No. 795,561. PATENTED JULY 25, 1905.

W. G. STONE.

GATE.

APPLICATION FILED NOV. 21, 1904.

2 SHEETS—SHEET 1.

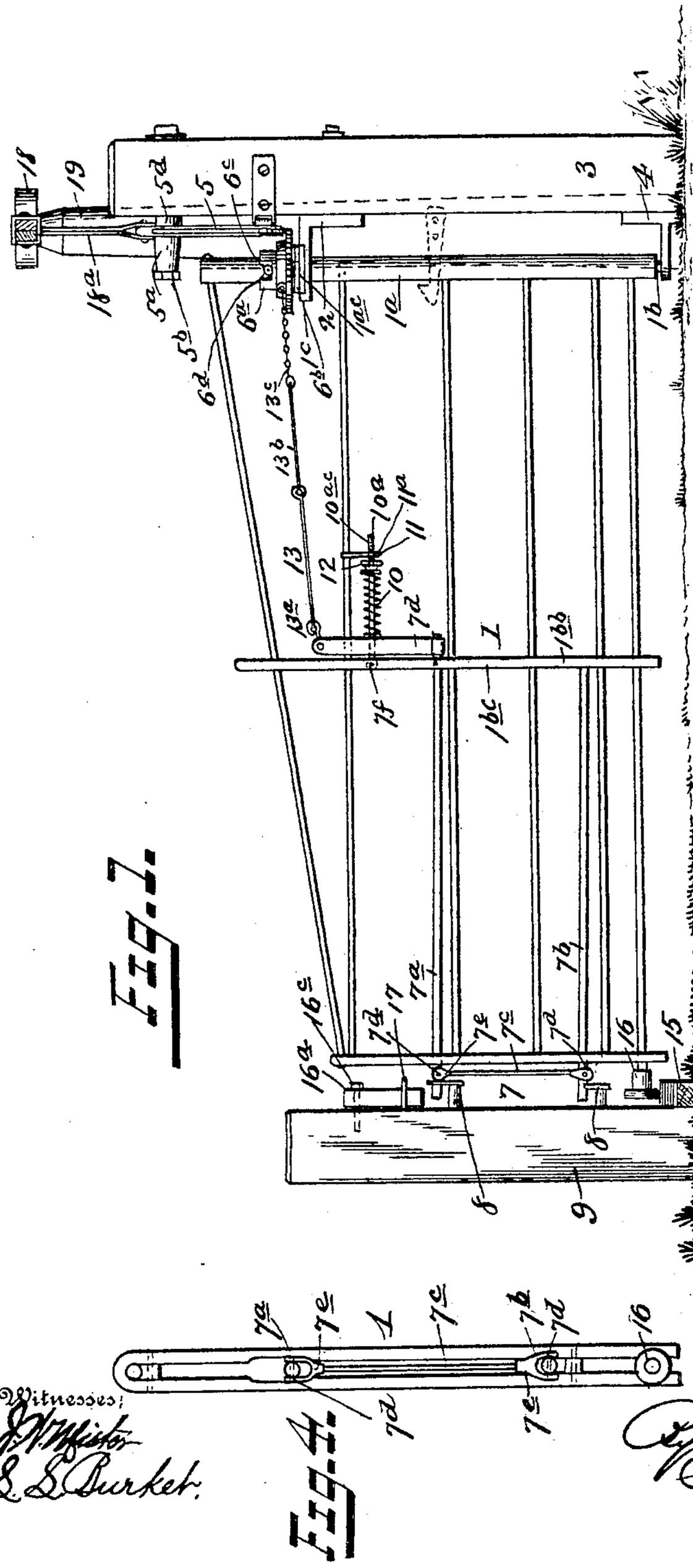

Fig. 1.

