

No. 682,318.

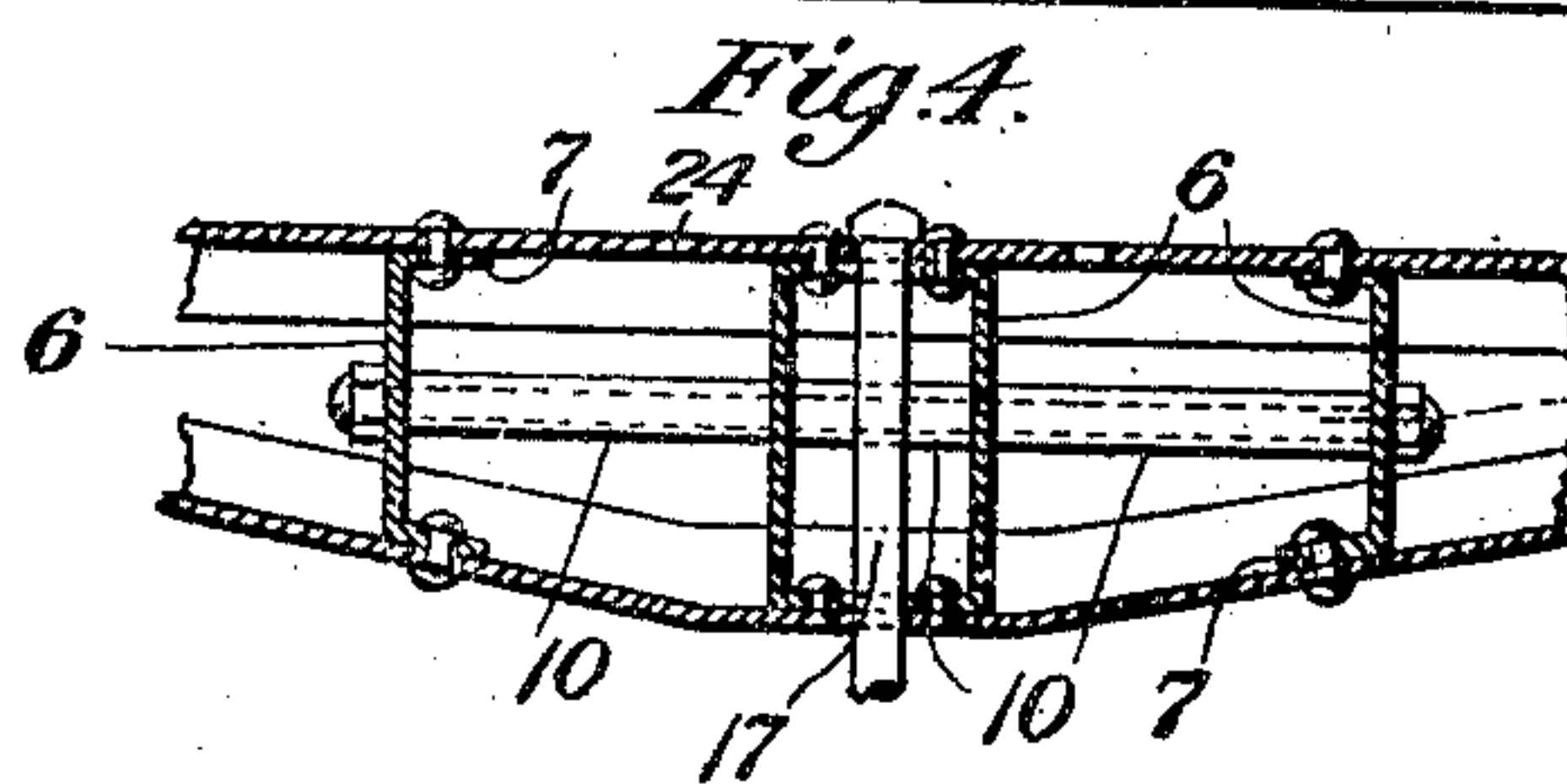
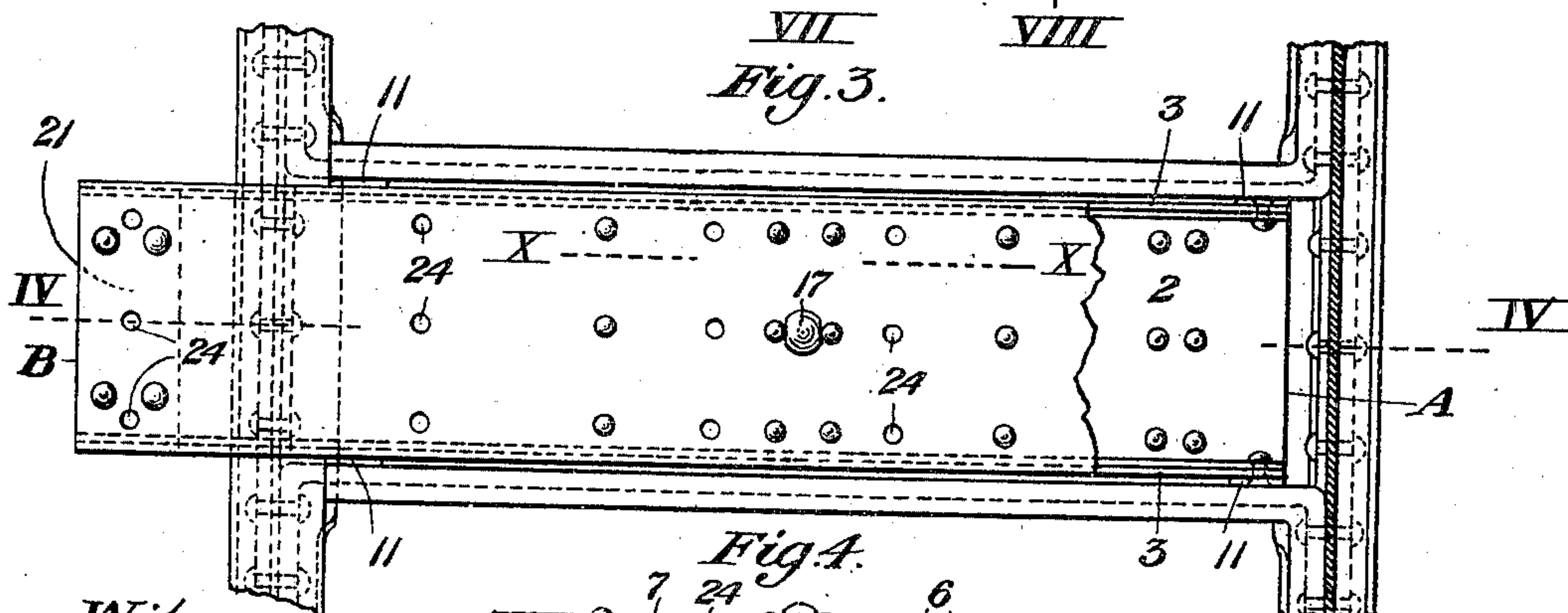
