

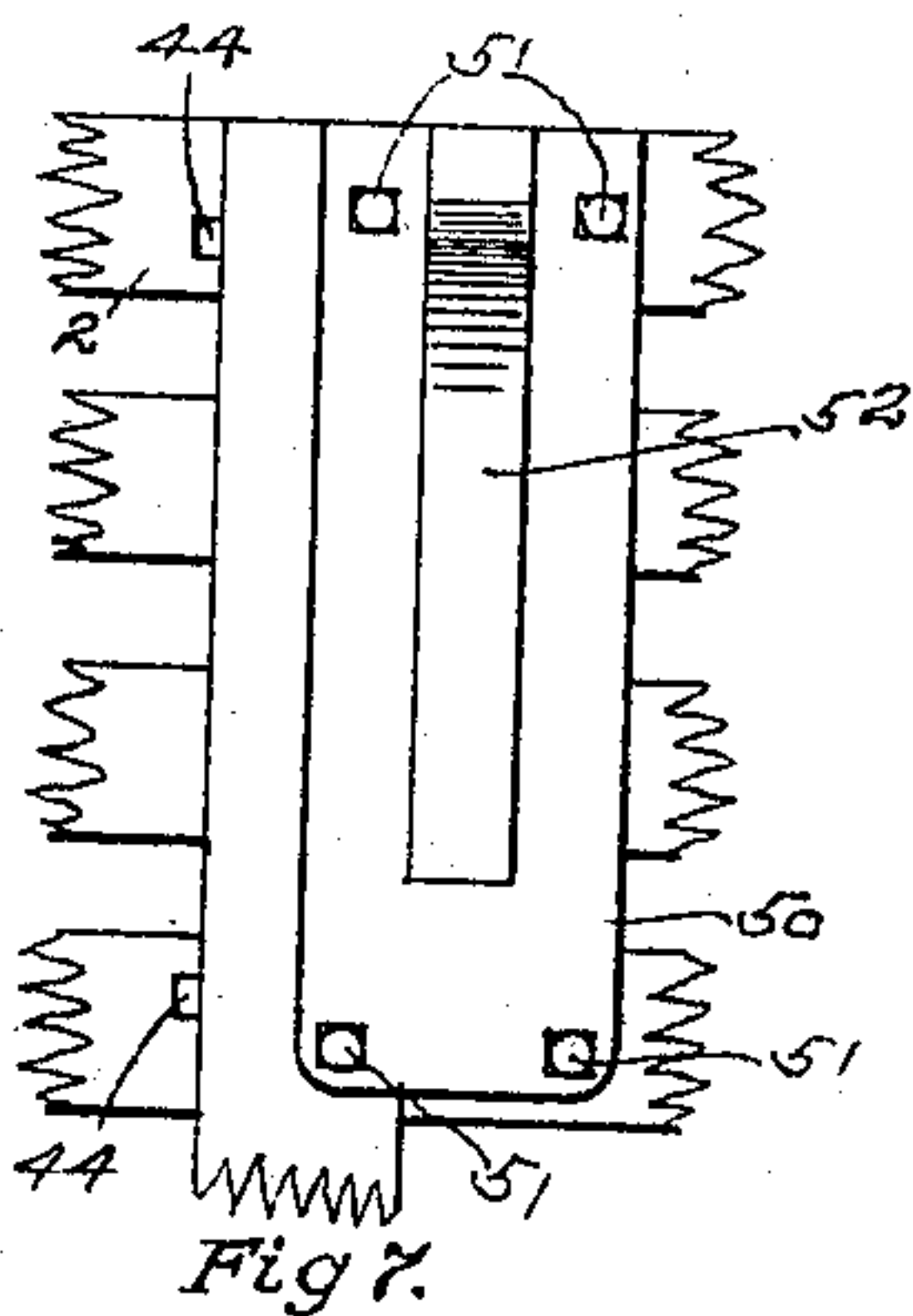
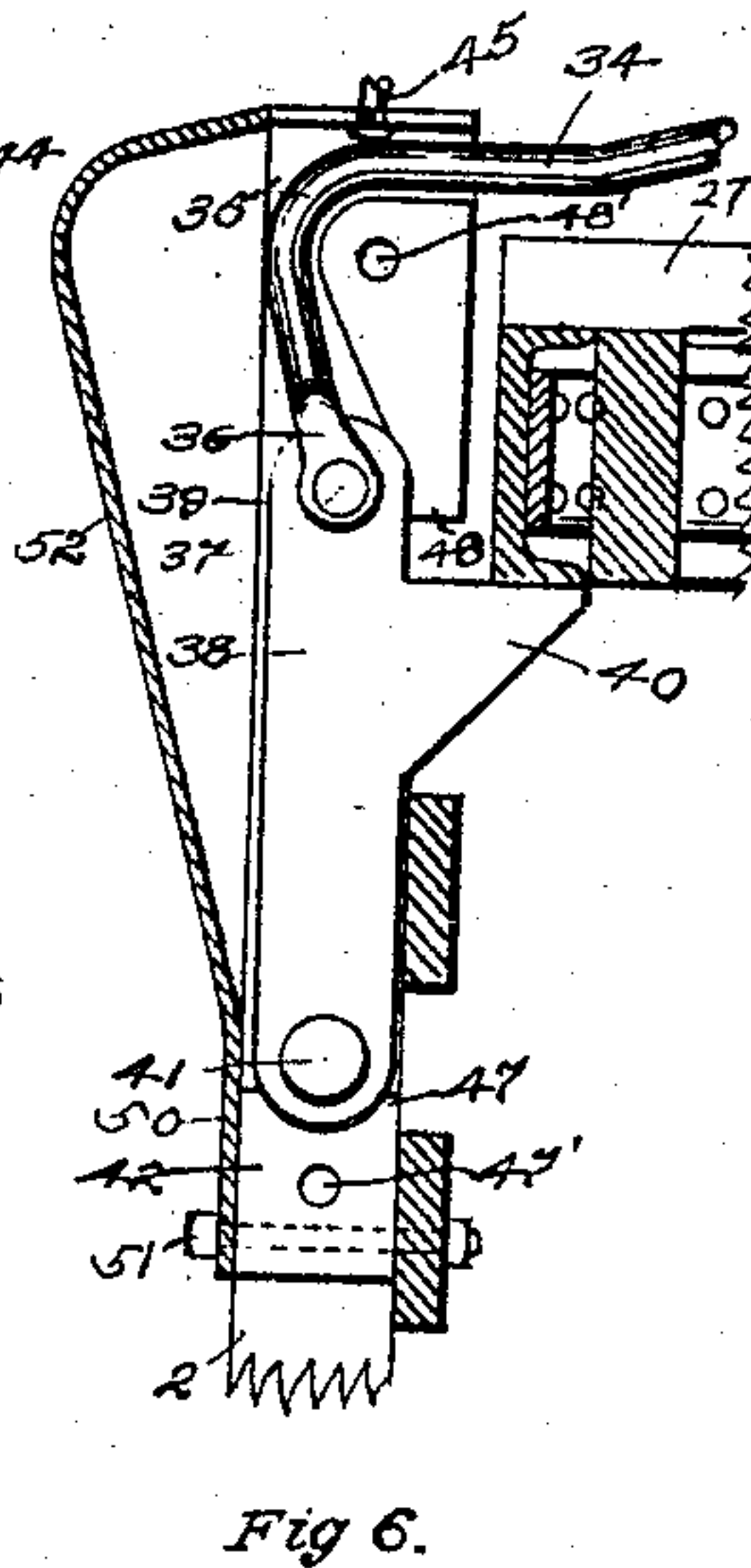
