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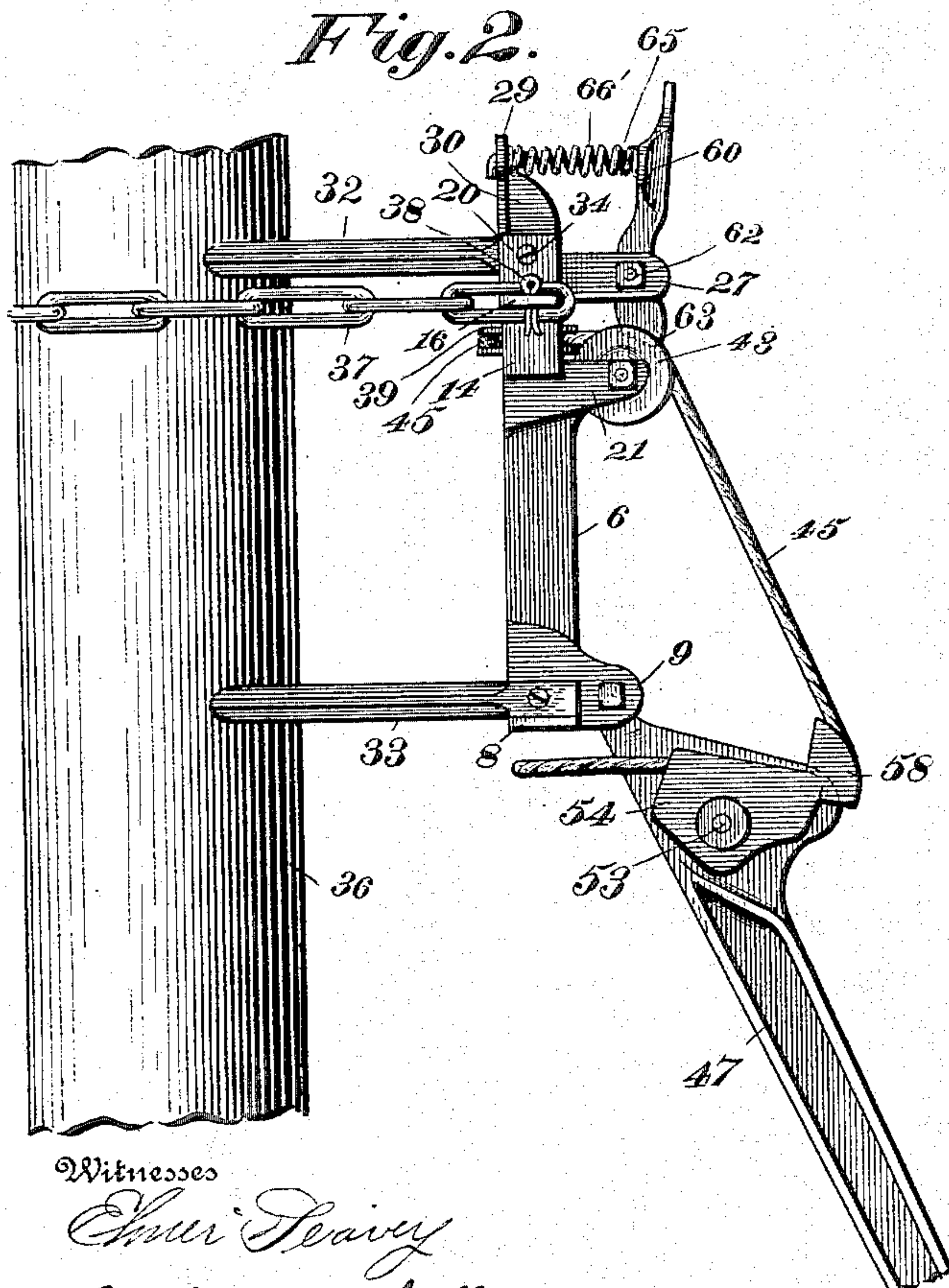
