

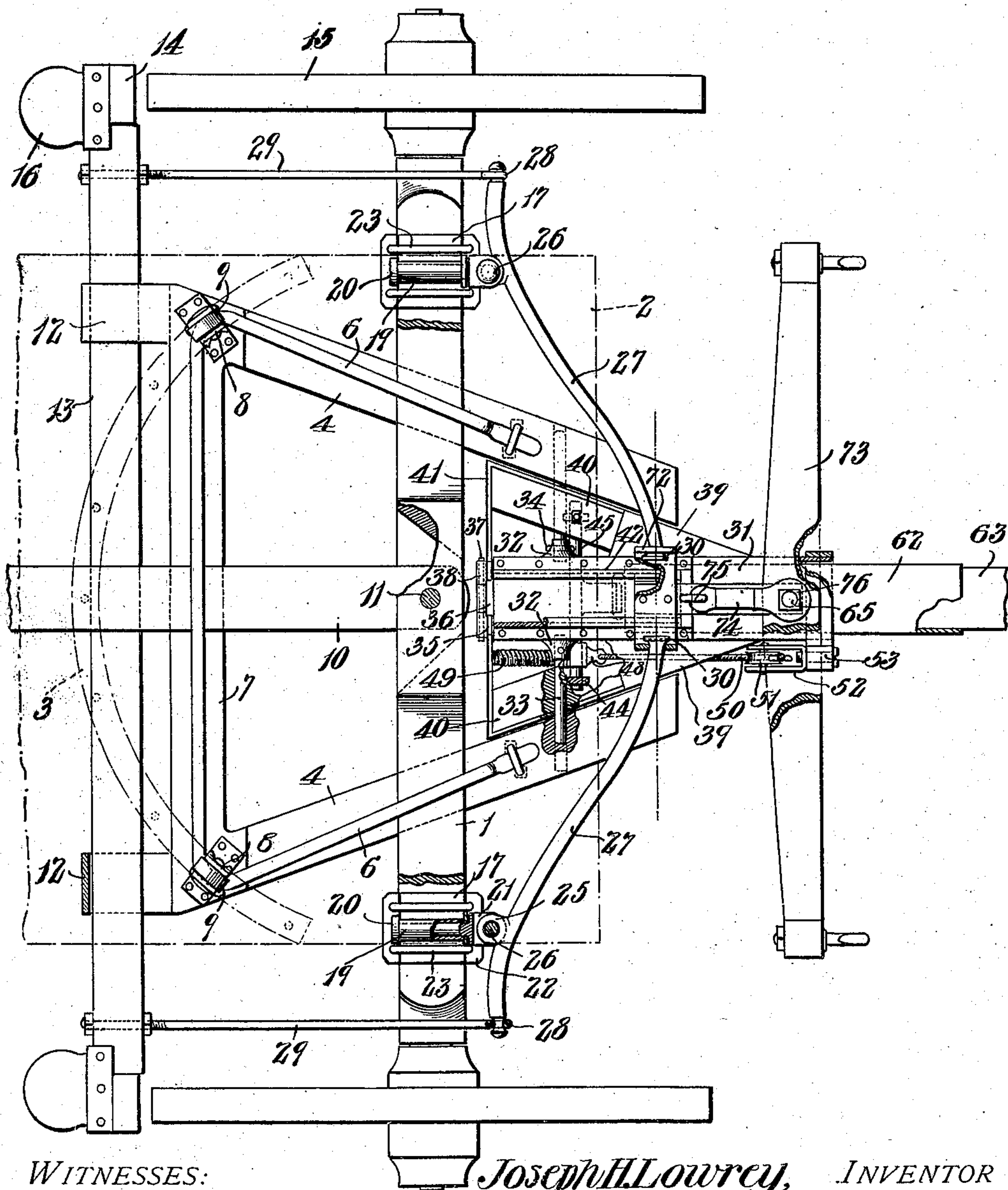
No. 847,796.

PATENTED MAR. 19, 1907.

J. H. LOWREY.
AUTOMATIC WAGON BRAKE.
APPLICATION FILED APR. 17, 1906.

3 SHEETS--SHEET 1.

Fig. 1.