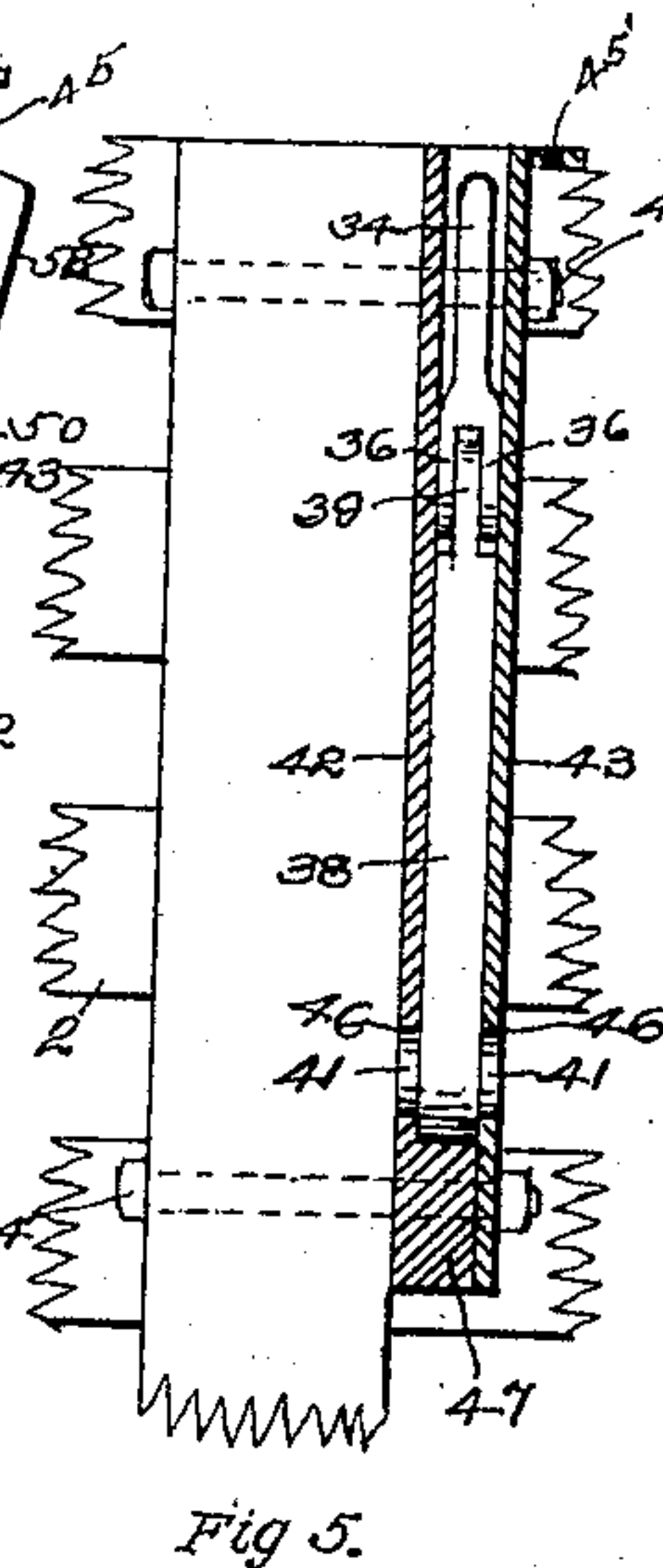
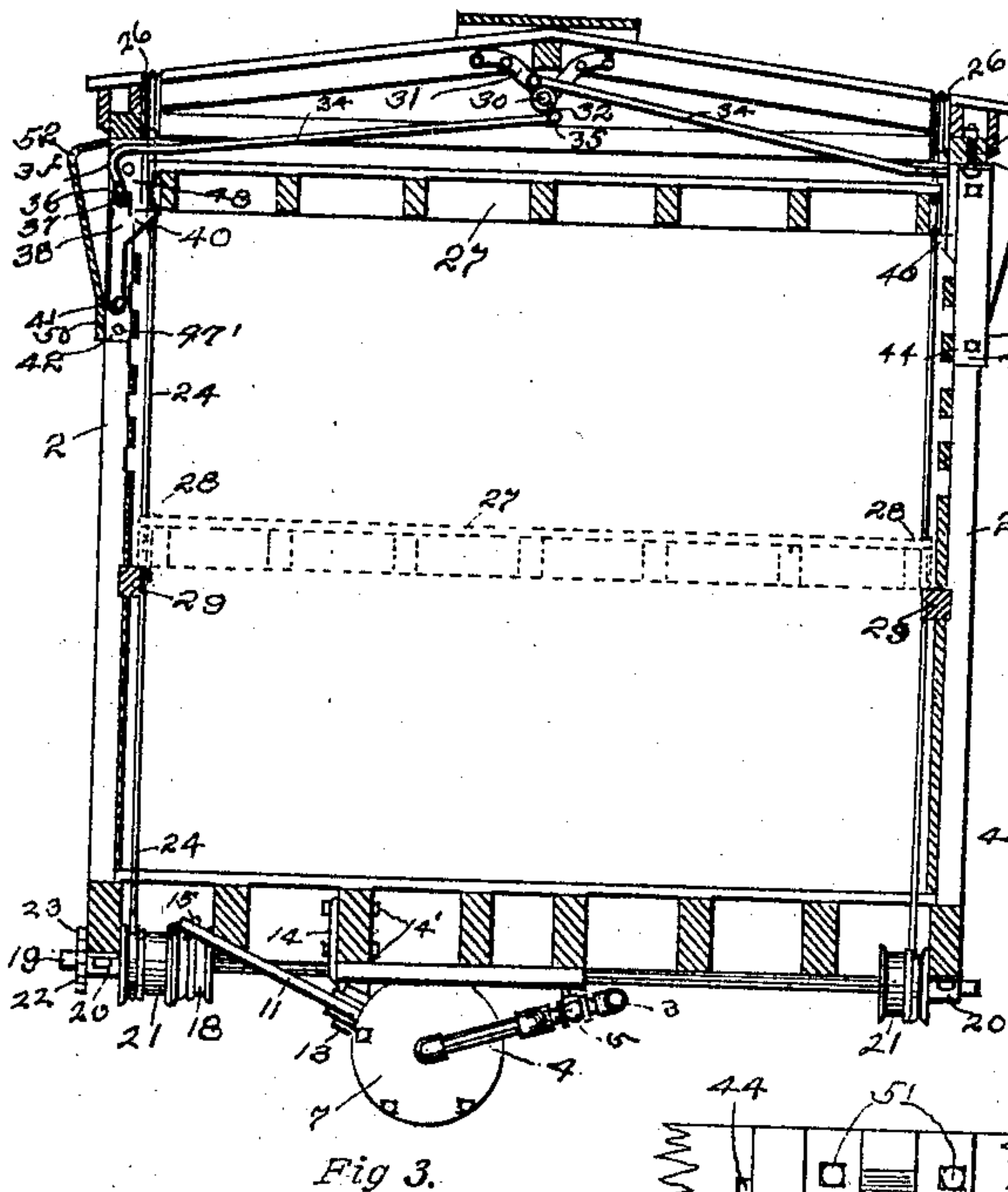
