

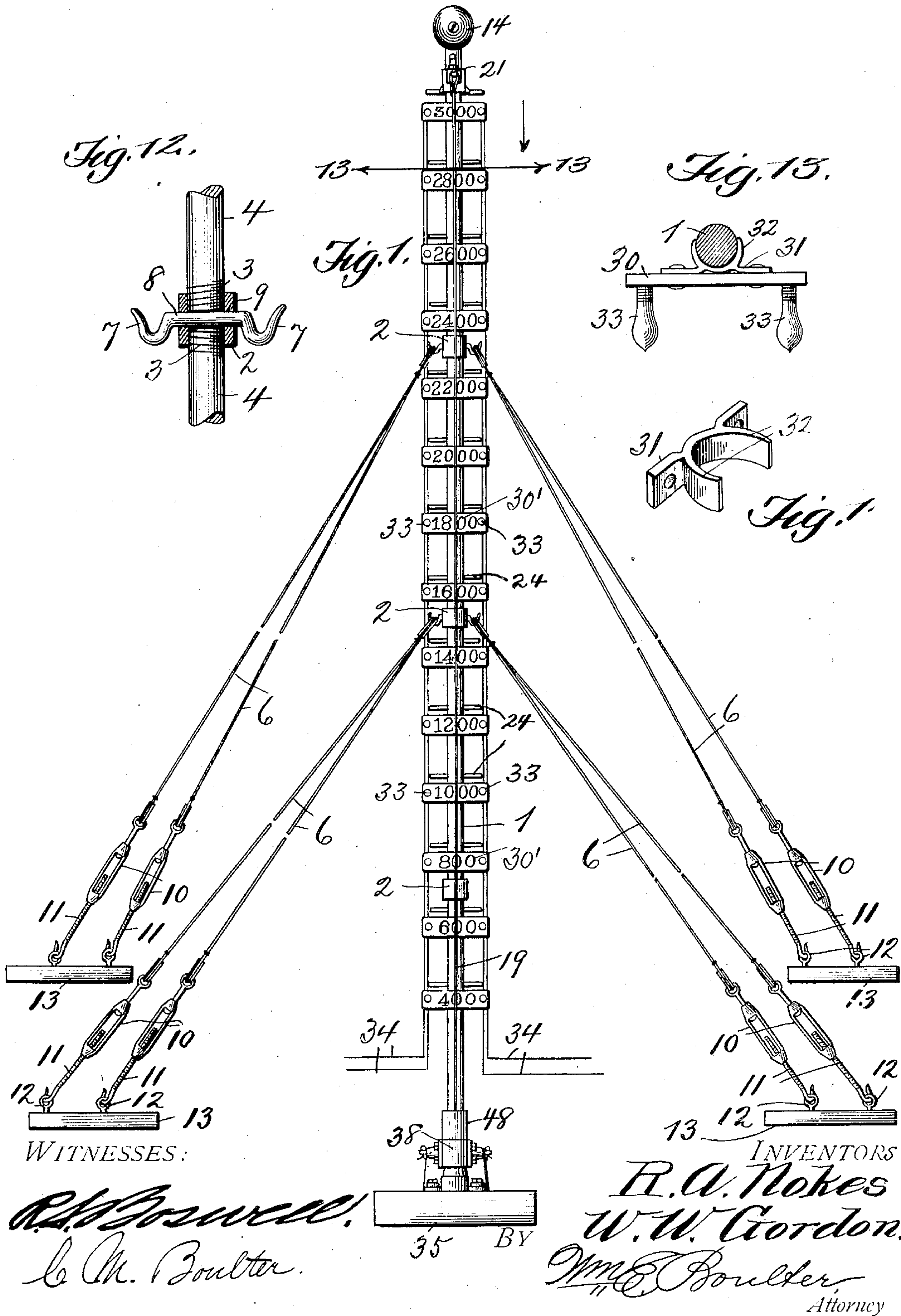
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PATENTED SEPT. 8, 1908.

R. A. NOKES & W. W. GORDON.  
STRIKING MACHINE.

APPLICATION FILED JULY 20, 1907.

