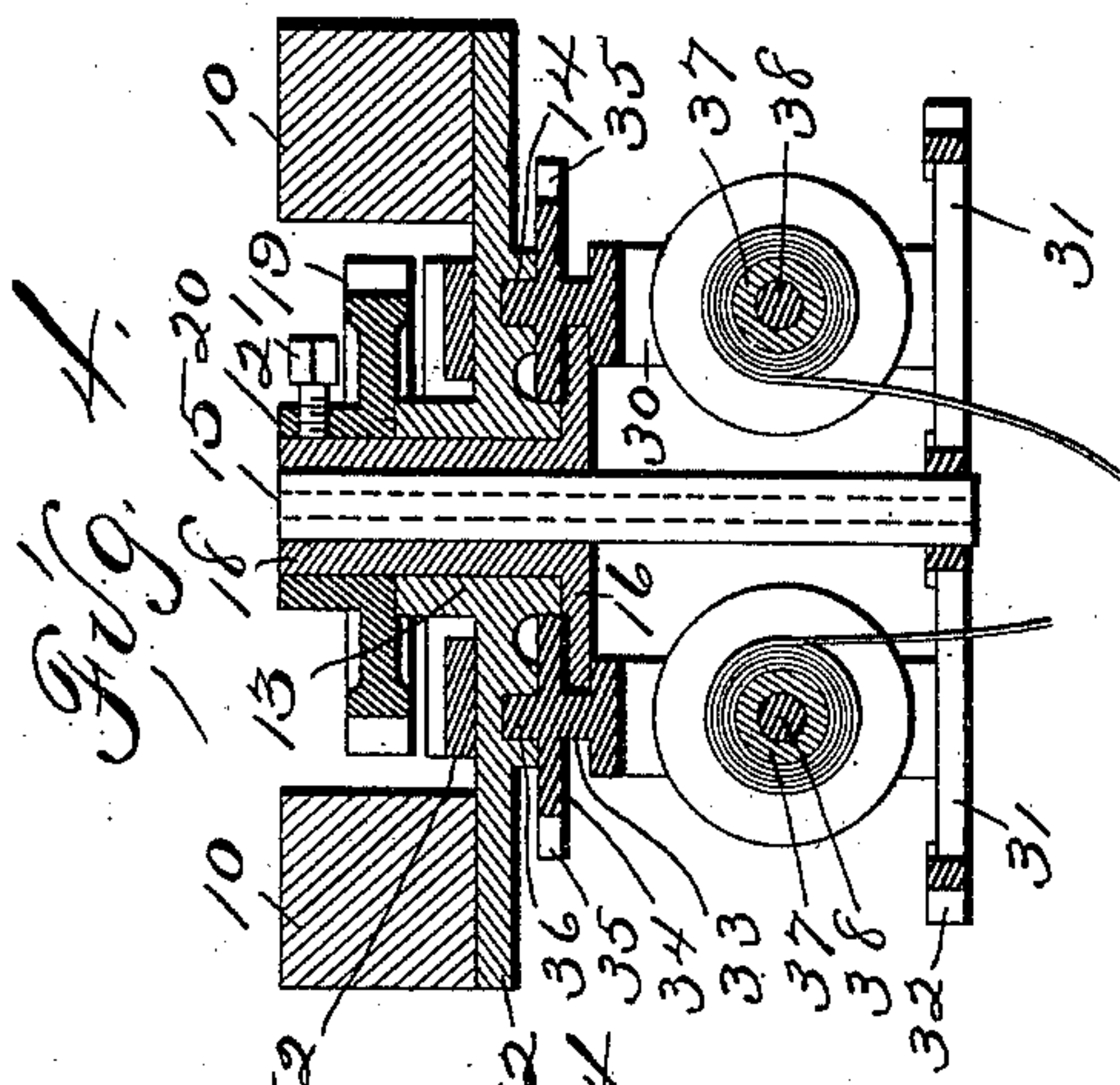
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2 Sheets—Sheet 2.



Witnesses:

W. J. Sankey,  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

JACOB H. CUNDIFF, OF UNION, HARDIN COUNTY, IOWA, ASSIGNOR TO THE  
IOWA FENCE COMPANY, OF SAME PLACE.

## FENCE-WEAVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,701, dated November 22, 1898.

Application filed October 8, 1897. Serial No. 654,493. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB H. CUNDIFF, a citizen of the United States, residing at Union, in the county of Hardin and State of Iowa, have invented a new and useful Fence-Weaving Machine, of which the following is a specification.

The object of this invention is, broadly, to provide a portable fence-weaving machine of simple, strong, durable, and inexpensive construction that may be easily and quickly operated to produce a fence with meshes of uniform size.

My objects are more specifically to provide a fence-weaving machine of this class in which the friction and wear incident to the operation of weaving fence is reduced to a minimum and the ease of operation and the durability of the contacting parts thereby increased.

A further object is to provide means of simple, strong, and durable construction that may be easily operated by one hand for controlling the movements of the spool-bearing devices and for shifting them relative to the longitudinal fence-wires.

