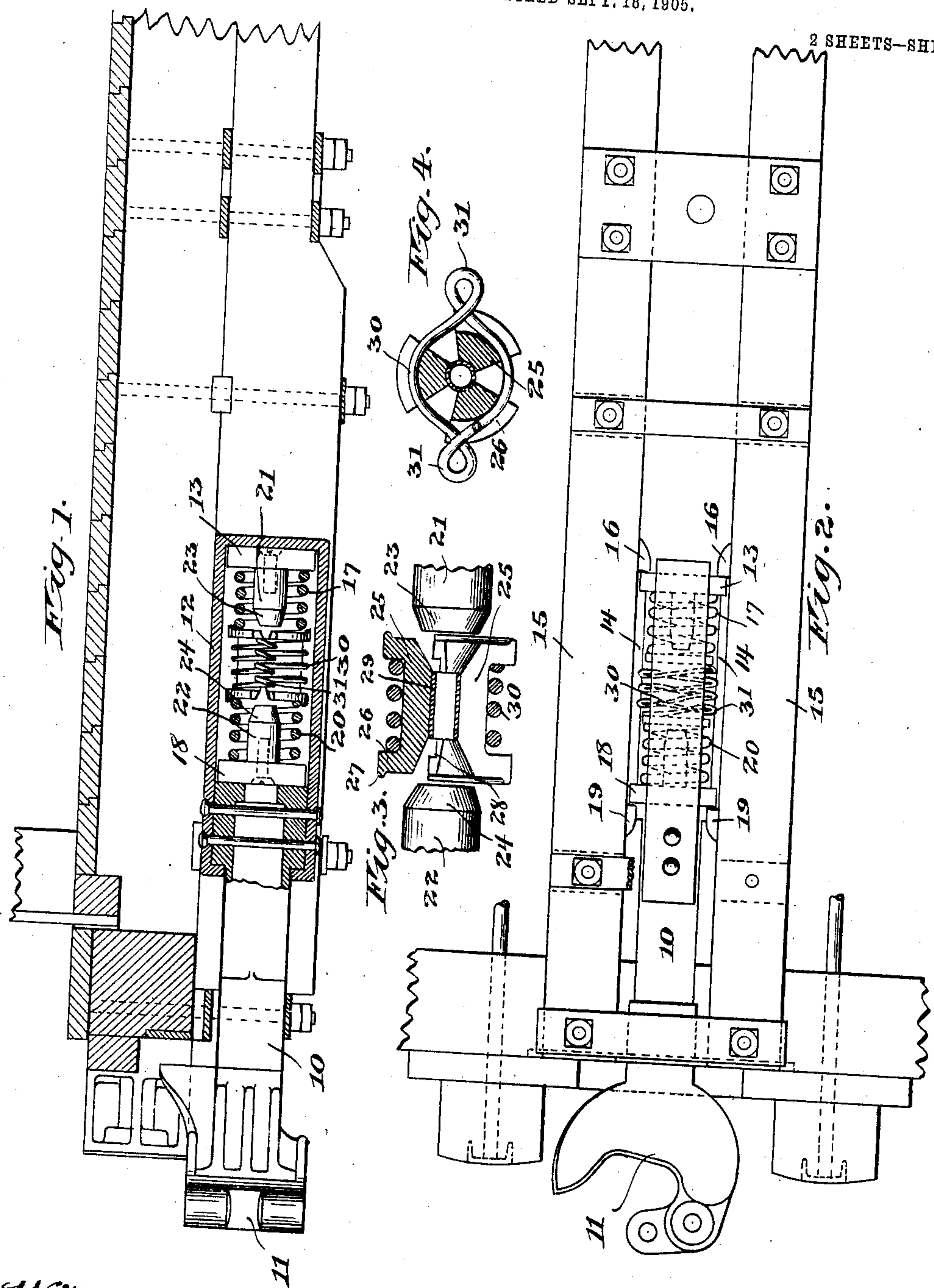


No. 829,636.

PATENTED AUG. 28, 1906.

