No. 728,227. PATENTED MAY 19, 1903.

E. W. HARTOUGH.

DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED FEB. 19, 1902.

NO MODEL. 4 SHEETS—SHEET 1.

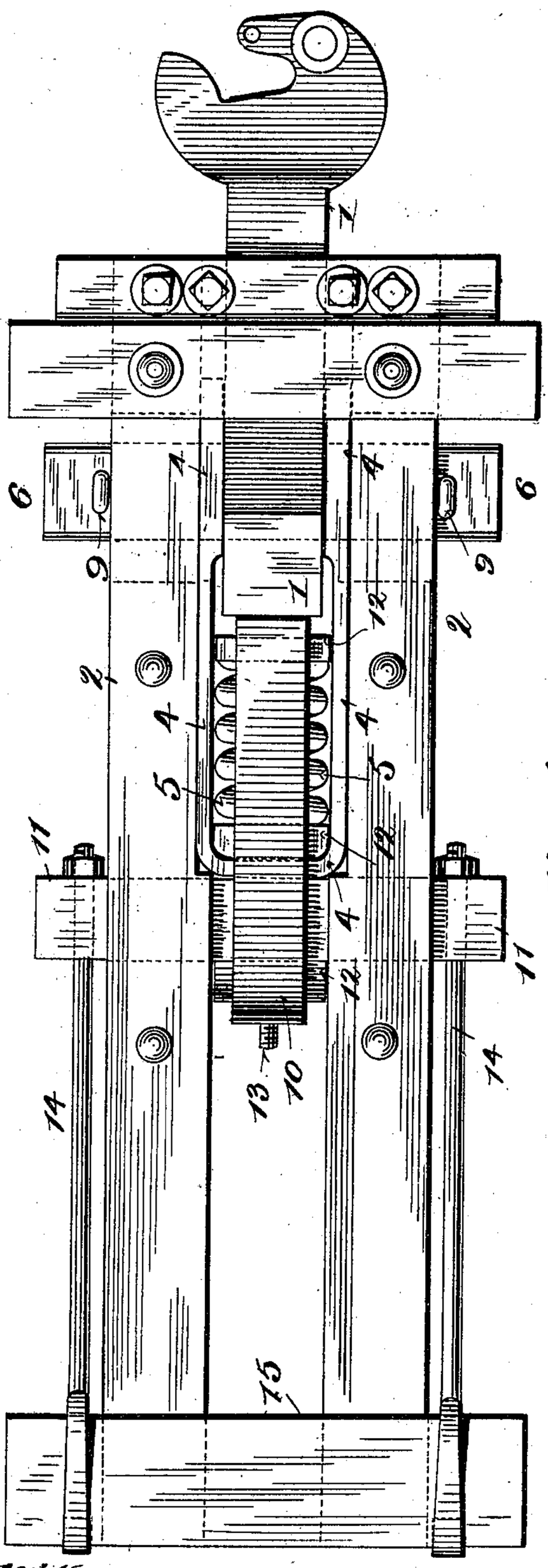

Fig. 1.

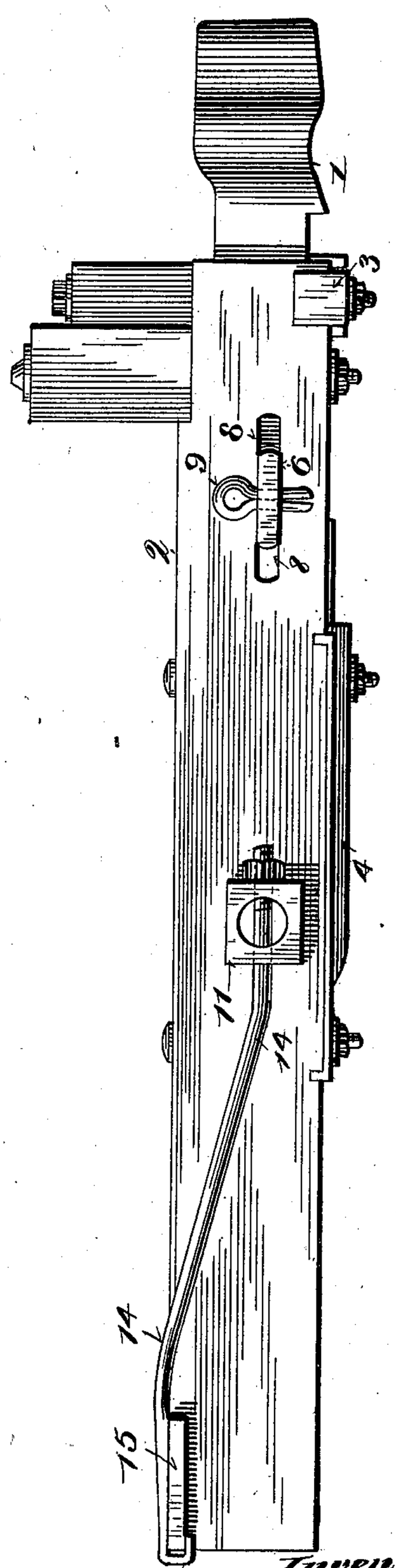

Fig. 2.

