

No. 719,610.

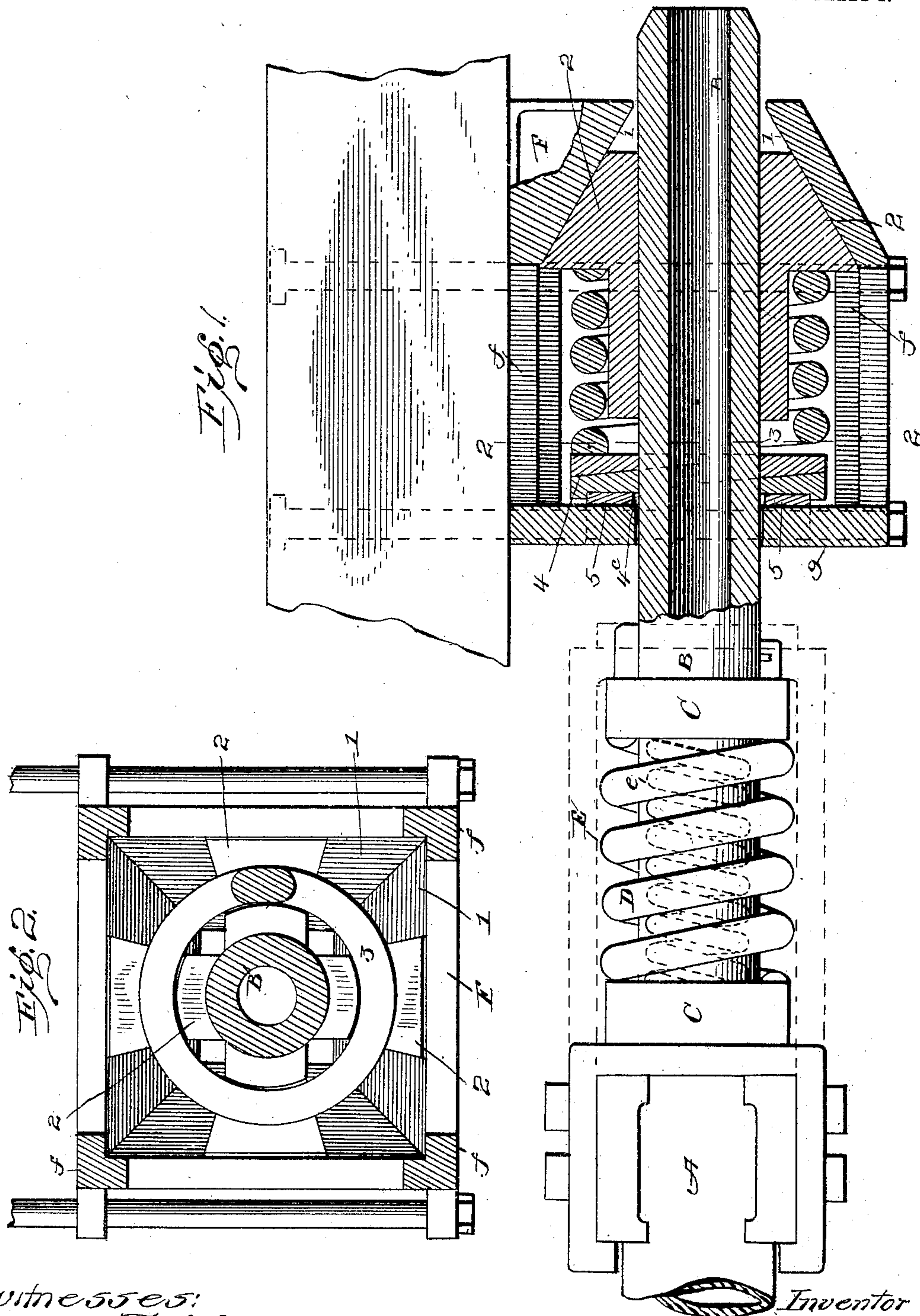
PATENTED FEB. 3, 1903.

G. P. RITTER.  
DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED AUG. 14, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



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J. M. Fowler Jr.  
David C. Wilson.

