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H. C. WILLIAMSON & H. PRIES.

DRAFT RIGGING.

APPLICATION FILED NOV. 28, 1903.

NO MODEL.

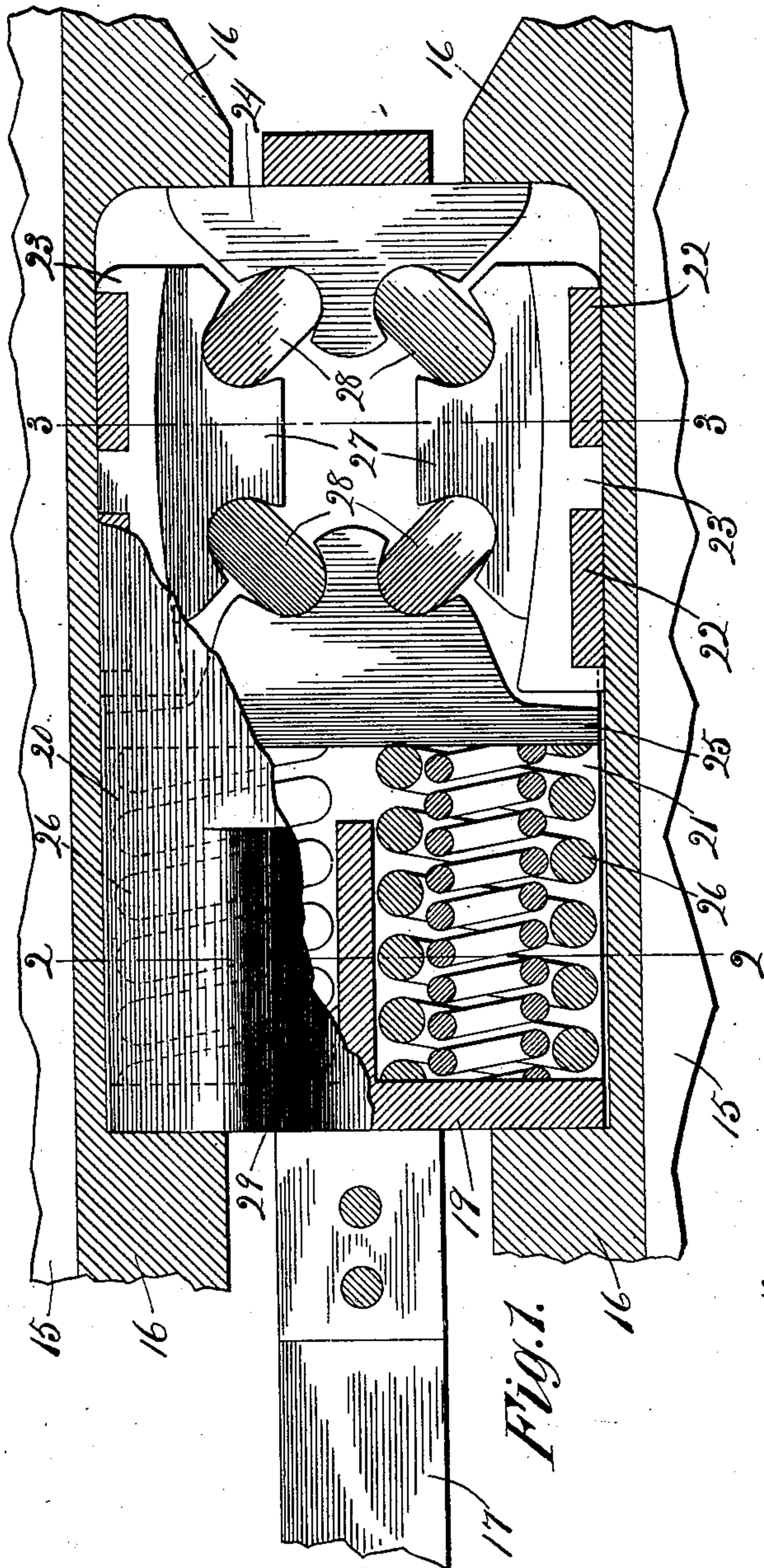


Fig. 1.

