No. 749,347. PATENTED JAN. 12, 1904.

H. C. WILLIAMSON & H. PRIES.

DRAFT RIGGING.

APPLICATION FILED OCT. 30, 1903.

NO MODEL.

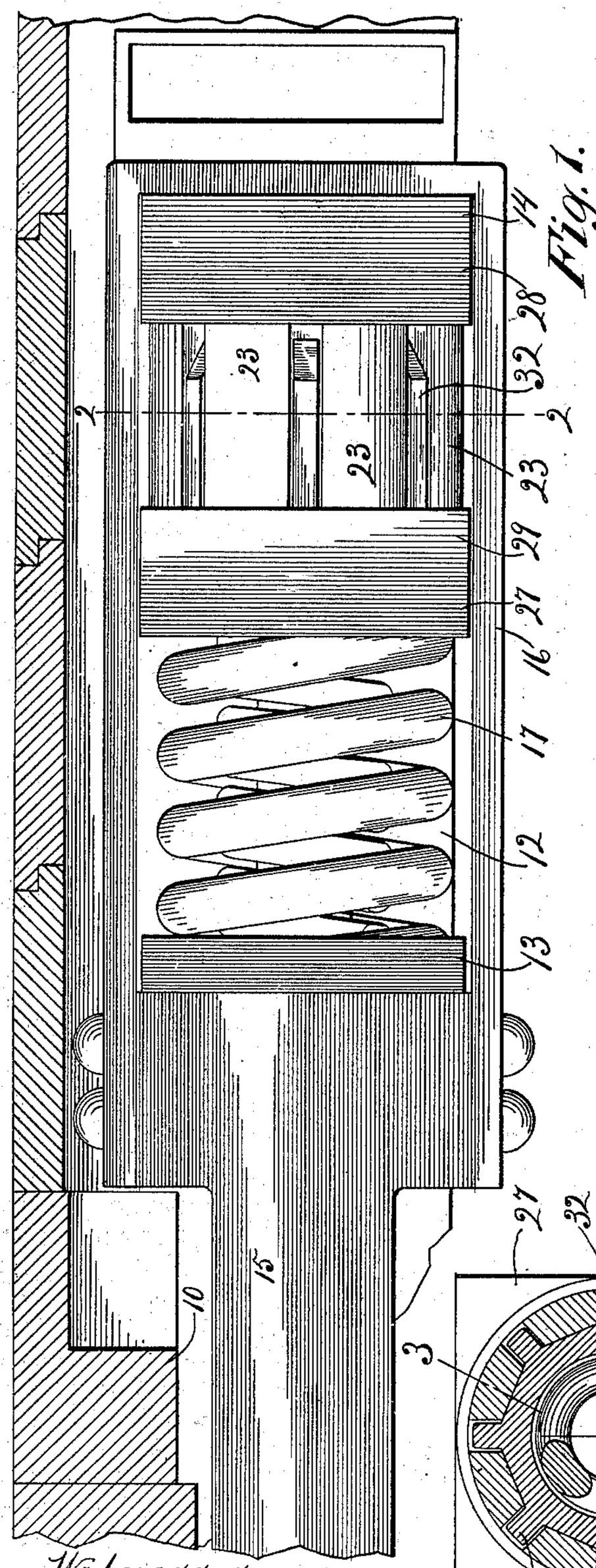

Fig. 1.