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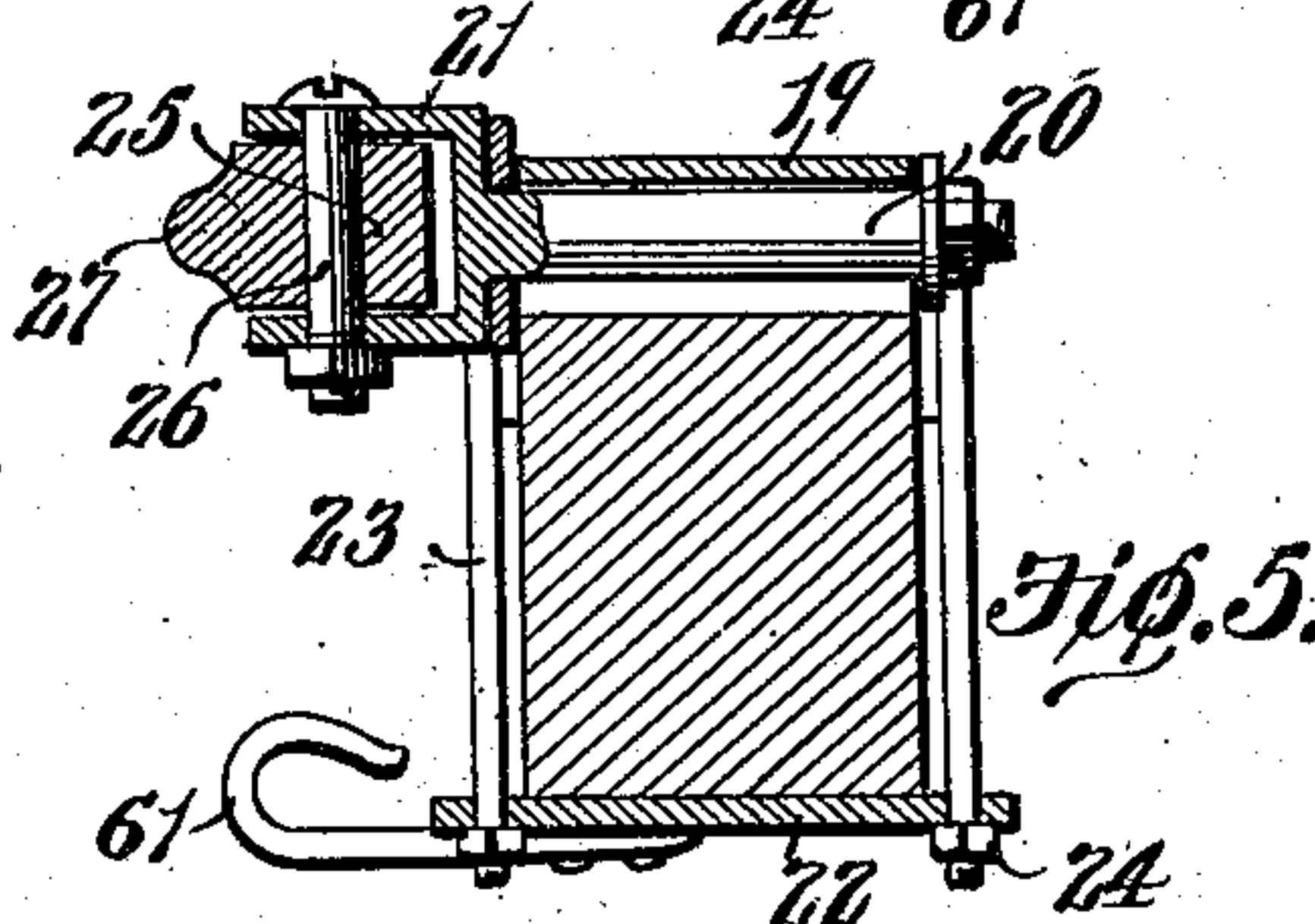
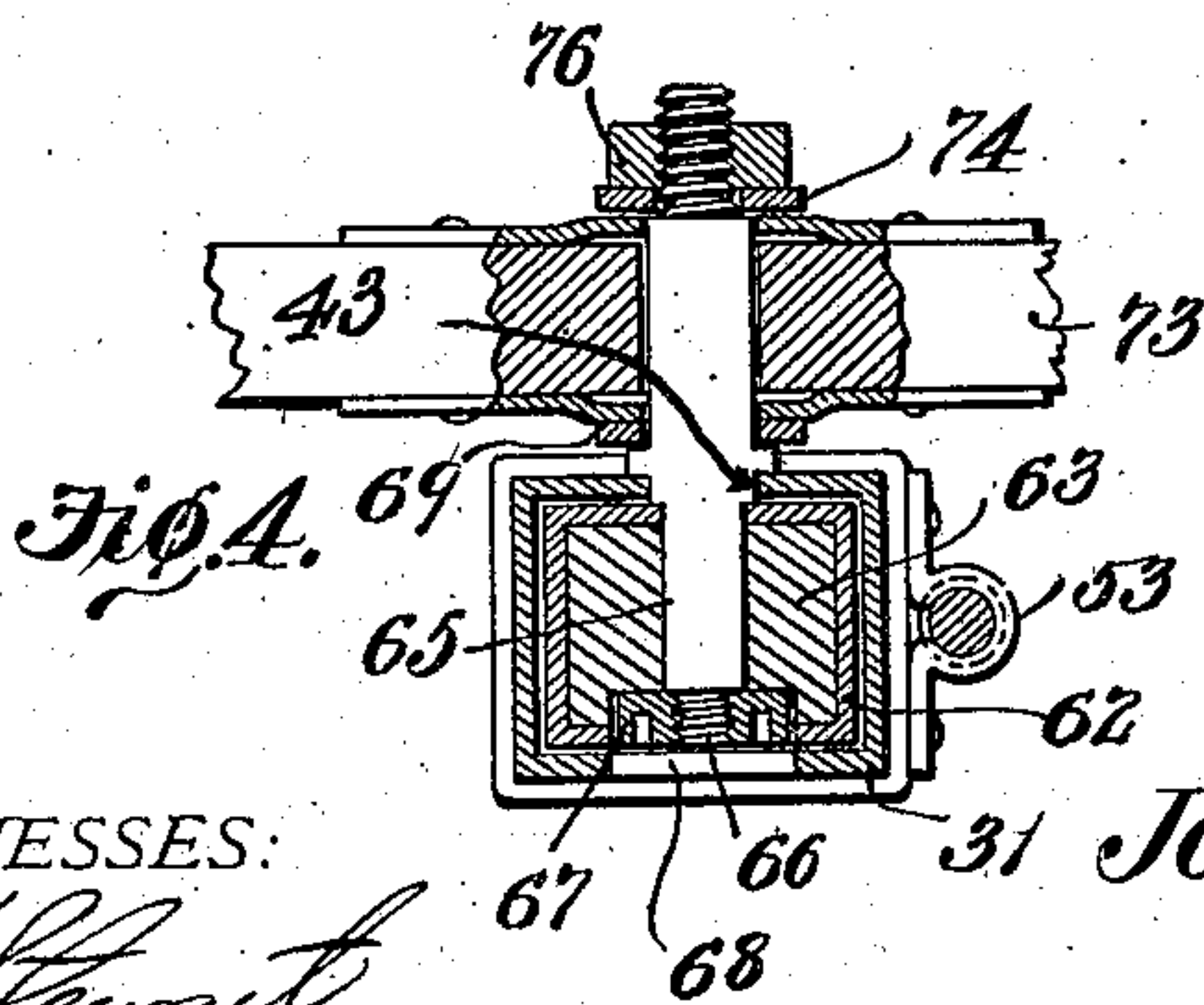
