(No Model.) 3 Sheets—Sheet 1.

G. G. F. BOSWELL.

CAR SCALE.

No. 460,521. Patented Sept. 29, 1891.

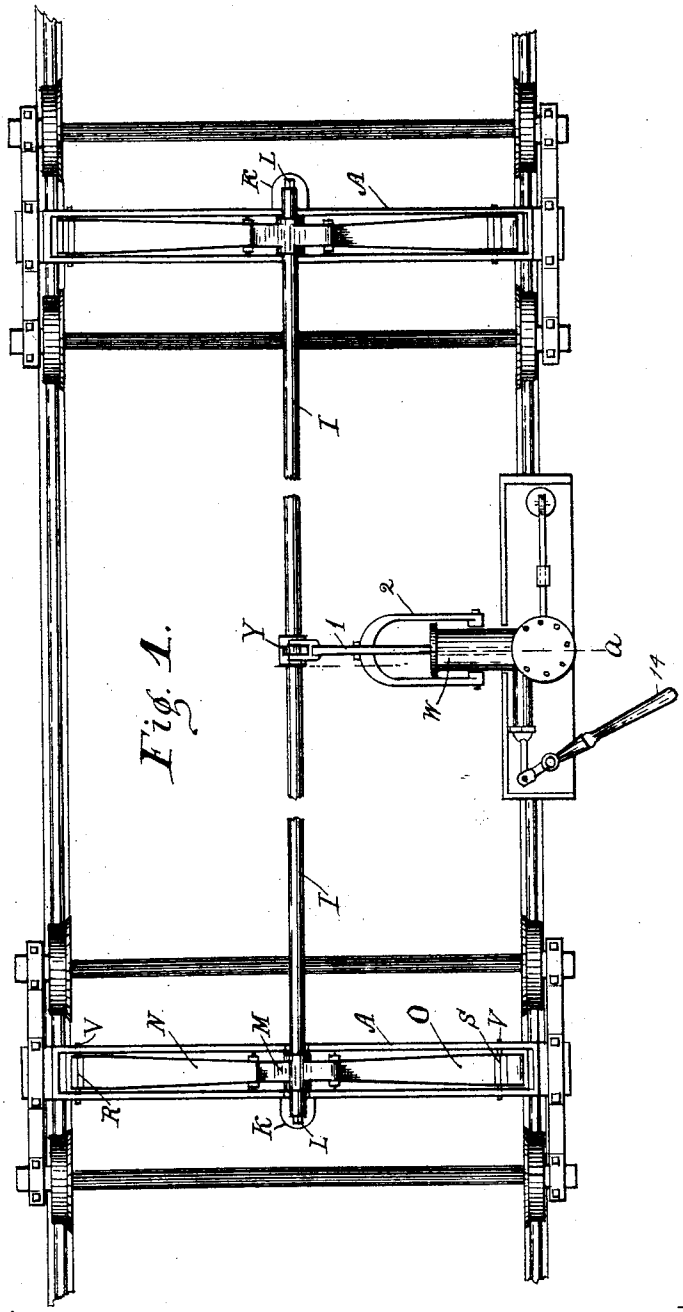

Fig. 1.

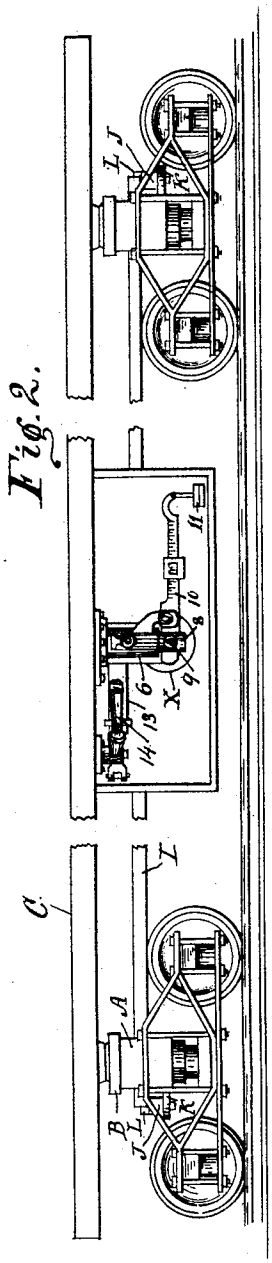

Fig. 2.

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E. K. Hood.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

G. G. F. BOSWELL.

CAR SCALE.

No. 460,521. Patented Sept. 29, 1891.