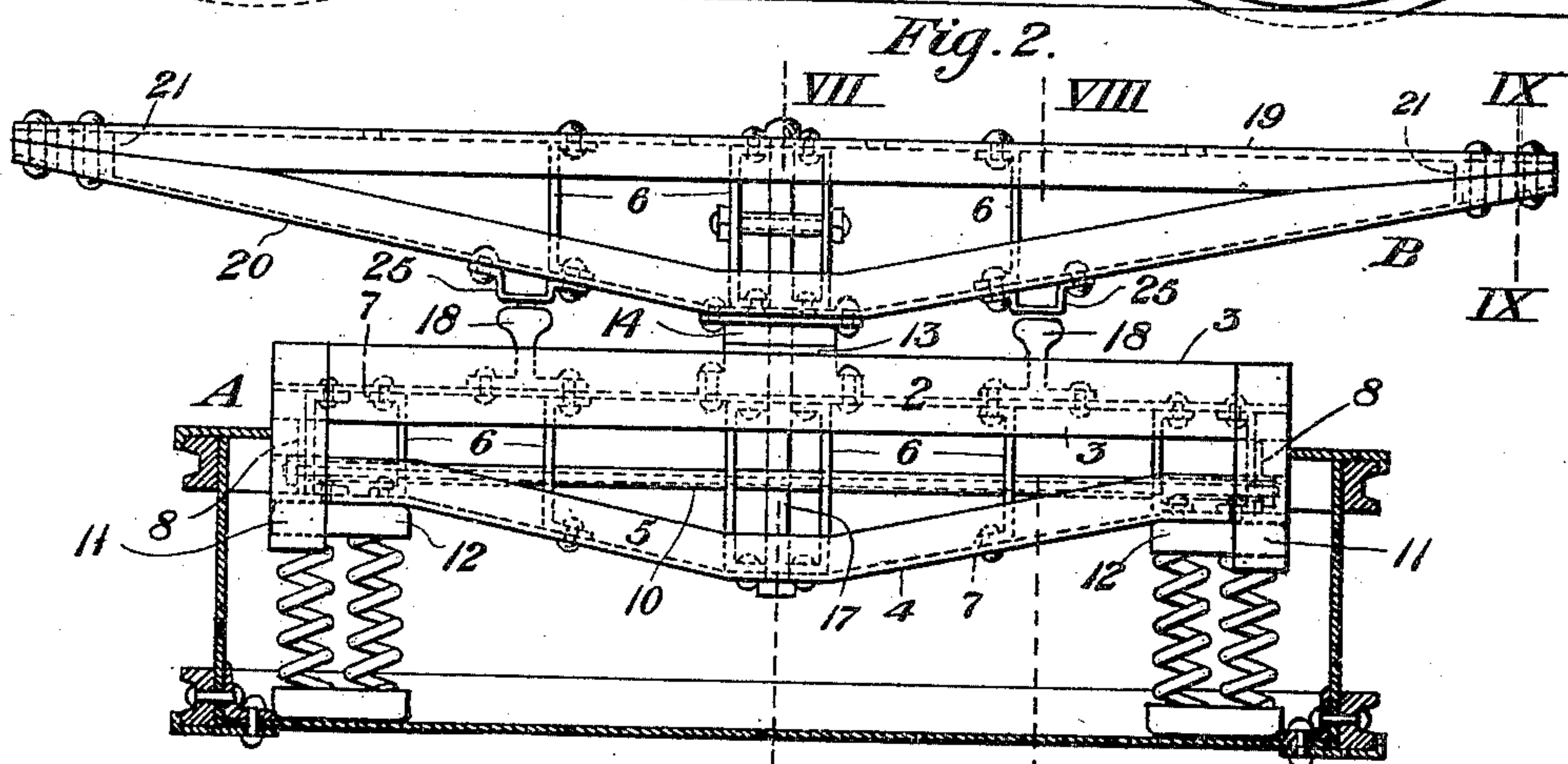
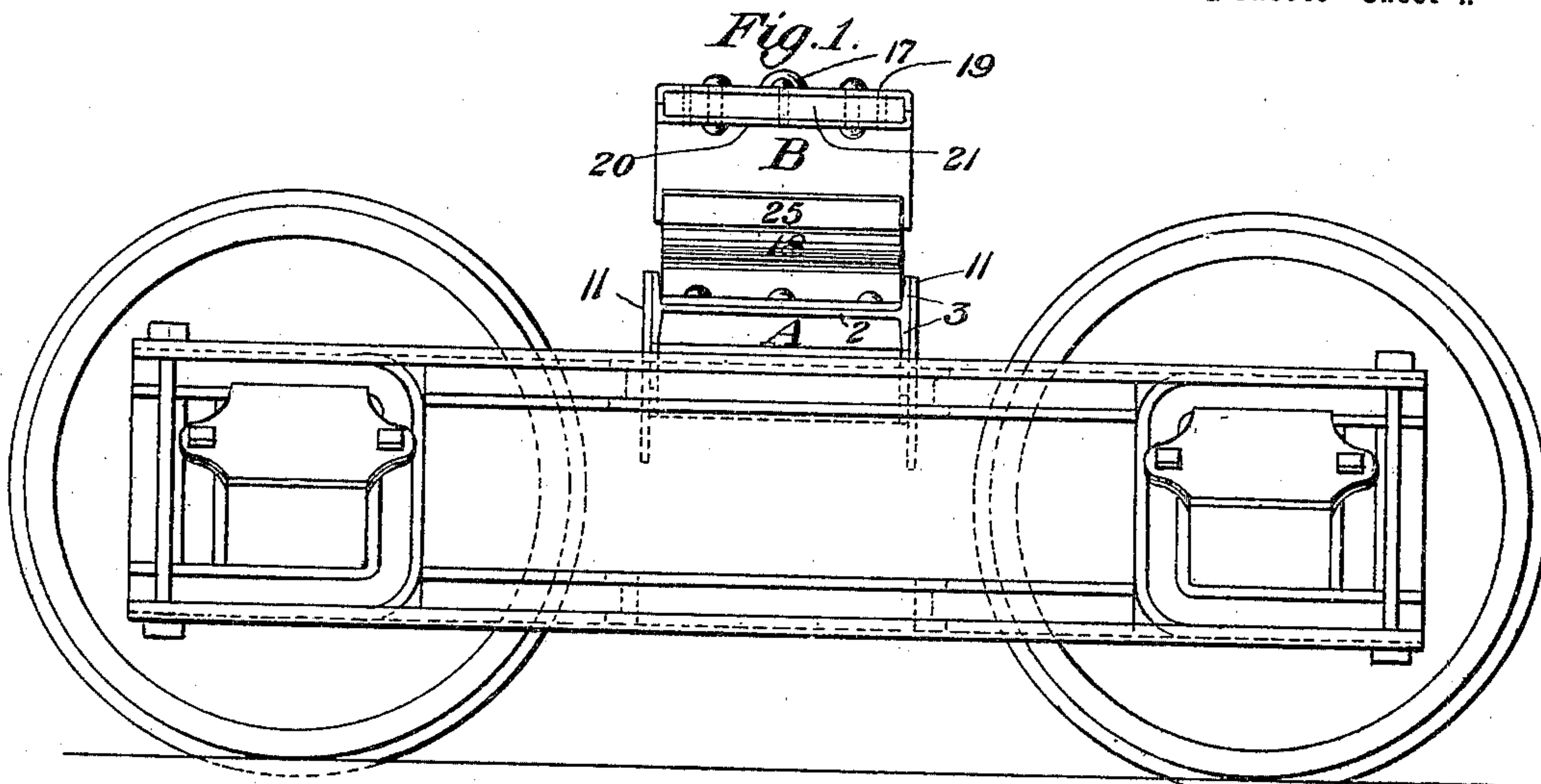
Patented Sept. 10, 1901.