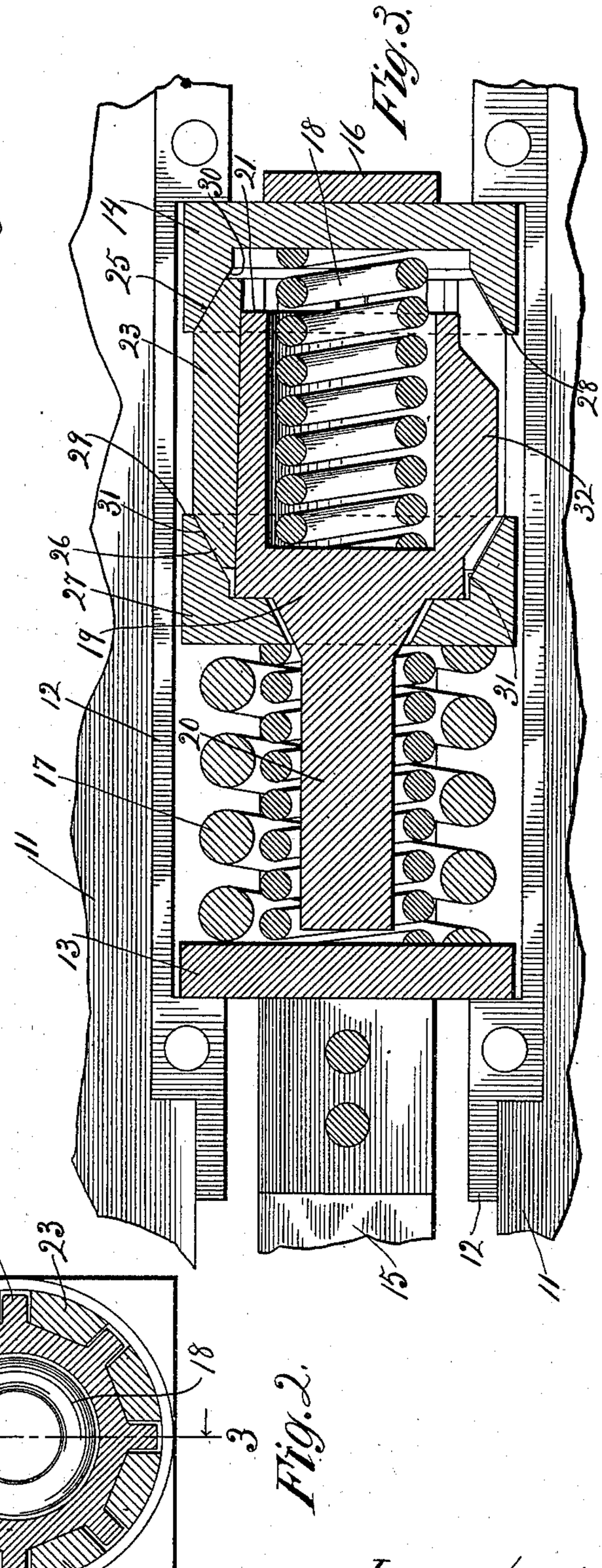

Fig. 3.

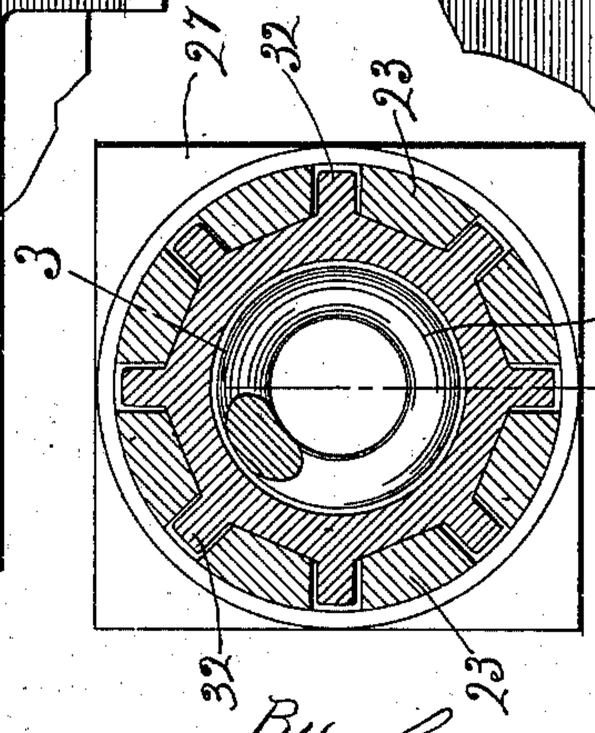

Fig. 2.

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UNITED STATES PATENT OFFICE.

HENRY C. WILLIAMSON AND HERMAN PRIES, OF MICHIGAN CITY, INDIANA.

DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 749,347, dated January 12, 1904.

Application filed October 30, 1903. Serial No. 179,200. (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.

This invention relates to that class of draft-rigging in which the cushioning or buffing springs are supplemented by friction; and its object is to improve upon and increase the efficiency of the draft-rigging forming the subject of our pending application for Letters Patent, Serial No. 172,642, filed September 10, 1903.

The invention consists of the parts and arrangement of parts, as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the draft-rigging, a detail section of a railway-car being shown. Fig. 2 is a transverse section of the draft-rigging on the line 2 2 of Fig. 1; and Fig. 3 is a plan section of the draft-rigging and a detail of the car, taken on the broken line 3 3 of Fig. 2.

The drawings show at 10 cross-timbers of a car and at 11 longitudinal or draft timbers, cheek-plates 12 being applied to the latter in the usual manner. A pair of followers 13 14 engage the forward and rearward shoulders of the cheek-plates and are acted upon by a draw-bar 15, having a tailpiece (shown as taking the form of a loop 16) which incloses the followers and the cushioning mechanism.