4 SHEETS—SHEET 1.



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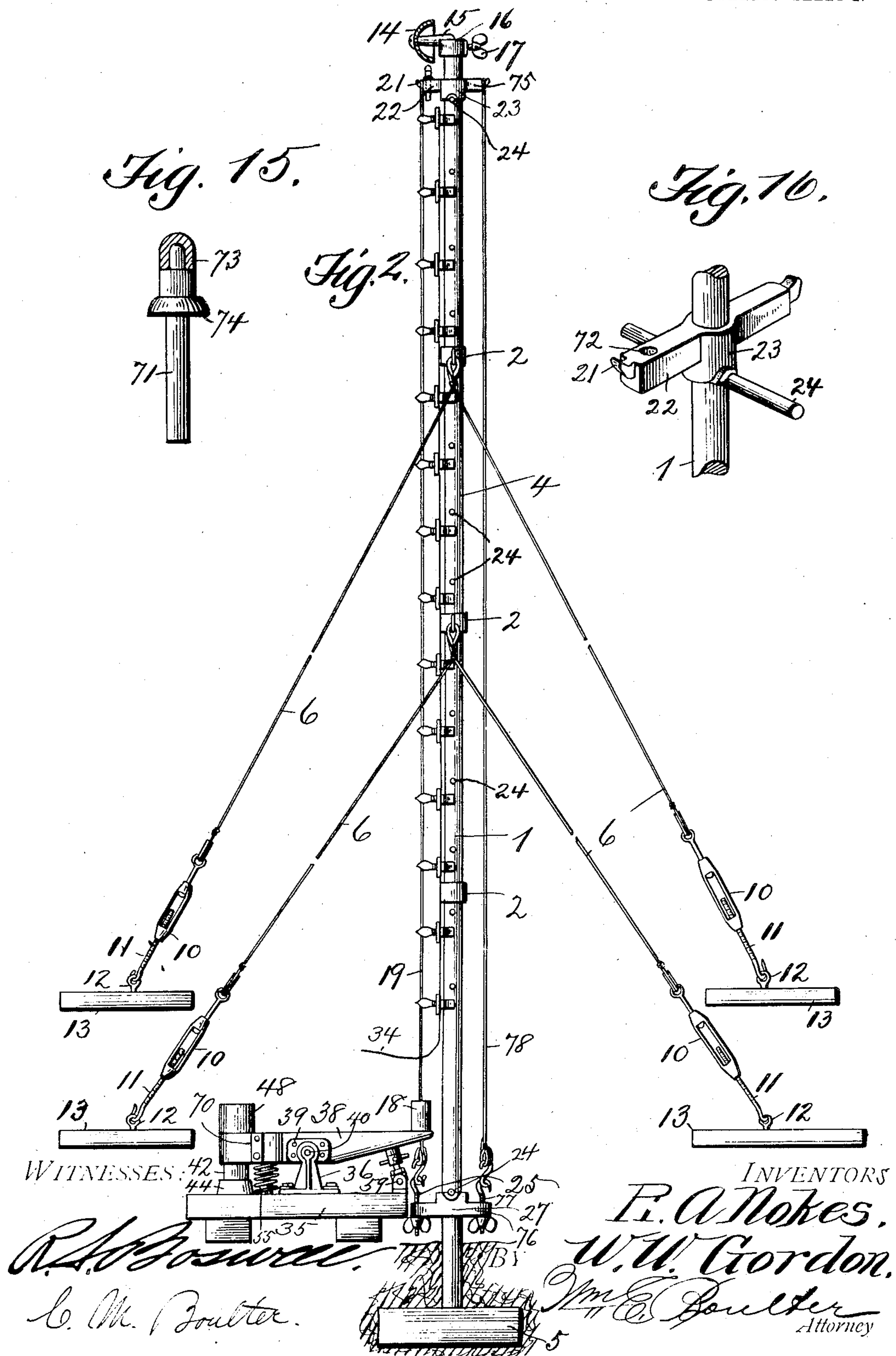
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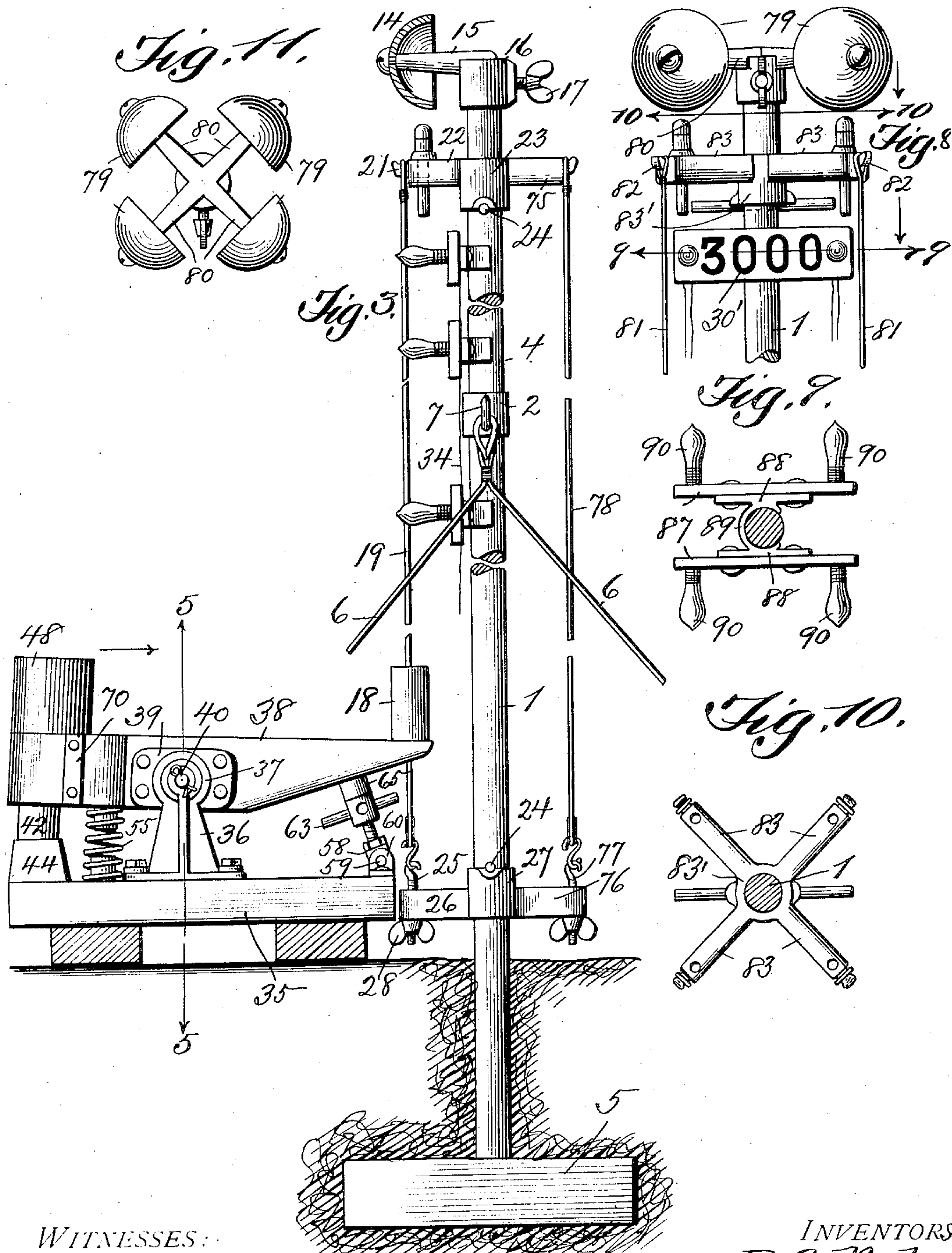
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4 SHEETS—SHEET 3.