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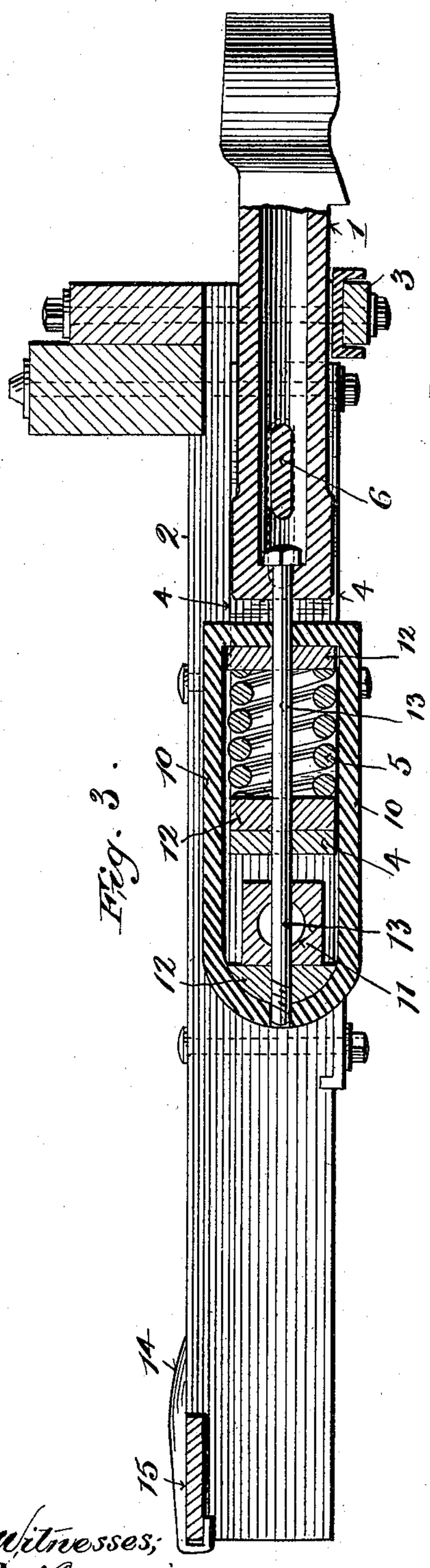

Fig. 3.

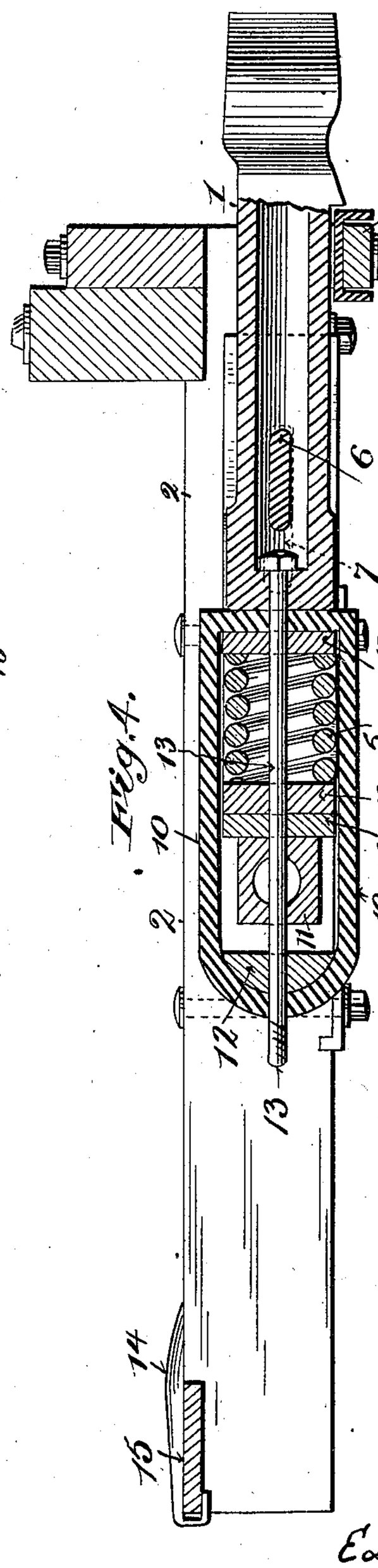

Fig. 4.

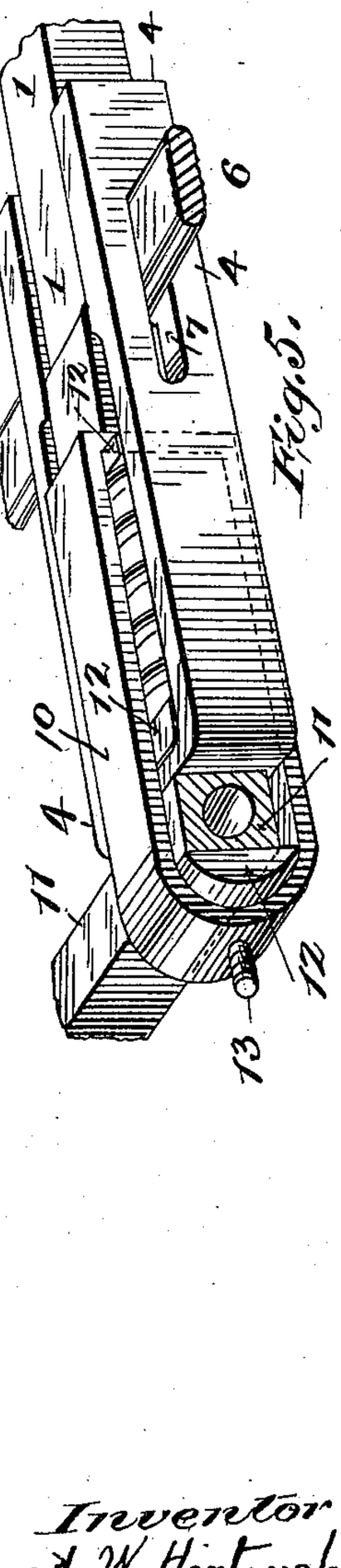

Fig. 5.

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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 12.