C. M. CARNAHAN.
BOLSTER.

(Application filed Jun. 17, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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BOLSTER.

(Application filed Jan. 17, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 5.

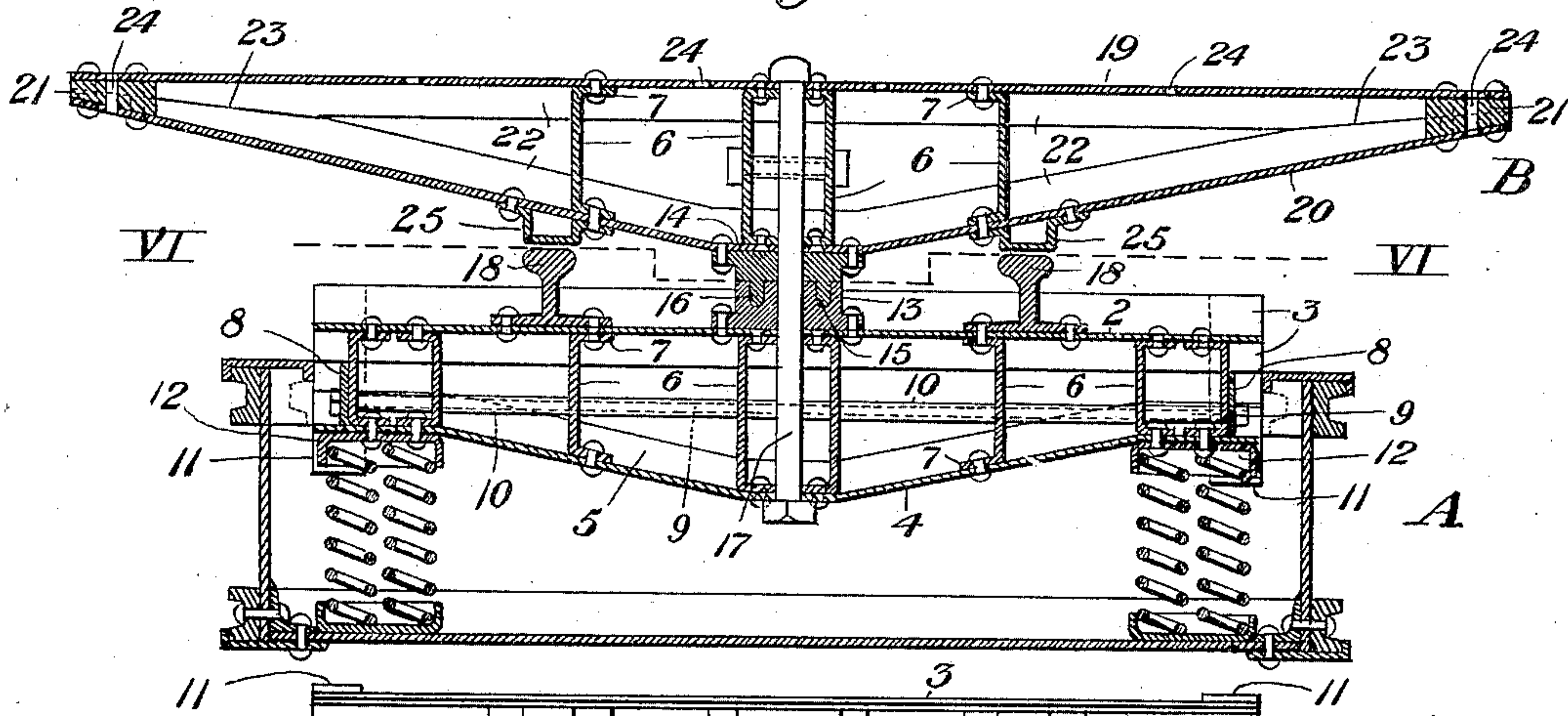


Fig. 6.