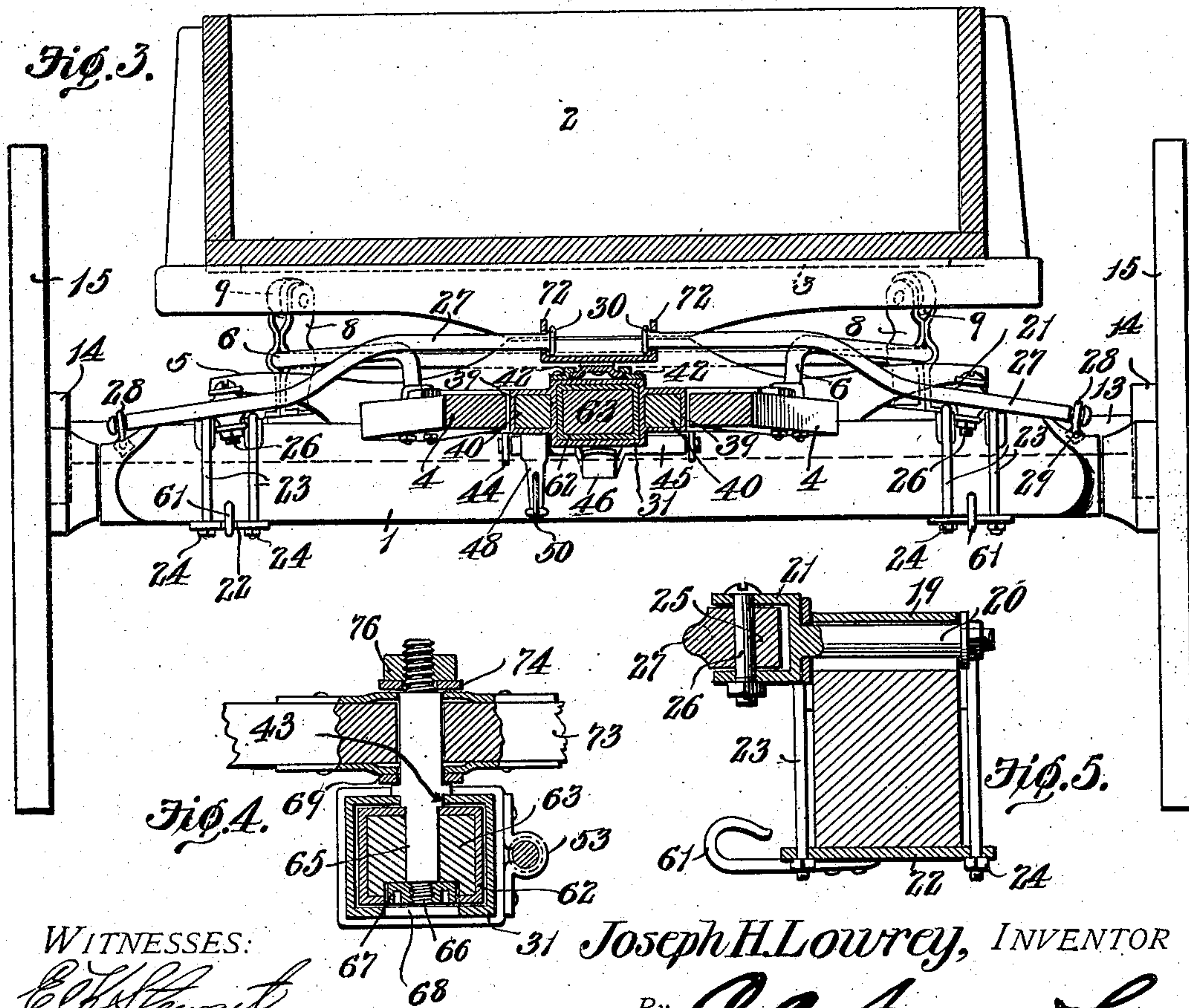
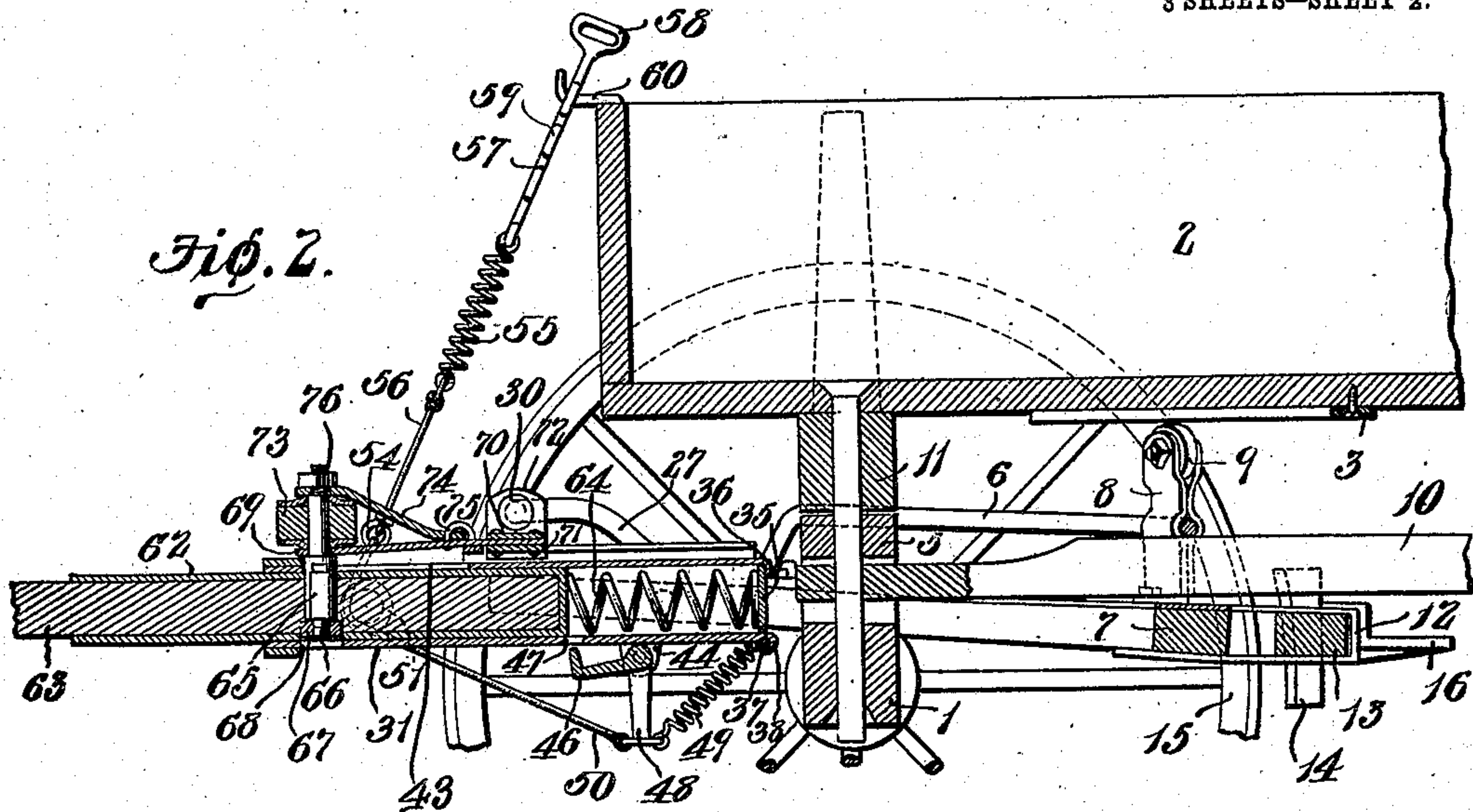
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