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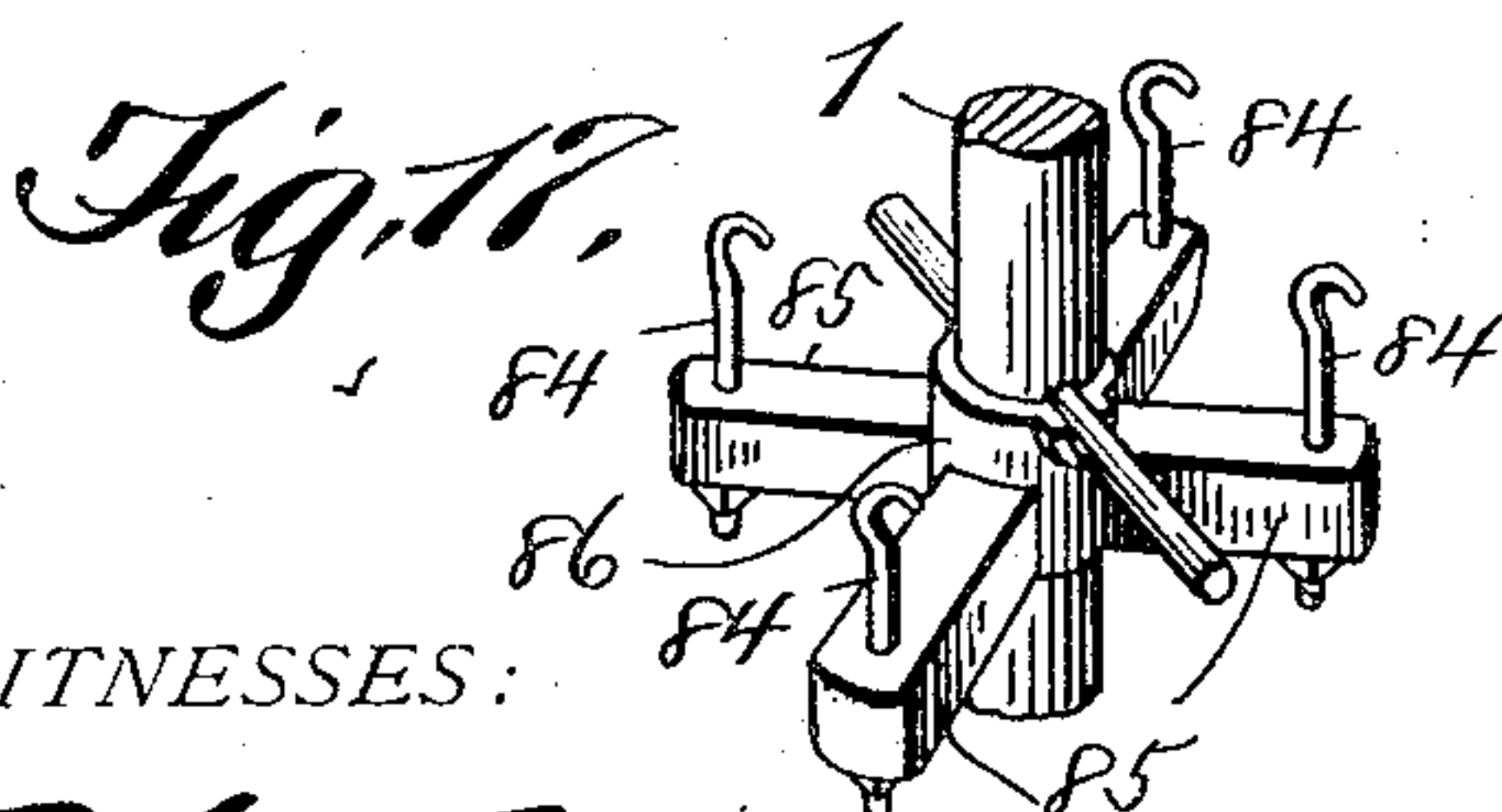