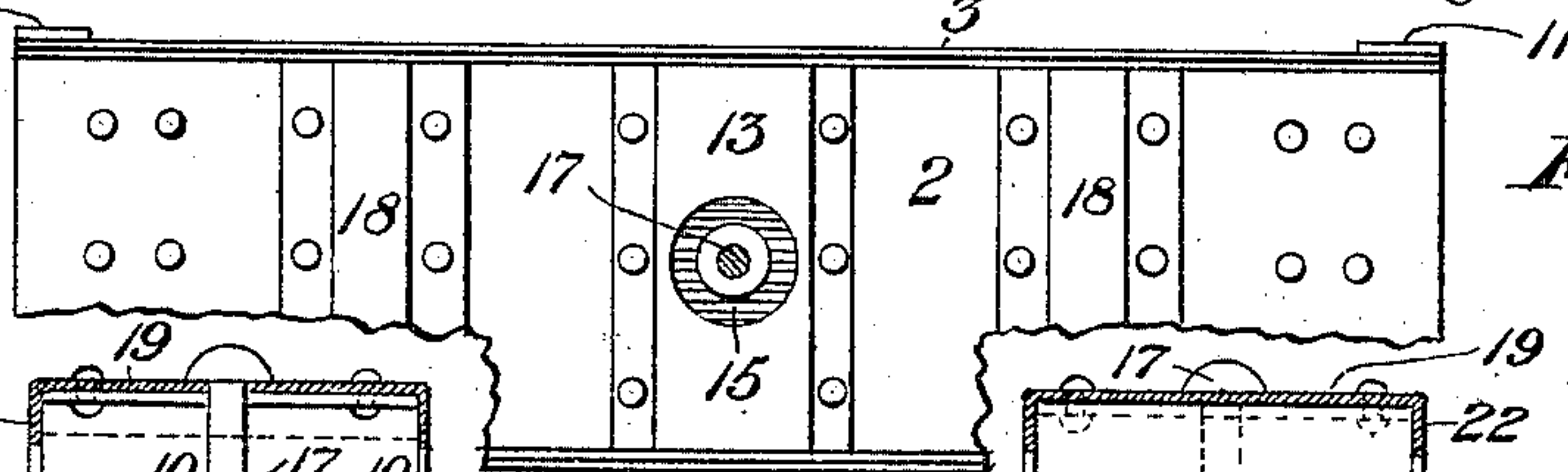


Fig. 7.

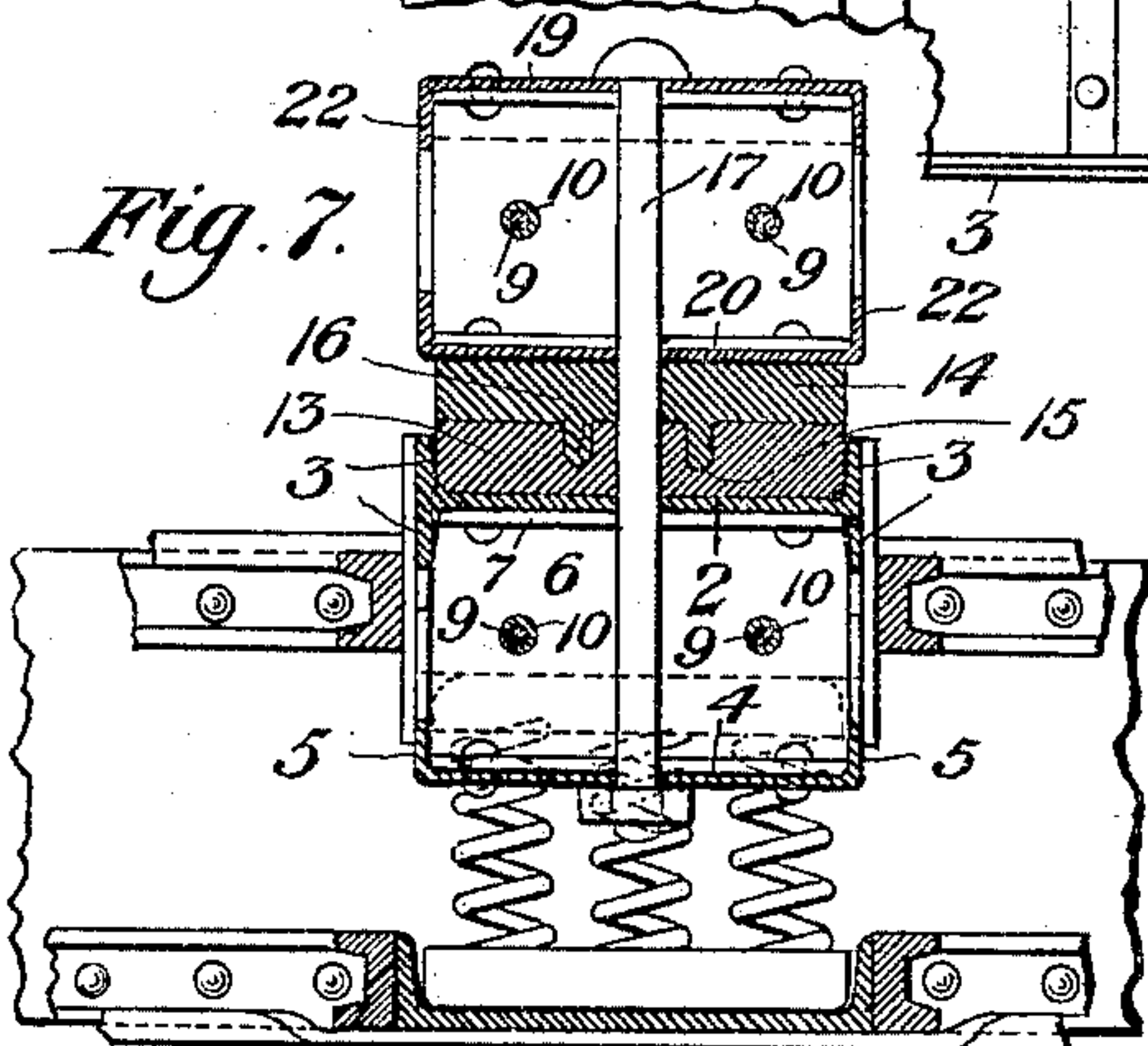


Fig. 8.