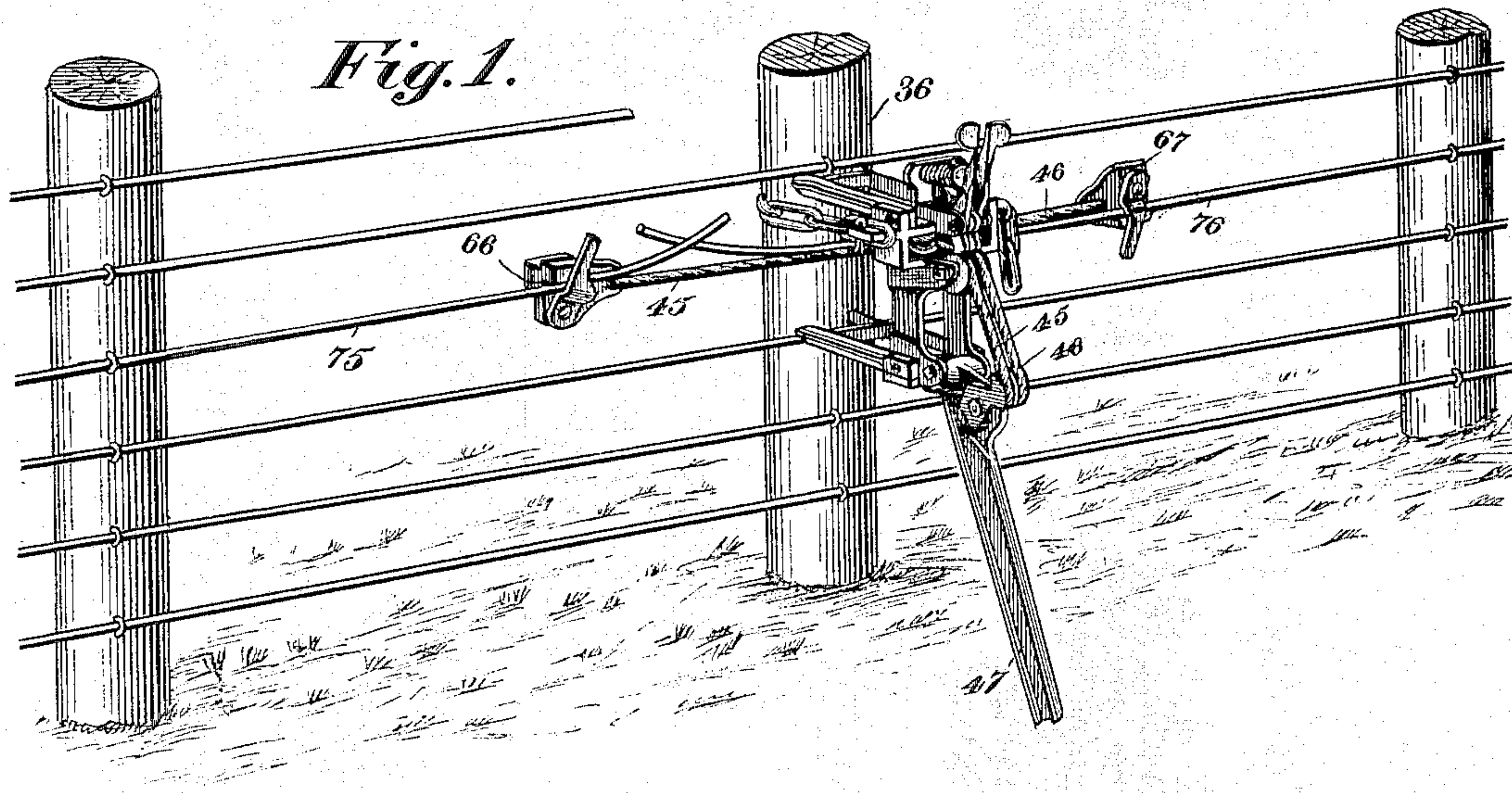
Patented Jan. 2, 1900.