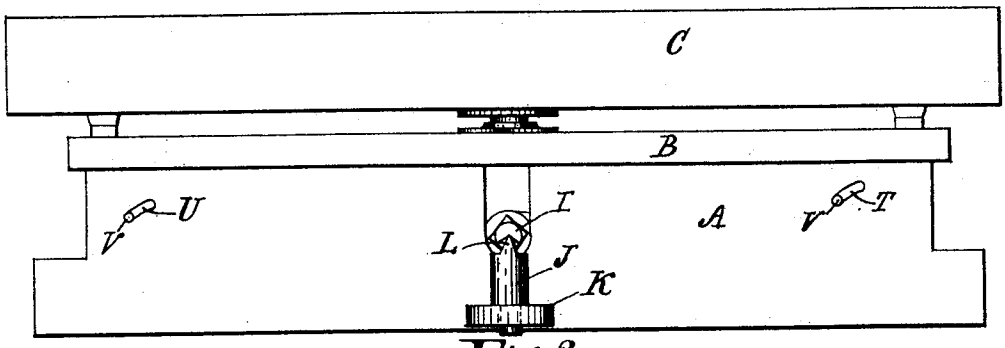

Fig. 3.

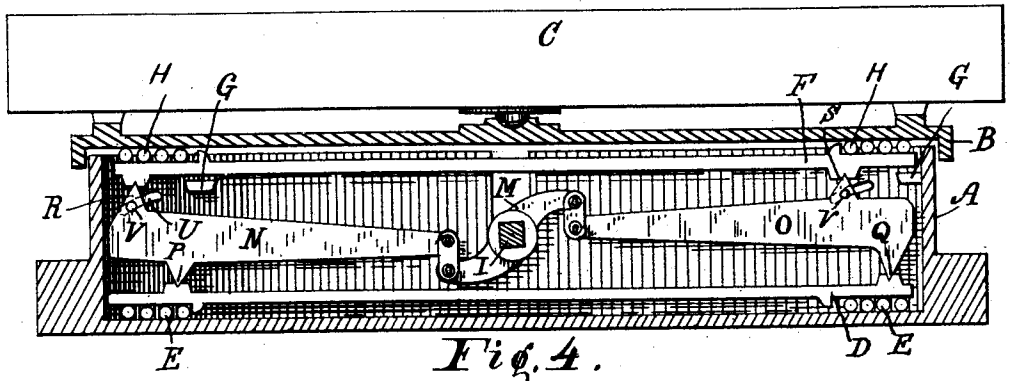

Fig. 4.

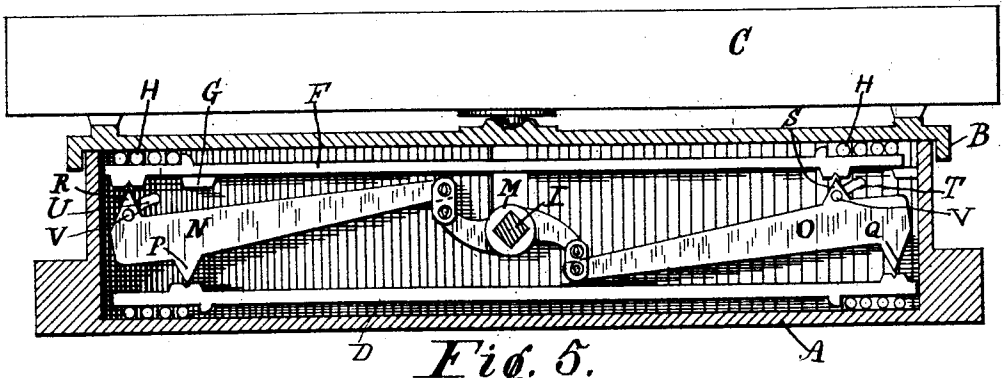

Fig. 5.

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(No Model.) 3 Sheets—Sheet 3.

G. G. F. BOSWELL.

CAR SCALE.

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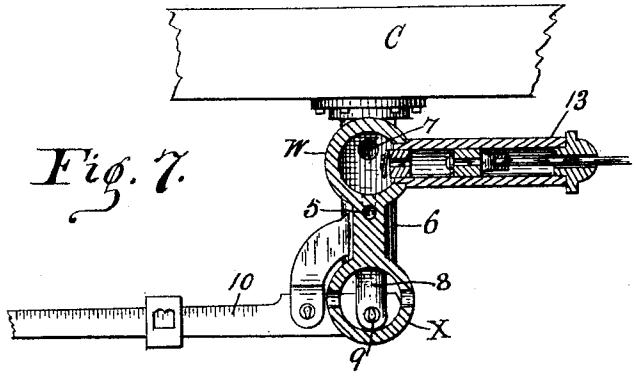

Fig. 7.