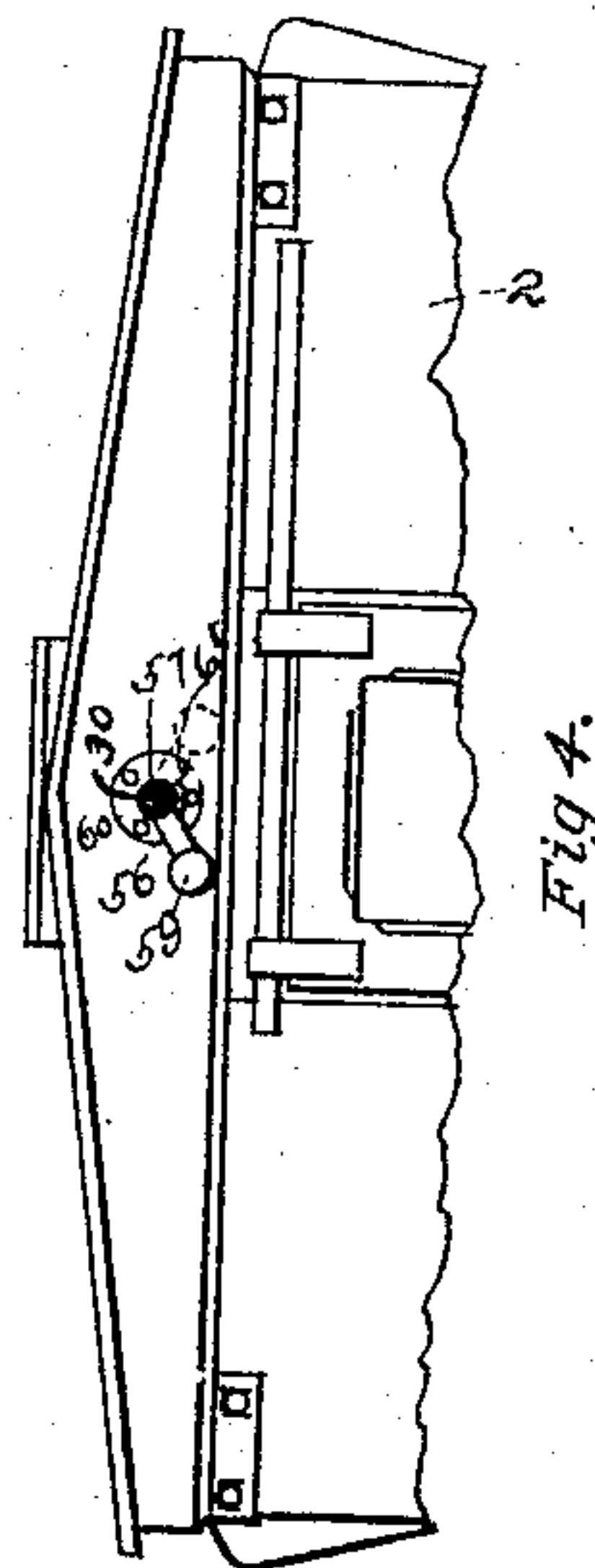
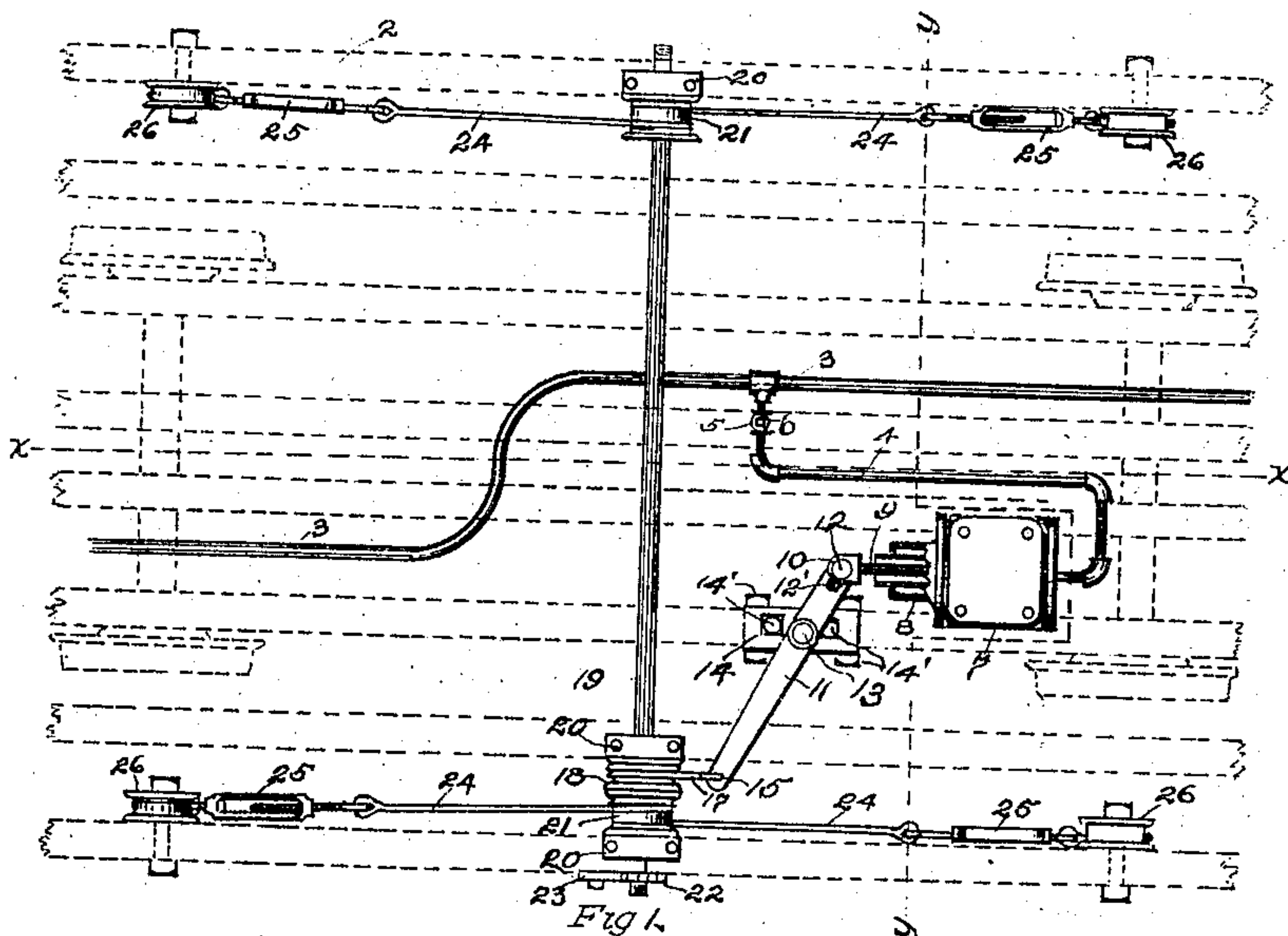
No. 795,850.