Z. A. CURTIS.
WIRE STRETCHER.

(Application filed June 21, 1899.)

(No Model.)

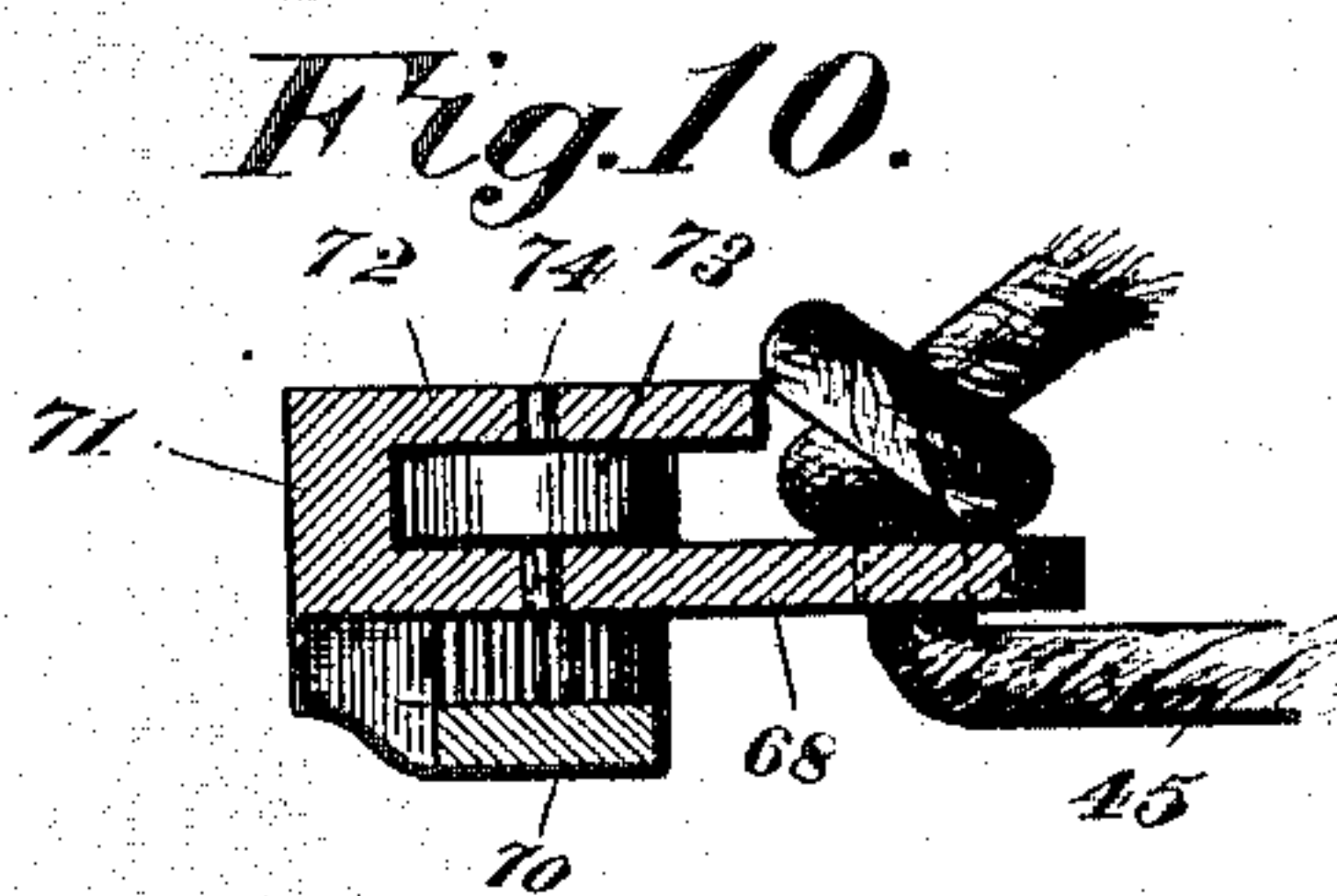
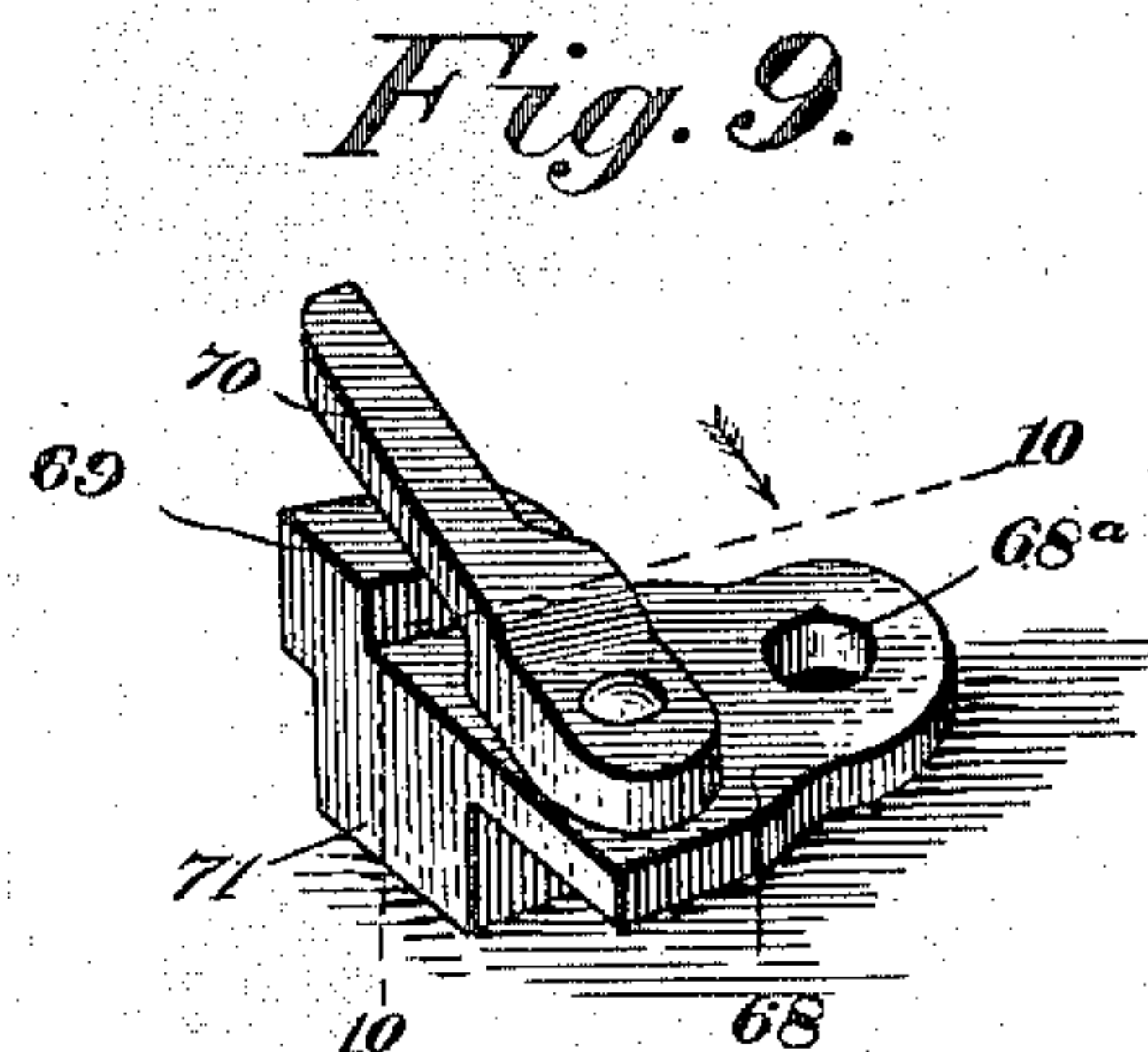
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Witnesses