Inventor  
Gilbert P. Ritter

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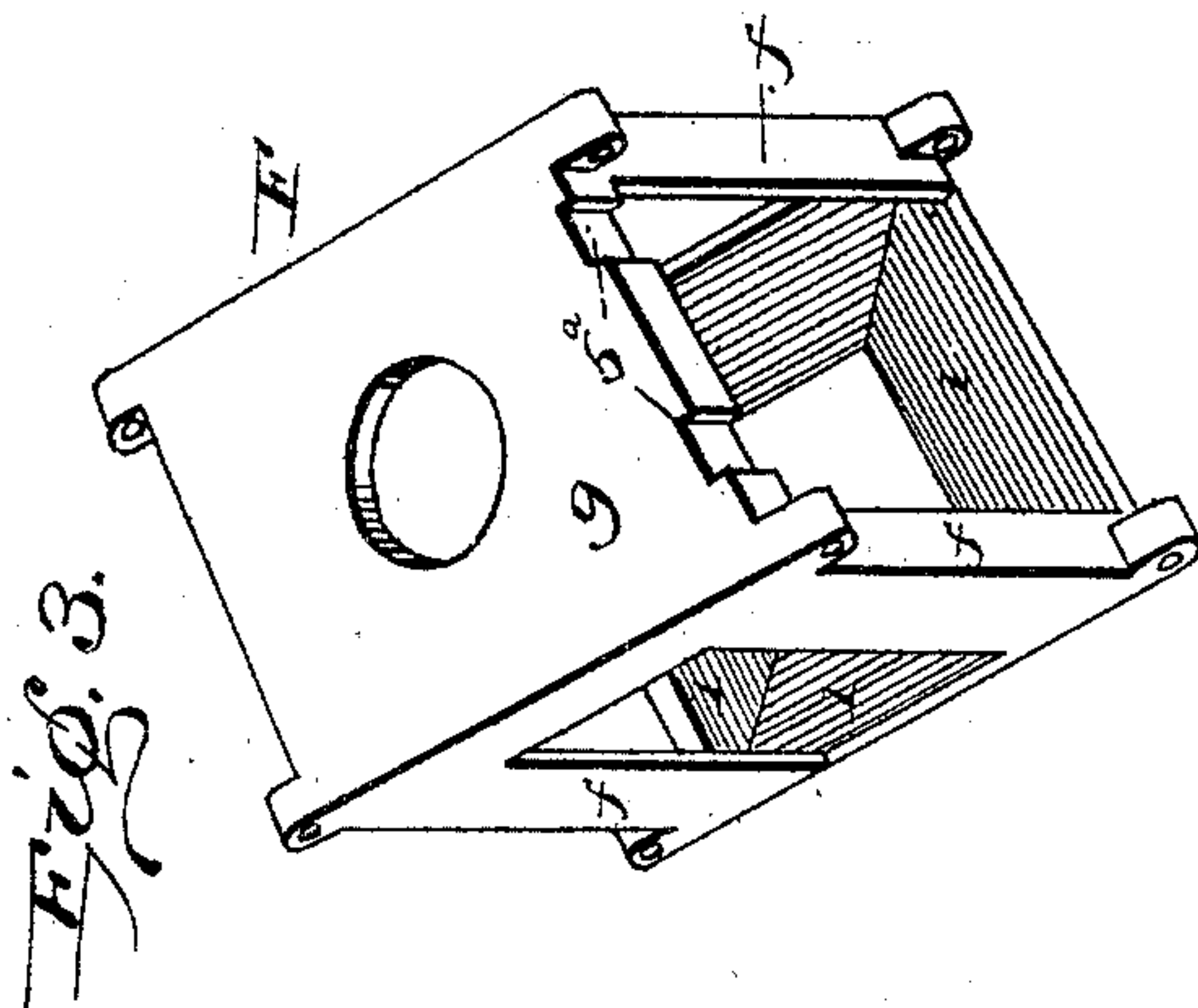
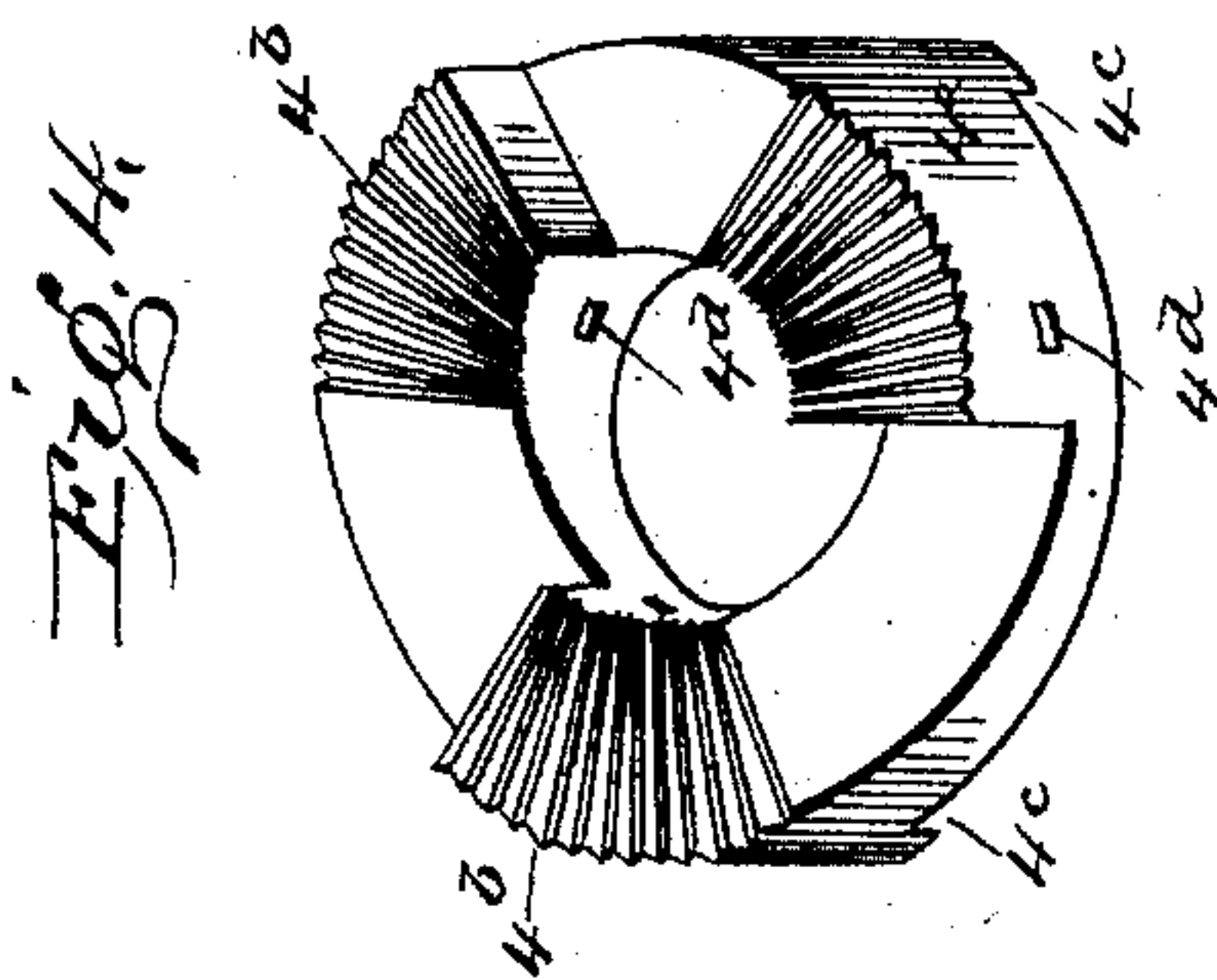