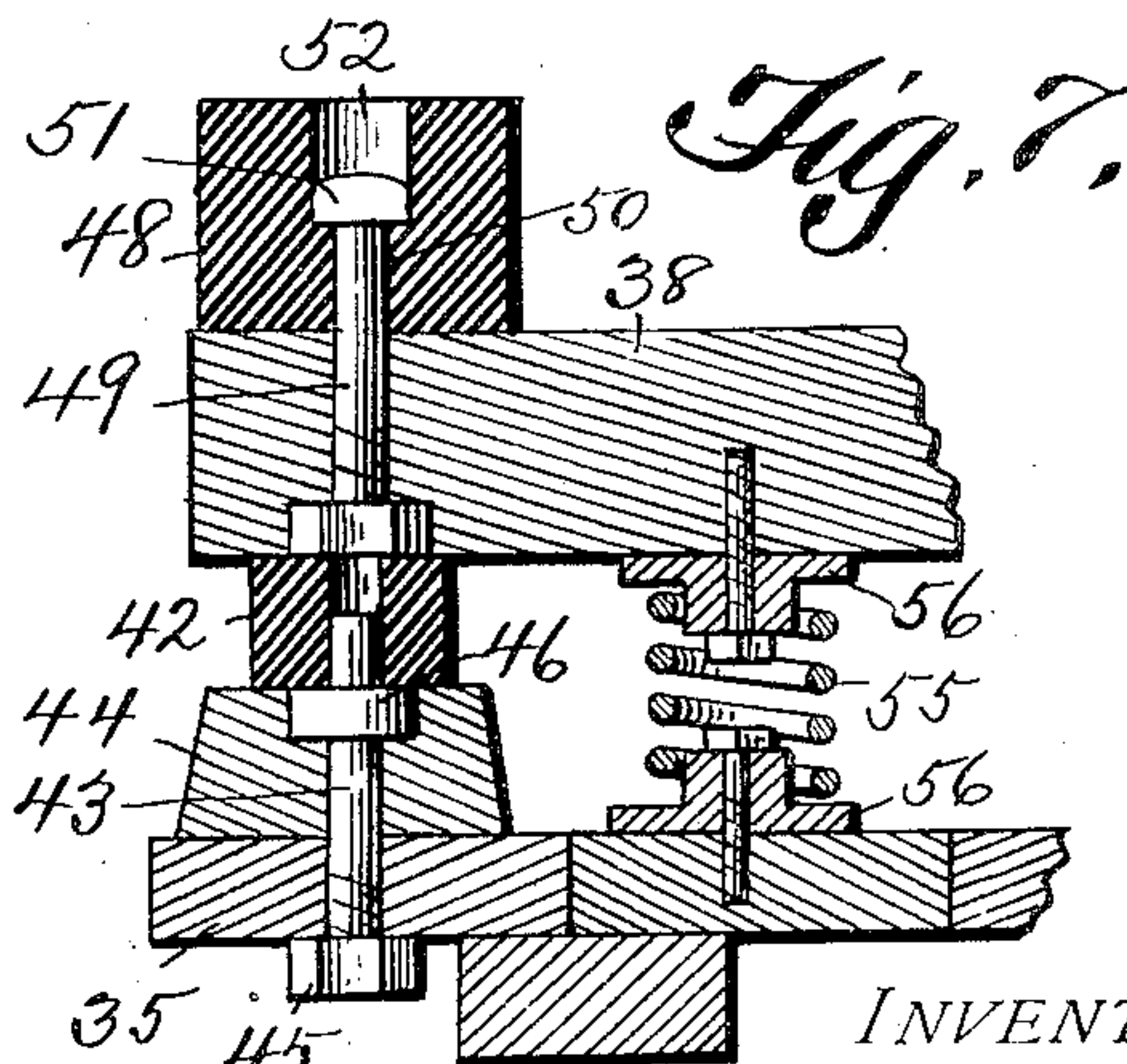
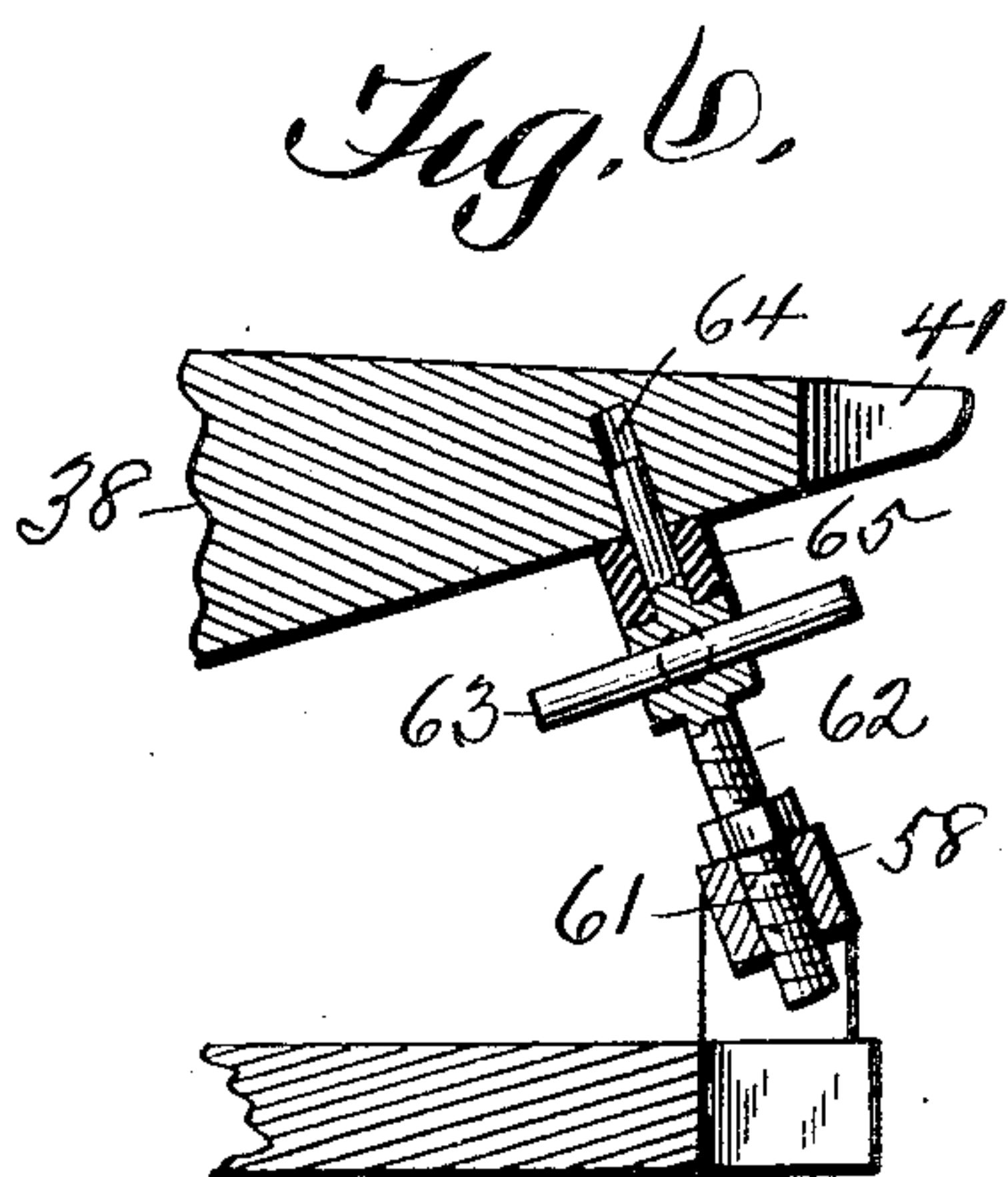
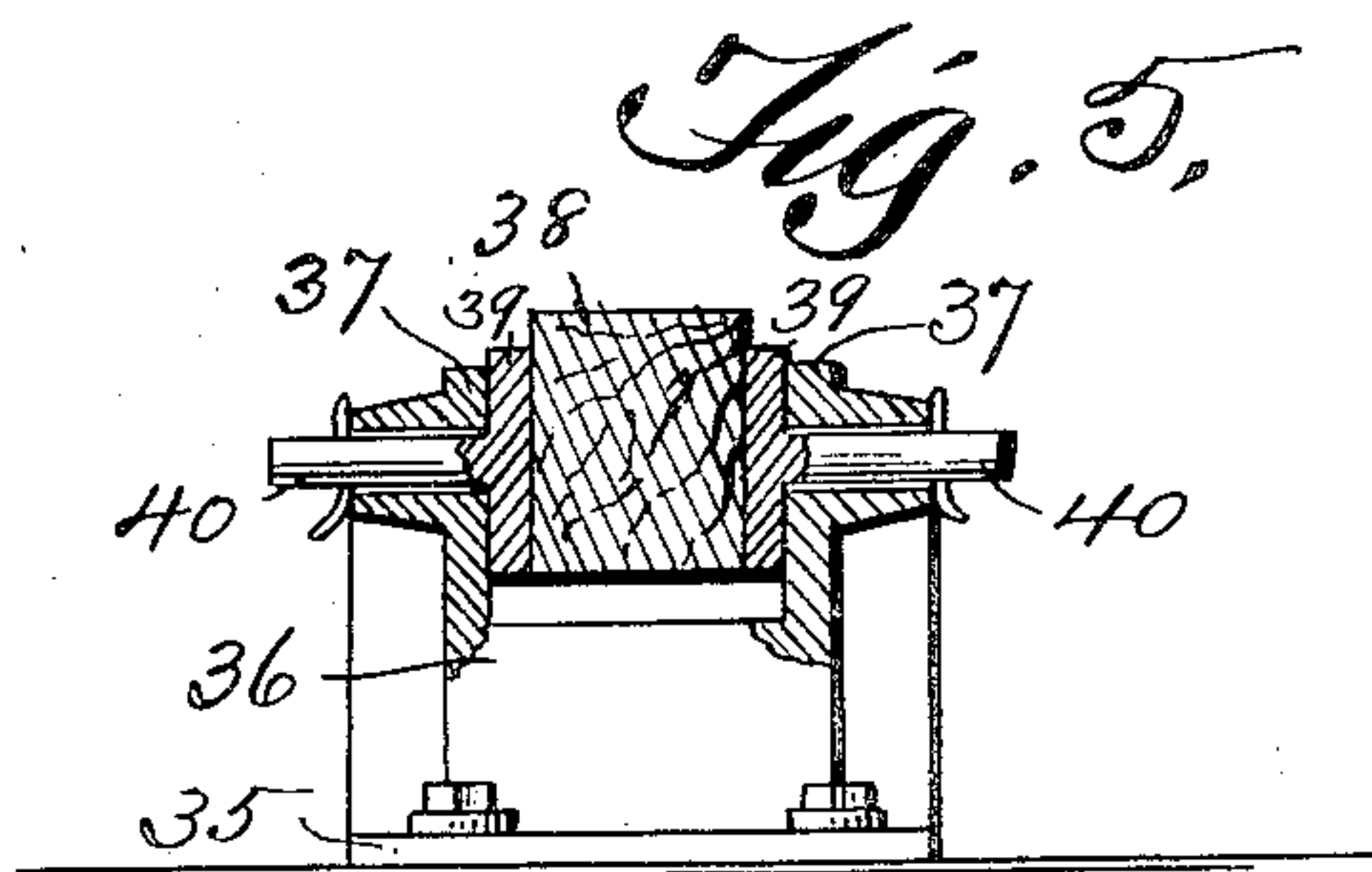