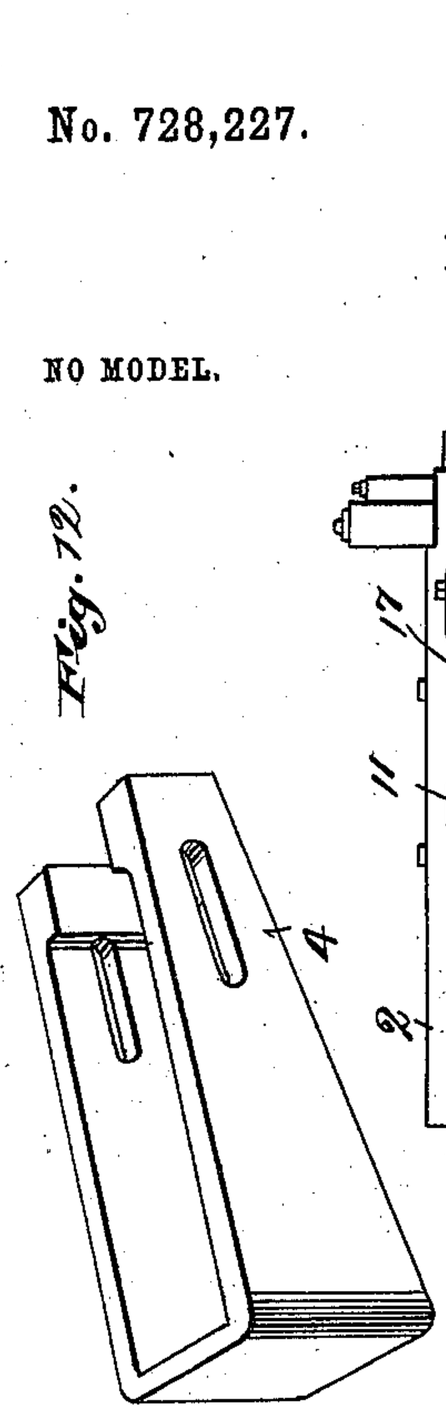

Fig. 8.

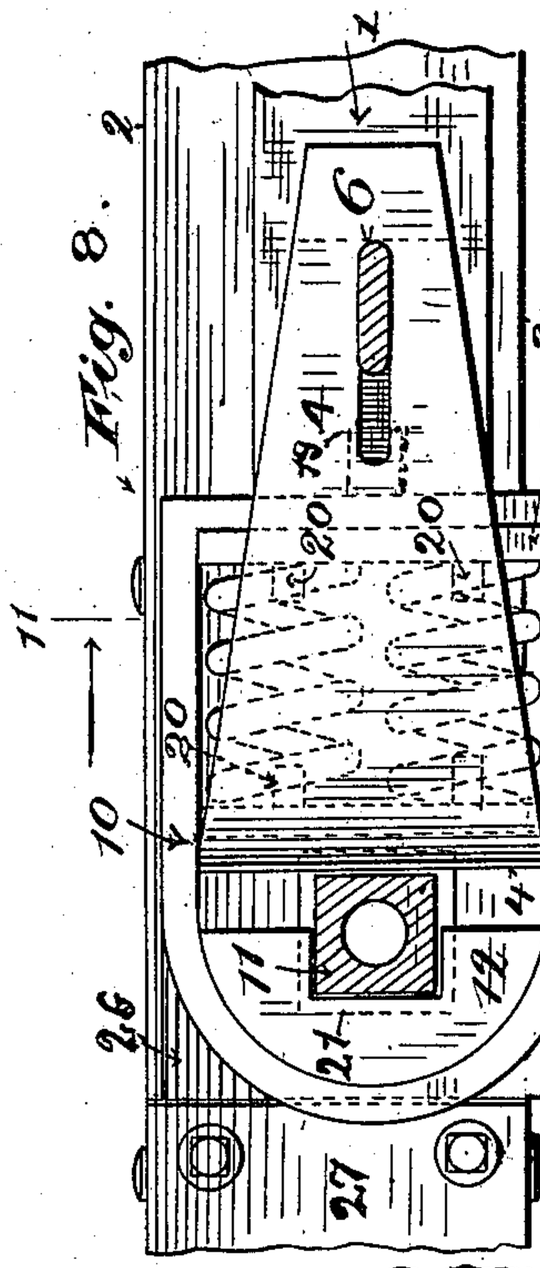

Fig. 9.

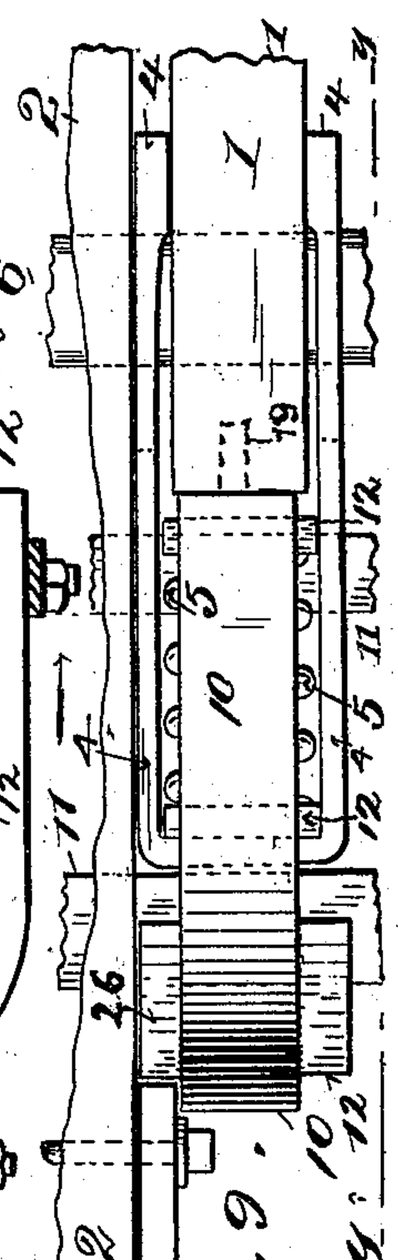

Fig. 11.