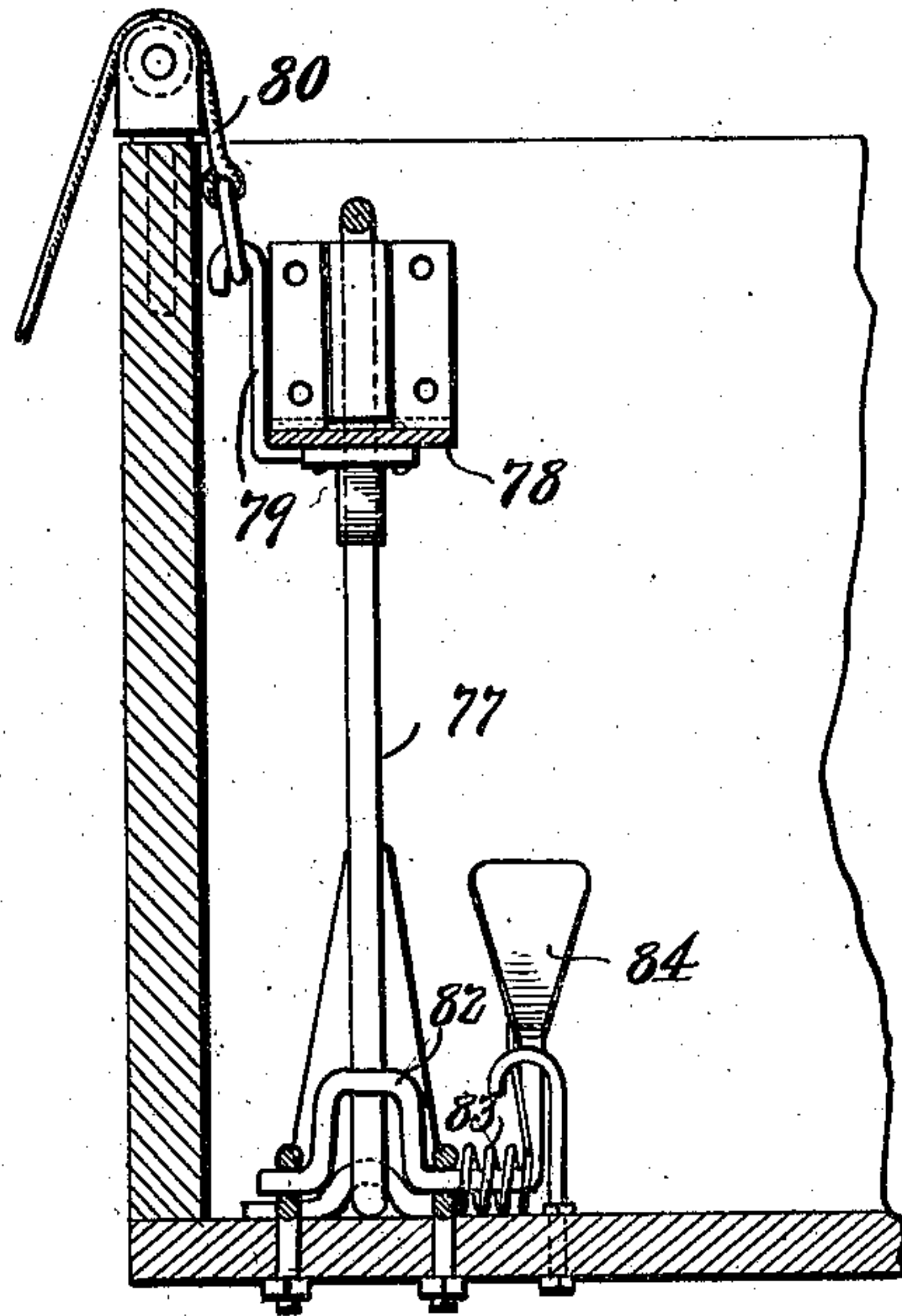


Fig. 7.