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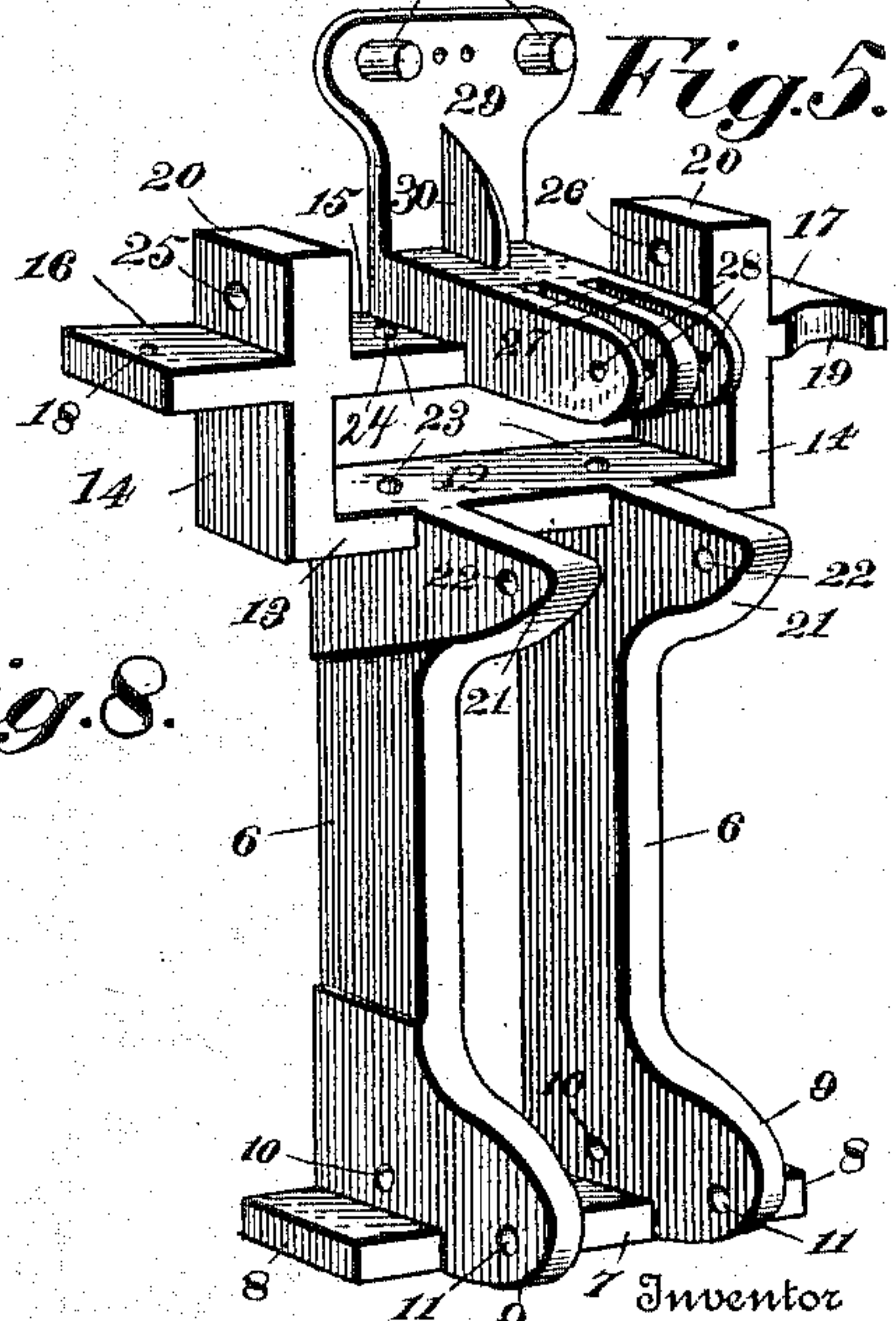