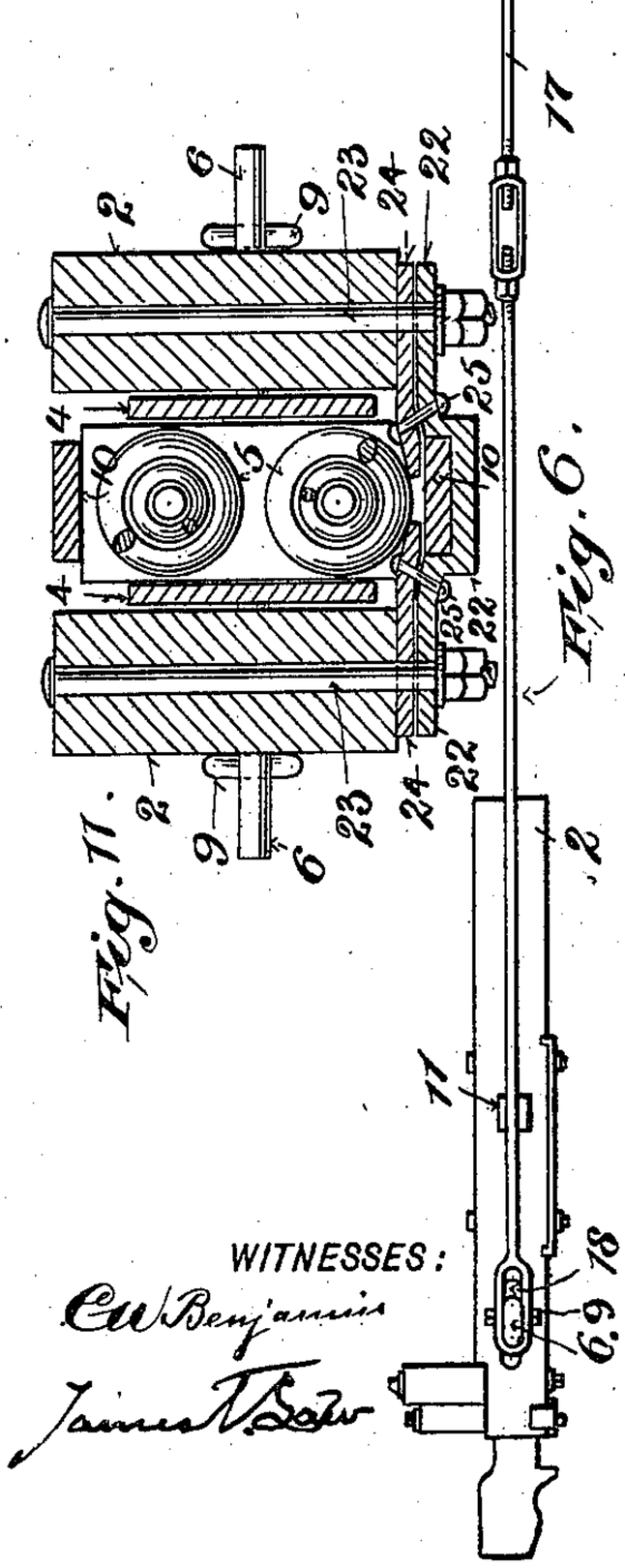

Fig. 6.

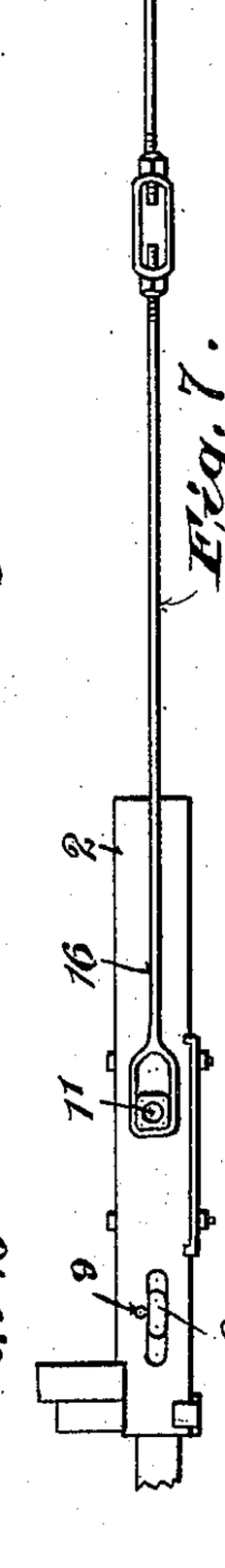

Fig. 7.

Fig. 10.

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DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED FEB. 19, 1902.

NO MODEL. 4 SHEETS—SHEET 4.