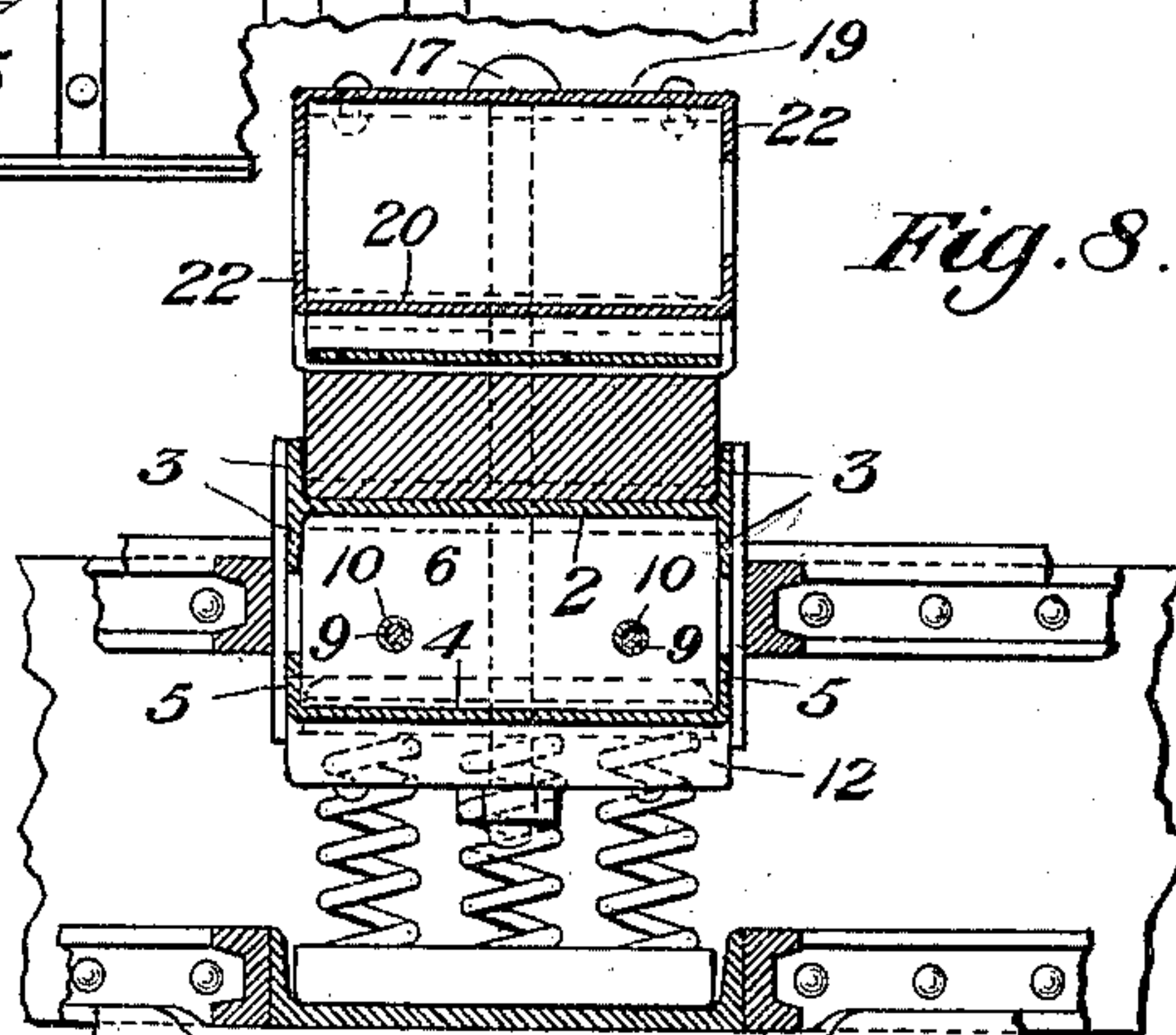


Fig. 9.