PATENTED AUG. 1, 1905.

I. J. NAUGHTON.
CONVERTIBLE STOCK OR STABLE CAR.

APPLICATION FILED JAN. 21, 1905.

2 SHEETS—SHEET 1.



WITNESSES.

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2 SHEETS—SHEET 2.

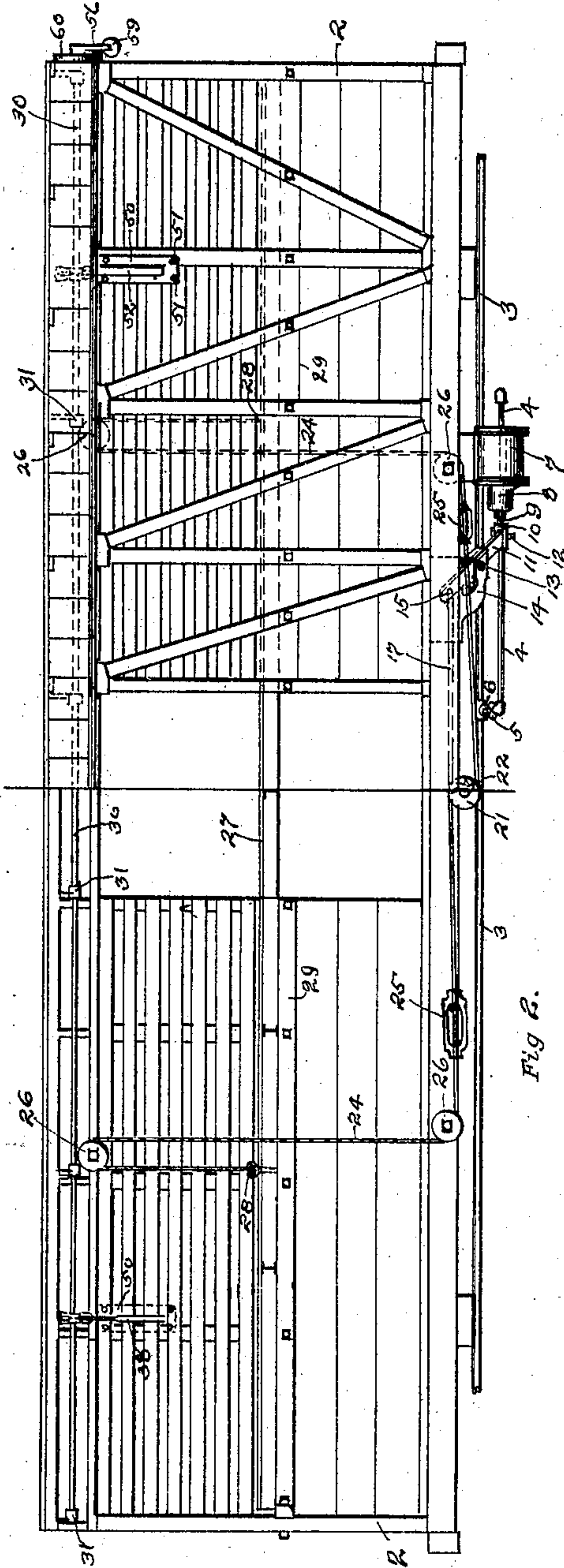


Fig. 2.

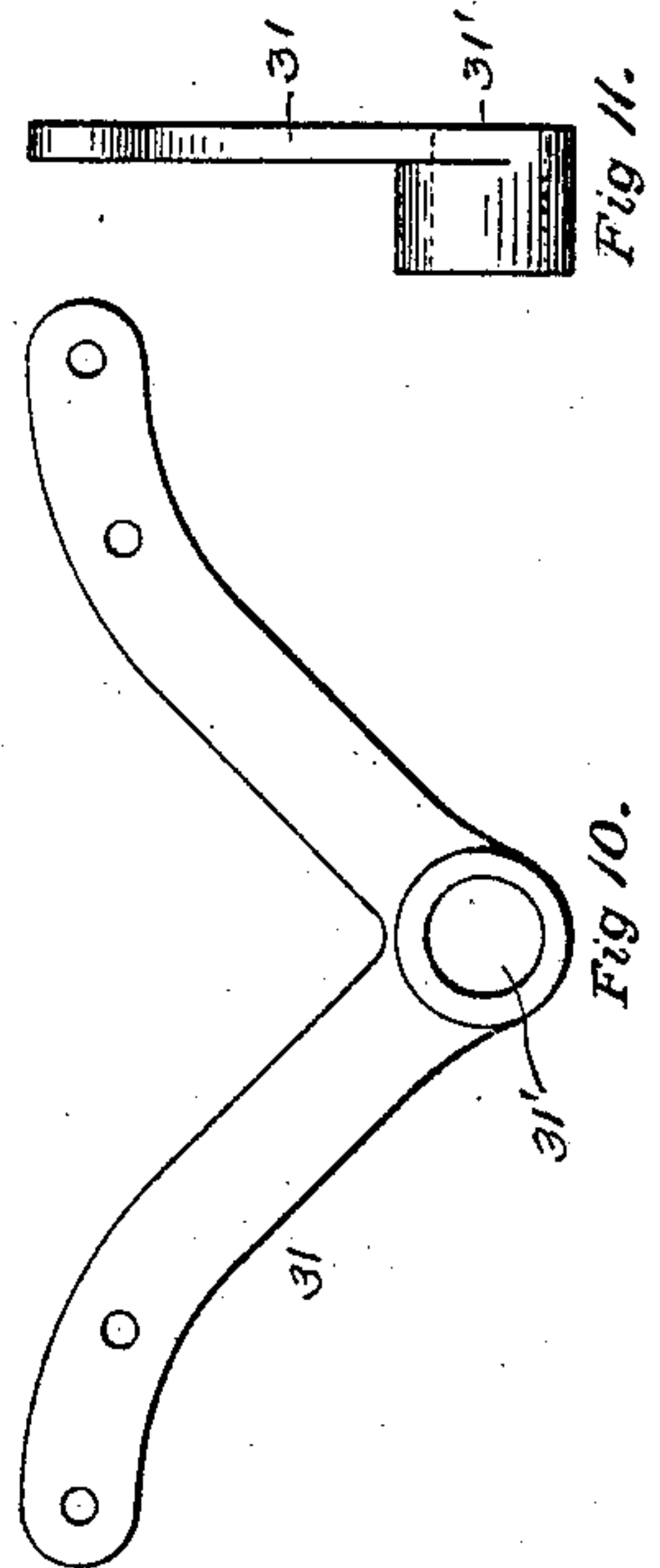


Fig. 10.