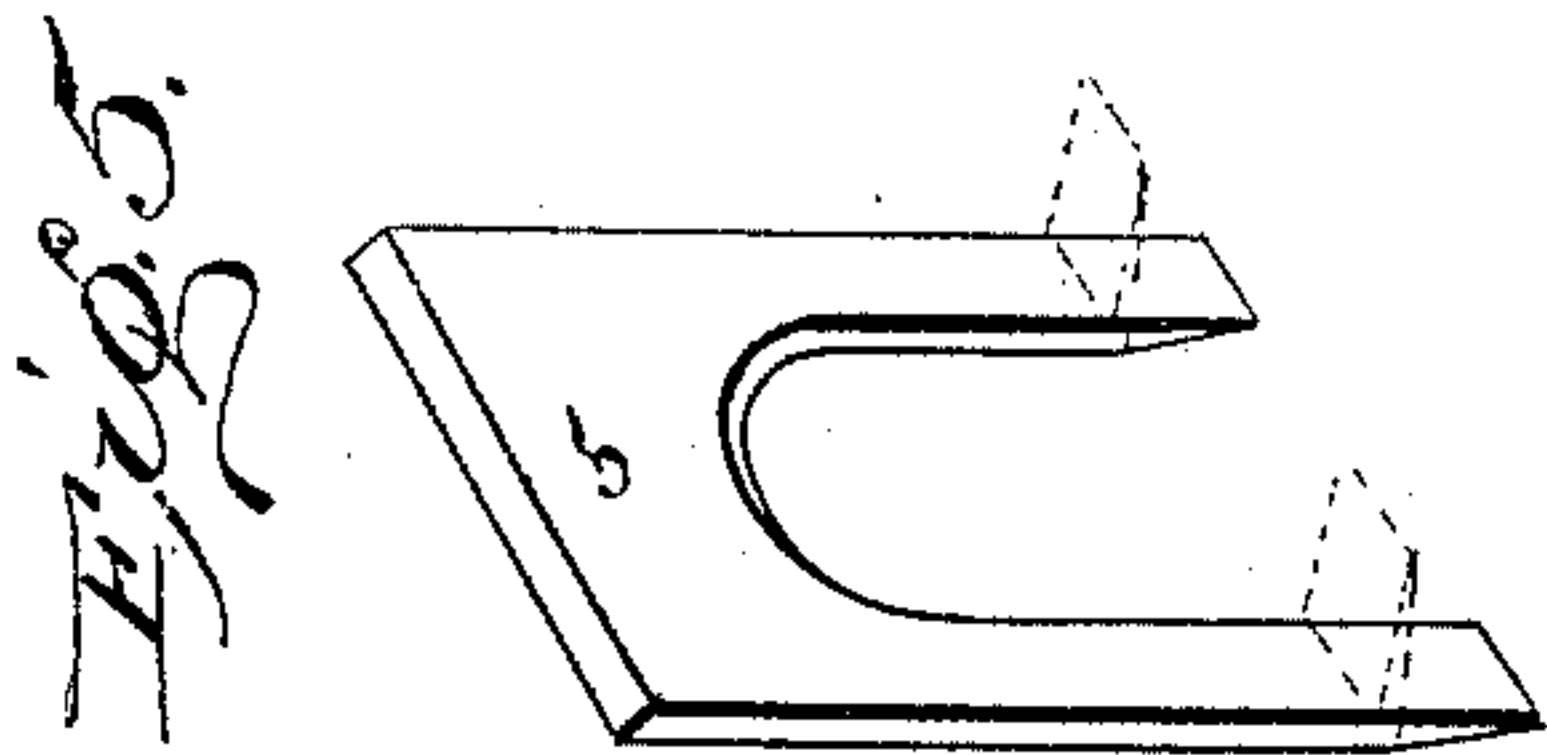
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# UNITED STATES PATENT OFFICE.