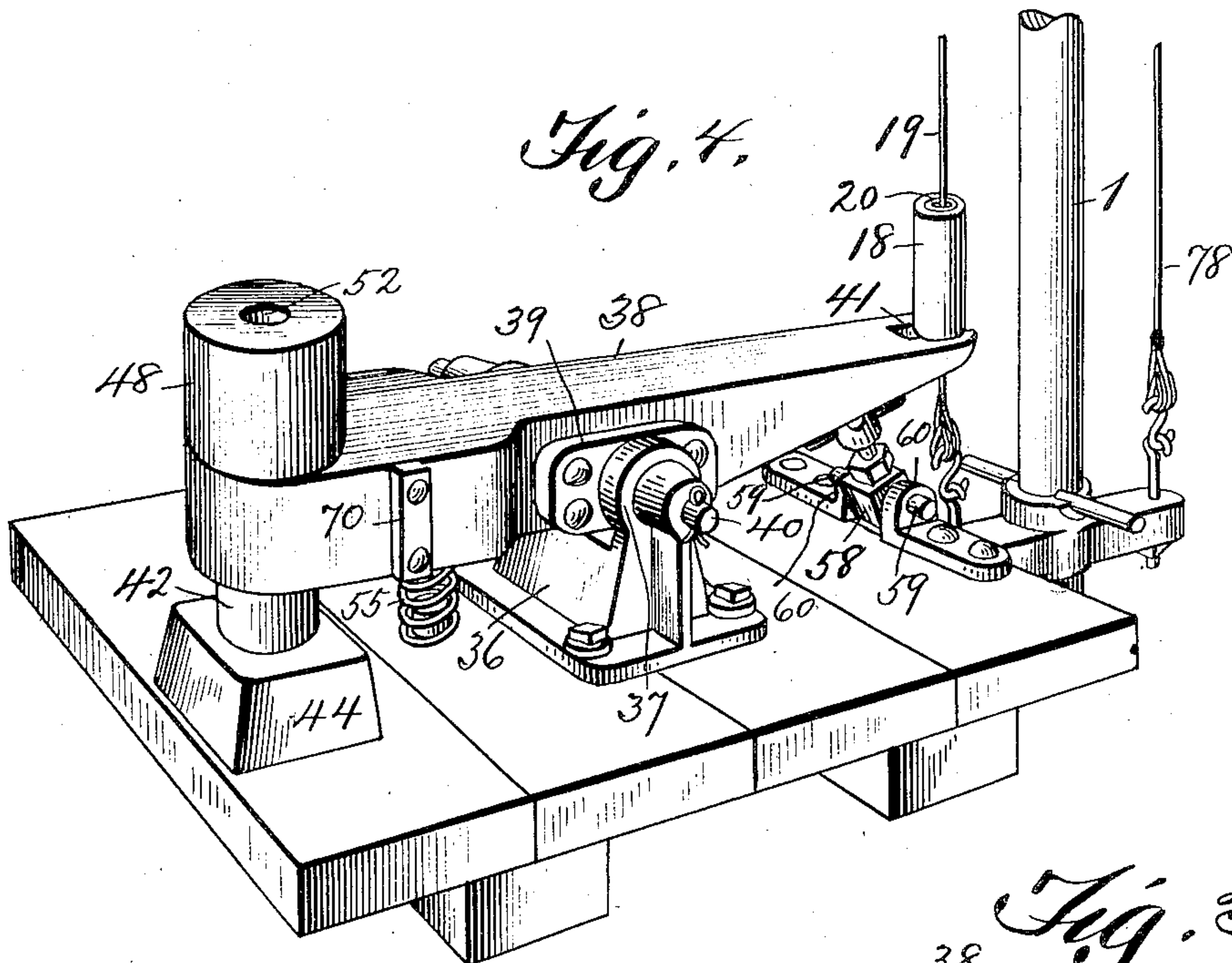
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# UNITED STATES PATENT OFFICE.