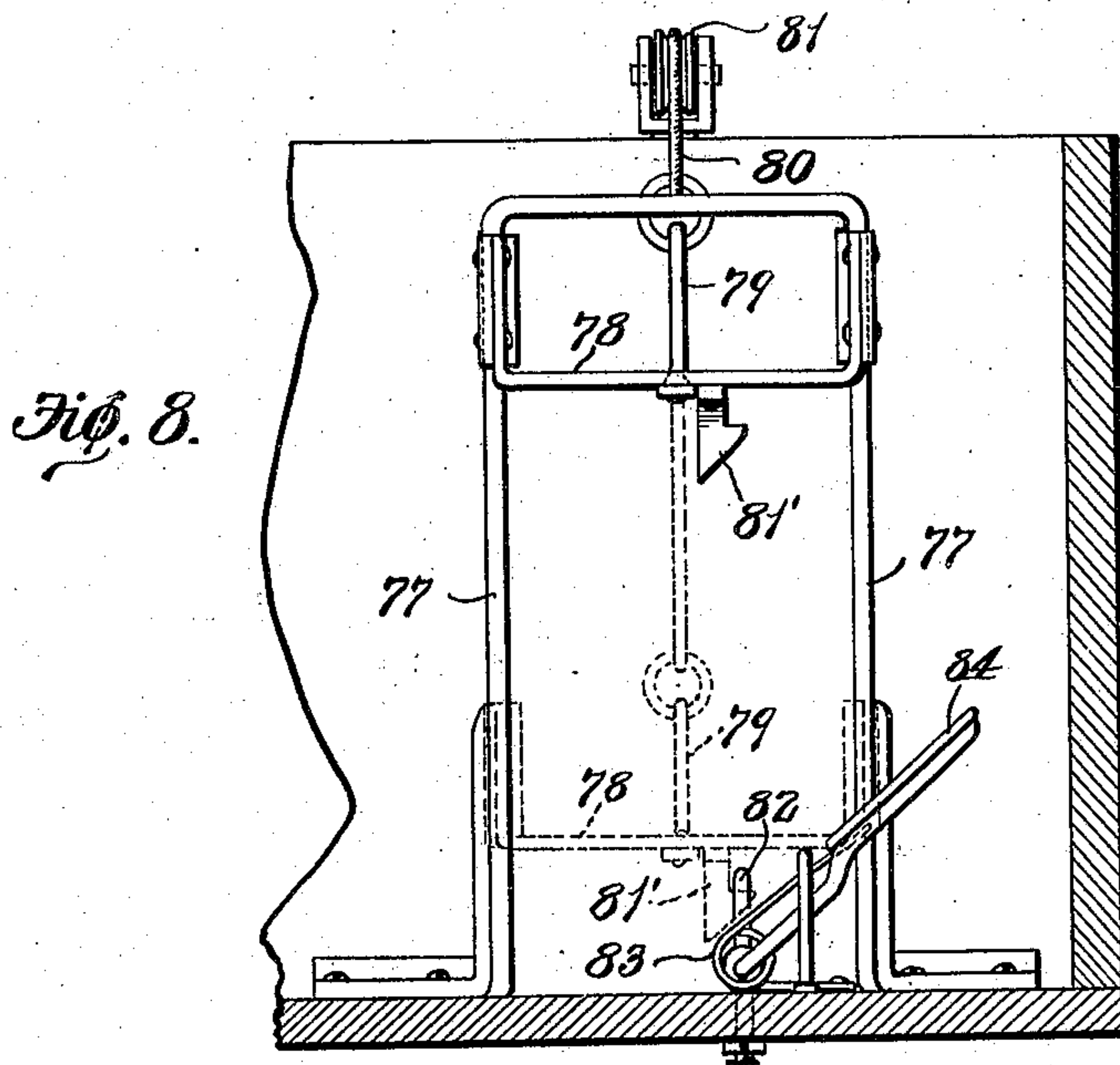


Fig. 8.