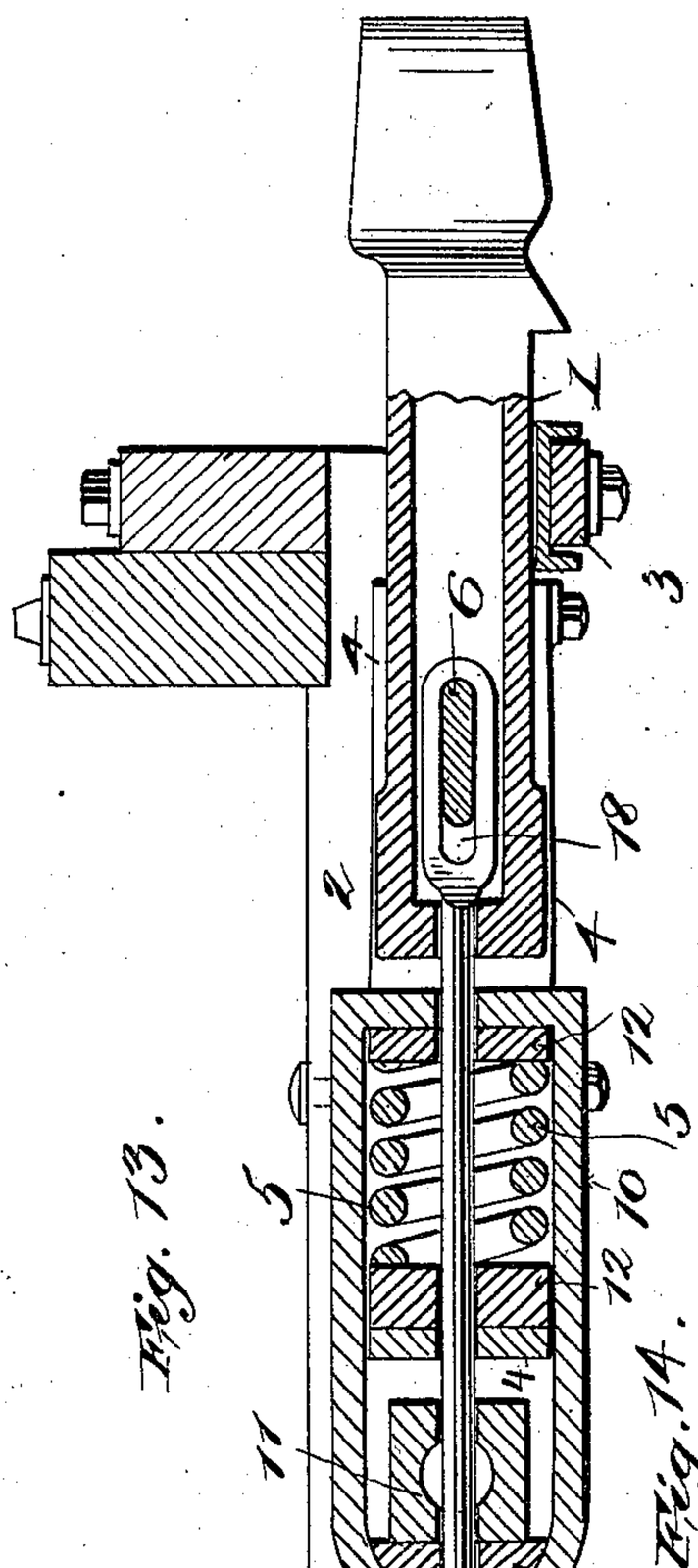

Fig. 13.

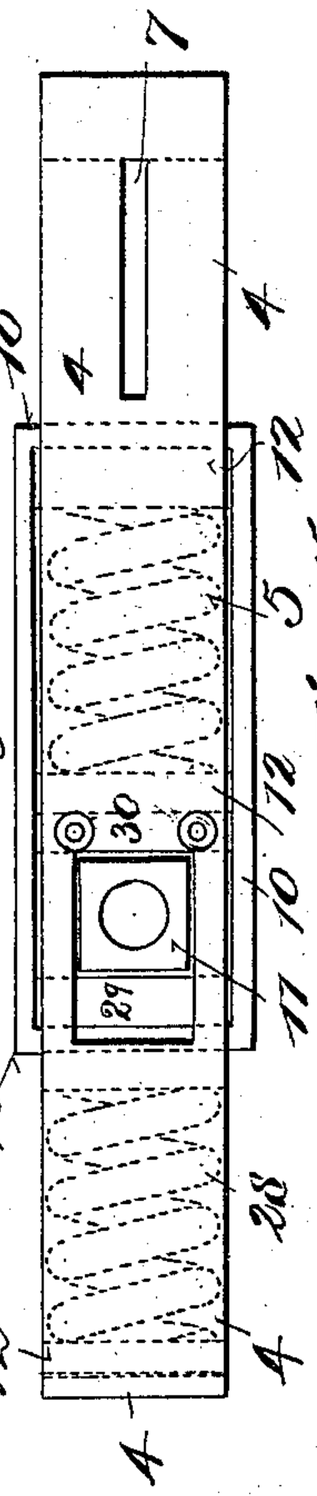

Fig. 14.

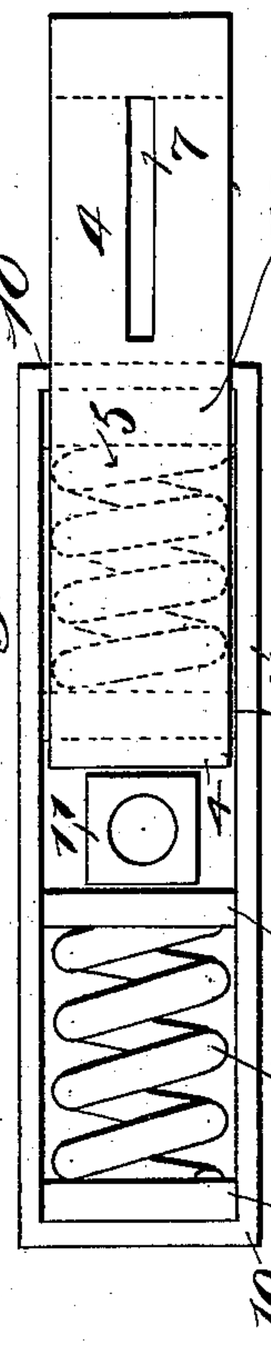

Fig. 15.

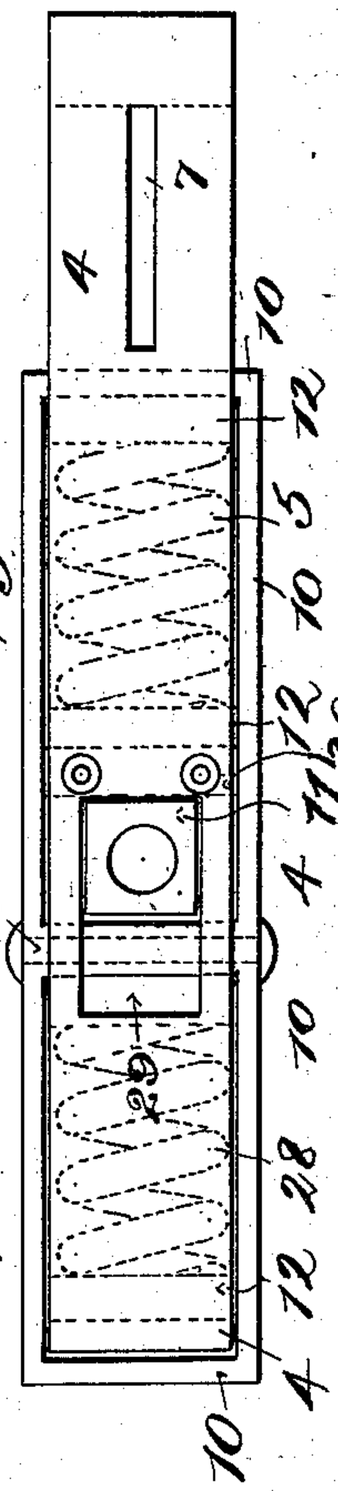

Fig. 16.