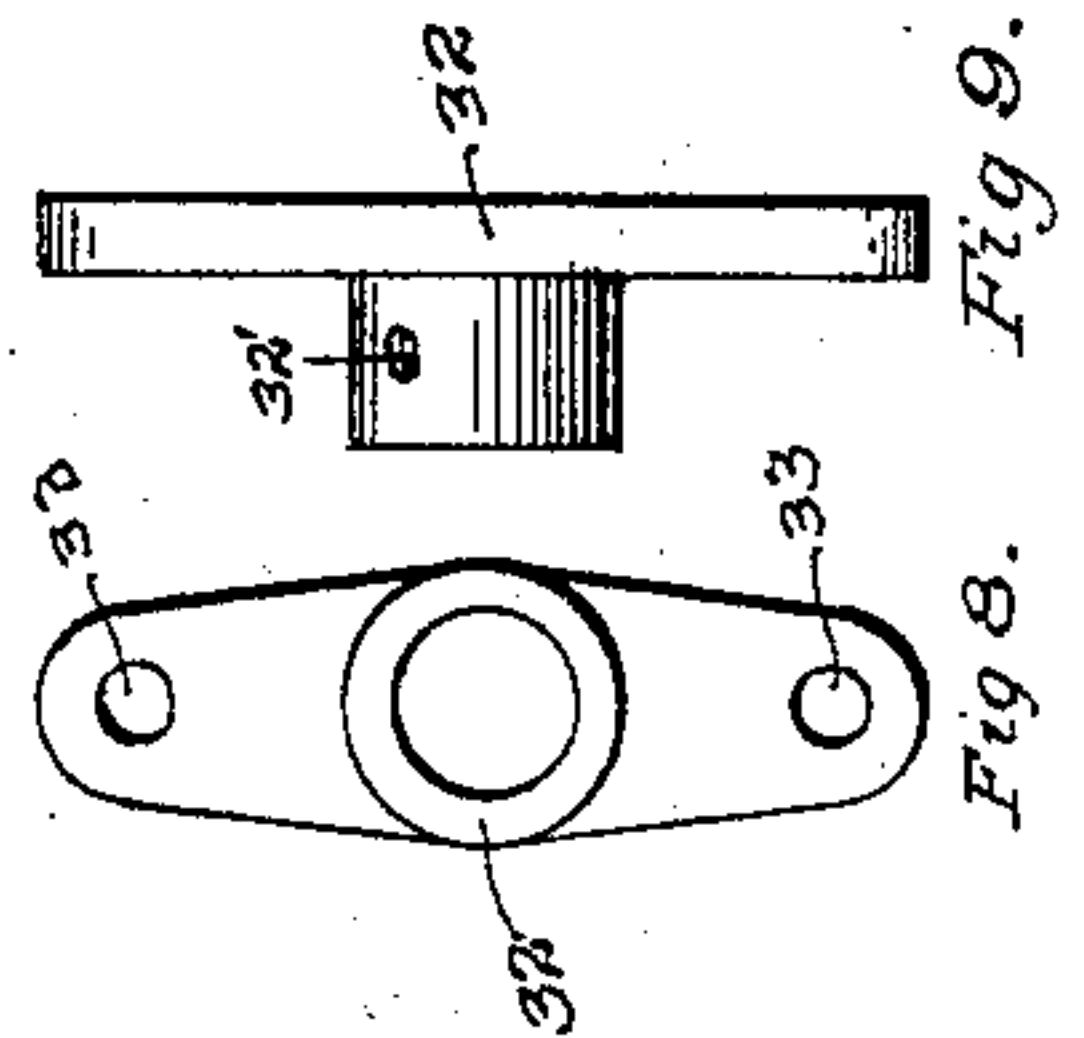


Fig. 8.

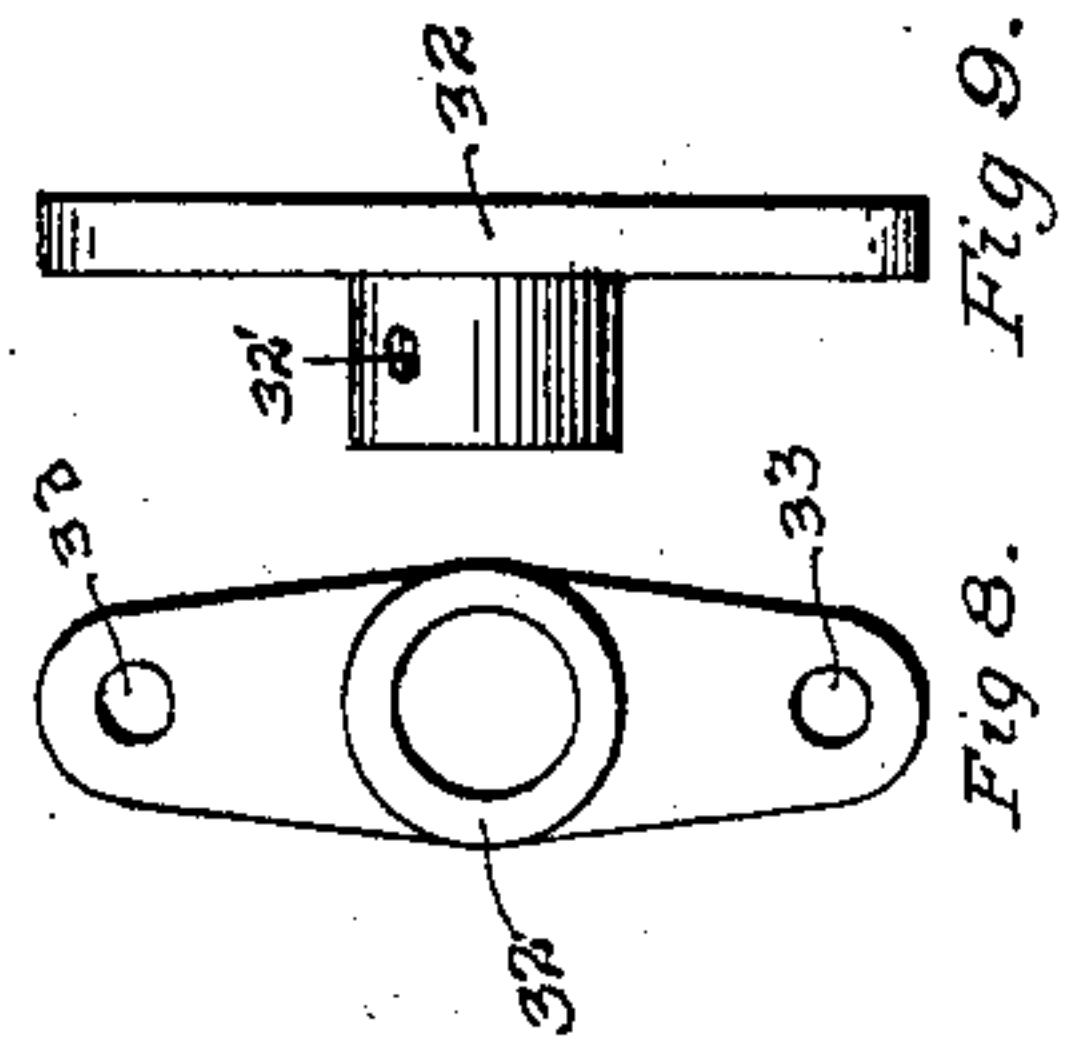


Fig. 9.

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UNITED STATES PATENT OFFICE.

IRVING J. NAUGHTON, OF WATERTOWN, NEW YORK.

CONVERTIBLE STOCK OR STABLE CAR.

No. 795,850.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed January 21, 1905. Serial No 242,163.

To all whom it may concern:

Be it known that I, IRVING J. NAUGHTON, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Convertible Stock or Stable Cars, of which the following is a specification.

This invention relates to improvements in convertible stock or stable cars designed for use in connection with the transportation of live stock upon railroads; and the invention relates particularly to cars of the class described in my pending application for Letters Patent filed July 11, 1904, Serial No. 216,104.

The object of the invention is to improve the construction and operation of convertible stock or stable cars, and especially the car illustrated in the aforesaid application.

The particular object of the invention is to provide simpler, more direct, and more effective means in connection with the hoisting of the movable deck or platform of a stock-car and to improve and simplify the construction and operation of the mechanical means employed for upholding and releasing said movable part; and a further object of the invention is to provide means for adjusting the several cables or chains employed in connection with the hoisting and lowering of said movable deck or floor for the purpose of equalizing or varying the lengths of said cables, and thereby holding or maintaining said deck in a true and level position during its upward and downward movements.