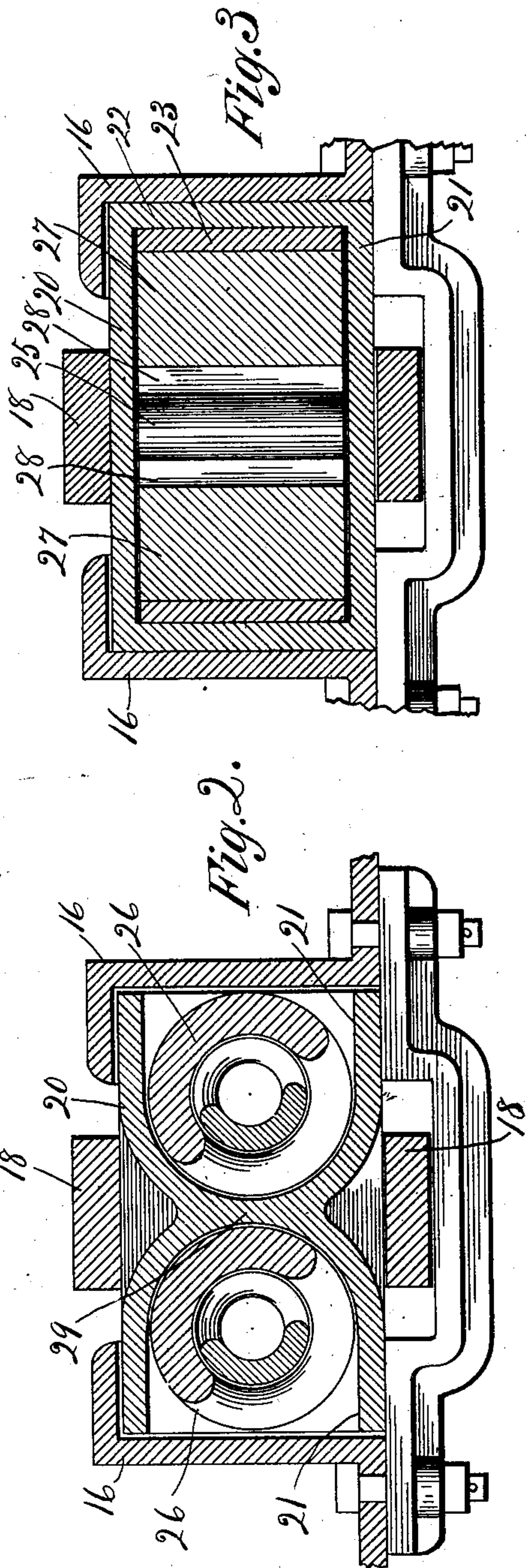


Fig. 2.

Fig. 3.

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## DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 754,527, dated March 15, 1904.

Application filed November 28, 1903. Serial No. 183,017. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY C. WILLIAMSON and HERMAN PRIES, citizens of the United States, and residents of Michigan City, county of Laporte, and State of Indiana, have invented certain new and useful Improvements in Draft-Rigging, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to that type of draft-rigging in which the cushioning-springs are supplemented by friction devices and provision is made for augmenting the friction as the pressure, either draft or buffing, increases.

The invention consists, broadly, in a housing for the cushioning mechanism, friction-plates slidably engaging the housing, followers movable actually or relatively by the draw-bar, and toggle blocks or members interposed between the followers and friction members in such manner that the pressure applied tends by a toggle action to force the friction members together.

More specifically, the invention consists of the mechanism hereinafter described and which is illustrated in the accompanying drawings, in which—

Figure 1 is a detail plan view, partly in elevation and partly in section, of one form of the device. Fig. 2 is a transverse section on the line 2 2 of Fig. 1, and Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

Referring to the drawings, there is shown at 15 portions of the draft-sills of a railway-car, at 16 the cheek-plates secured to such sills and provided with forward and rearward shoulders for the engagement of suitable followers, at 17 a draw-bar, and at 18 a tail strap or loop secured to the draw-bar and encircling the followers and cushioning mechanism. The forward follower is shown at 19 as being the end of a box form of housing, having a top wall 20 and a bottom wall 21 for inclosing the cushioning mechanism and preferably being open at the sides, except near its rearward end, where it is provided with side members 22 22 for receiving and holding a pair of friction-shoes 23 23. The

rearward follower 24, adapted to engage the rearward shoulders of the cheek-plates 16, is seated against the end of the loop 18. An intermediate follower 25 is provided, and cushioning-springs 26 26, as shown, arranged in two sets, are interposed between the forward follower 19 and this intermediate follower. A pair of friction-plates 27 are in sliding engagement with the inner faces of the shoes 23, and toggle-blocks 28 are interposed between each of the followers 24 25 and each of the plates 27, the toggle-blocks having rounded ends, and suitable recesses being formed in the followers and plates to receive them, the parts being so disposed that the blocks are normally oblique to the direction of draft. Two sets of cushioning-springs being employed, a vertical partition 20 is located between them extending backwardly from the follower 19. In the form of construction now under consideration the contracting faces of the shoes 23 and plates 27 curved, the former being concave and the latter being convex.