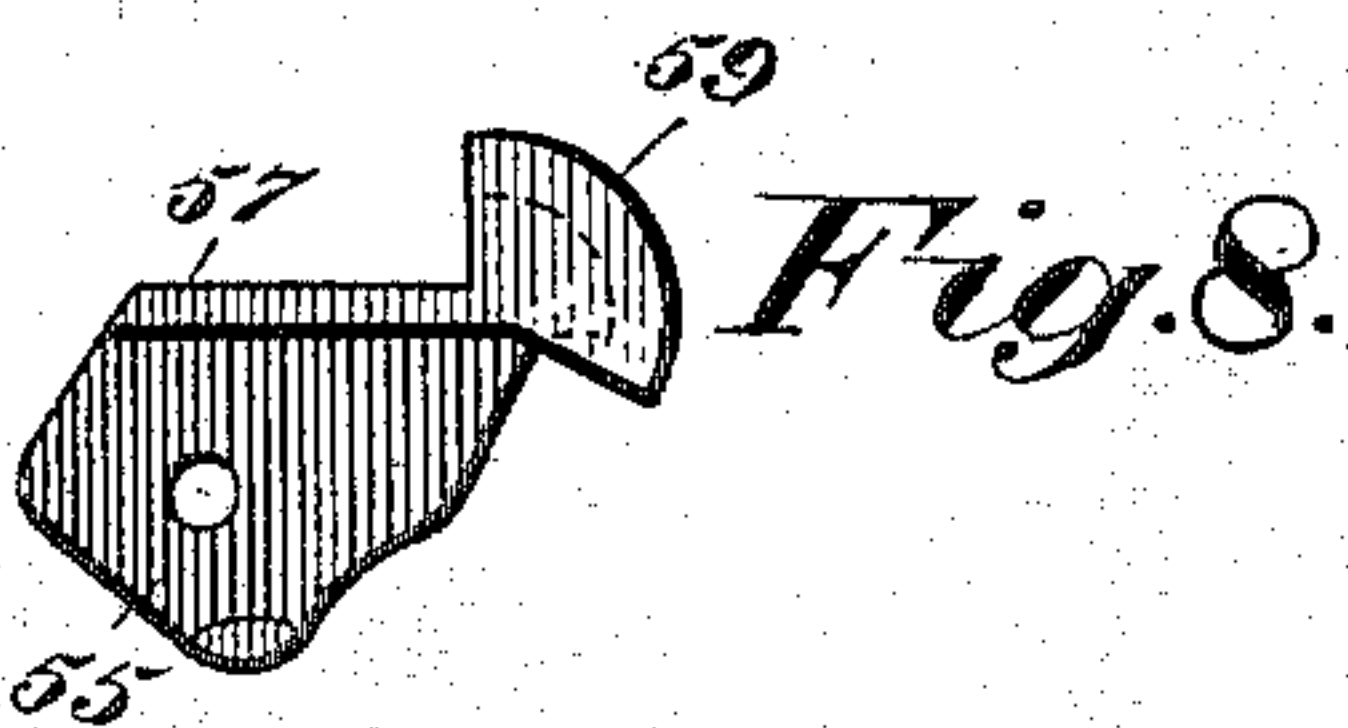
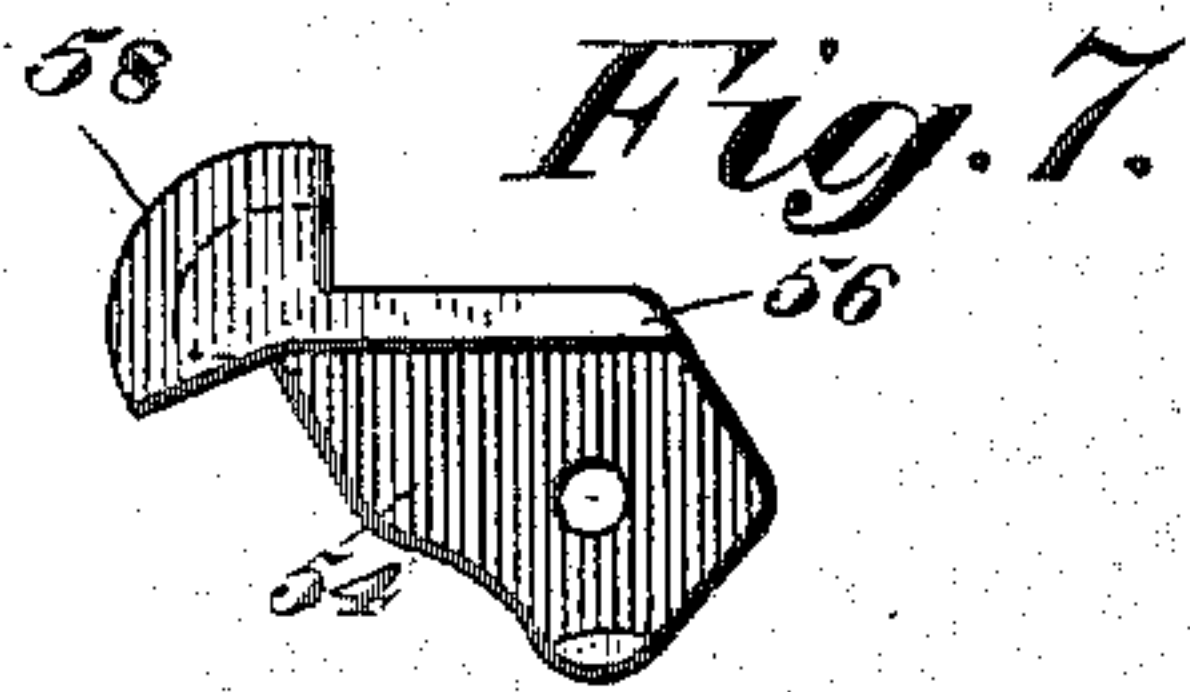
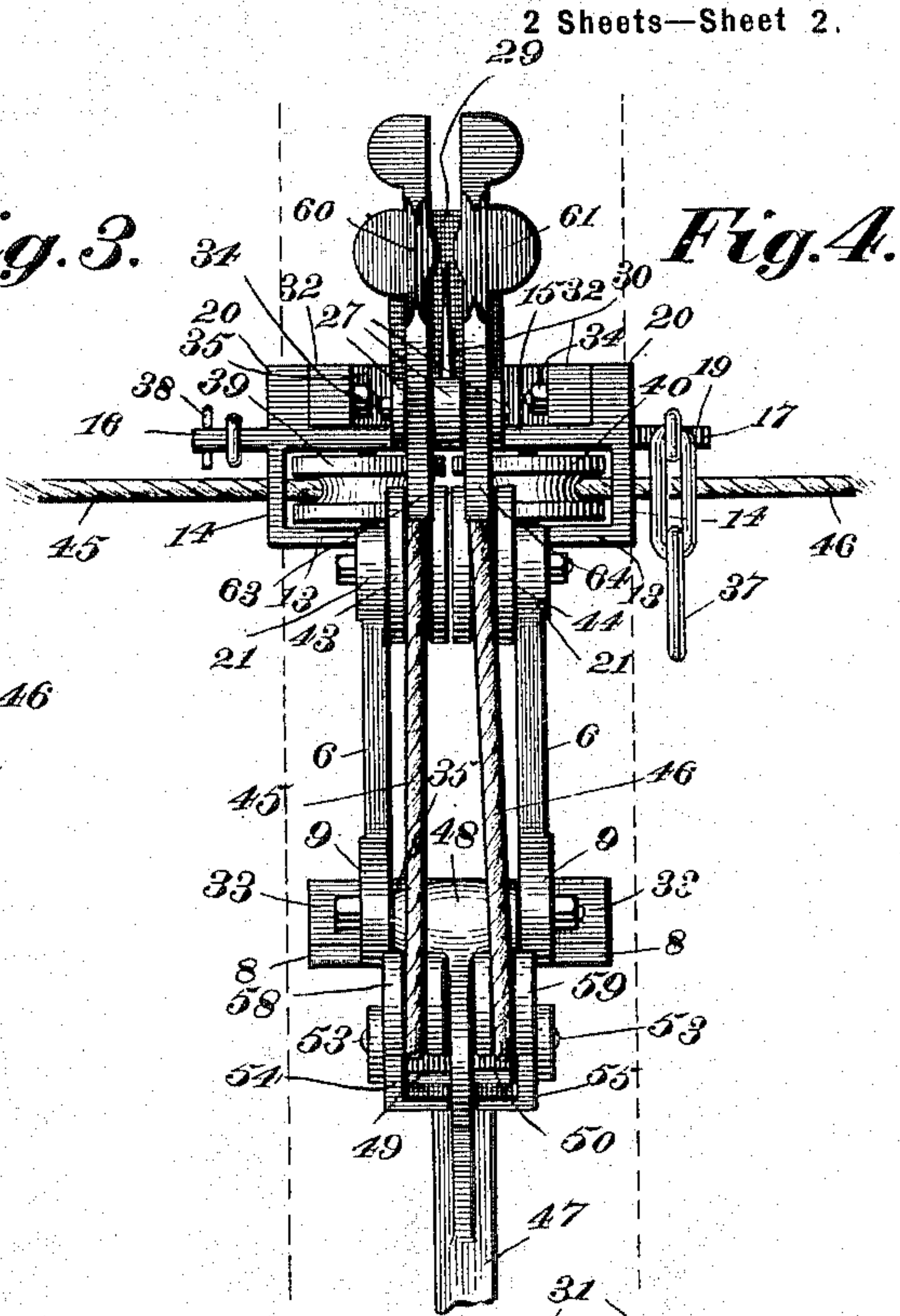