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No. 728,227. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

EDWARD W. HARTOUGH, OF THAYER, MISSOURI.

DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 728,227, dated May 19, 1903.

Application filed February 19, 1902. Serial No. 94,741. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. HARTOUGH, a citizen of the United States of America, and a resident of Thayer, county of Oregon, State of Missouri, have invented certain new and useful Improvements in Draft-Rigging for Railway-Cars, of which the following is a specification.

This invention is an improvement in that class of draft-rigging in which the draw-head or coupler is connected to the rigging by a draft-key passing through a slot in the draw-head and rigging and in the draft-timbers; and it consists in the constructions and combinations set forth in the claims herein.

This improvement is designed to produce a draft-rigging which can be readily applied to the cars now in use and which is adapted to the heavy rolling-stock used on railways at the present time.

In the accompanying drawings, illustrating this invention, Figure 1 is a plan view of the improved rigging. Fig. 2 is a side elevation of the rigging shown in Fig. 1. Fig. 3 is a sectional side elevation through the center of Fig. 1, showing the position of parts under tractive force applied to the draw-head. Fig. 4 is the same as Fig. 3, showing the position of the parts under compressive force on the draw-head. Fig. 5 is a perspective view of the rigging detached from the car. Fig. 6 shows the connection of the rigging at each end of the car to form a continuous draft-rigging. Fig. 7 shows a modified construction in which the keys back of the draft-spring are joined or connected together. Fig. 8 is a side elevation, partly in section, through the line *y y*, Fig. 9, showing a modified construction of the rigging, allowing the use of double or twin draft-springs. Fig. 9 is a plan view of the construction shown in Fig. 8. Fig. 10 is a sectional side elevation through the center of Fig. 9. Fig. 11 is a sectional end view through the line 11 11, Fig. 8. Fig. 12 is a view of the yoke in Fig. 8. Fig. 13 is a view of a single draft-rod forming a continuous rigging through the center of the draw-bar and draft-rigging; and Figs. 14, 15, and 16 are views of modified constructions, showing draft-springs back of the key through the draft-timbers.

In this improvement in its preferable form the draw-heads or couplings at each end of the car act independently of each other under both tractive and compressive force, or, when desired, the draw-heads at each end of the car may be connected in such manner that under tractive force both draw-heads will move together, thus forming a continuous draft-rigging, and at the same time such tractive force will be resisted by the springs connected with both draw-heads or the draw-heads at each end of the car.

1 is the draw-head or coupler, situated between the draft-timbers 2 and resting and sliding on the carry-iron 3 on the bottom of the draft-timbers. Within the draft-timbers is a U-shaped yoke 4, whose rear end incloses the back of the draft-spring 5 and whose forward ends lie on each side of the draw-head between the latter and the sides of the draft-timbers. This yoke is connected to the draw-head by a draft key or bar 6, which passes through a transverse slot in the draw-head and through elongated transverse slots 7 and 8 in the yoke and draft-timbers and is held in place by pins 9 on the outside of the draft-timbers. The draw-head may thus be readily connected to or disconnected from the yoke by inserting or removing the draft-key through the slots. The position and construction of the slots 7 in the sides of the yoke are such that in its normal position the key rests against the forward end of the slot, while the rear end of the slots extend back some distance from the rear side of the key, as shown in Fig. 5. If the draw-head is now drawn out under tractive force, the draft-key 6 in the draw-head resting against the forward ends of the slots 7 in the yoke will cause the yoke to move outward with the draw-head, and thus the draw-head and yoke under tractive force will move out together, while if the draw-head is forced inward in the act of bumping the key 6 in the draw-head will merely slide to the rear ends of the slots in the yoke, and the latter will not be affected or moved. Under compressive force, therefore, the draw-head moves independently of the yoke. The slots 8 in the draft-timbers extend forward and back on each side of the key 6 in the normal position, Fig. 2, and the key is thus free to move therein under both tractive and compressive force on the draw-

head or as the latter moves outward or inward.

At the rear of the draw-head or coupler and in connection with the back of the latter is the usual draft-spring 5. This may be a single spring, as shown in Figs. 1 to 5, or a double spring, as is desired. In this construction the draft-spring is fastened or tied by means of a continuous loop or band 10 to a hollow key or bolt 11, inserted through the draft-timbers back of the spring. This loop 10 passes around the front end of the draft-spring within the sides of the yoke 4 and around the back of the key 11, as shown more fully in Fig. 5. The usual follow-plates 12 are placed between the spring and the end of the loop and of the yoke and between the loop and key 11. A tail-bolt 13 on the end of the draw-head passes through the spring and through the loop, yoke, and key 11. This loop 10 is readily placed in position around the spring and around the key 11 between the sides of the yoke, as shown in Fig. 5, and held in place without other attachment or fastening than the tail-bolt, and all the parts of the rigging may be easily and quickly connected with or disconnected from the car.

As will be understood from the above description and from the drawings, the draft-spring is confined between the forward end of the loop 10 and the rear end of the yoke 4, and when the yoke is drawn outward with the draw-head under tractive force applied to the latter, as before described, the spring is compressed between the stationary end of the loop and the moving end of the yoke, Fig. 3, and checks the movement of the draw-head, and, further, as the rear end of the loop is in contact with the back of the key 11 the strain of the spring due to the tractive force in the draw-head is brought to bear against the key 11, and hence on the draft-timbers. When, on the other hand, the draw-head is pushed inward under compressive force, the end of the draw-head is forced against the end of the loop 10, Fig. 4, and sliding the latter inward causes the spring to be compressed between the moving or forward end of the loop and the stationary or rear end of the yoke 4, resting against the key 11, thus checking the inward movement of the draw-head and bringing the strain, as before, against the key 11 and on the draft-timbers. As will thus be seen, under both tractive and compressive force applied to the draw-head the draft-spring is compressed between the yoke and the loop, and the strain of such force is brought on the draft-timbers through the key 11, and, moreover, in the construction above described the tractive and compressive force on the draw-head is met and resisted by the draft-spring back of and connected to the respective draw-heads. Extending back from the outer ends of the hollow key 11 are rods 14, the rear end of which fit or loop over the top of the transom 15 of the car and assist the draft-timbers to resist the tractive force of the draw-head, and, furthermore, these rods serve to keep the timbers from pulling out in case the draft-timber bolts become loose. In place of these rods 14 from the key 11 to the transom of the car the keys 11 at the opposite ends of the car may be connected together by a rod 16, as shown in Fig. 7. When thus connected, the strain due to tractive force on the draw-head at one end of the car is partially met and resisted by the draft-timbers at the other end of the car.