A further object is to provide improved means for advancing the fence-weaving machine longitudinally of the fence and for accurately, conveniently, and easily spacing the width of the meshes.

My invention consists, essentially, in the construction, arrangement, and combination of parts whereby the spool-bearing devices are made to rotate in unison with the tubes through which the longitudinal fence-wires are passed, so that there will be no friction between these parts, in the construction, arrangement, and combination in a machine of this class of the means for shifting the spool-bearing devices relative to the longitudinal fence-wire, and, further, in the means for advancing the machine longitudinally of the fence and for spacing the width of the meshes, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows in perspective the complete machine mounted on a track and applied to a fence part of which has been completed. Fig. 2 is a rear elevation of the upper end

portion of the fence-weaving machine with some of the wire-twisting devices removed to show the mechanism for shifting the wire-twisting devices relative to the longitudinal fence-wire. Fig. 3 shows an enlarged detail sectional view, the upper portion of the figure being shown as taken on a different line and nearer to the posts 10 than is the lower portion of the figure. Fig. 4 shows a horizontal sectional view taken through the dotted line 4 4 of Fig. 3, and Fig. 5 shows a detail top view of one of the spool-holding frames.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate two parallel wooden uprights having rotatably mounted between their lower ends the roller 11. The said uprights are connected by means of a series of bearing-plates 12. Each of these plates has a sleeve 13 extended through its central portion to serve as a bearing, and on the front face of the plate is a circular track 14, having openings at its upper and lower ends, and these plates are bolted to the uprights in such proximity to each other that the circular tracks on the plates will engage. A wire-guiding device is placed in each one of the said plates and comprises a pipe-section 15, designed to admit a fence-wire to be passed through it. On the central portion of this pipe is a plate 16, having at diametrically opposite sides the angular notches 17. On the rear end of each of these pipes is a journal 18, designed to enter the sleeve 13. These journals are placed in the sleeves from the front face until the rear end of the journal projects through the sleeve. A cog-wheel 19, having a collar 20 thereon, with a set-screw 21 in the collar, is placed on the rear end of the journal and the set-screw tightened, thus holding the device in position within the sleeve 13 and so that it may be capable of a rotary movement. As before stated, a similar device is placed in each of the sleeves 13, and the gear-wheels 19 are all meshed with each other. These devices are rotated in unison by means of a bevel gear-wheel 23, detachably fixed to the rear end of one of the central ones of the journals 18.

27 indicates a shaft having a crank 28 fixed thereto, and a bevel gear-wheel 29 is mounted thereon and meshed with the gear-wheel 23.



By this means it is obvious that all of the gear-wheels 19 may be rotated in unison.

The spool-holders are each composed of a substantially rectangular frame 30, having at its forward end a large circular opening 31, through which the wire is passed, and at diametrically opposite sides of this circle are the two semicircular notches 32, designed to engage with the pipes 15. On the rear cross-piece of each of the frames is an angular extension 33, which is designed to enter one of the angular notches 17 in the plate 16, that is fixed to the pipe 15. At the rear end of this angular extension is a flat plate 34, having at diametrically opposite sides thereof concaved surfaces 35, that are designed to engage the journals 18, and projecting rearwardly from the central portion of this plate 34 is a guide 36, which is pointed at both ends. Two of these spool-holders are placed on the opposite sides of each alternate wire-guiding device, with the angular projections 33 resting in the angular notches 17 of the plate 16, and the plates 34 engaging the rear surface of the aforesaid plates 16, and the guides 36 inserted in the track 14 of the plates 13.

The spool proper (indicated by the reference-numeral 37) is provided with a central opening, and a bolt 38 is passed through this opening and through the frame, and a leaf-spring 39 is fixed to the frame to engage one end of the spool and prevent its free rotation.

The reference-numeral 40 is used to indicate a machine-support adapted to lie flat on the ground, which is provided at its central portion with a sunken rack 41 and at its sides with the raised edges or parallel tracks 42. The roller on the bottom of the fence-machine proper is designed to rest and move upon the parallel tracks 42 in the operation of the machine.

The machine is advanced longitudinally of the fence and the width of the meshes determined by means of the following mechanism.

43 indicates braces pivoted to the uprights of the frame near their lower ends and extend rearwardly, and 44 indicates like braces pivotally and adjustably connected with the uprights of the frame near their upper ends by means of the bolts 45, entering the slots 46 therein, and these braces 44 and 43 are connected with each other by means of a bolt 47, which is passed through them and through a lever 48, which lever extends downwardly therefrom to a point adjacent to the rack 41. A gravity-pawl 49 is pivoted to the lower end of this lever to engage said rack.