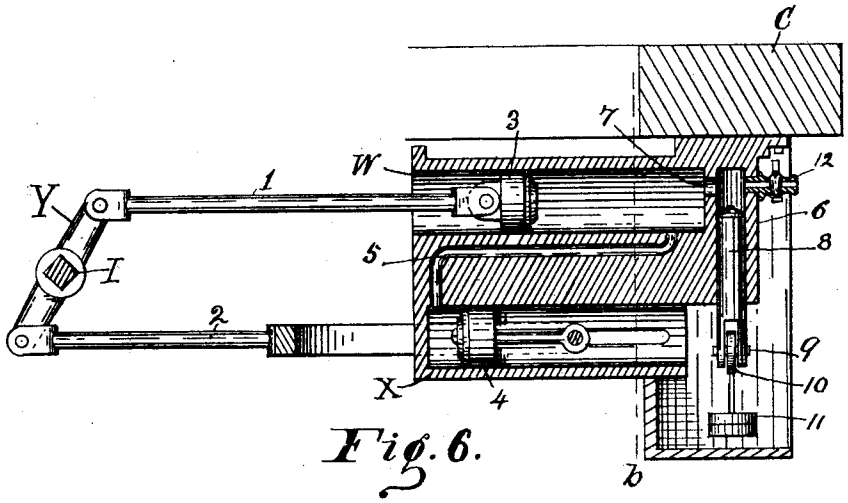

Fig. 6.

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C. K. Hood.

Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE G. F. BOSWELL, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-FIFTH TO FRANK B. DAVENPORT, OF SAME PLACE.

CAR-SCALE.

SPECIFICATION forming part of Letters Patent No. 460,521, dated September 29, 1891.

Application filed January 26, 1891. Serial No. 379,094. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. F. BOSWELL, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Car-Scale, of which the following is a specification.

My invention relates to an improvement in car-scales of that class in which the body of the car and its load are raised from the running-gear and its weight indicated by means of mechanism carried upon the car.

The object of my improvement is to provide improved means for lifting the car when the load is to be weighed and for relieving the pressure on the bearings of the scale mechanism when not in action, all as hereinafter fully set forth.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of the running-gear and weighing mechanism, the body of the car being removed. Fig. 2 is a side elevation with the body of the car in position. Fig. 3 is a front elevation, on an enlarged scale, of one of the bolsters of the car-truck. Fig. 4 is an interior view of the bolster, showing the scale-levers in action and the body of the car raised. Fig. 5 is an interior view of the bolster, showing the scale-levers out of action and the car-body resting on the bolster. Fig. 6 is a section at *a*, Fig. 1, on an enlarged scale. Fig. 7 is a section at *b*, Fig. 6.

The bolster of each truck-frame of a car consists of a hollow metallic box A, having a loosely-fitting cover B, on which the car-body C is mounted in the usual manner.

Arranged within box A is a plate D, extending nearly the entire length of the interior of the box and resting upon friction-rollers E E, which lie upon the bottom of the box. A similar plate F is mounted in the upper part of the box, and is supported, when at rest near the top of the box, by lugs G, projecting interiorly from the sides of the box. A series of friction-rollers H H is arranged between plate F and the top B of the box.

The truck-frames at each end of the car are connected by a longitudinal rock-shaft I, which passes transversely through each of the bolster-boxes A and rests at each end, respectively, upon a short standard J, pivoted in a bracket K, projecting from the outside of the bolster-box, the upper end of standard J being provided with a knife-edge L, and the shaft being notched, so that its center rests upon the knife-edge L, as clearly shown in Fig. 3.

Mounted upon shaft I so as to turn therewith, within each of the bolster-boxes A, is a yoke M. A pair of levers N and O are suspended from the opposite ends of yoke M. Said levers are fulcrumed on knife-edges P and Q, which rest on plate D near its ends. Levers N and O are also provided with knife-edges R and S, which are arranged to engage, respectively, plate F near its ends.

For the purpose of withdrawing the knife-edges from engagement with plates D and F slots T and U are formed in each side of box A, and a pin V projects from each of the levers into said slots, respectively, the arrangement being such that when the long end of lever O is depressed and the corresponding end of lever N is raised the pins V engage the lower ends of slots T and U, as shown in Fig. 3, and said pins then become fulcrums for the levers and the knife-edges are withdrawn from plates D and F, as clearly shown in Fig. 5.