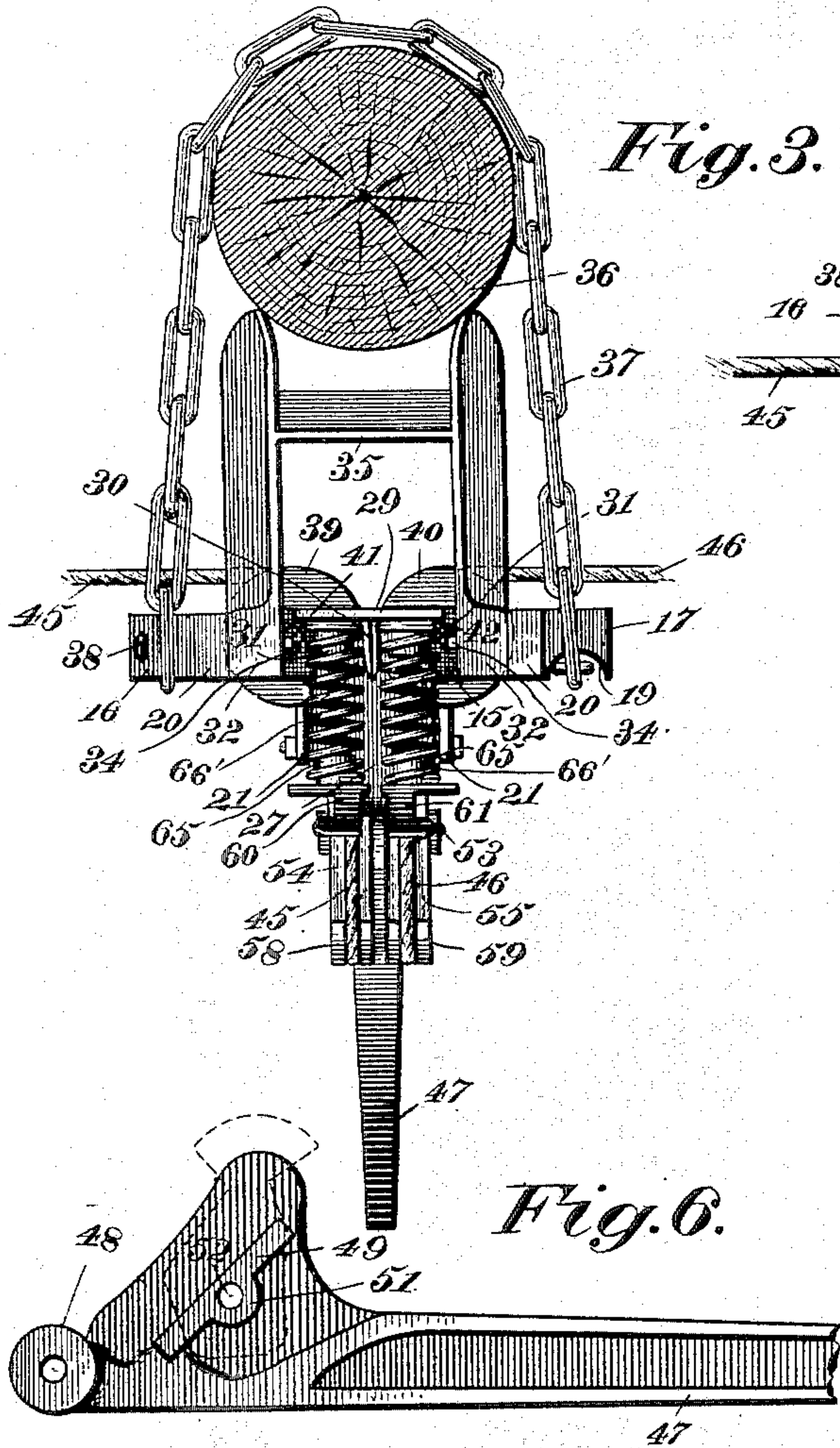
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