A prominent feature of the invention as compared with previous inventions lies in the substitution of a short branch pipe forming a direct connection between the train-pipe of the air-brake system and the cylinder beneath the car, together with a cut-off cock or valve located in the line of said branch pipe in place of the auxiliary air-pipe running the full length of the car and connecting with said train-pipe by means of a section of air-hose at either end of said car, and another feature lies in the substitution of a simple lever connected by flexible means with a power-drum in place of the geared connection for operating the shaft and cable-drums beneath the body of the car.

Another feature of the invention consists in substituting a single rocking shaft or rod, mounted or journaled in hangers or bearings and extending the full length through the

center of the car, in place of the shafts or rods disposed on the outer sides of the car beneath the eaves, as shown in my former application. By this improvement provision is made for operating the dogs in a simpler and surer manner, also with a less number of parts and at less expense, and the whole of said dog-operating means are located inside the car, where they are not liable to be injured or impaired by coming in contact with foreign objects or by exposure to the elements.

The invention further consists in simplifying the connections between said central rocking shaft and the counterweighted lever at the end of the car.

Other features and the details of the invention will be understood from the accompanying drawings, forming a part of the specification, and in which—

Figure 1 is a plan view of the bottom portion of the car, showing means for adjusting the lengths of the deck-hoisting cables. Fig. 2 is a side view of a stock-car, partly in elevation and partly in section, (the latter being substantially on the line *xx* of Fig. 1,) embodying the present invention. Fig. 3 is a vertical section of the end of a car, substantially on the line *yy* of Fig. 1, showing the lever, additional drum on shaft beneath the car, and the direct air connections, also showing movable deck or platform in full lines resting on the dogs near the top of car, and further showing all of the dog-operating means located inside of the car inclosure. Fig. 4 is an elevation of the upper portion of end of car, showing counterweighted lever connected directly to the central rocking shaft and a rigid stop for the lever. Fig. 5 is an enlarged detail in section showing the deck-holding dogs and related parts and the manner of applying the same to the side timbers of the car. Fig. 6 is an enlarged detail in section showing the dog supporting a section of the movable deck and further showing the means for limiting the forward-and-backward movement of the dog. Fig. 7 is a view in elevation of the shield or plate behind which the deck-upholding parts are disposed. Fig. 8 is an enlarged face view of the rocker-arms. Fig. 9 is a side view of the rocker-arms. Fig. 10 is a front view, enlarged, of the bracket or hanger in which the rocker-shaft is journaled. Fig. 11 is a side view of said bracket or hanger.

Similar reference-numerals are given to cor-

responding parts throughout the several figures of the drawings, and in which—

2 represents the main body of a stock-car.

3 is the air-brake train-pipe.

4 is a branch pipe connecting the train-pipe with a cylinder forming a part of the convertible means.

5 represents a cock or valve in pipe 4 and forms a means of permitting or preventing the passage of a pressure of air from the train-pipe 3 through the branch pipe 4 to said cylinder.

7 is the fluid-pressure cylinder referred to and is intended to represent one of the standard air-brake types commonly used on railway-vehicles. The body of the cylinder 7 has an extended portion 8, which is shown partly in section in Fig. 1 of the drawings and which serves as a guide for the piston rod or stem 9 and also as a housing for the piston-rod. This style of cylinder differs from other makes in that the extended portion of the body is bored out somewhat larger than the diameter of the piston-rod 9, and thus affords a slight universal movement of said rod when the latter is in operation. The piston rod or stem 9 is provided on its outer end with the cross-head 10, which connects with the pivoted lever 11 by means of the pin 12, which passes through the slotted hole 12' of the lever. The object of the slotted hole 12' is the same as that of the large bore of the extended portion of the cylinder to allow the piston-rod to travel in a straight line as it works back and forth. This provision is required because the end of lever 11, to which the piston-rod is connected, swings in a curved line at each operation. The lever 11 is pivoted to the under side of the car by means of the pin 13, which is anchored to the bracket or hanger 14, the latter being secured to the heavy under timbers of the car by the bolts 14'. The long end of the lever 11 is provided with the hole or eye 15, to which the chain or cable 17 is connected. The other end of the chain 17 is connected to and is adapted to be coiled or uncoiled upon the power-drum 18, which is mounted upon the shaft 19. Shaft 19 is journaled in the hangers or bearings 20 20, which are secured to the opposite side sills and to a girder of the car by means of suitable bolts. The drums 21 21 are also mounted upon shaft 19 between the hangers 20 and rotate with said shaft. One end of shaft 19 projects slightly beyond the outside of car-sill, and a ratchet-gear 22 is mounted thereon. A pawl 23 is pivoted to the outer side of the sill in position to engage said ratchet-gear. The object of the ratchet and pawl is to provide means for holding the shaft 19 and the drums thereon from recoiling or unwinding the cables after the deck has been hoisted to top of car, and thereby to assist the other upholding parts in maintaining the said deck in its upper position.

24 24 represent a series of deck-hoisting ca-

bles, each having one end secured to the movable deck in said car, and the other or lower end of each cable is secured to the drums 21, upon which they are coiled and uncoiled for the purpose of hoisting and lowering said movable deck. The cables 24 on each side of the car coil upon the drums in reverse directions. By this arrangement the cables are all coiled and uncoiled at the same time and to the same extent. A turnbuckle 25 is provided on each of the cables 24 and is preferably placed in the position shown in Figs. 1 and 2 on the under side of the car. The object of these turnbuckles is to provide means for adjusting said cables to even or any suitable lengths in order to effect the balancing or leveling of the movable platform or deck. By this means any slack or discrepancy in the length of one or more of said cables can be taken up and any desired length and tension produced and maintained throughout the series in a simple and ready manner. Sheaves or rollers 26 are provided, respectively, at the top and bottom and on both sides of the car-body for the purpose of supporting and guiding the cables 24. The upper ends of the cables 24 are connected with the movable deck 27 at the points numbered 28. There are four of these cables, and their connections with the deck or platform 27 are so arranged as to divide or apportion the weight of the deck equally between the four cables. When the movable platform is used as a deck or floor, it rests upon the girths or beams 29, which are secured to the four inner side walls of the car, as shown in Figs. 2 and 3. In Fig. 3 dotted lines are used to show the deck resting upon said girths or beams in the middle of the car, while in the same figure the deck is shown by full lines resting upon the upholding-dogs near the top of the car, where it is hoisted by means of said cables and the other operating parts when but one deck or compartment is required, as in the case of loading and transporting large animals in said car.

30, in Figs. 2, 3, and 4, represents a shaft or rod extending the full length through the car directly beneath the apex of the roof. Both ends of this shaft extend through and have their bearings in the end walls of the car. Shaft 30 is supported at intervals through the car by the journaled brackets or hangers 31, and 31' represents the bearing for shaft 30 in the brackets 31. These brackets or hangers are secured to the roof-timbers by means of bolts or other suitable fasteners. Double rocker-arms 32 are secured to shaft 30, so that they will rock with said shaft. The outer ends of the rocker-arms are provided with pin-holes or eyes 33, as shown in enlarged detail Fig. 8, at which point the inner end of the levers or rods 34 are connected by means of the pin 35. The outer end of the rods or levers 34 are bent or

formed substantially at right angles to the body of the rods, as indicated by the number 35'. The extreme outer end or point of rod 34 is provided with the cross-head 36, having pin-holes or eyes to receive the pin 37.