For the purpose of partially turning shaft I and thereby actuating, simultaneously, the yokes M and levers N and O of each of the bolster-boxes A, I mount on the car-body, near the middle of its length, at one side, a pair of cylinders W and X, Fig. 6, and secure to the rock-shaft I a lever Y. The opposite ends of lever Y are connected, respectively, by connecting-rods 1 and 2 with pistons 3 and 4, mounted, respectively, in the cylinders W and X. The opposite ends of cylinders W and X are connected by a passage 5.

Formed in the same casting with cylinders W and X is a vertical cylinder 6, the interior of which is connected with the interior of cylinder W by a passage 7. Mounted in cylinder 6 is a piston 8, which is formed at its lower end so as to embrace and rest upon the knife-edges 9 of a scale-beam 10, which is suspended from cylinder 6, and is provided with suitable counterpoise-weights 11. Cylinder 6 is also provided above piston 8 with a petcock 12.

The pistons 3 and 4 are fitted to move air-

tight in their respective cylinders, and cylinder W is connected with an air-pump 13, which may be mounted in any suitable position on the car, but is preferably connected directly to the cylinder, as shown. Pump 13 is operated by means of a lever 14, projecting from the side of the car.

The operation of my device is as follows: When the car is at rest or moving from place to place, the top B rests upon the upper edges of box A, the body of the car rests upon the top, and the box A performs the functions of the ordinary truck-bolster, the scale-levers N and O being in the position shown in Fig. 5. To weigh the body of the car and its contents pump 13 is operated, thus compressing the air in cylinders W and X and forcing piston 3 outward and piston 4 inward. The movement of pistons 3 and 4 is communicated to rock-shaft I through connecting-rods 1 and 2 and lever Y, thus bringing yokes M and levers N and O into the position shown in Fig. 4. By this movement of the levers their knife-edges are brought into engagement with plates D and F, and the top B of each box A is raised clear of the upper edge of the box, thus raising the car-body and its load, which is now sustained by the compressed air in cylinders W and X, which pressure is communicated through opening 7 to the piston 8 in cylinder 6, and the piston, resting upon the scale-beam 10, may be counterbalanced by weights 11, thus indicating the weight of the car and its contents. The car and the weighing mechanism are restored to their normal positions by opening petcock 12.

I claim as my invention—

1. In a car-scale, the combination of a pair of truck-frames, each having a hollow bolster-beam provided with a movable top, a car-body mounted on said top, a system of levers mounted within each of said bolster-beams and arranged to engage and lift said movable top, a rock-shaft connecting said system of levers in the two bolster-beams, whereby they are operated simultaneously, a scale-beam, and intermediate connecting mechanism connecting said scale-beam and rock-shaft, whereby the movement of the rock-shaft may be counter balanced by weights applied to the scale-beam and the weight of the car-body and its contents indicated, substantially as set forth.

2. In a car-scale, the combination of the pair of truck-frames, each having a hollow bolster-beam provided with a movable top, the car-body mounted on said top, the system of levers mounted within each of said bolster-beams and arranged to engage and lift said movable top, the rock-shaft connecting said system of levers in the two bolster-beams, whereby they are operated simultaneously, the cylinder mounted on the car-body, the piston mounted in said cylinder and connected with said rock-shaft, the air-pump connected with said cylinder, the scale-beam, and the piston connected with said scale-beam and mounted in a cylinder which communicates with said first-mentioned cylinder, all arranged to co-operate substantially as shown and described, whereby the car-body is lifted by the operation of the air-pump and its weight is indicated by the scale-beam, substantially as set forth.

3. In a weighing mechanism, the combination, with a rock-shaft and a system of levers connected thereto and arranged to lift the load when the rock-shaft is turned, of lever Y, mounted on the shaft so as to turn therewith, cylinders W and X, carrying pistons which are connected with opposite ends of said lever and arranged to move in opposite directions in said cylinders, the passage 5, connecting the opposite ends of the cylinders, air-pump 13, whereby the air is compressed in the cylinders and the rock-shaft is turned, and indicating mechanism connected with the interior of the cylinders and arranged to indicate the amount of pressure contained therein, substantially as and for the purpose set forth.

4. In a car-scale, the combination of the hollow bolster A, top B, plates D and F, friction-rollers E and H, shaft I, yoke M, and levers N and O, having their long ends connected with the yoke M, all arranged to co-operate substantially as and for the purpose set forth.

5. In a car-scale, the combination of a hollow bolster A, having slots T and U, the scale-levers having knife-edges P, Q, R, and S and pins V, yoke M, connecting the ends of said levers, and shaft I, all arranged to co-operate substantially as set forth, whereby said knife-edges are withdrawn from their bearings, substantially as shown and described.

GEORGE G. F. BOSWELL.

Witnesses:
F. B. DAVENPORT,
H. P. HOOD.