GILBERT P. RITTER, OF CHICAGO, ILLINOIS.

## DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 719,610, dated February 3, 1903.

Application filed August 14, 1901. Serial No. 72,070. (No model.)

*To all whom it may concern:*

Be it known that I, GILBERT P. RITTER, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Draft-Rigging for Railway-Cars; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a draft-rigging embodying my invention, the full line to the left indicating what is known as the "tail-bolt" construction and the dotted lines the "yoke" or "spring-pocket" construction. Fig. 2 is a transverse section thereof on the line 2 2, Fig. 1, looking in the direction of the arrow. Fig. 3 is a detached reduced perspective view of the housing or "cage" for the normally constant resistance elements. Fig. 4 is a detached view of one section or part of the "take-up" device. Fig. 5 is a detached reduced perspective view of a "liner" for coacting with the take-up device.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of that class of draft-rigging for railway-cars wherein provision is made for neutralizing the reaction of the operative parts when suddenly reversed in either draft or buffing; and to this end the main feature of my invention may be generally stated to consist in the combination, with a load-transmission element and variable-resistance element, of a friction element and a spring which acts on said friction element in line with the transmission element and variable-resistance element, said spring having a fixed abutment and arranged to exert a constant resistance to the movement of the load-transmission element.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully by reference to the accompanying drawings, so that others skilled in the art to which it appertains may apply the same, either in the special form chosen for purposes of illustration or in such other modified form as the particular circumstances may dictate.