When with this improved rigging it is desired to form a continuous draft-rigging, the draft keys or bolts 6 through the draw-head and yoke at each end of the car are connected together by draw-rods 17, Fig. 6, in the usual manner, or, if desired, by a single draw-rod passing through the back of the draw-bar and through the center of the draft-spring and loop 10 and key 11, as shown in Fig. 13. When thus connected, as the draw-head at either end of the car is pulled out under tractive force the draw-head at the other end is drawn in, and hence the tractive force on the draw-head is resisted by the springs at both ends of the car, and the pulling strain is thus distributed between the rigging at the two ends of the car. By reason of the slots 18 in the ends of the draw-rods 17 extending back of the draft-keys the latter are free to move inward under compressive force applied to either draw-head without affecting the draw-rods or causing them to buckle.

In Figs. 8 to 12 is shown a modification of rigging in which double or twin draft-springs are employed placed side by side back of the draw-head. In this construction the yoke 4 is made higher at the back and tapers toward the front, as shown in Figs. 8 and 12, in order to cover the twin springs, and is made thicker at its outer end to insure greater strength. The loop or band 10 is likewise larger and has on the front end one round lug 19, Fig. 9, which fits into a hole in the rear end of the draw-head 1 and serves to hold the latter in place. With this double or twin spring, as a tail-bolt cannot be used to hold the springs in place, the follow-plates 12 next to the springs are provided with lugs 20, which enter the springs, Fig. 8, and hold them in place between the ends of the yoke and loop. The follow-plate back of the key 11, around which the round end of the loop fits, is preferably constructed with square sides 26, Fig. 9, on each side of the loop, which abut against a block of wood 27, bolted to the inside of the draft-timbers. This construction serves to lessen the strain on the rigging, and particularly on the keys 11, due to severe compression of the draw-head in bunting. The hole in the draft-timbers through which the key 11 passes is preferably bushed with an iron bushing 21 to insure greater strength. To hold the rigging in place in this construction with double or twin springs, I prefer to use the double strap shown in Fig. 11. This consists of an iron strap or strip 22, bolted by

its ends to the draft-timber by the bolts 23 and shaped to fit under and around the loop 10. Above this strip 22 are shorter strips 24, likewise bolted to the draft-timbers by the bolts 23, whose inner ends rest under the lower draft-spring and are secured by the bolts 25 to the lower strip 22. This strap thus secured to the under side of the draft-timbers below the rigging serves to hold the draft-springs and loop and yoke in place and permit their free operation under the movement of the draw-head.

In Figs. 14, 15, and 16 are shown constructions in which there are additional draft-springs back of the key 11. In Fig. 14 the yoke 4 is extended back of the key 11 and incloses the additional draft-spring 28 back of the key. In the sides of the yoke are elongated slots 29, through which the key 11 passes, the construction of which is such that when the yoke is in its normal position, as shown in the drawings, the key rests in the forward end of the slots. Attached to the sides of the yoke in front of the key 11 and resting against the latter when the parts are in their normal positions is a partition 30, which moves with the yoke as the latter is drawn out. The forward draft-spring 5 is thus confined between the front end of the loop 10 and the partition 30, attached to the yoke, and the rear spring 28 between the rear end of the yoke and the back of the loop. In this construction as the draw-bar is drawn forward under tractive strain and draws out the yoke 4, the elongated slot 29 allowing the yoke to slide past the key 11, the forward spring 5 is compressed between the moving partition 30, attached to the yoke and the front end of the loop 10, and the rear spring 28 is compressed between the back of the loop and the moving rear end of the yoke. Under compressive force when the draw-bar is pushed in and forces inward the loop 10 the front spring is compressed between the moving front end of the loop and the partition 30, resting against the key 11, and the rear spring is compressed between the rear end of the stationary yoke and the back of the loop. Both the tractive and compressive force on the draw-bar in this construction are therefore resisted by both the front and rear springs.

In the construction shown in Fig. 15 the loop 10 is extended back of the key 11 and incloses the rear spring 28, while the yoke 4 rests against the front of the key, as in the other constructions shown in Figs. 1 to 13. The front draft-spring 5 is thus inclosed between the front end of the loop and the rear end of the yoke, and the rear draft-spring 28 between the rear end of the loop and the key 11. Under tractive force, as the yoke 4 is drawn out with the draw-bar, the front spring 5 is compressed between the moving rear end of the yoke and the front end of the loop. As the spring 28 is interposed between the rear end of the loop and the key 11, and thus offers a yielding resistance to the pressure on the front end of the loop, the latter is drawn out with the yoke and the rear spring compressed. Under tractive force, therefore, in this particular construction both the yoke and the loop are drawn out with the draw-bar and the tractive force is resisted by both the front and rear springs, thus insuring a double resistance. Under compressive force the draw-bar forces the front end of the loop inward and compresses the front spring 5.