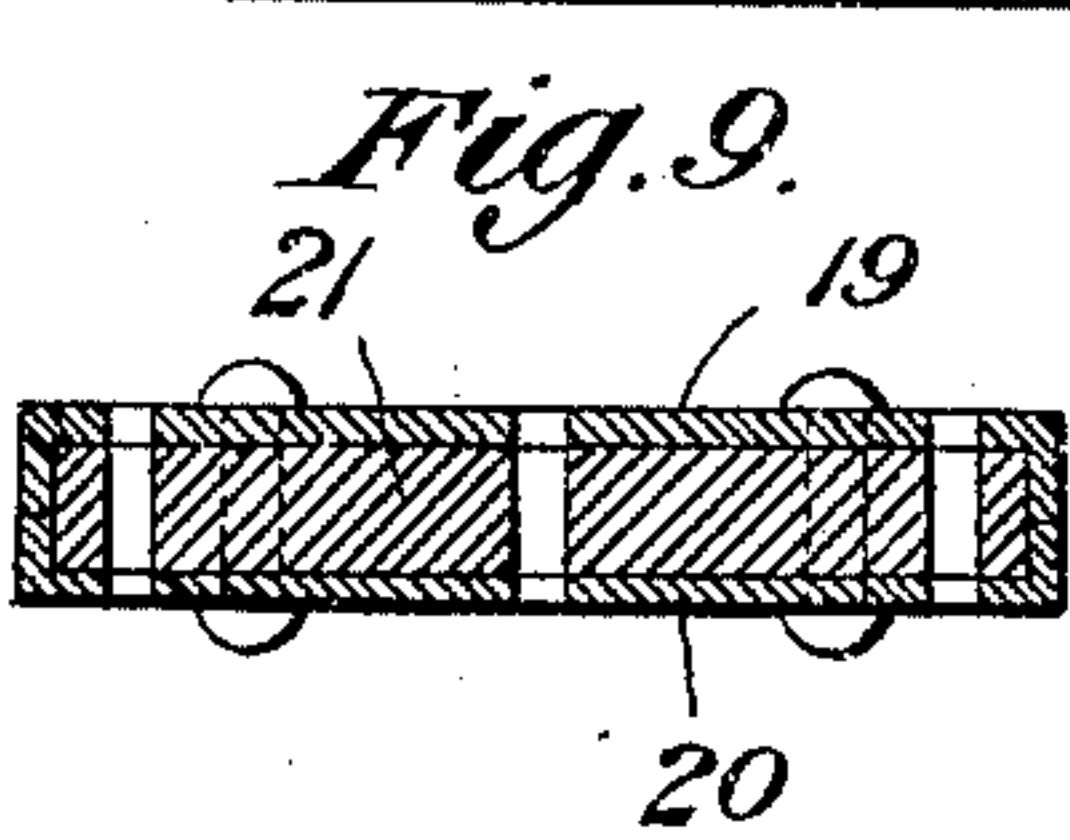


Fig. 10.

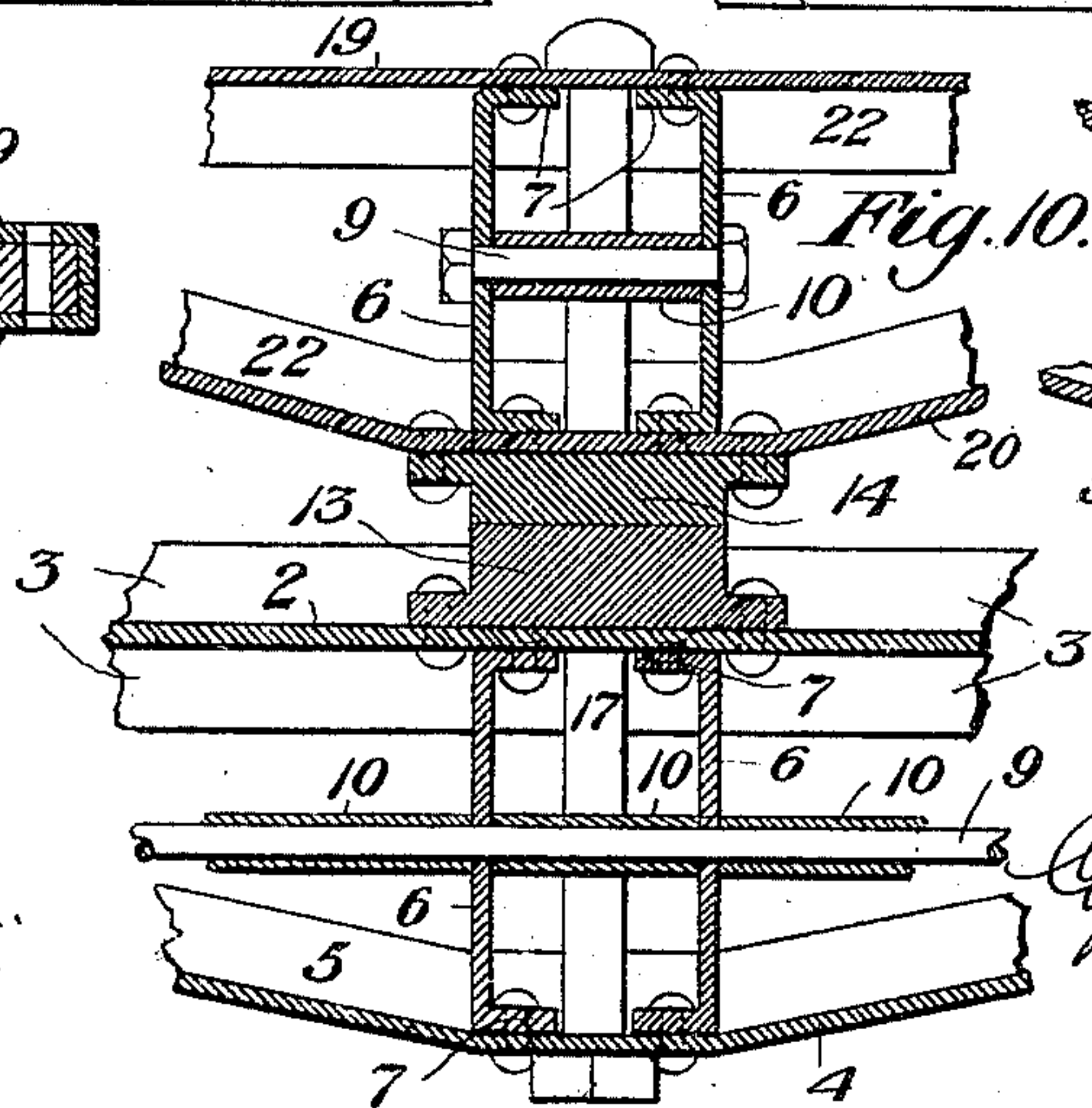
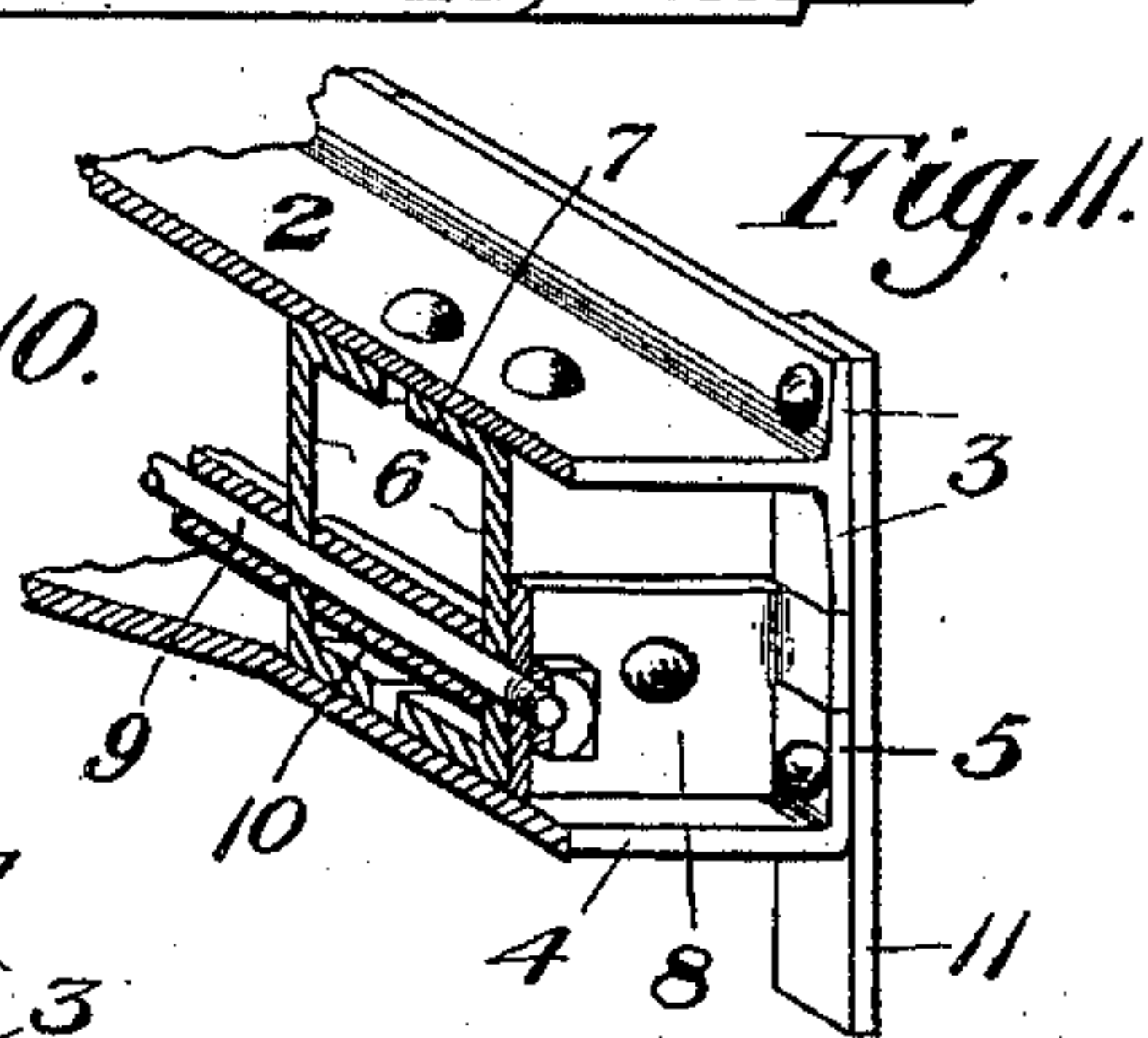