In the drawings, A indicates a portion of a coupler-stem; B, the tail-bolt; C C, the followers, and D the interposed draft and buffing spring of the well-known Master Car-Builders' standard tail-bolt construction of draft-rigging.

The dotted lines marked E and e indicate the Master Car-Builders' standard yoke or spring-pocket construction draft-rigging.

The constructions above set forth and their operation are so well understood in the art as to preclude the necessity of further description in this specification, except to say that where the yoke construction E is used the tail-bolt B will be an appendage thereof and will be riveted or bolted thereto, or, if desired, formed integral therewith, and whether used alone and connected to the stem of the coupler or with and connected to the spring-pocket it is preferably of greater diameter than the standard tail-bolt and may be made tubular, as indicated in the drawings, for sake of lightness.

It will be noted that in this Master Car-Builders' standard draft-rigging a single spring or a pair of springs are so combined with a tail-bolt or a yoke and followers that a variable resistance is opposed to the movement of the tail-bolt or yoke (and therefore to the load-transmission element) in either direction—that is to say, not only in pulling, but also in buffing, so that said spring is in function and effect two variable resistances operating in opposite directions, or the equivalent of one draft-spring and one buffing-spring, and said single spring may have its equivalent in the combinations herein set forth.

The parts heretofore described as elements have been selected as such to show the feasibility of applying my invention to the existing standard constructions.

F indicates the housing for the reception of the normally constant resistance element which is to be used in combination with variable-resistance elements of the general character hereinbefore described or their equivalents, and said housing, which contains the constant-resistance spring 3 and one end of which constitutes a fixed abutment or support therefor, is preferably located forward of the ordinary "stop-plates" (not shown) and



may be bolted to any suitable part of the car-frame. This housing F may be provided with the inclines 1, which converge toward the center (or form a hopper) for the reception of the wedge-shaped friction elements 2, which latter by reason of said inclines tend to move toward the center or included friction element B (tail-bolt extension) when acted on by the spring 3 or its equivalent. That portion of the housing F which contains the spring 3 may be made up of bars or posts *f* and an end plate *g*, perforated for the passage of the central friction element, (tail-bolt B,) and interposed between said end plate and the spring 3 are a take-up mechanism 4 and a liner 5 or its equivalent. This housing F may be built up of separate sections bolted or riveted together, if desired, but preferably is integral, the whole being cast as one piece, space being allowed between the bars *f* for the introduction of the spring 3 and the take-up device 4, and the end openings, or at least one of them, being of such diameter as will permit of the introduction of the friction elements 2 therethrough after the spring 3 has been inserted. This housing F for the purposes of this specification I call the "cage."

2 indicates one of the friction elements, one face of which corresponds with that of the central friction element B, with which it is in contact, and the other with the incline 1 on the interior of the cage, said element also being preferably extended into the spring 3, which bears upon it. The number of these external or including friction elements 2 may vary, but preferably are four in number, and are equally disposed around the included friction element.

3 indicates the pressure-spring, of which also a plurality may be used, if desired; but preferably a single coiled spring is employed, one end of which bears on the friction elements 2, while the other bears on the take-up mechanism or device which is interposed between said spring and the end plate *g* of the cage.

4 indicates the take-up device, the function of which is to take up the wear of the friction elements, and it may also be used to cause the compression of the spring 3, (creating constant resistance,) though for this latter purpose I prefer to employ a liner, as will hereinafter appear. This take-up mechanism may itself be one or more liners, but preferably is substantially such as shown in the drawings—that is to say, composed of two wedge sections 4<sup>a</sup>, the faces of which are formed of an equal number of corresponding inclines, (see Fig. 4,) which may be corrugated or roughened, as at 4<sup>b</sup>, to lock the sections in any desired position, one of said wedge sections being provided with a liner-recess 4<sup>c</sup> and the other with one or more slots or holes 4<sup>d</sup> for the reception of a rod or lever whereby one of said sections 4<sup>a</sup> may be ro-

tated upon the other to impart initial compression to the spring 3 or to take up wear.