ROYCE A. NOKES AND WILLIAM W. GORDON, OF WASHINGTON, DISTRICT OF COLUMBIA.

## STRIKING-MACHINE.

No. 898,129.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed July 20, 1907. Serial No. 384,771.

*To all whom it may concern:*

Be it known that we, ROYCE A. NOKES and WILLIAM W. GORDON, citizens of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Striking-Machines, of which the following is a specification.

This invention relates to striking machines and particularly that class thereof wherein a person strikes upon a pivoted lever with a hammer or maul, which lever causes a block to ascend along a suitable support provided therefor, and over and opposite indicating numerals located at different heights whereby to indicate to the person the force of the blow struck by the hammer or maul.

Among the objects in view is to provide a machine of the character described which will be simple in construction, inexpensive, and efficient in operation.

Other objects and advantages will appear from the following description when taken in connection with the accompanying drawings.

The invention consists in the novel construction, arrangement and combination of parts as hereinafter fully described, illustrated in the drawings, and pointed out in the appended claims.

In the drawings:—Figure 1 is a front elevation of the improved striking machine. Fig. 2 is a side elevation of the machine. Fig. 3 is a side elevation, partly in section, of the machine upon an enlarged scale. Fig. 4 is a detail perspective view of the pivoted lever and contiguous parts. Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 3. Fig. 6 is a sectional view of a portion of the pivoted lever and its supporting base, and the means for adjusting the tension upon the lever. Fig. 7 is a vertical sectional view of the striking end of the pivoted lever and supporting base and other contiguous parts. Fig. 8 is a front elevation of the upper portion of Fig. 3, showing a slight modification. Fig. 9 is a horizontal sectional view on line 9—9 of Fig. 8. Fig. 10 is a horizontal sectional view on line 10—10 of Fig. 8. Fig. 11 is a plan view of Fig. 8. Fig. 12 is a detail view, partly in section and partly in elevation, showing how two sections of the standard are connected together and also showing the hooked rod for the guy wires or rods.

Fig. 13 is a horizontal sectional view on the line 13—13 of Fig. 1. Fig. 14 is a detail perspective view of a portion of one of the indicators. Fig. 15 is an elevation, partly in section, of the pin for striking the gong at the upper end of the standard. Fig. 16 is a detail perspective view of a portion of the standard, a rod forming a ladder rung, and the arms to which the upper ends of the wires for the traveling blocks are secured. Fig. 17 is a detail perspective view of a portion of the standard and the arms at the lower end thereof to which the lower ends of the wires for the traveling blocks are secured.

The invention embodies a standard which may be made either of wood or metal, preferably the latter, and we construct this standard of a series of sections adapted to be detachably secured together by any suitable means, as for instance by sleeves or collars 2, which are interiorly threaded to receive the threaded portions 3 of the sections 4 of the standard.

By the described construction we are enabled to readily connect and disconnect the sections and may vary the height of the standard by simply adding one or more sections or removing same as will be readily understood. The standard is adapted to be firmly secured in upright position and any desired means may be used for this purpose. We show the lower section of the standard as being mounted in a block 5 which may be of cement, stone, metal, or wood, which block is to be embedded in the ground.

In order to firmly brace the standard we employ a series of guy rods 6 adapted to be connected at one end with the standard and at the opposite end to a suitable fixed support. We show the upper ends of the guy rods as engaging with hooks 7 formed on rods 8 which are passed through openings 9 in the collars 2 while the lower ends of the guy rods are connected with turn buckles 10 into which screw threaded rods 11 which hook into eyes 12 carried by suitable blocks 13 which are to be fixedly secured in position in any suitable manner.

By the described means the guy rods may quickly be tightened in order to firmly brace the standard in position. We preferably secure the upper ends of the guy rods to the collars 2 at different heights which thus pro-



vides for still more firmly securing the standard in position. In connecting the rods 8 with the collars 2, said rods, before having their ends bent, are passed through openings 5 9 in the collars, after which the ends of the rods are bent to form hooks 7.

We preferably provide the device with a suitable gong arranged at some point in the height of the standard, preferably at the upper end thereof, which is adapted to be struck directly by a block (or some movable part operated by the block) under the impulse imparted to said block, by one end of a pivoted lever, the opposite end of which is 15 struck by a hammer or maul, and we preferably employ a gong 14 which is suitably secured to an arm 15 carried by a sleeve 16 which is mounted upon the uppermost section of the standard and detachably secured 20 thereto by means of a set screw 17.

18 indicates the block which is adapted to be driven upward by a person striking upon a suitably arranged lever, and this block is slidingly mounted upon a wire 19 arranged 25 in proximity to the standard and extending upwardly and firmly secured in position by any suitable means. We construct the block of rubber and provide it with a central metallic sleeve 20 to prevent the block 30 from coming in direct contact with the wire 19, which would cause excessive wear of the block when traveling up and down the wire. We preferably secure the wire 19, attaching its upper end to a hook or stud 21 carried by 35 an arm 22 which is carried by a sleeve 23 mounted on the uppermost section of the standard, a rod 24 constituting a ladder rung and inserted through the section of the standard holding the sleeve in its proper elevated 40 position thereon. We provide each of the sections of the standard with one or more of the rods 24 for a purpose presently explained. The lower end of the wire 19 has a hooked engagement with a threaded rod or bolt 25 45 which passes through an arm 26 carried by a sleeve 27 which is mounted on the lowermost section of the standard, and the lower end of the rod 25 being provided with an adjusting nut 28. Thus by adjusting the nut 50 28, the desired degree of tension may be put upon the wire 19 to hold it taut.

A rod or ladder rung 24 passed through the lowermost section of the standard holds the sleeve 27 in proper position. In order 55 that the person may know the different degrees of force struck by the hammer or maul, we provide the apparatus with suitable indicating numbers arranged at different heights along the standard and these numbers may 60 be calculated to indicate the exact degree of force or approximately. For the stated purpose, we preferably employ indicators each comprising a plate 30 which are of metal, preferably tin, to which is secured plates 31 65 provided with curved arms 32 adapted to

partially embrace the sections of the standard. These arms form a socket slightly more than a semi-circle in form and having sufficient "spring" to enable these arms to be sprung around the sections of the standard, the frictional engagement between the arms and the sections being sufficient to hold the indicators in whatever positions they have been placed on the standard.