38 represents one of a series of deck-upholding dogs, preferably made of malleable cast-iron or annealed cast-steel. Each dog is provided with an upwardly-extending arm or lug 39, also having a pin-hole or eye to receive the pin 37. The rod 34 is connected at its outer end to the dog 38 by means of said pin 37. The dog 38 is also provided with the angular portion 40, which is adapted to be projected into the car a sufficient distance to receive and uphold the movable deck or floor when the latter is hoisted to the top of the car, as shown in Figs. 3 and 6. The dog 38 is further provided with the trunnions or journals 41, which are preferably cast or formed integrally with the body of the dog. In order to hold the dogs 38 in serviceable position on the car, I have provided a series of metallic plates or shoes 42 and 43, between which the dogs are pivotally disposed. These plates are secured to the side timbers of the car-body by means of the bolts 44 and 45. Each of the plates 42 and 43 is provided with oppositely-facing holes 46, which are the bearings for the trunnions 41 of the dogs 38. In order to provide for the free working of the dogs 38 between the plates 42 and 43 the plate 42 is formed on its face side and near each end with the projections or shouldered portions 47 and 48. These shoulders project above the plane of the plate a distance slightly greater than the thickness of the dogs, and the latter are therefore allowed free play. When supporting the deck in its elevated position, the dogs 38 are subjected to a heavy load and strain, the greater part of which is thrown upon the trunnions 41. For the purpose of relieving the trunnions to some extent and to provide against the collapsing or falling of the deck in case the trunnions should become weak or broken, the shoulder or projection 47 on the lower end of plate 42 is formed upon its upper edge to substantially conform to the rounded end of the dog. The effect of this provision is to form a socket-joint between the dog and said shoulder, and thereby greatly increase the strength of the upholding parts. The projection or shouldered portion 48, formed on plate 42 near its upper end, is intended for a stop to limit the inward movement of the dog 38, as shown in Figs. 3 and 6. By this arrangement when a dog is thrown or swung inwardly to catch and hold the platform when elevated the arm 39 of the dog bears against the shoulder 48 and is firmly held in that position.

47' and 48', respectively, represent the bolt-holes in the plates 42 and 43.

50 represents a metallic shield or plate

which is attached to the outside of the car directly over the deck-upholding parts, being held in place by means of the bolts 51. The object of this shield is to prevent rain, snow, and dirt from rusting or otherwise interfering with the free working of the dogs and other upholding parts. This shield is provided with a central longitudinal recess or hollow portion 52, which is disposed directly opposite the hinged coupling or joint formed by connecting the cross-rod 34 and the arm 39 of the dog 38. When the plates or shields 50 and the dogs are in working position, as shown in the drawings, the movement or swing of the upper end of the dog when the latter is thrown outward away from the deck is greater than the thickness of the side wall of the car, and they project some distance beyond the outer surface of the car. The recess 52 is therefore provided on the inner surface of the shield 50, so as to allow a suitable space for the dog to move its required travel and still be protected from the weather and also shielded from injury or breakage by coming in contact with objects along the right of way. The recess 52 also acts as a stop for the dog 38 and its connecting parts, limiting the outward movement thereof.

The rocking shaft 30 at one end of the car projects through the end wall far enough to receive the counterweighted lever 56. The hub 57 of the lever is bored out to fit the shaft and is connected directly with the shaft in a secure manner. The outer or free end of lever 56 is provided with a heavy weight or ball, which is preferably cast upon the end of lever.

60 represents a metallic disk or plate which is rigidly fastened to the end of the car and is provided with a central opening or hole, which affords a bearing for the shaft 30. The disk 60 is also provided with a shouldered projection or boss 61 on the lower side of its face, which is so arranged as to act as a stop for limiting the movement of the lever 56 when it is revolved on its axis. In operating the dogs it is only necessary to give the shaft a partial turn either to the right or left, and the projection 61 is provided to sustain the weight of the lever and ball and at the same time prevent the further turning of the same. When the dogs 38 have been thrown or swung inwardly to uphold the movable deck, the lever and counterweight are in the position shown by the full lines in Fig. 4, and when the dogs are operated or thrown outwardly clear of the deck the lever and weight are in the reverse position. (Shown by the dotted lines of Fig. 4.) The counterweight is intended to be heavy enough to hold all of the deck-upholding parts in either of the two positions described without requiring any other locking means therefor.

The cock or valve 5, located in the branch pipe 4, is of the same general construction as the angle-cocks commonly employed in con-

nection with air-brake piping, except that the port in said valve is small, so as to provide a slow feed therethrough. There is no handle or lever affixed to this valve or cock; but instead the rectangular projecting part 6 is provided, which is adapted to receive a wrench by means of which the valve is to be operated, the object in not providing a handle or lever for this valve being to prevent as far as possible any tampering with the valve.

In order to hoist or raise the movable deck 27 from the girths in the middle of the car, it is necessary, in the first place, to provide a supply of air-pressure for the train-pipe 3. This is usually accomplished by connecting the air-pipes of a locomotive or another car supplied with such pressure, by means of a section of air-hose, to the said train-pipe. Then the cock or valve 5 in the branch pipe 4 is opened by the use of a suitable wrench, as described, and the air will feed through the slow-feed port in said cock or valve into pipe 4 and thence into cylinder 7. By reason of the slow feed referred to the pressure will enter or charge the cylinder in a gradual manner. This provision is made for the purpose of preventing the sudden or too rapid movement of the movable deck or floor in either the upward or downward directions. As soon as the pressure in the cylinder becomes strong enough to actuate the piston the piston and its rod will move outward, and the latter being connected with the lever 11 said lever will be moved or swung on its pivot 13 and the opposite end of the lever will begin to travel away from the power-drum 18, thereby uncoiling the cable or chain 17 from the drum 18. By this means the shaft 19, together with cable-drums 21, are rotated, and the four hoisting-cables 24 are coiled or wound upon the drums 21, and the deck 27 moves gradually toward the top of the car, where it is stopped by contact with the roof-timbers, where it is allowed to remain until some one turns or adjusts the counterweight and lever 56 58 at the end of car in the direction required to effect the setting of the dogs 38 in position to catch and hold the deck in its elevated position.

To accomplish the lowering of the deck or platform from the top of the car to the girths 29, the air-pressure is first applied to the cylinder in the manner described for hoisting the deck. When the cylinder becomes sufficiently charged with the pressure, the platform or deck is lifted up clear of the dogs, and the dogs are swung or thrown outwardly by the operation of the counterweighted lever in the opposite direction, the angular portions 40 of the dogs are withdrawn from under the deck, and the latter is then allowed to descend slowly to its position on the girths in the middle of the car. The slow descent of the deck is accomplished by the operator drawing off the pressure by opening one of the angle-

cocks connected with said train-pipe at either end of the car. By this arrangement the pressure must pass from the cylinder 7 back through branch pipe 4, through the cock or valve 5, which is provided with the slow-feed port, and thence through the train-pipe to the atmosphere. After the pressure has been thus released and the deck has settled down upon the girths the cock or valve 5 is closed, and the conversion of the car from a single to a double deck has been completed.

It is obvious that various modifications of the details described may be made without departing from the spirit of my invention, and I therefore do not restrict myself to the precise construction as shown and described herein.