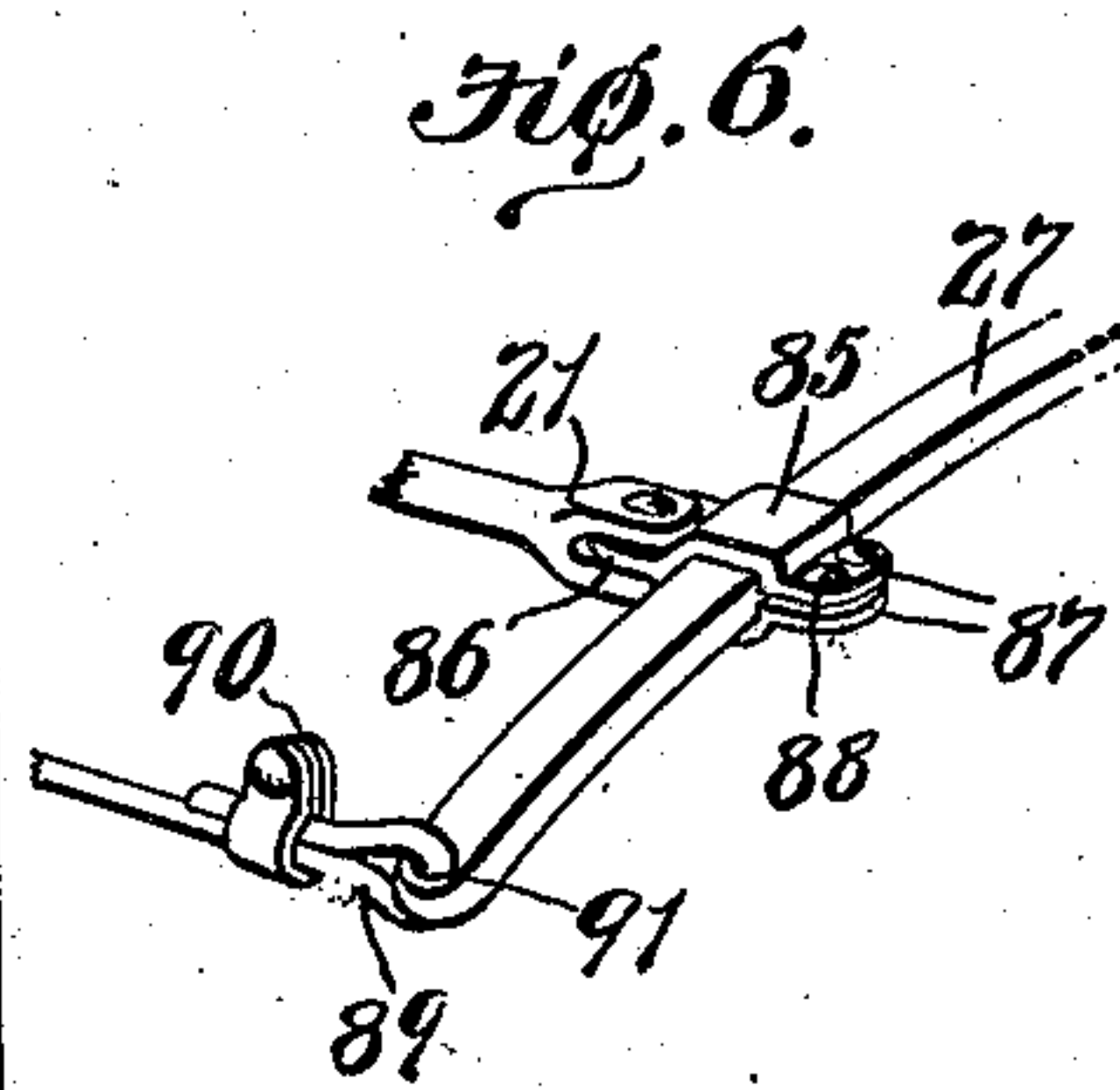


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOSEPH HENRY LOWREY, OF NEOLA, IOWA.

AUTOMATIC WAGON-BRAKE.

No. 847,796.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed April 17, 1906. Serial No. 312,233.

To all whom it may concern:

Be it known that I, JOSEPH HENRY LOWREY, a citizen of the United States, residing at Neola, in the county of Pottawattamie and State of Iowa, have invented a new and useful Automatic Wagon-Brake, of which the following is a specification.

This invention relates to vehicle-brakes; and its object is to provide a device of this character adapted to be carried by the running-gear of a vehicle and which will be automatically applied when the wagon is traveling on a downgrade.

A further object is to provide means whereby the brake can be locked to prevent operation while the vehicle is being backed.

Another object is to so mount the brake mechanism that the brake-beam will be at all times held out of contact with the reach of the vehicle, so that the reach will not be subjected to vertical pressure while the brake is being applied.

A still further object is to mount the brake-actuating mechanism upon the tongue of the vehicle and to connect it in a novel manner with the brake-beam without interfering with the ordinary movement of the tongue.

With these and other objects in view the invention consists of a tongue slidably mounted within a casing from which extend trunnions which bear within the hounds of the vehicle. Means are disposed within this casing for holding the tongue normally projected forward, and a slide is supported on the casing and connected to and adapted to move with the tongue. Means are provided whereby the whiffletrees can be connected to the movable tongue and a brake-beam is connected in a novel manner to the slide, so that when the tongue is pulled back within the casing the brake-shoes will be applied to the wheels.

The invention also consists of novel means for locking the tongue against movement should it be desired to back the vehicle or for any other reason render the brake inoperative.

The invention also consists of certain other novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is a plan view of

the brake mechanism, parts thereof being shown in section and the front part of the wagon-body outlined by dotted lines. Fig. 2 is a longitudinal section through the mechanism. Fig. 3 is a transverse section on the dotted lines shown in Fig. 1. Fig. 4 is an enlarged section showing the means for connecting the whiffletree to the tongue. Fig. 5 is an enlarged section through the axle and showing the pivot of one of the levers. Fig. 6 is a detail view of said levers provided with a modified form of pivot and connecting rod. Fig. 7 is a vertical section through the modified means for actuating the tongue-lock, and Fig. 8 is an elevation of said mechanism.

Referring to the figures by characters of reference, 1 is the front axle of a vehicle, the body 2 of the vehicle being mounted on said axle in any suitable manner and having a curved wear-plate 3 secured to the bottom thereof. The hounds 4 are secured to the lower bolster 5 in any desired manner, and a sway-bar 6 is secured to these hounds and is embraced at the ends of the cross-hounds 7 by standards 8, in which are mounted friction-rollers 9, which are normally out of contact with the wear-plate 3, but which when the brake is applied are adapted to move upward into contact with said plate 3 before the brake-beam, hereinafter referred to, comes into contact with the reach 10, which is secured within the bolster 5 by the king-bolt 11. Metal loops 12 extend rearwardly from the hounds 4 and constitute supports and guides for the brake-beam 13, having shoes 14 at its ends for contacting with the front supporting-wheels 15. Steps 16 may also be arranged at the ends of this beam, if desired.

A top plate 17 is arranged upon the axle 1 near each wheel, and this top plate has a tubular extension 19 thereon, in which is rotatably mounted a headed stem 20, extending from a yoke 21, which is arranged in front of the axle. A bottom plate 22 is disposed under the axle, and clamping-yokes 23 are arranged longitudinally upon the top plate at each side of the tubular extension 19 and extend across the front and rear faces of the axle and into apertures in the base-plate, said yokes being fastened to the base-plate by nuts 24 or in any other preferred manner. In each yoke 21 is disposed an extension 25, the same being pivoted on a pin 26, projecting through the yoke 21 and the extension

25. This extension 25 extends rearwardly from a lever 27 at a point between its ends, and one end of the lever engages an eye 28 at one end of a connecting-rod 29, which is suitably fastened to the beam 13 near one of the shoes 14. The two levers 27 are bent to form a compound curve, and they extend toward each other and are formed at their adjoining ends with heads 30.