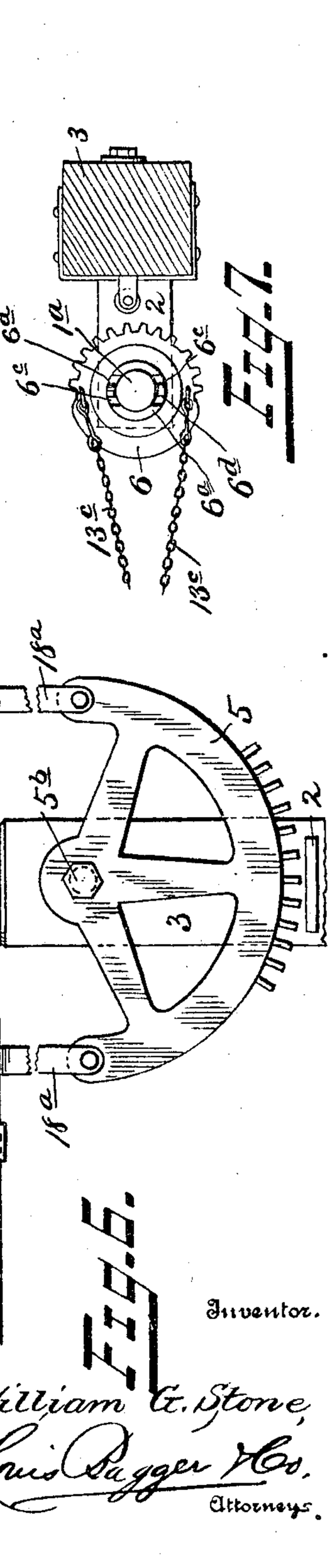

Fig. 2.

Fig. 3.

Fig. 4.

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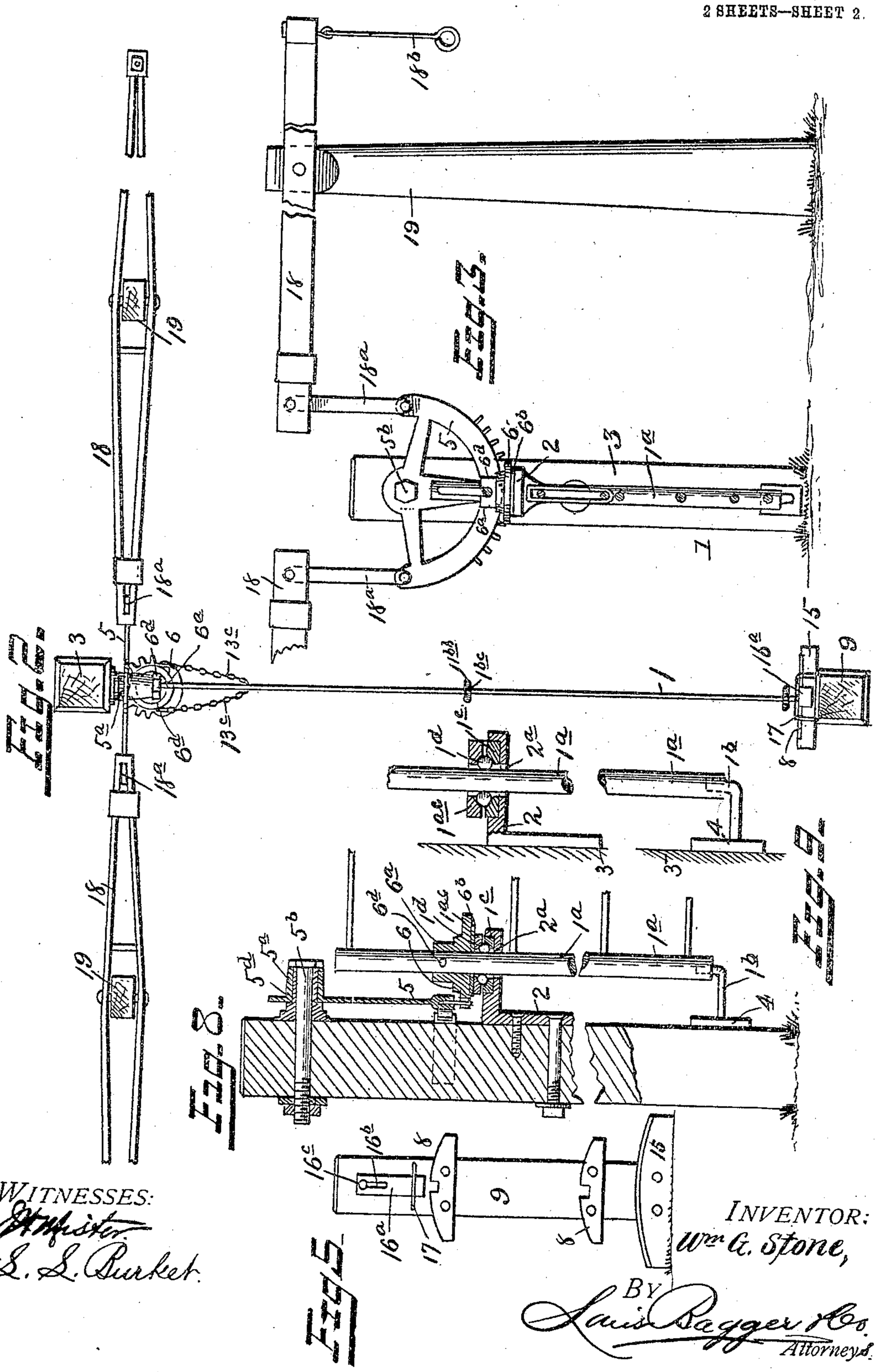