The outer face of the plates 30 is provided 75 with indicating numerals, 30', which are painted or otherwise applied to the indicators. We preferably attach incandescent electric light bulbs 33 to the indicators, one at each end thereof, to which electric current 80 is conducted by wires 34 from any suitable source, thus providing sufficient illumination at night to enable the person to see the indicating numerals.

While any suitable construction of pivoted 85 lever may be employed, to be struck by the hammer or maul and to thereby drive the block 18 upwardly upon its supporting wire, we prefer to employ the construction of lever now to be described. 90

Upon a suitable supporting base 35 we mount a metallic bracket 36 between the arms 37 of which we arrange a lever 38, preferably constructed of wood, said lever having bolted thereto upon opposite sides 95 metallic plates 39 provided with pivots or trunnions 40 which are pivotally supported in the arms 37. One end of the lever is slotted as at 41 through which passes the wire 19 and upon the upper face of the slotted end of the lever, the block 18 is adapted to rest. The opposite end of the lever 38 is adapted to rest upon a rubber block 42 which is mounted upon the upper end of a rod 43 passing upwardly through the base 35 105 and also through a wooden block 44 carried by said base, said block being held in position on the base by means of the rod 43 which carries at one end a nut 45 screwing upon the threaded end of the rod, and said 110 rod being also provided with a collar 46 inserted in a recess in the block 44. We have found that in some striking machines as heretofore constructed, it has been customary for the person to strike with the hammer 115 or maul directly upon the pivoted lever but this results in frequent breakage of the lever as well as the hammer and to avoid this we provide a rubber block 48 which is carried by the pivoted lever and which block 48 is 120 adapted to directly receive the blows of the hammer. We preferably attach the block 48 to the lever by means of a bolt 49 which passes through the lever and a perforation 50 in the block 48 and has a head 51 which 125 lies within a recess 52 in the block 48.

When the block 48 is struck by a hammer or maul the end of the lever 38 carrying said block will be depressed while the opposite end upon which rests the block 18 will be 130



raised, thus causing the block 18 to be forcibly driven upwardly along the guide wire 19 and the highest point reached by the block 18 will be indicated by the numerals on the indicator opposite such highest point, and the block 18 will then descend and again rest upon the slotted end of the lever 38. For causing the lever 38 to resume its normal position we employ a coil spring 55 arranged between the base 35 and the outer end of the lever 38, said spring being confined in position by blocks 56 screwed to the base and lever.

In order to vary the degree of compressibility of the block 42 so as to thereby vary the degree of impulse given by the inner end of the lever 38 which would therefore affect the height to which the block 18 would be driven, we employ suitable adjusting means for the lever 38 to cause the outer end of the lever to bear more or less forcibly upon the block 42, the preferred construction comprising a block 58 provided with pins or journals 59 which are pivoted in ears 60 secured to the upper face of the base 35, said block having a threaded aperture 61 in which screws a threaded rod 62 provided with a rod 63 for enabling the rod to be readily turned by hand, the upper unthreaded portion of the rod fitting loosely within an aperture 64 in the lever 38.

A rubber block 65 is mounted on the unthreaded portion of the rod below the lever 38 to form a cushion for said lever when resuming its normal position after having been struck by a hammer. It will be understood that by turning the rod 62 in the proper direction the outer end of the lever 38 will be made to bear more forcibly upon the block 42 thereby varying the compressibility of the latter under the shocks imparted thereto by the lever 38 and thus varying the degree of the movement of the inner end of the lever. By reason of providing a pivotal connection for the adjusting rod 62, the same can swing to permit of the proper movement of the lever 38. In order to strengthen the outer end of the lever 38 to prevent splitting or breakage thereof, we provide cleats or braces 70 which are bolted to the lateral faces of the lever 38.

In order that the gong 14 may be sounded when the block 18 is driven to its highest point, we provide a plunger 71 slidingly mounted in an opening 72 provided in the arm 22 at the upper end of the standard, this plunger being provided with a metal sleeve 73. The lower end of the plunger projects slightly below the arm 22 in position to be struck by the block 18, and when struck, the sleeve 73 will strike against the gong. The plunger 71 is preferably constructed of wood, though it might be made of metal if desired, and has a shoulder 74 adapted to normally rest upon the upper face of the arm 22.

While we have described and shown the apparatus as being adapted to be operated by one person at a time, yet said apparatus may be operated by two, three or four persons or even a greater number simultaneously, by providing a correspondingly increased number of the striking levers and appurtenances and also by correspondingly increasing the number of blocks 18 operated by said levers, and the gongs 14. For instance, if we desire to adapt the apparatus to be operated by say two persons simultaneously, we would provide an additional guide wire 78 and a block 18 adapted to travel thereon and arrange a second striking lever 38 arranged similarly to the one first described and adapted to operate the additional block 18 and would provide the additional arms 75 and 76 similar to the arms 22 and 26, and also provide the additional adjusting bolt 77 for putting the wire 78 under the proper tension. We also would provide the sleeve 16 with an additional arm to support an additional gong. We would say that we would prefer to employ the wire 78 and its tightening means, as well as its additional arms 75 and 76, even when the apparatus is to be used by one person at a time, since by so doing, the tension upon the wire 78 would counterbalance that upon the wire 19 to thus hold the parts in proper position. Should it be desired to operate the apparatus by three or four persons simultaneously, we simply add the additional striking levers and the additional blocks operated thereby and the supporting wires for said blocks and also provide the required additional number of gongs.

In Figs. 8 and 11, we show four gongs 79 carried by arms 80 and provide a corresponding number of guide wires 81, the upper ends of which are engaged with lugs 82 carried by four arms 83, on a sleeve 83' while the lower ends of the said wires are adapted to be engaged with tightening means 84, (Fig. 17) carried by four arms 85 projecting from the sleeve 86 mounted on the standard. Where the apparatus is to be operated by two or more persons simultaneously, we arrange the indicators 87 in pairs so that one of said indicators will be upon one side of the standard, and the other indicator upon the opposite side of said standard and these indicators are connected by means of plates 88 secured thereto, said plates being connected by a socket portion 89 adapted to be sprung around the standard in the same manner as the socket seen in Figs. 13 and 14. Each of the indicators 87 carries two incandescent electric light bulbs 90 to provide sufficient light at night to illuminate the indicators.

The rods 24 hereinbefore described perform the function of ladder rungs, so that a person can readily mount the standard for the purpose of arranging the sections thereof in position or for any other desired purpose.