Arranged between the front ends of the hounds 4 is a tubular casing 31, preferably rectangular in cross-section and having sockets 32 formed on opposite sides thereof. Bearing-ears 33 are detachably secured within the sockets, as by means of locking-pins 34, and these pins 33 constitute trunnions and are rotatably mounted within the hounds 4. The casing 31 is normally closed at its rear end by means of a removable head 35, which is held in place by a depending rod 36 at the rear end of the casing and by a locking-pin 37, which projects through registering beads 38 upon the rear end of the casing and one edge of the head 35. Tubular extensions 39 extend from the sides of casing 31, and within them are pivoted tongue-hounds 40. The trunnions 33 extend through these tongue-hounds, and a metal strap 41 is preferably secured upon the outer faces of said hounds and connects their ends with the rear end of the casing. Oppositely-disposed guide-cleats 42 are arranged longitudinally upon the casing, and a longitudinally-disposed slot 43 is formed in the top of the casing between these cleats and the front portion of said casing. Ears 44 extend downward from the casing, and mounted within them is a rotatable rod 45, having an angular locking-finger 46 thereon, which is normally disposed beneath and is adapted to project into an opening 47 in the bottom of the casing. An arm 48 extends downward from the rod 45, and extending rearwardly from the end thereof is a coiled spring 49, which is preferably fastened to the strap 41, and extending in an opposite direction from the end of arm 48 is a cable or chain 50, which passes partly around a pulley 51, mounted in a yoke 52, swiveled to an arm 53, extending laterally from the front end of the casing 31. This cable or chain 50 is connected to a ring 54 of such proportions as to prevent the withdrawal of the cable or chain through the yoke 52, and a coiled spring 55 is fastened to the ring 54 by a rope or chain 56. To the other end of this spring is secured a stem 57, having a handle 58 at one end, while between its ends are arranged a series of hooks 59, any one of which is adapted to be placed in engagement with a hook 60 in the front end of the wagon-body 2 or with a hook 61 on the front end of the bottom plate 22, provided the wagon-body is not in position on the running-gear.

A sleeve 62, preferably rectangular in cross-section, is slidably mounted within the front portion of the casing 31, and within this sleeve is permanently secured the rear end of the vehicle-tongue 63. A heavy coiled spring 64 is arranged within the casing in rear of the sleeve 62 and bears at opposite ends upon the end of said sleeve and the head 35, respectively. When the sleeve 62 is in normal position, the locking-finger 46 may be swung into the opening 47, so as to overlap the rear end of the sleeve 62 and prevent said sleeve and the tongue from being pressed backward into casing 31, so as to compress spring 64. Spring 49 holds this locking-finger 46 normally removed from the opening 47; but it is obvious that by pulling on the handle 58 the locking-finger can be caused to swing into the opening 47 and can be held in said position by placing the proper hook 59 into engagement with hook 60 or 61.

A shouldered pin 65 extends through the casing 62 and tongue 63 and has a threaded extension 66 at its lower end, on which is arranged a holding-nut 67, adapted to be inserted through an opening 68 in the bottom of the casing and embedded within the tongue 63 and casing 62, so as not to interfere with their reciprocation. This pin 65 extends through and is adapted to travel within the slot 43, and it also projects through a tongue 69, which rests on the shoulder of the pin and is secured between two parallel plates 70 and 71, constituting a slide. The ends of the lower plate 71 are depressed so as to travel under the cleats 42 and upon the top of the casing 31. The upper plate 70 has upturned ears 72, provided with openings, in which are loosely mounted the headed ends of the levers 27, and whiffletree 73 is mounted on the pin 65 and above the tongue 69 and is overlapped by an angular retaining plate or keeper 74, which engages a loop 75 on tongue 69 and embraces the upper portion of pin 65, said keeper being held on the pin in any preferred manner, as by means of a nut 76. This particular construction has been illustrated in detail in Fig. 4.

It is of course understood that the spring 64 is of sufficient strength to hold the tongue 63 and its sleeve 62 with the pin 65 normally in position against the front end of slot 43. When the parts are in this position, the slide formed of plates 70 and 71 is also at the limit of its forward movement, and therefore the levers 27 hold the brake-beam 13 against the rear portions of the supporting-loops 12 and with shoes 14 out of contact with the wheels 15. As long as a forward pull is exerted on the tongue these parts will remain in the positions described or if for any reason the vehicle should run forward while the draft-animals are pulling back, as when the vehicle is on a downgrade, the rod 45 will be moved to-

ward the sleeve 62 and cause the compression of spring 64. The plates 70 and 71 will thereby slide along the cleats 42, and as a result the headed levers 27 will swing on their 5 rocking fulcrums and pull the connecting-rod 29 forward, so as to press the shoes 14 against the wheels. Obviously the degree of pressure of these shoes upon the wheels will be dependent upon the angle of the incline down which the vehicle is moving and 10 the weight of the load carried by the vehicle, the degree of pressure increasing in proportion to the weight of the load or steepness of the grade. It of course becomes unnecessary for the driver to give the brakes any at- 15 tention because of their automatic action, and as the brakes will be automatically applied whenever the vehicle reaches a downward incline—such as ruts, hills, &c.—the 20 draft-animals are relieved of the strain to which they are ordinarily subjected by the necessity of pulling backward on the vehicle. Of course as soon as the wagon starts on a level or upgrade the springs 64, together 25 with the forward pull exerted by the draft-animals, will return the parts to their initial position, and the shoes will be moved from contact with the wheels. Should it be desired to back the vehicle without applying the brakes, the hooked rod 57 is placed in en- 30 gagement with one of the hooks 60 61, so as to swing the locking-finger 46 back of sleeve 62. It will be noted that by reason of the peculiar connections between the levers 27 and the axle 1 the vertical movement of the 35 tongue and tongue-hound is not interfered with and at the same time the brakes will be applied no matter in what position the tongue may rest. When the brake-shoes are 40 applied to the wheels, the tendency is to pull the shoes and beam upward. Unless some stop means are provided the beam is liable to come into contact with the reach 10 and bend thereon and break. The standards 8 45 and rollers 9 have been provided to limit this upward movement of the beam by coming into contact with the wear-plate 3. While I have shown cleats 42 for guiding the slide on the casing 31, it is to be understood that other 50 constructions may be substituted.