Fig. 11.



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UNITED STATES PATENT OFFICE.

CYRUS M. CARNAHAN, OF ALLEGHENY, PENNSYLVANIA.

BOLSTER.

SPECIFICATION forming part of Letters Patent No. 682,318, dated September 10, 1901.

Application filed January 17, 1901. Serial No. 43,585. (No model.)

To all whom it may concern:

Be it known that I, CYRUS M. CARNAHAN, a citizen of the United States of America, and a resident of Allegheny, county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in Bolsters, of which the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation of a car-truck provided with my improved combination body and truck bolster. Fig. 2 is a view of the body and truck bolster in side elevation, located in position in the truck, which is shown in cross-section. Fig. 3 is a plan view showing one end of the body-bolster broken away with the middle portion of the truck. Fig. 4 is a partial longitudinal sectional view of the body-bolster, showing one construction of arranging the bracing members. Fig. 5 is a view similar to Fig. 2, the body and truck bolsters being shown in longitudinal section. Fig. 6 is a plan view, partially broken away, of the top of the truck-bolster, indicated by the line VI VI of Fig. 5. Fig. 7 is a transverse sectional view taken on the line VII VII of Fig. 2. Fig. 8 is a similar view taken on the line VIII VIII of Fig. 2. Fig. 9 is a similar view taken on the line IX IX of Fig. 2. Fig. 10 is a partial longitudinal sectional view through the body and truck bolsters, indicated by the line X X of Fig. 3. Fig. 11 is a sectional perspective detail view of one end of the truck-bolster, illustrating the framing.

My invention relates to the class of bolsters for railway-cars and similar rolling-stock; and it consists of a truck-bolster adapted to be supported on a truck and of a body-bolster adapted to be set on the truck-bolster, so as to support the car-body and be adjustable with relation to the truck-bolster, both operating in unison and constructed as shall be more fully hereinafter set forth.

Referring to the drawings, A represents the truck-bolster, and B the body-bolster, each of which is constructed throughout of rolled structural metal without the use of castings on bolts and each of which is provided with interfitting fifth-wheel members made of malleable forged or cast steel.

The truck-bolster A consists of an upper flat member 2, made of suitable form, preferably I-beam, whereby the flanges 3 serve to stiffen and brace it against vertical strains. An under member 4, preferably of channel shape, having the flange 5 turned upwardly, is connected with the member 2 by a series of brace-plate members 6, preferably channel shape, through the flanges 7 of which rivets secure the upper and lower members and such brace members together. The lower member 4 is preferably dropped at the middle portion, curved upwardly and outwardly toward the ends, and terminates in horizontal extremities more closely adjacent to the member 2, whereby when the members are incorporated together a truss is formed of great strength and stiffness. Across the ends beyond the outer intermediate brace members 6, to which they are riveted, are supplemental plates 8, the purpose of which is to reinforce the ends and provide additional bearing for the nuts of the longitudinal tension-rods 9. These rods 9 extend from end to end of the bolster, being secured by bolt-head at one end and nut or by nuts at each end, by which they may be drawn up tight, the end of the rod being riveted over the nut to prevent its removal. The rods, which may be of any number and arrangement to insure strength, pass through the reinforcing-plates 8, and all of the intermediate brace members 6 and between the members surrounding the rod are sleeve-sections 10, comprising strut-braces, which may be conveniently made of pipe. With this construction the intermediate bracing-plates 6 are rigidly held and prevented from buckling in either direction, as it will be seen that each one counteracts such tendency in the others, and the strain tending to produce such results is distributed by the rods and sleeve-sections throughout the bolster from end to end.