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

1. In a convertible stock or stable car, the combination with the body of a car and an air-brake train-pipe, of a fluid-pressure-actuated cylinder, a branch pipe connecting directly with said train-pipe and with said cylinder, a cock or valve in said branch pipe provided with a slow-feed port and adapted to be operated with a wrench for the purpose of admitting or excluding a pressure of fluid from said train-pipe to said cylinder, a lever pivoted to the under side of said car and connected to the piston-rod of said cylinder, a cable or chain attached to said lever, a power-drum to which said cable or chain is also attached, a shaft disposed transversely of said car-body upon which said power-drum is mounted, a series of cable-drums mounted near the ends of said shaft, a series of deck-hoisting cables connected to said cable-drums and adapted to coil and uncoil on said drums, a turnbuckle on each of said deck-hoisting cables, adapted for adjusting the lengths of said cables, a movable platform or deck in said car connected with and adapted to be moved upward and downward in said car by means of said hoisting-cables, a rocking shaft running through the center of the car beneath the roof thereof, a series of rocker-arms on said shaft, a cross rod or lever connected with each of said rocker-arms, a series of deck-upholding dogs adapted to either uphold or release said movable deck or platform, a counterweighted lever connected directly to one end of said rocking shaft and adapted to be operated by hand to rock or partially turn said shaft to effect the upholding or releasing of said movable deck, plates or shoes having shoulders thereon adapted to limit the inward movement of said dogs, and recessed shields on the outside of the car adapted to limit the outward movement of said dogs, substantially as shown and described.

2. In a convertible stock or stable car, the combination with the body of a car provided with a movable platform or deck therein, of an

air-brake train-pipe, a fluid-pressure cylinder, a branch pipe forming a direct passage for a fluid-pressure from said train-pipe to said cylinder, a valve having a slow-feed port connected with said branch pipe and adapted to limit the volume of fluid flowing to or from said cylinder, a piston in said cylinder, a rod or stem connected with said piston, a pivoted lever beneath said car connected at one end with said piston-rod, a cable or chain attached to the opposite end of said lever, a power-drum upon which said cable or chain is adapted to be coiled and uncoiled when said lever is operated, a shaft journaled in hangers secured to the under side of said car upon which said power-drum is mounted, cable-drums also mounted on said shaft, a series of deck-hoisting cables connected to said cable-drums and with said movable deck or platform and adapted to be coiled or uncoiled on said cable-drums to effect the raising or lowering of said platform or deck, turnbuckles connecting two sections of each hoisting-cable adapted for adjusting the lengths of said cables, a series of deck-upholding dogs pivotally disposed on the opposite side walls of said car and adapted for upholding or releasing said movable platform or deck, a centrally-disposed rocking shaft suspended by means of journaled hangers from the under side of the car-roof, a series of rocker-arms carried by said shaft, cross rods or levers connecting with said dogs and with said rocker-arms, a counterweighted lever connected to one end of said rocking shaft on the outside of the car and adapted to be operated in directions to effect the upholding or releasing of said platform or deck, and means provided on two sides and one end of the car-body for limiting the movement or travel of said upholding-dogs, substantially as shown and described.

3. In a stock-car of the class described, the combination with the body of the car having a movable deck therein and an air-brake train-pipe thereon, of a fluid-pressure-actuated cylinder in direct and constant connection with said train-pipe, a branch pipe provided with a valve or cock forming said direct and constant connection between the train-pipe and the cylinder, a shaft suspended in journaled brackets from the under side of the car-body, a series of drums mounted on said shaft adapted to rotate therewith, a pivoted lever disposed beneath said car between said cylinder and said shaft, flexible means connecting one end of said lever to one of said drums, a piston in said cylinder, a piston-rod connected at one end with said piston, the other end connected with said lever, a series of deck-hoisting cables connected with two of said drums and with said movable deck, adapted to effect and control the raising or lowering of said deck whenever said cylinder is actuated, means for equalizing or varying the lengths of said cables, a series of deck-upholding dogs pivoted or

journaled between metallic plates secured to the side walls of the car, a rocking shaft extending lengthwise through said car, above said movable deck, journaled brackets or hangers for supporting said rocking shaft in the center of said car, double rocker-arms mounted upon said rocking shaft, angular rods or levers connecting said dogs with said rocker-arms and adapted to operate said dogs inwardly or outwardly when said shaft is rocked, a counterweighted lever secured to one end of said rocking shaft, and means for limiting the revoluble movement of said counterweighted lever and said rocking shaft, substantially as shown and described.

4. In a stock or stable car, the combination with the body of a car, of a rocking shaft extending the length of the car suspended in bearings secured to the under side of the car-roof, a counterweighted lever connected to one end of said shaft adapted to be operated to effect the rocking of said shaft, rocker-arms mounted on said shaft between the end walls of said car, angular rods or levers connected with said rocker-arms and extending transversely of said car from the center to the opposite sides thereof, a series of pivoted dogs disposed on the two sides of the car substantially opposite said rocker-arms connected to the outer ends of said angular rods or levers and adapted to be rocked or moved outwardly and inwardly by the operation of said shaft and levers, recessed shields secured to the outside walls of said car adapted to protect said dogs from rain, snow, and dirt, means for limiting both the outward and inward movement or travel of said dogs, a movable platform or deck in said car adapted to be moved to the top of the car and to be supported and held in said position by means of said dogs, and further adapted to be moved downward from the top of the car and to rest upon a series of girths secured to the four sides of the car between the roof and the main floor thereof, a series of adjustable cables connected with said platform or deck and adapted to raise or lower the same, a series of drums upon which said cables are coiled and uncoiled to effect the raising or lowering of said platform or deck, a shaft journaled beneath said car upon which said drums are mounted, a power-drum also mounted on said shaft, a cable or chain connected to and adapted to be coiled and uncoiled around said power-drum, a pivoted lever connecting with one end of said cable or chain, a fluid-pressure-actuated cylinder beneath said car, a piston in said cylinder, a piston rod or stem connected with said piston and also with one end of said pivoted lever, an air-brake train-pipe on said car, a branch pipe forming a connection between said cylinder and said train-pipe, a cock or valve in said branch pipe adapted to be opened and closed and thereby admit or exclude a volume of fluid-pressure

from said train-pipe to said cylinder, substantially as shown and described.

5. In a stock or stable car, the combination with a platform adapted to be raised and lowered within the car, of a piston-cylinder and connections between it and the platform, a fluid-pressure pipe, and a branch pipe connecting said pressure-pipe with the piston-cylinder and provided with a slow-feed controlling-valve whereby the speed of movement of said platform is controlled, substantially as described.

6. In a stock or stable car, the combination with a platform adapted to be raised and lowered within the car, of upholding pivoted dogs located at opposite sides of the car and adapted to be thrown into and out of the path of movement of the platform, a bearing for the pivotal end of the dogs located to have the end of the dogs rest thereagainst, and relieve the strain on the pivot of the dogs, means lying within the car and operatively connecting the dog on one side of the car to the dog

on the other side, and a housing applied to the outside of the car opposite to said dogs and serving to shield the dogs, substantially as described.

7. In a stock or stable car, the combination with a platform adapted to be raised and lowered within the car, of upholding-dogs arranged at opposite sides of the car and adapted to be thrown into and out of the path of movement of the platform, a rock-shaft extending longitudinally of the car, under its roof, rods connecting said shaft with said dogs, a lever connected to the end of said shaft, and a stop located to have said lever engage therewith in opposite throws of the lever, substantially as described.

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

IRVING J. NAUGHTON.

Witnesses:

EDGAR O. BLOODOUGH,
HARRY DE WALLACE.