What we claim and desire to secure by Letters Patent is:—

1. In a machine of the character described, the combination with a standard, of a wire arranged adjacent said standard, means connecting the wire and standard, a block mounted and adapted to travel upon said wire, and a pivotally mounted lever having a slot at one end through which passes the said wire, and upon which slotted end the said block normally rests, said lever being adapted to bear directly upon said block to drive the same upwardly upon said wire when the opposite end of said lever is struck.

2. In a machine of the character described, the combination with a standard formed in sections adapted to be detachably secured together, and a rod carried by each of the sections, said rods constituting ladder rungs, of a wire arranged adjacent said standard, means connecting the wire and standard, and a block mounted and adapted to travel upon said wire.

3. In a machine of the character described, the combination with a standard formed in sections, the ends whereof are exteriorly threaded, interiorly threaded collars into which screw the adjacent ends of the sections, and a rung carried by each of the sections, of a wire arranged adjacent said standard, means connecting the wire and standard, a block mounted and adapted to travel upon the wire, and a pivotally-mounted lever upon one end of which the said block normally rests.

4. In a machine of the character described, the combination with a standard, rods carried by the standard at intervals and constituting ladder rungs an arm supported upon the standard adjacent to its upper end, and provided with a hook, a wire arranged adjacent to the standard and connected at its upper end to the hook, a tension device connected with the standard adjacent to the lower end to the latter and to which tension device the lower end of the wire is connected, and a block adapted to travel upon said wire, of a pivotally-mounted lever upon one end of which the said block normally rests and by which lever said block is driven upwardly when the opposite end of the lever is struck by a hammer or maul.

5. In a machine of the character described, the combination with a standard, a sleeve carried by the standard, arms carried by said sleeve and each provided with a hook, wires arranged adjacent the standard and having their upper ends connected to said arms, tension devices to which the lower ends of the wires are connected, and a block mounted and adapted to travel upon one of said wires, of a pivotally-mounted lever upon one end of which said block normally rests.

6. In a machine of the character described, the combination with a standard, an arm

carried thereby, a wire connected at one end to said arm, a block mounted and adapted to travel upon said wire, and a tension device comprising a threaded rod to which the lower end of the wire is connected, a sleeve on the standard, an arm carried by said sleeve and through which arm said rod passes, and an adjusting nut on said rod, all arranged as described for the purpose specified.

7. In a machine of the character described, the combination with a standard, of an arm carried thereby, a plunger mounted loosely in an opening in said arm, a wire arranged adjacent the standard and having one end attached to said arm, a block mounted and adapted to travel upon said wire, and a gong carried by the standard and adapted to be struck by the plunger.

8. In a machine of the character described, the combination with a standard, of an arm carried thereby, a plunger mounted loosely in an opening in said arm, a metal sleeve carried by said plunger, a wire arranged adjacent the standard and having one end attached to said arm, a block mounted and adapted to travel upon said wire, and a gong carried by the standard and adapted to be struck by the sleeve on the plunger.

9. In a machine of the character described, the combination with a standard formed in sections and interiorly-threaded collars into which the ends of the section are screwed, of a rod passing through a collar and having hooked ends, and guy rods engaging at their upper ends with said hooked ends, a wire arranged adjacent the standard, means connecting the wire and standard, and a block mounted and adapted to travel upon said wire.

10. In a machine of the character described, the combination with a standard formed in sections, the ends whereof are threaded, an interiorly threaded sleeve into which screw the adjacent ends of the sections, a rod passing through the sleeve, guy rods secured at their upper ends to said rod, a wire arranged adjacent the standard, means connecting the wire and standard, and a block mounted and adapted to travel upon said wire.

11. In a machine of the character described, the combination with a standard formed in sections, the ends whereof are threaded, of interiorly threaded sleeves into which screw the adjacent ends of the sections, rods passing through the sleeves, guy rods secured at their upper ends to said rods, a wire arranged adjacent the standard, means connecting the wire and standard, and a block mounted and adapted to travel upon said wire.

12. In a machine of the character described, the combination with a block and a support upon which said block is adapted to travel, of a pivoted lever having one end in



position to drive the block upwardly, a cushioning device arranged beneath the opposite end of the lever, and means for varying the pressure of the lever upon said cushioning device.

13. In a machine of the character described, the combination with a pivotally arranged lever, of a rubber block provided with a recess, and a bolt securing the block to the lever and having a head lying within the recess of the block.

14. In a machine of the character described, the combination with a supporting base, of a pivotally arranged lever, a rubber block arranged beneath said lever and having a perforation and a bolt carried by the base and projecting upwardly within said perforation.

15. In a machine of the character described, the combination with a pivotally arranged lever, of cushioning means arranged beneath one end of said lever, and means for varying the pressure of the lever upon said cushioning means comprising a threaded rod, a pivoted block into which said rod screws, one end of said rod projecting loosely into the lever, and a cushioning block arranged between said lever and the said threaded rod.

16. In a machine of the character described, the combination with a supporting base, and a bracket mounted thereon having arms, of a lever arranged between said arms, metallic plates secured to the lever upon opposite sides and having trunnions pivotally mounted in the arms of the bracket, a block adapted to be driven upwardly by one end

of said lever, and a support upon which said block is adapted to travel.

17. In a machine of the character described, the combination with a pivotally mounted lever, one end of which is provided with a slot, and a rubber block carried upon the upper face of the opposite end of the lever and adapted to directly receive the blows of a hammer or maul, of a wire passing through the slot in the lever, and a block mounted upon the wire and normally resting upon the slotted end of the lever.

18. In a machine of the character described, an indicator comprising a plate 30 and two plates 31 secured to the plate 30 and arranged in line with each other and having curved arms 32 forming a socket, the outer free ends of the arms being spaced apart to enable the arms to be sprung around a supporting standard.

19. In a machine of the character described the combination with a standard and rods carried by said standard at intervals and constituting ladder rungs, of a wire arranged adjacent said standard, means connecting the wire and standard, a block mounted and adapted to travel upon said wire and a lever adapted to drive said block upwardly upon the wire.

In testimony whereof we affix our signatures in presence of two witnesses.

ROYCE A. NOKES.

WILLIAM W. GORDON.

Witnesses:

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W. E. BOULTER.