ZENAS ALBERT CURTIS, OF HANSFORD, TEXAS.

WIRE-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 640,539, dated January 2, 1900.

Application filed June 21, 1899. Serial No. 721,360. (No model.)

To all whom it may concern:

Be it known that I, ZENAS ALBERT CURTIS, a citizen of the United States, residing at Hansford, in the county of Hansford and State of Texas, have invented certain new and useful Improvements in Wire-Stretchers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices for stretching wires and especially fence-wires, the object of the invention being to provide a simple, cheap, and durable stretcher composed of a minimum number of parts, exceedingly quick and efficient in operation, and adapted to stretch wires in building fences, take up and tighten loose wires, splice broken wires, and hold wires taut while stapling to posts.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a stretcher constructed in accordance with my invention applied to a fence in position for practical work. Fig. 2 is a view in side elevation of a fence-post with my stretcher in position thereon. Fig. 3 is a top plan view of the same. Fig. 4 is a view of the stretcher in front elevation, the post being shown in dotted lines. Fig. 5 is a perspective view of the frame. Fig. 6 is a view in side elevation of the stretching-lever detached, the outer end being broken away and a clamp shown in dotted lines. Fig. 7 is an inside elevation of the left-hand clamp of the stretching-lever detached. Fig. 8 is a similar view of the right-hand clamp of the stretching-lever detached. Fig. 9 is a detail perspective view of one of the wire-clamps. Fig. 10 is a sectional view thereof on the plane indicated by the broken line 10 10 of Fig. 9.

Like numerals of reference indicate the same parts in all the figures of the drawings.

The main frame is shown detached in Fig. 5, and consists of a single casting comprising a pair of longitudinal upright bars 6 6, connected at their lower ends by a cross-bar 7, projecting at each of its ends 8 8 beyond the

uprights and at right angles thereto, forwardly-projecting lugs 9 being formed on the uprights at this end, the uprights and lugs having transverse bolt-holes 10 and 11. The opposite or upper ends of the upright bars are connected by a similar cross-bar 12, projecting beyond the sides of the uprights at 13, provided with angular extension ends 14, connecting it with another cross-bar 15, projecting laterally at 16 17 beyond the extension ends 14, the projection 16 having a hole 18 and the projection 17 a curved depression 19 in its front face. A heavier pair of extensions 20 project from cross-bar 15 in line with extension ends 14, but on the upper side of the cross-bar. The upper ends of the upright bars 6 are also provided with forward-projecting lugs 21, having bolt-holes 22, the cross-bar 12 having bolt-holes 23, the cross-bar 15 having bolt-holes 24 in line with 23, and the extensions 20 having bolt-holes 25 and 26. Formed on cross-bar 15 is an angular structure comprising three parallel forwardly-projecting arms 27, with bolt-holes 28 in line through their outer ends, and an upwardly-extending plate 29, braced by a rib 30 and provided with two forwardly-projecting studs 31.

32 33 indicate leg-frames, comprising two legs each, having rectangular upper ends, the legs 32 being connected to extensions 20 by bolts or rivets 34, passing through bolt-holes 25 and 26, and the legs 33 resting on ends 8 of cross-bar 7 and bolted through aperture 10, the two legs of each frame being connected by a cross-bar 35. These legs project rearwardly and rest, when the stretcher is in operation, upon the fence-post, as at 36, the whole structure being held on the post by a chain 37, one end of which is slipped over the projection 16 and prevented from falling off by a pin 38 in hole 18 and the other end engaged in the curved depression 19 in projection 17, the chain passing around the post.

39 and 40 indicate two grooved pulleys located in the same horizontal plane in the space between cross-bars 12 and 15 and journaled on screws 41 42, passing through holes 23 and 24.

43 and 44 indicate parallel grooved pulleys mounted in vertical planes side by side between lugs 21 upon a bolt passing through bolt-holes 22, the pulley 43 being in position

to receive in its groove a rope 45, passing around or partially around pulley 39 and the pulley 44 to receive rope 46 from pulley 40.

47 indicates a lever-handle pivotally secured between lugs 9 on a bolt passing through hole 10. This lever is constructed as shown in detail in Fig. 6, having a central flange 48 in a vertical plane at its pivotal end, from which project laterally on opposite sides ledges or flanges 49 and 50, lying at an angle of about forty-five degrees from the line of the lever and thickened at their centers, as at 51, to permit of an extended bolt-hole 52. A bolt 53 is passed through this hole, projecting beyond the ledge 49 and 50 and carrying at its outer ends loosely-pivoted clamp-levers 54 and 55, which are provided on their inner sides with ledges or flanges 56 57, which are adapted to normally lie parallel with and at a distance from the ledges 49 and 50 sufficient to permit the ropes 45 and 46 to pass freely between them. These levers 54 and 55 are provided with extensions 58 and 59, having curved grooved ends around or over which ropes 45 and 46 must pass to reach the space between the ledges, and the levers are free to move on their pivotal bolt 53 to cause the ends of the ledges of the handle-lever and those of the clamp-levers to approach each other and squeeze the ropes.

60 and 61 indicate cam-levers pivotally mounted between the parallel arms 27 on a bolt 62, passing through holes 28. The heads 63 64 of these levers are toothed, as indicated in dotted lines in Fig. 2, and the outer ends are flattened and provided with studs 65. Springs 66', engaging studs 31 and 65, press the levers 60 and 61 outward and their toothed heads 63 and 64 inward, causing them to bite the ropes in the grooves of pulleys 43 and 44, preventing the ropes from being drawn backward by the tension of the wire.