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UNITED STATES PATENT OFFICE.

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GATE.

No. 795,561. Specification of Letters Patent. Patented July 25, 1905.

Application filed November 21, 1904. Serial No. 233,575.

To all whom it may concern:

Be it known that I, WILLIAM GEORGE STONE, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Illinois, have invented new and useful Improvements in Gates, of which the following is a specification.

My invention relates to improvements in gates, more particularly for operating or opening and closing the same laterally of the gate-opening and distantly therefrom, as especially desirable from a vehicle or horseback.

Said invention has for its object to do this in an expeditious, simple, and effective manner, to provide for the simultaneous actuation of the latch with the operation of the gate, to effect the ready and positive movement of the gate and latch actuating parts or mechanism, and to render said mechanism quickly or readily responsive upon the application of the power or hand, as in actuating the gate.

The nature of the invention therefore consists of the combination of parts, also of certain structural details thereof, substantially as hereinafter more fully disclosed, and particularly pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a view in side elevation thereof. Fig. 2 is a plan view. Fig. 3 is a vertical or transverse section of the same in the line of the spring-pressed arm of the upper latch member and looking toward the hinging end of the gate. Fig. 4 is an enlarged edge view of the latch end of the gate. Fig. 5 is a view in elevation of the latch-engaged post and its adjunctive parts. Fig. 6 is an enlarged detailed view showing more fully the toothed quadrant member and adjunctive parts of the gate-actuating mechanism. Fig. 7 is a like view of the latch-actuating toothed sector member of said mechanism. Fig. 8 is an enlarged vertical section produced through the axial line of said quadrant and toothed sector and immediately related parts. Fig. 9 is an enlarged detailed view of the hinging rear end bar member of the gate and the upper end retaining bracket or bearing therefor, as also of the lower end pintle or pivot for said member.

In the carrying out of my invention I preferably construct the gate 1 substantially as shown, the same having its rear end bar 1^a, preferably cylindric or rod-like contour throughout in the present showing, passing near its upper end vertically through the orifice or opening 2^a of a bracket or bearing 2, suitably secured to the hinging-post 3. The lower end of said bar or rod is formed or provided with a pintle or pivot 1^b, stepped or let into a second bracket or bearing 4, suitably secured to the post 3. Said upper bracket or bearing 2, whose opening or orifice 2^a is somewhat larger than the cross-sectional area of the rod or bar 1^a, has suitably fixed upon its upper preferably recessed or depressed surface a boxing or bearing proper, 1^c, comprising two plate-sections 1^{ac}, secured together and to said bracket and having circular coinciding openings therein, also themselves somewhat greater than said cross-sectional area. Said plate-sections have their meeting or opposed surfaces recessed or hollowed out to contain a circular or annular arrangement of ball-bearings 1^{ad}, encompassing and forming the direct bearing for the rod or bar 1^a of the gate 1 at that point, thus providing for the reduction of friction, as is obvious.