Upon the application of draft to the draw-bar 17 the follower 24 is carried forwardly, and with it the friction-plates 27 and the follower 25. This advance movement is resisted by the springs 26 and by the friction between the plates 27 and shoes 23, and this friction is augmented, first, by the turning of the toggle-blocks toward a position perpendicular to the line of draft, thereby forcing the two friction-plates apart and against the shoes, and, secondarily, by the curved form of the shoes and plates. The forward movement of the plates bringing them into the more contracted space between the two shoes necessarily turns the forward pair of toggle-blocks in the opposite direction or toward a position parallel with the line of draft, thus giving the follower 25 a more rapid movement than that of the follower 24 and still further compressing the springs 26. Pressure being applied to the forward follower 19 by a buffing action or an intrust of the draw-bar 17, the follower and the housing of which it constitutes a part are forced backwardly, the pressure being communicated through the springs 26 to the in-



intermediate follower 25 and resisted by the friction between the plates 27 and shoes 23, as before. It will be seen that the relative direction of movement of the shoes 23 and plates 27 is the same whether the power be applied as a draft upon or intrust of the draw-bar, as in the one case the plates 27 are carried forward, the shoes 23 remaining stationary, while in the other the shoes are moved backwardly, the plates remaining stationary.

We claim as our invention—

1. In a draft-rigging, in combination, a pair of friction-plates one thereof being slidable upon the other, a follower, and a toggle member interposed between the follower and one of the plates and being normally oblique to the direction of movement.

2. In a draft-rigging, in combination, a pair of movable members in slidable contact, a pair of relatively approachable followers, and toggle-blocks interposed between the followers and one of the friction members and being normally oblique to the direction of movement of the parts.

3. In a draft-rigging, in combination, a pair of oppositely-disposed friction-plates, a second pair of friction-plates one in sliding engagement with each of the first-named pair, followers at opposite ends of the friction-plates, and toggle-blocks interposed between each of the followers and each of the second-named pair of friction-plates.

4. In a draft-rigging, in combination, a pair of oppositely-disposed friction-plates having curved faces, a second pair of complementary curved friction-plates one in sliding engagement with each of the first-named pair, followers at opposite ends of the friction-plates, and toggle-blocks interposed between each of the followers and each of the second-named pair of friction-plates.

5. In a draft-rigging, in combination, a movable housing having a shoulder-engaging end and opposing internal friction-faces, friction-plates slidingly engaging such faces, followers at opposite ends of the plates, a spring interposed between the inner end of the housing and the adjacent follower, and toggle members interposed between each of the followers and each of the plates.

6. In a draft-rigging, in combination, a movable housing having a shoulder-engaging end and curved opposing internal friction-faces, friction-plates slidingly engaging such faces, followers at opposite ends of the plates, a spring interposed between the inner end of the housing and the adjacent follower, and toggle members interposed between each of the followers and each of the plates.

7. In a draft-rigging, in combination, a movable housing having a shoulder-engaging end, removable friction-shoes mounted within the

housing, friction-plates slidingly engaging the shoes, followers at opposite ends of the plates, a spring interposed between the inner end of the housing and the adjacent follower, and toggle-blocks interposed between each of the followers and each of the plates.

8. In a draft-rigging, in combination, a movable housing having a shoulder-engaging end, removable friction-shoes mounted within the housing having curved faces, friction-plates slidingly engaging the shoes, followers at opposite ends of the plates, a spring interposed between the inner end of the housing and the adjacent follower, and toggle-blocks interposed between each of the followers and each of the plates.

9. In a draft-rigging, in combination, a movable housing having a shoulder-engaging end, removable friction-shoes mounted within the housing having concave faces, friction-plates having complementary convex faces and slidingly engaging the shoes, followers at opposite ends of the plates, a spring interposed between the inner end of the housing and the adjacent follower, and toggle-blocks interposed between each of the followers and each of the plates.

10. In a draft-rigging, in combination, friction-plates having complementary curved contacting faces, means for moving the plates relatively in opposite directions, and means for pressing the faces of the plates together.

11. In a draft-rigging, in combination, friction-plates having complementary curved contacting faces, means for moving the plates relatively in opposite directions, and means for yieldingly pressing the faces of the plates together.

12. In a draft-rigging, in combination, oppositely-disposed longitudinally-movable friction-plates having curved faces; a second set of friction-plates in sliding engagement with the first-mentioned set of plates and having complementary curved faces; followers at opposite ends of the plates; and toggle members interposed between the followers and the members of one set of plates.

13. In a draft-rigging, in combination, oppositely-disposed longitudinally-movable friction-plates having concave faces; a second set of friction-plates in sliding engagement with the first-mentioned set of plates and having complementary convex faces; followers at opposite ends of the plates; and toggle members interposed between the followers and the members of one set of plates.

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