At the end of each rope 45 and 46 is a wire-clamp, as at 66 and 67, Fig. 1, which clamps are duplicates of each other, each constructed as shown in detail in Figs. 9 and 10 and consisting of a main casting comprising a plate 68, having a hole 68^a in which to secure the end of the rope, a ledge 69, a toothed eccentric clamp-lever 70 to clamp the wire against the ledge, a parallel lug 71, connected to the opposite side of the plate by a projection 72, and a roller 73, pivoted in the space between the plate 68 and lug 71 on a rivet or pin 74.

In the operation of the device the legs are placed against a post, either in a line of fence or at a corner, and two ropes 45 and 46 passed through from the handle to and around the handle clamp-levers, vertical pulleys, and horizontal pulleys, and extended in opposite directions with a wire-clamp at the end of each. The wire on each side of the post, whether it be the same or different wires, as at 75 and 76, is seized by the wire-clamps and the handle-lever pressed down. In passing over the curved ends of the handle clamp-levers the resistance of the rope will tilt these

clamp-levers and cause their ledges to bite into the ropes. This will cause the ropes to be drawn around the pulleys, bringing the wire-clamps toward the post from each side, thus stretching the wires 75 and 76. The handle is again raised, the clamp-levers 60 and 61, under pressure of springs 66, biting the ropes in the grooves of pulleys 43 and 44 and preventing them from backward movement, the ropes drawn through between the handle and its clamp-levers, and the handle again pressed downward, again drawing the ropes and further stretching the wires.

The wires when stretched are secured to the post and the operation repeated on other wires or at other posts.

To take up the slack of a wire, the clamps are secured to it on opposite sides of the post and engaged under the projection 72 and against roller 73. The actuation of the stretching-lever will then loop the slack of the wire up to the post, to which it may be secured by staples or otherwise.

From the foregoing it will be seen that the various parts of the machine are all strongly and simply made and that by the operation of a single lever wires from both directions are stretched simultaneously and all slack is held from slipping back until the wires are fastened.

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

1. In a wire-stretcher, the main vertical frame consisting of a single casting, in combination with two pairs of horizontal legs secured thereto and adapted to rest against the post the two legs of each pair being parallel and in the same horizontal plane, a chain secured at opposite sides of the main frame and passing around the post, wire-clamps, ropes passing from the clamps horizontally through the main frame, and a stretching handle-lever pivoted to the main frame in the vertical plane of the post, substantially as described.

2. In a wire-stretcher, the main frame consisting of a single casting comprising a pair of uprights connected by a cross-bar at each end, a pair of forwardly-projecting lugs at each end, a third cross-bar fixed above the upper connecting cross-bar, and three bearing-lugs forwardly projecting therefrom, in combination with a pair of horizontal grooved pulleys in the space between the cross-bars, a pair of parallel vertical pulleys journaled between the upper lugs of the uprights, a handle-lever journaled between the lower lugs, and a pair of eccentric-headed toothed levers journaled in the three bearing-lugs in position to bite on ropes passing over the vertical pulleys, substantially as described.

3. In a wire-stretcher, a main frame consisting of a single casting comprising a pair of forwardly-projecting lugs, three bearing-lugs above them, and an upwardly-extending plate at right angles to the bearing-lugs and provided with two studs on its face, in com-

combination with two parallel vertical grooved pulleys journaled in the pair of lugs to receive stretching-ropes, a pair of levers journaled between the three bearing-lugs having eccentric toothed heads to bite the ropes, and backwardly-projecting studs on their opposite ends, and springs engaged on these studs at one end and the studs on the frame at the other end and serving to hold the toothed heads normally in contact with the ropes.

4. In a wire-stretcher a main frame consisting of a single casting comprising two uprights, a cross-bar connecting their lower ends, lugs projecting forwardly at their lower ends, similar lugs at their upper ends, a cross-bar connecting their upper ends, upwardly-turned ends thereon, a second cross-bar on said ends, extensions above the last-named cross-bar, and an angular structure formed on said cross-bar consisting of three forwardly-projecting parallel bearing-lugs, and a plate at right angles thereto formed with forwardly-projecting studs, substantially as described.

5. In a wire-stretcher a main frame consisting of a single casting comprising two uprights, a cross-bar connecting their lower ends, lugs projecting forwardly at their lower ends, similar lugs at their upper ends, a cross-bar connecting their upper ends, upwardly-turned ends thereon, a second cross-bar on said ends, extensions above the last-named cross-bar, and an angular structure formed on said cross-bar consisting of three forwardly-projecting parallel bearing-lugs, and

a plate at right angles thereto formed with forwardly-projecting studs in combination with the two horizontal grooved pulleys, the two vertical grooved pulleys, the spring-impelled eccentric-headed levers, and the stretching handle-lever, substantially as described.

6. In a wire-stretcher, the combination of the main frame and the pulleys over which the stretching-ropes pass, with a stretching-lever pivoted to the frame and provided with a central vertical flange having straight-faced inclined ledges on each face thereof, and clamp-levers centrally pivoted to the stretching-lever provided with corresponding straight-faced ledges facing those of the stretching-lever and having extended grooved ends over which the ropes pass in their path to the space between the ledges, substantially as described.

7. The herein-described clamping-lever adapted to be pivoted to the stretching-lever, comprising a main plate with a hole to receive the pivotal bolt, a ledge projecting from one side, and an extension at one end of the ledge provided with a curved end having a groove to receive and guide the rope on its way to the stretching-lever, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ZENAS ALBERT CURTIS.

Witnesses:

S. B. COX,

B. F. MOORE.