The truck-bolster is adapted to interfit with any suitable car-truck—as, for instance, a metallic truck such as is shown in my patent filed February 10, 1900, Serial No. 4,728, issued October 30, 1900—between the bearing-channels 8 of which the truck-bolster interfits, and for the purpose of keeping the bolster in vertical alinement I have provided guiding-plates 11 at each corner, riveted to

the body portion of the bolster, as shown, which provide suitable bearings for such purpose and for transmission of the pulling strain to the truck. The bolster is also provided with spring-bearings 12, in which are nested the springs, supported below by the truck.

Transversely across the middle upper portion of the truck-bolster is a bearing-plate 13, upon which rests a similar bearing-plate 14 of the body-bolster, each being provided with female and male circular interfitting bearing portions 15 16, respectively, constituting a fifth-wheel to facilitate the turning of one of the bolsters with relation to the other, such interfitting construction insuring engagement, while centrally through such members and both bolsters is passed a king-bolt 17, which may, if desired, be provided with a nut on the lower end. On each side of the central bearing-plate 13 are located transverse bearing-rails 18, which I have shown as made of section of railway-rails riveted by the flanges to the web of plate member 2, the purpose of which is to provide supplemental bearings for the body-bolster to prevent excessive tipping and relieve the fifth-wheel and king-bolt from strain. It will be understood that other forms of section may be employed for these bearing-rails, as I-beams or special shapes of rolled steel, with equally good results.

The body-bolster B is similar in construction to the truck-bolster, being composed of an upper horizontal plate member 19 and a lower similar member 20, depressed at its middle portion, sloped upwardly toward each end, and rigidly connected with the outer ends of the upper member by rivets passing through the web portion of each member and through an intervening block of metal 21. The members 19 and 20 I have shown as composed of channel shape, the flanges 22 of which are turned inwardly and chamfered off at the ends, as shown at 23, thus providing additional bracing edges. The members 19 and 20 may be made of other suitable structural section; but I have used inverted channels, for the reason that a smooth exterior is thus secured. These members are, like members of the truck-bolster, connected by intermediate bolster members 6, of channel or other shape, the flanges of which are riveted to the web portion of the upper and lower members, as shown and already described. The middle brace members or, as shown in Fig. 4, all of the brace members are rigidly connected by bolts or rods 9, provided with intervening surrounding sleeve-strut members 10, the rods being tightened up and such construction operating in the same manner as has been already described as to the truck-bolster. Through the ends and at intermediate points are made holes 24, by which the framework of the car-body is secured in place.

Underneath the body-bolster, extending across the lower face of member 20, to which they are riveted, are downwardly-projecting

bearing extensions 25, corresponding in position to the rails 18, against which they will bear to limit tipping motion of the body-bolster, and such bearing extensions are made of plate box members having flanges by which they are securely riveted to the under member 20. Other forms or shapes may be employed, as I beams or rails, the object being to provide suitable abutting faces or heads which will give good wearing-surfaces in turning curves and be strong and serviceable under the varying strains to which this class of devices is subjected.

It will be noted that a slight clearance is left between the bearing-rails 18 and 25, the entire weight resting on the fifth-wheel plates 13 and 14 in a horizontal position, the rails only coming into contact to prevent excessive tipping, as stated.

As will be seen, the construction is comparatively light while having the requisite strength. The employment of structural steel shapes permits the bolster to be built up with a minimum of cutting or waste, while the open character of the design enables workmen to assemble and erect the bolster without the use of nuts, sufficient clearance being provided for heading of the rivets inside. This is a valuable feature, as nuts are liable to come off and be lost under vibration, and this frequently causes serious accidents. All cast metal is dispensed with, weight has been reduced, and unnecessary features eliminated from the construction wherever possible, while the simplicity and cheapness of the invention will be appreciated by all users of this kind of apparatus.

Having described my invention, what I claim is—

1. A bolster consisting of upper and lower structural members, intervening brace members, and tie-rods passing through and connecting the brace members with intervening sleeve-strut members, substantially as set forth.

2. A bolster consisting of upper and lower structural members, intervening channel members riveted to such upper and lower members, supplemental end reinforcing-plates, tie-rods passing through all of the intervening channel members and reinforcing-plates, and intervening sleeve-strut members surrounding the tie-rods between the channel members, substantially as set forth.

3. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, and a center bearing-plate secured to one of the members, substantially as set forth.

4. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, a center bearing-plate secured to one of the members and supplemental cross-

bearing rails at each side of such bearing-plate, substantially as set forth.

5 5. A bolster consisting of an upper horizontal structural member, a lower structural member dropped at its middle portion and bent upwardly at each end, intervening brace members and tie-rods passing through and connecting the brace members with intervening strut members, substantially as set forth.

10 6. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, and vertical guiding and bearing plates on the sides of the bolster, substantially as set forth.

15 7. The combination of a truck-bolster consisting of upper and lower structural members, intervening brace members, tie-rods connecting the brace members with intervening strut members and upper center and lateral bearing members, with a body-bolster consisting of upper and lower structural members, intervening brace members, tie-rods

connecting the brace members with interven- 25
ing strut members, and lower center and lateral bearing members, substantially as set forth.

8. The combination of a truck-bolster consisting of upper and lower structural mem- 30
bers, intervening brace members, tie-rods connecting the brace members with intervening strut members, and upper center and lateral bearing members, with a body-bolster consisting of upper and lower structural mem- 35
bers, intervening brace members, tie-rods connecting the brace members with intervening strut members, and lower center and lateral bearing members, with a central bolt passing through the body and truck bolster and 40
the center bearing members, respectively substantially as set forth.

Signed at Pittsburg this 26th day of October, 1900.

CYRUS M. CARNAHAN.

Witnesses:

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C. M. CLARKE.