Instead of using the hooks 60 and 61 for the purpose of holding the locking-finger 46 in the path of the tongue, means may be employed within the wagon-body whereby the 55 driver can lock or release said finger by pressing with the foot upon mechanism provided for that purpose. This mechanism has been shown in Figs. 7 and 8 as consisting of upright guides 77, secured upon the bottom of 60 the wagon-body, near the front end thereof, and having a slide 78 mounted between them and provided with a hook 79 for engaging the end of the cable or chain 80, adapted to be fastened to the spring 55 in-

stead of the hooked stem 57. This cable or 65 chain passes over a pulley 81, arranged on the front end of the body of the vehicle. A hooked head 81' hangs downward from the slide 78 and is adapted to automatically en- 70 gage a loop 82, which is normally held in the path of the head by a coiled spring 83. A lever 84 is connected to this loop and when depressed will swing the same out of en- 75 gagement with the head. With this construction it will be seen that when the driver presses downward on the slide 78 it will cause the cable or chain 80 to tension the spring 55 and cause the actuation of the locking- 80 finger. The head 81' will automatically engage the loop 82 and be held until the lever 84 is depressed, whereupon the tensioned spring 55 will withdraw the locking-finger from behind the tongue and at the same time 85 raise the slide 78. In Fig. 6 I have shown an adjustable means for connecting the lever 27 to its pivoted yoke 21. This consists of a clip 85, which embraces the lever and has a 90 tongue 86, pivoted in the yoke 21. Ears 87 extend from the clip and are adapted to be secured together by bolts 88. By loosening these bolts the clip can be adjusted to any 95 desired point on the lever and then fastened by tightening the bolts. The leverage can thus be regulated. Also instead of forming the connecting-rods 29 with eyes 28, as 100 shown in Figs. 1 and 3, said rods can be looped at their ends, as shown at 89, and secured by a clip 90. These loops extend through openings 91 in the levers 27.

The preferred forms of the invention have 100 been set forth in the foregoing description; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or 105 sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of the invention.

What is claimed is—

1. The combination with an axle, hounds 110 connected thereto, and a brake-beam movably supported by the hounds; of a longitudinally-movable spring-pressed tongue pivotally mounted between the hounds, levers 115 pivotally mounted upon the axle and adapted to swing in any direction, said levers being movably connected to and adapted to be operated by the movement of the tongue, and 120 connections between the levers and brake-beam.

2. The combination with an axle, hounds 120 thereon, and a beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a tongue slidably 125 mounted within and projecting from the casing, a slide mounted on the casing and movable with the tongue, a lever loosely engaging the slide and connected to the axle by

a universal joint, and means for transmitting motion from the lever to the beam.

3. The combination with an axle, hounds thereon, and a beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a tongue slidably mounted within and projecting from the casing, a slide mounted on the casing and movable with the tongue, oppositely-extending levers loosely engaging the slide, yokes pivotally connected to the axle and constituting bearings for the levers, and connections between the levers and beams.

4. The combination with an axle, hounds thereon, and a beam movably supported by the hounds; of a tubular casing pivotally mounted between the hounds, a spring-pressed tongue within and extending from the casing, said tongue adapted to move longitudinally within the casing and to swing upon the pivot of the casing, and means actuated by the longitudinal movement of the tongue for moving the beam.

5. The combination with an axle, hounds thereon, and a beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a tongue slidably mounted within the casing and movable therewith, a spring interposed between the tongue and rear end of the casing, and mechanism actuated by the sliding movement of the tongue for moving the beam.

6. The combination with an axle, hounds thereon, and a beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a tongue slidably mounted within the casing and movable therewith, a spring interposed between the tongue and rear end of the casing, a slide mounted on the casing and connected to and movable with the tongue, and means actuated by the slide and operated by the longitudinal movement of the tongue for actuating the beam.

7. The combination with an axle, hounds thereon, and a beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a tongue slidably mounted within the casing and movable therewith, a spring interposed between the tongue and rear end of the casing, a slide mounted on the casing and connected to and movable with the tongue, levers loosely engaging and extending in opposite directions from the slide, universal joints connected to the axle and constituting fulcrums for the levers, and connections between the levers and beam.

8. The combination with an axle, hounds, and a brake-beam movably carried by the hounds; of a casing pivotally mounted between the hounds, a spring-pressed tongue slidably mounted within and movable with the casing, oppositely-extending levers

adapted to be operated by the longitudinal movement of the tongue, universal connections between the levers and axle and constituting fulcrums for the levers, connections between the levers and brake-beam, and means for locking the tongue against longitudinal movement.

9. The combination with an axle, hounds thereon, a brake-beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a spring-pressed tongue slidably mounted within and movable with the casing, mechanism operated by the longitudinal movement of the tongue for actuating the beam, a locking-finger pivotally mounted upon the casing, and means for swinging said finger into the path of the tongue to hold it against longitudinal movement.

10. The combination with an axle, hounds thereon, a brake-beam movably supported by the hounds; of a casing pivotally mounted between the hounds, a spring-pressed tongue slidably mounted within and movable with the casing, mechanism operated by the longitudinal movement of the tongue for actuating the beam, a locking-finger pivotally mounted upon the casing, means for swinging said finger into the path of the tongue to hold it against longitudinal movement, and means for securing the locking-finger in the path of the tongue.

11. The combination with an axle, hounds thereon, and a brake-beam movably carried by the hounds; of a casing interposed between the hounds, tubular extensions thereon, tongue-hounds within the extensions, means for binding said tongue-hounds to the casing, bearing-pins detachably connected to the sides of the casing and extending through the tongue-hounds and into the axle-hounds, a removable head upon the casing, a tongue slidably mounted within the casing, a spring within the casing and interposed between the tongue and the head, and mechanism operated by the longitudinal movement of the tongue for actuating the brake-beam.

12. In a device of the character described the combination with an axle, and hounds, and a vehicle-body supported thereabove; of a casing mounted between the hounds, a tongue slidably mounted within the casing, a locking device for holding the tongue against movement within the casing, guides upon the body, a depressible slide mounted thereon, a flexible connection between said slide and locking-finger, resilient means for holding the locking device normally retracted and the slide normally raised, means for automatically locking the slide in lowered position, and a releasing-lever connected to said means.

13. The combination with an axle, hounds, and a brake-beam movably carried by the

hounds; of a longitudinally movable tongue
pivotaly connected to the hounds, oppo-
sitedly-extending levers adapted to be actu-
ated by the longitudinal movement of the
5 tongue, universal connections between the
levers and axle, said connections constituting
fulcrums for the levers, and connections be-
tween the levers and brake-beam.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature 10
in the presence of two witnesses.

JOSEPH HENRY LOWREY.

Witnesses:

THEODORE JAMES GEARHART,
JOHN S. HERMSEN.