Two sets of cushioning-springs 17 18 are employed, one seated against each of the end followers. A plunger 19 is interposed between the two sets of springs and has a stem 20 extending along the axis of one set of springs and reaching, normally, almost, but not quite, to the follower 13, against which the spring is seated. A circumferential flange 21 projects from the opposite face of the plunger 19, inclosing the spring 18, but not being of sufficient length to normally reach to the end follower 14, against which this spring is seated, the outer face of the flange or barrel of the plunger being polygonal and preferably octagonal in form, as shown. A plurality of friction-plates 23 engage the peripheral face of the flange 21. These plates have their ends beveled, as shown at 25 26. A third follower 27 is interposed between the plunger 19 and the spring 17 and is apertured to accommodate the stem 20 of the plunger.

From adjacent faces of each of the followers 14 and 27 there projects a circumferential flange 28 29, the inner faces of these flanges being beveled or inclined outwardly, as shown at 30 and 31, to correspond with the bevels 25 26 of the plates 23.

The flange or barrel 21 of the plunger is tapered toward its outer end, and the faces of the plates 23, contacting therewith, are correspondingly inclined. This inclination of the inner faces of the friction-plates is preferably secured by increasing the thickness of the plates at their outer ends relatively as to their inner ends, though it is obvious that the beveled face 30 of the follower 14 will bring them into contact with the plunger-flange throughout their entire lengths in any event.

Radial ribs 32 project outwardly from the plunger-flange at the intersection of its several faces and retain the friction-plates in place.

Forward draft upon the draw-bar causes the tail-strap to carry the follower 14 forward, compressing both sets of springs until the stem 20 is brought into engagement with the follower 13. Further movement of the plunger being now rendered impossible, the further compression of the spring 17 is accomplished by the movement of the follower 27, pressure being transmitted through the friction-plates 23, which slide upon the peripheral faces of the flange 21.

The beveled form of the inner faces 30 and 31 of the extensions of the followers 14 and 27 and of the faces 25 and 26 of the plates 23 cause an inward pressure of the friction-plates upon the plunger, and this pressure is gradually augmented as the plates slide along the surface of the plunger by reason of the tapered form of the latter, so that there is a gradually-augmented resistance to the strain applied through the draw-bar, first, by reason of the compression of the several springs, and, secondly, by reason of the gradual increase of

friction between the sliding parts. A buffing pressure produces like results, the plunger 19 being moved inwardly and compressing the springs 17 and 18, the follower 13 coming in contact with the end of the stem 20 and advancing the plunger so that its flange slides along the faces of the friction-plates, the latter being forced inwardly by the action of the followers 14 and 27 and the friction between the plunger and the plates being also gradually increased by reason of the tapering form of the plunger.

It will be seen that by reason of the tapered form of the barrel of the plunger 19 and the oblique form of the friction-plates there is a gradual increase of frictional contact between these members as they move in opposite directions entirely independent of the compressive action of the flanges of the end and intermediate followers. If their relative longitudinal movement is sufficient to force the friction-plates outwardly, the two flanged followers are necessarily forced apart against the resistance of the springs 18.

We claim as our invention—

1. In a draft-rigging, in combination, end followers, springs opposed to the adjacent faces of the followers; a plunger having its barrel tapered toward its outer end, located between the followers and receiving pressure from one of them; friction-plates bearing on the peripheral face of the plunger-barrel and receiving pressure from the opposite follower; and means for forcing the plates inwardly as they move longitudinally relatively as to the plunger.

2. In a draft-rigging, in combination, a central tapering member, friction-plates in sliding engagement with the side faces thereof, followers connected with the central member and plates so as to move them longitudinally in relatively opposite directions and having a compressive wedging engagement with the plates.

3. In a draft-rigging, in combination, front and rear followers, a tapering member between the followers, springs interposed between the followers, friction-plates engaging the peripheral surface of such intermediate member, means for moving the plates and the intermediate member relatively in opposite directions, and means for moving the plates toward the intermediate member.

4. In a draft-rigging, in combination, a central tapering member having radial guide-ribs between its sides, friction-plates in sliding engagement with such sides, followers connected with the central member and plates so as to move them longitudinally in relatively opposite directions and having a compressive wedging engagement with the plates.

5. In a draft-rigging, in combination, end followers; a tapering plunger having its stem adjacent to one follower; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower and the intermediate follower.

6. In a draft-rigging, in combination, end followers; a tapering octagonal plunger having its stem adjacent to one follower; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower and the intermediate follower.

7. In a draft-rigging, in combination, end followers; a tapering octagonal plunger having its stem adjacent to one follower and having radial guide-ribs between its faces; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower and the intermediate follower.

8. In a draft-rigging, in combination, spring-separated end followers, a tapering plunger between the followers and in the path of one of them, and yieldingly-supported friction-plates engaging the side faces of the plunger and having their engaging faces oblique to the axis thereof.

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