Inasmuch as the sections of the take-up device are duplicates and may be used interchangeably, both sections may be provided with the liner-recess 4<sup>c</sup> and lever-hole 4<sup>d</sup>, as indicated in Fig. 4 of the drawings. However, if preferred, one of the take-up sections 4<sup>a</sup> may be cast integral with the inner face of the end plate *g* and the liner 5 dispensed with.

5 indicates a wedge liner, which when the take-up is independent of the end plate of the cage is inserted between the take-up and end plate and its ends being bent around the edge of the end plate *g* at 5<sup>a</sup> serves to prevent the rotation of that section of the take-up device. The principal function of this liner, however, when used is to compress the spring after it is inserted and to relieve the spring of compression (by its removal) when it is desired to release the take-up device. Consequently the thickness of the liner 5 will depend on the initial pressure desired to be imparted to the friction elements 2.

The construction of the several devices being substantially such as hereinbefore pointed out, the usual draw-bar construction (variable resistance) shown at the left of Fig. 1 will be assembled in the manner now commonly practiced, after which the constant-resistance device may be assembled by first introducing the take-up device 4 and spring 3 into the cage between the side bars *f*, then introducing the friction elements 2 axially through one of the end openings of the cage (preferably the hopper-opening) and pressing them outwardly into position, after which the central friction element (tail-bolt extension) is introduced axially through the central opening in end plate *g*, and this forces the friction elements 2 to their seats on inclines 1 of the hopper end of the cage, after which the liner 5 is driven in between the take-up device 4 and the end plate *g*, which compresses the spring 4, so as to produce an independent and constant resistance to the movement of the central or included friction element or transmission element regardless of the direction of the force or load and of the direction of variable resistance, (spring D,) and this constant resistance may be increased at will, and wear may be also taken up from time to time by a simple and limited rotation of one section of the take-up device 4 upon its fellow.

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

1. In a draft-rigging for railway-cars, the combination with a load-transmission element, and a variable-resistance element, of a friction element, and a spring arranged in alinement with the transmission element, said spring having a bearing on the friction element and on a fixed support or abutment,



substantially as and for the purposes specified.

2. In a draft-rigging for railway-cars, the combination with a load-transmission element, and a variable-resistance element, of a constant-resistance element comprising friction elements, a fixed abutment, and a spring arranged in alinement with the variable-resistance elements and interposed between the fixed abutment and the friction elements, substantially as and for the purposes specified.

3. In a draft-rigging for railway-cars, the combination with a load-transmission element, and variable-resistance element of a wedge-shaped friction element, an inclined seat therefor, a fixed abutment in line with said seat, and a constant-pressure spring interposed between the friction element and the fixed abutment, substantially as and for the purposes specified.

4. In a draft-rigging for railway-cars, the combination with a draft and buffing spring resistance element of a constant-resistance element, and a "take-up" device, substantially as and for the purposes specified.

5. In a draft-rigging for railway-cars, the combination with a draft and buffing resistance element of a "cage," contained spring-pressed friction elements, and a wedge "take-up" mechanism, substantially as and for the purposes specified.

6. In a draft-rigging for railway-cars, the combination with a draft and buffing resistance element of a "cage," contained spring-

pressed friction elements, a "take-up" mechanism, and a liner interposed between the "take-up" mechanism and the end of the "cage," substantially as and for the purposes specified.

7. In a draft-rigging for railway-cars, the combination of an integral "cage" having a side and end openings, of spring-pressed friction elements, and a "take-up" device, substantially as and for the purposes specified.

8. In a draft-rigging for railway-cars, the combination with a load-transmission element and a variable-resistance element, of a plurality of friction elements which engage the transmission element, said elements having inclined faces, fixed seats for said friction elements, a fixed abutment, and a spring interposed between said friction elements and the fixed abutment, substantially as and for the purposes specified.

9. In a draft-rigging for railway-cars, the combination with a transmission element, of a variable-resistance element, a constant-resistance element, and means for graduating the value of the constant-resistance element, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of August, 1901.

GILBERT P. RITTER.

Witnesses:

DAVID E. WILSON,  
HUGH M. STERLING.