A toothed quadrant 5 is hung laterally from the post 3, it having a lateral tubular or hub extension 5^a, receiving a pivot-bolt 5^b, secured horizontally in said post near its upper end and suitably held upon said pivot-bolt. Suitable means, as an annularly-flanged stepped washer or disk 5^c, is slipped or inserted upon the pivot-bolt 5^b intermediately of the quadrant 5 and post 3 to hold said quadrant distantly from or out of contact with the last noted, the purpose of which is apparent. Intergeared laterally with said quadrant is a toothed sector 6, sleeved upon the upper end portion of the gate rod or bar 1^a to provide, by the suitable actuation of said quadrant, as by means presently described, for both the movement of the gate and its latch, the latter being initially operated and the former subsequently actuated thereby, as also later made apparent. Said toothed sector rests or bears upon a washer or disk 6^b, slipped upon the rod or bar 1^a and interposed between said sector and the bearing or boxing 1^c to aid the freedom of the movement of said sector. Said sector is adapted to have a limited initial movement independently of the axial rod or bar 1^a to provide for the preliminary actuation of the latch-operating means, as presently explained. To avail for securing such limited movement of said sector, the latter has its integral sleeve or hub extension 6^a provided with opposite laterally-elongated notches or recesses 6^c, indenting the upper

edge of said sleeve extension and receiving the projecting portions of a cross-pin 6^d, passed transversely through the axial rod or bar 1^a and standing normally centrally of said notches or recesses, with the latter extending laterally the requisite distances beyond each side of said pin.

A latch 7, arranged upon the gate 1, comprises two members 7^a 7^b, each pivoted at its inner end between the parallel upright portions or arms of a preferably inverted-U-shaped member or yoke 1^{bb}, suitably secured to the gate. Said rod members, whose opposite or forward end portions project suitably beyond that end of the gate, have said end portions connected together preferably by a light rigid rod or bar 7^c, with its ends coupled thereto preferably by pins or pivots 7^d passed through said end portions and through clips 7^e, embracing the latter and brazed or otherwise fixed to said rod or bar 7^c, thus holding said rod members in relatively fixed positions for engagement with centrally-notched plates or catches 8, suitably offset from and secured to a post or jamb 9. To the extreme inner end of the upper rod or latch proper member 7^b is fixed an upwardly-extending arm 7^d, preferably of U or yoke shape, controlled or held in normal position by the action of a preferably coiled spring 10, consequently said spring action being communicated to and likewise affecting the position of the latch 7, including its latch members proper, 1^a 7^b, as is apparent. Said spring is suitably held in position by a rod or bar 10^a, upon which it is arranged, said bar being secured at its ends to and upheld by a pendant 11 from the gate top bar and the yoke member 1^{bb} thereof, respectively, a cross-pin 7^f passing through one end of said rod 10^a and bent or secured upon said yoke member. In connection with the securing of the opposite end of said rod or bar 10^a to the pendant 11 a screw-thread 10^{ac} is provided thereon, engaging a screw-threaded eye-ended portion 11^a of said pendant as a convenient means of fastening therebetween. Also upon the same screw-threaded portion 10^{ac} of the rod 10^a is fitted a milled thumb-nut 12, adapted to be screwed up against, and thus control the tension of, the spring 10, as may be required. Connection between the upper ends of the branches of the part 7^d and the toothed sector 6 is effected, preferably, by means of a relatively inflexible link or rod member 13, a hooked or eye-ended clip 13^a, connecting with a corresponding end of said rod or link member and held between said branches of the part 7^d, and line or wire members 13^b, both suitably connected to the opposite end of said rod or link member. To the other ends of said line or wire members are preferably connected light chain or cable members 13^c at their inner ends, the opposite ends of said chain or cable members being suitably connected to said toothed sector.

A shoe 15, preferably a plate-equipped block or piece, is suitably secured at the base of the latch-post or jamb 9 next to the gate, upon which shoe travels and rests a roll or truck 16, suitably hung upon the forwardly-projecting end portion of the bottom bar or panel of the gate for upholding the latch end of the latter as against sagging and preventing the otherwise exerting of undue strain upon the working parts of the structure.

A gravity-weighted slide or block 16^a, slidingly supported in position upon the post or jamb 9, is so arranged that as the latch proper members or rods 7^a 7^b ride into engagement with the notches of the catches 8 said block or slide will be engaged and be readily displaced by the contact therewith at this juncture of one of said members, (the upper,) and immediately upon the latter dropping into its catch-notch said block will automatically return or swing to its initial position directly in alinement with said member and drop sufficiently to aid the requisite retention of said member, together with the other member, in their respective notches. Said swinging slide or block is permitted its sliding and swinging movement by being provided with a vertical slot 16^b, adapted to receive a stud or pivot 16^c, suitably projecting from the post 9. Said swinging block or slide is confined within prescribed limits as it is engaged by the latch member noted by a keeper 17, secured to the post 9, so as to receive said block.