50 indicates a guide fixed to the braces 44 and having therein a pin 51, which is capable of being adjusted longitudinally of the guide. By this mechanism it is obvious that when the upper end of the lever 48 is moved forwardly or toward the machine the pawl 49 is made to move relative to the rack, and then when the lever 48 is moved in an opposite direction the entire machine is advanced upon the track just the distance that the pawl was previously

moved. This distance of movement of the pawl 49 may be accurately determined by counting the number of notches on the rack over which it has passed, and then when the lever is moved rearwardly it is passed behind the stop 51 and there securely held.

The mechanism for shifting the spool-carrying device from one circular track to the adjacent ones comprises two flat bars 52, extended parallel with the uprights and slidably mounted on the rear faces of the track-plates 13. At the upper end of these bars a lever 53 is fulcrumed to a part of the machine-frame between the said bars and pivotally connected with the said bars, which stand on opposite sides of the fulcrum of the lever. Hence when the lever is moved these bars are moved vertically in opposite directions. Each of said bars is provided with a series of arms 54 to project inwardly, and on the end of each of said arms is a slotted carrying device 55, which projects forwardly through the openings in the circular-track plates, and each bar is provided with one of these slotted carriers for each alternate one of the circular-track plates. Hence when the lever is in an elevated position, as shown in Fig. 2, the first of the said arms at the tops of these bars have their slotted carriers in the same circular-track plate, while the next two of the slotted carriers are in the second track-plate, below the one just mentioned. Hence there is a track-plate between in which none of the slotted carriers rest. Obviously when the lever has been pulled downwardly the slotted carriers will enter the circular track of the adjacent track-plates.

In practical use and assuming the fence-making machine to be in position on a track with a number of longitudinal fence-wires passed through the machine it is obvious that when the operating-crank is rotated two spool-holders will be made to rotate around each alternate fence-wire, inasmuch as the spool-holders travel in the circular tracks 14. Then when a sufficient number of turns have been made around the fence-wires the lever 53 is shifted, so that the slotted carriers 55 will move from a position in the track on one of the guide-plates to a position in the track of the adjacent guide-plate, and the spool-holders are stopped in a position where the guides 36 thereof are resting in the carriers 55, so that they will be carried thereby into the next adjacent circular track. Then when the motion of the crank is continued the wire-holding devices will be made to rotate around the alternate fence-wires or the ones between those first operated upon. When these wires have been twisted to the fence-wires sufficiently with the spool-holding devices in this position, it is obvious that when they are shifted again the wires will wind around the same longitudinal fence-wire as first mentioned, and the mesh will have been completed. It is to be noted in this connection that the spool-holding frames rest against the pipes



15, through which the longitudinal wires pass, and the said pipe and spool-holders rotate in unison, so that there can be no friction between them. This has been found to be very  
 5 advantageous, for the reason that the spool-holding devices are held tightly to the said pipes by reason of the wires on the spool-holders being drawn toward the fence-wire that passes through the pipe. It matters not  
 10 how many times the spool-holders are shifted from one circular track to the adjacent one they cannot become detached by reason of the plates 34 on the spool-holding frames passing behind the plates 16. Furthermore,  
 15 the spool-holding devices are held in their proper position at diametrically opposite sides of the plates 34 by means of the angular notches 17. The machine is readily, quickly, and easily advanced along the track by means  
 20 of the lever 48, and the size of the mesh is determined by the distance that the machine is moved. It is convenient to have two or more sections of the track and to lay them flat on the ground surface for the roller to  
 25 travel in, and when the roller is passed over one section this section is removed and placed in advance of the roller.

Having thus described the fence-weaving machine, what I claim as my invention, and  
 30 desire to secure by Letters Patent of the United States therefor, is—

1. In a fence-weaving machine, the combination of a series of plates, each having a circular track therein with openings at the  
 35 upper and lower edges of the track, a series of spool-holders and projections thereon to enter said circular tracks, means for causing the spool-holders to travel around the circular tracks, two bars slidingly mounted on the

machine-frame, a lever fulcrumed to the machine-frame and connected with the said bars whereby they may be moved jointly in opposite directions, and slotted carriers on the bars to enter the openings in the circular-track plates, for the purposes stated. 40 45

2. In a fence-weaving machine, the combination of a series of plates, each having a circular track thereon with openings at the upper and lower edges of the track, and a bearing in the central portion of each plate, 50 a journal in each bearing, a plate fixed to each journal a slight distance in advance of the face of the circular-track plates and having notches at diametrically opposite sides thereof, a pipe connected with each journal 55 to receive the longitudinal fence-wires, a series of spool-holding frames each having on the rear end thereof an angular extension to rest in the notches of the said plate on the journal, a plate at the rear of the extension 60 to pass behind the plate of the journal, and an extension on the rear of said plate to enter the circular track, and each spool-frame having at its forward end a large central opening, and semicircular openings at the diametrically opposite sides thereof, two bars 65 slidingly mounted at the rear of said circular-track plates, a lever for moving the said bars jointly in opposite directions, slotted carriers fixed to the said bars to enter the openings in the circular-track plates, and means for rotating the said journal, all arranged and combined substantially in the manner set forth and for the purposes stated. 70

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Witnesses:

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