In the construction shown in Fig. 16 both the yoke 4 and the loop 10 are extended back of the key 11. In the sides of the yoke are elongated slots 29, as in the construction shown in Fig. 14, and attached to the yoke in front of the key 11 in the partition 30. A similar partition 31 is attached to the sides of the loop back of and resting against the key 11 as the parts are in their normal position. As in Fig. 14, the forward draft-spring is confined between the front end of the loop and the partition 30, attached to the yoke, and the rear spring is confined between the rear end of the yoke and the partition 31, attached to the loop. Under tractive force as the yoke is drawn outward with the draw-bar the forward spring is compressed between the front end of the loop and the partition 30, moving with the yoke, and the rear spring is compressed between the back end of the yoke and the partition 31 on the loop, resting against the key 11. Under compressive force as the loop is pushed inward with the draw-bar the forward spring is compressed, as in Fig. 14, between the front end of the loop and the partition 30 on the yoke, resting against the key 11, and the rear spring is compressed between the partition 31, attached to the moving loop, and the rear end of the stationary yoke. As in Fig. 14, both the forward and rear springs resist the movement of the draw-bar under tractive and compressive force. In the drawings single springs are shown; but double springs may be used, if desired. As will thus be seen, in this improvement the rigging at each end of the car is separate and distinct in its operation, and the resistance of both the tractive and compressive force on the draw-head is met by the draft-spring attached to that draw-head; but, if desired, the rigging at the opposite ends of the car may be connected, and thus form a continuous rigging, and in that case the draft-springs at both ends of the car resist the tractive force of the draw-head.

This improved rigging may be readily substituted for the rigging now in use without necessitating any change or alteration in the construction of the car, and particularly where the rigging previously used was of that class employing a draft-key to connect the draw-head and rigging.

I do not wish to confine myself to the exact construction and form of the parts here shown and described, as the construction and form of the parts may be varied without departing from the spirit of my invention.

What I claim is—

1. In a draft-rigging for cars, the combination with the draw-head and draft-spring, of a yoke passing around one end of the draft-spring and connected to the draw-head by a key passing through slots in the ends of the yoke, whereby the yoke is drawn out with the draw-head under tractive force; and a loop passing around the opposite end of the draft-spring, and around a member connected to the car, substantially as described.

2. In a draft-rigging for cars, in combination, a draw-head; a draft-spring at the rear end of the draw-head; a yoke encircling one end of the draft-spring and connected to the draw-head by a key passing through slots in the yoke, whereby the yoke is drawn out with the draw-head under tractive force; a loop encircling the other end of the spring, and passing around a member connected with the car, whereby the resistance of the draft-spring is brought to bear on the car; and a member connected to the car, around which the loop passes, substantially as described.

3. In a draft-rigging for cars, in combination, a draw-head; a draft-spring at the rear end of the draw-head; a yoke 4 passing around one end of the draft-spring and connected to the draw-head by a key passing through slots in the end of the yoke, whereby the yoke is drawn out with the draw-head under tractive force applied to the latter; draft-key 6 passing through the draw-head; loop 10 passing around the opposite end of the draft-spring and around a key connected to the car whereby the resistance of the draft-spring is brought to bear on the car; and the key 11 connected to the car around which the loop passes, substantially as described.

4. In a draft-rigging for cars, in combination with the draft-timbers on the car; a draw-head; a draft-spring at the rear end of the draw-head; yoke 4 passing around one end of the draft-spring and connected to the draw-head by a key, passing through slots in the ends of the yoke, whereby the yoke is drawn out with the draw-head under tractive force applied to the latter; draft-key 6 passing through the draw-head and through slots in the yoke and draft-timbers; loop 10 passing around the opposite end of the draft-spring and around the key 11 connected to the draft-timbers, whereby the resistance of the draft-spring is brought to bear on the draft-timbers; and the key 11 passing through the draft-timbers around which the loop passes, substantially as described.

5. In a draft-rigging for cars, having a yoke 4 connected to the draw-head by a key 6, and passing around one end of the draft-spring, and a loop 10 passing around the other end of the draft-spring and around a key 11 connected to the draft-timbers of the car, the combination with the yoke 4 and loop 10 inclosing the draft-spring, of the key 11 and the rod 14, substantially as described.

6. In a draft-rigging for each end of a car, in combination, a draw-head; a draft-spring at the rear end of the draw-head; a yoke 4 encircling one end of the draft-spring and connected to the draw-head by the draft-key 6, passing through slots in the yoke and through the draw-head, whereby the yoke is drawn out with the draw-head under tractive strain applied to the latter; loop 10 encircling the opposite end of the spring, and the key 11 passing through the draft-timber of the car; key 11 connected to the draft-timbers of the car, and around which the loop passes, by which the resistance of the draft-spring is brought on the draft-timbers; and draft-rod 17, provided with slotted ends, connected to the draft-key 6 at each end of the car, whereby as the draw-head is drawn out the draft-springs at both ends of the car are compressed, substantially as described.

7. In a draft-rigging for cars having a draw-head and draft-spring; in combination, the yoke 4 connected to the draw-head by the draft-key 6; draft-key 6, passing through slots in the yoke, and through the draw-head; loop 10; and key 11 passing through the draft-timbers of the car, substantially as described.

8. In a draft-rigging for cars in combination with the draft-timbers on the car, a draw-head; a draft-spring 5 between the draw-head and the key 11 passing through the draft-timbers; a second draft-spring 28, back of the key 11; yoke 4 passing back of the draft-spring 28, having the partition 30, and connected to the draw-head by a key, passing through slots in the ends of the yoke; draft-key 6 passing through the draw-head and through slot in the yoke and draft-timbers; loop 10 passing around the end of the key 11; and the key 11; substantially as described.

9. In a draft-rigging for cars, in combination with the draft-timbers on the car, a draw-head; a draft-spring 5 between the draw-head and the key 11 passing through the draft-timbers; a second draft-spring 28 back of the key 11; yoke 4 passing around the rear end of the draft-spring 5, and connected to the draw-head by the key 6; draft-key 6 passing through the draw-head and through slots in the yoke and in the draft-timbers; loop 10 passing around the draft-springs 5 and 28; and the key 11 substantially as described.

Signed by me at Thayer, Oregon county, Missouri, this 5th day of February, 1902.

EDWARD W. HARTOUGH.

Witnesses:

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