For conveniently actuating the toothed quadrant 5, as in operating the gate from a vehicle or horseback, levers 18 are provided, fulcrumed in position upon suitably-located posts 19, the inner ends of said levers being connected by links 18^a to said quadrant, as indicated, while from the outer ends of said levers depend handles 18^b for convenience in actuating said levers, as from the ground, when desired. Said levers may be of the construction shown or otherwise, as may be desired. It is noted that the pressure continually exerted by the spring holding the latch in normal position will tend to hold the latch and gate in their initial position.

Latitude is allowed as to details herein, as they may be changed as circumstances suggest without departing from the spirit of my invention.

I claim—

1. A gate of the character described, employing an end bar or rod, adapted to serve as an axis or pintle, a toothed or cogged member having sleeve-and-pin connection with said rod for its actuation, said sleeve having independent initial movement, means for actuating said cogged member, and latch-actuating mechanism connected to said member.

2. A gate of the character described, em-

ploying an end bar or rod, adapted to serve as an axis or pintle and having a lateral pin, a cogged or toothed member sleeved upon said axis the sleeve thereof having independent initial movement, and subsequently engaging said pin, a second cogged or toothed member geared to the first-noted member, and latch-actuating mechanism connected to the said first-noted member.

3. A gate of the character described, employing an end bar or rod adapted to serve as an axis or pintle and having a lateral pin, a toothed or cogged member sleeved upon said axis the sleeve thereof having independent initial movement, and subsequently engaging said pin, a toothed or cogged quadrant geared to said member, and latch-actuating mechanism connected to said member.

4. A gate of the character described, employing an end bar adapted to serve as an axis and having a lateral pin, a toothed or cogged sector sleeved upon said axis the sleeve thereof having independent initial movement, and subsequently engaging said pin, latch-actuated mechanism connected to said toothed sector, and a toothed or cogged member geared to said sector.

5. A gate of the character described, employing an end bar or rod adapted to serve as an axis and having a lateral pin, a toothed or cogged sector sleeved upon said axis the sleeve thereof having independent initial movement, and subsequently engaging said pin, a toothed or cogged quadrant geared to said toothed sector, and latch-actuating mechanism connected to said sector.

6. A gate of the character described, employing an end bar or rod adapted to serve as an axis and having a lateral pin, a cogged or toothed member sleeved upon said axis and having a lateral elongated recess or notch receiving said pin, to permit said cogged member independent initial movement and to provide for the subsequent engagement of said pin with the sleeve of said cogged member, means for actuating said toothed or cogged member, a latch-operated mechanism connected to said cogged or toothed member.

7. A gate of the character described, employing an end bar serving as an axis and having a lateral pin, a cogged or toothed member sleeved upon said axis and having lateral elongated recesses or notches receiving the projecting end portions of said pin, a second toothed or cogged member geared to the aforesaid cogged member, actuating-levers for said second cogged or toothed member, and latch-actuating mechanism connected to the first-noted toothed or cogged member.

8. A gate of the character described, employing an end bar or rod serving as an axis or shaft, and having a lateral pin, a cogged member sleeved upon said shaft and having independent initial movement and the sleeve thereof adapted to subsequently engage said pin, latch-operating means connected to said cogged member, and a bearing for said axis or shaft, provided with a recess or race containing a circular arrangement of ball-bearings encompassing said axis or shaft.

9. A gate of the character described, employing an end bar serving as an axis or shaft, and having a lateral pin, a cogged member sleeved upon said shaft and having independent initial movement and the sleeve thereof adapted to subsequently engage said pin, latch-operating means connected to said cogged member, and a bearing for said shaft comprising a bracket suitably secured in position and a boxing secured upon said bracket having its uniting plate sections or members recessed to form a race, and a circular arrangement of ball-bearings contained within said race and encompassing said shaft.

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

WILLIAM GEORGE STONE.

Witnesses:

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GEORGE M. HACKETT.