E. I. DODDS.  
FRICTION DRAFT RIGGING.  
APPLICATION FILED SEPT. 18, 1905.

2 SHEETS—SHEET 1.



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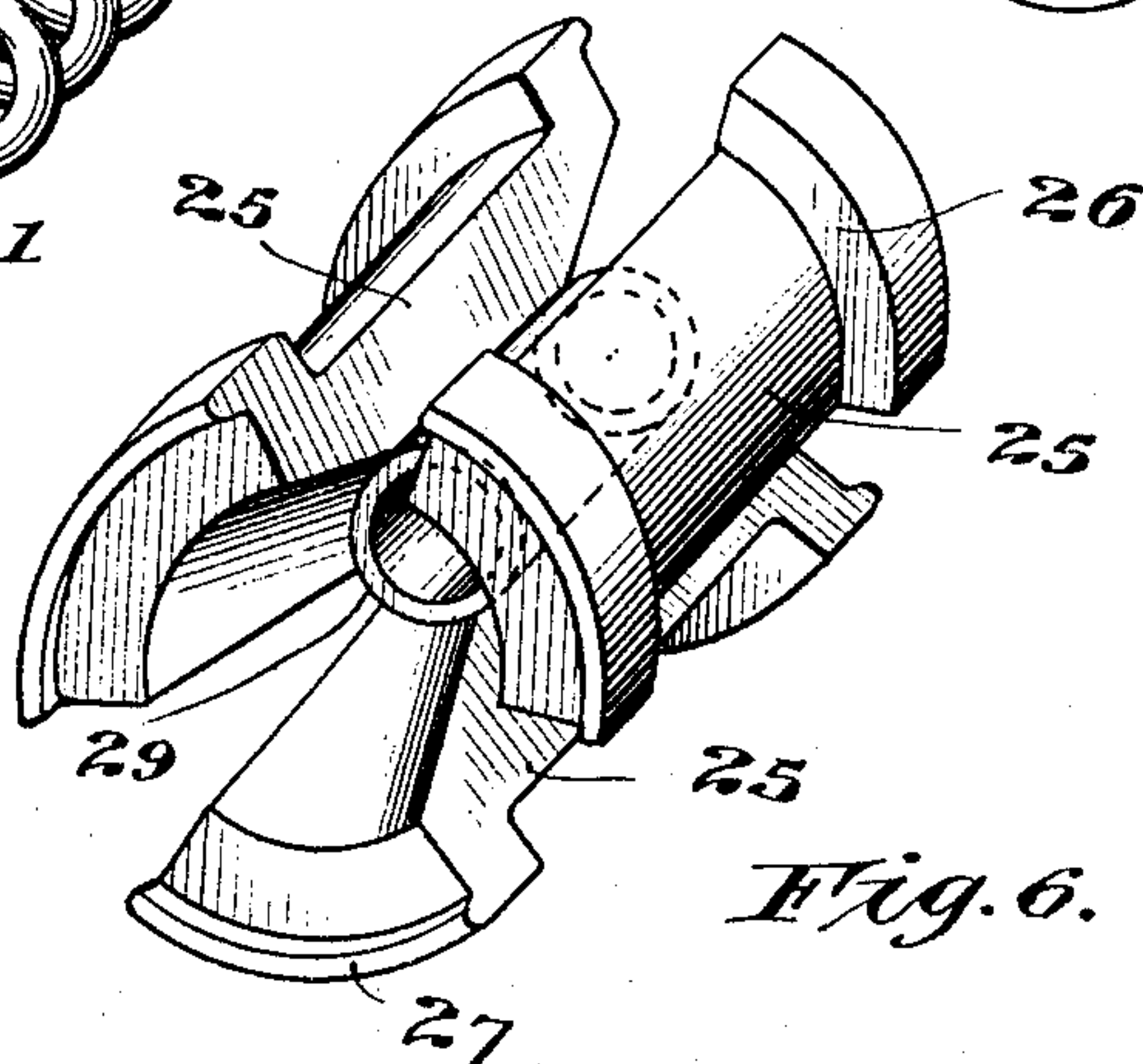
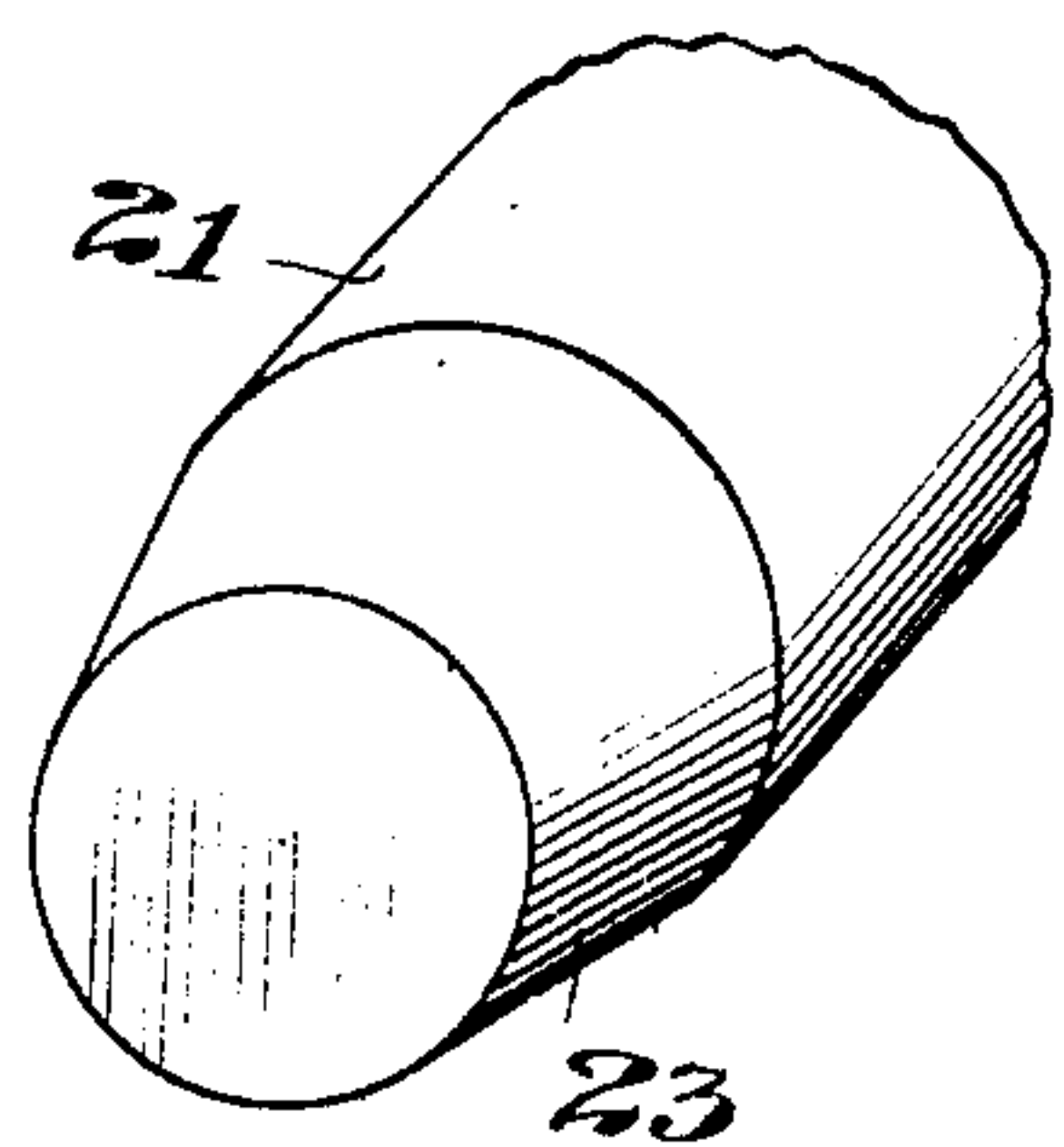
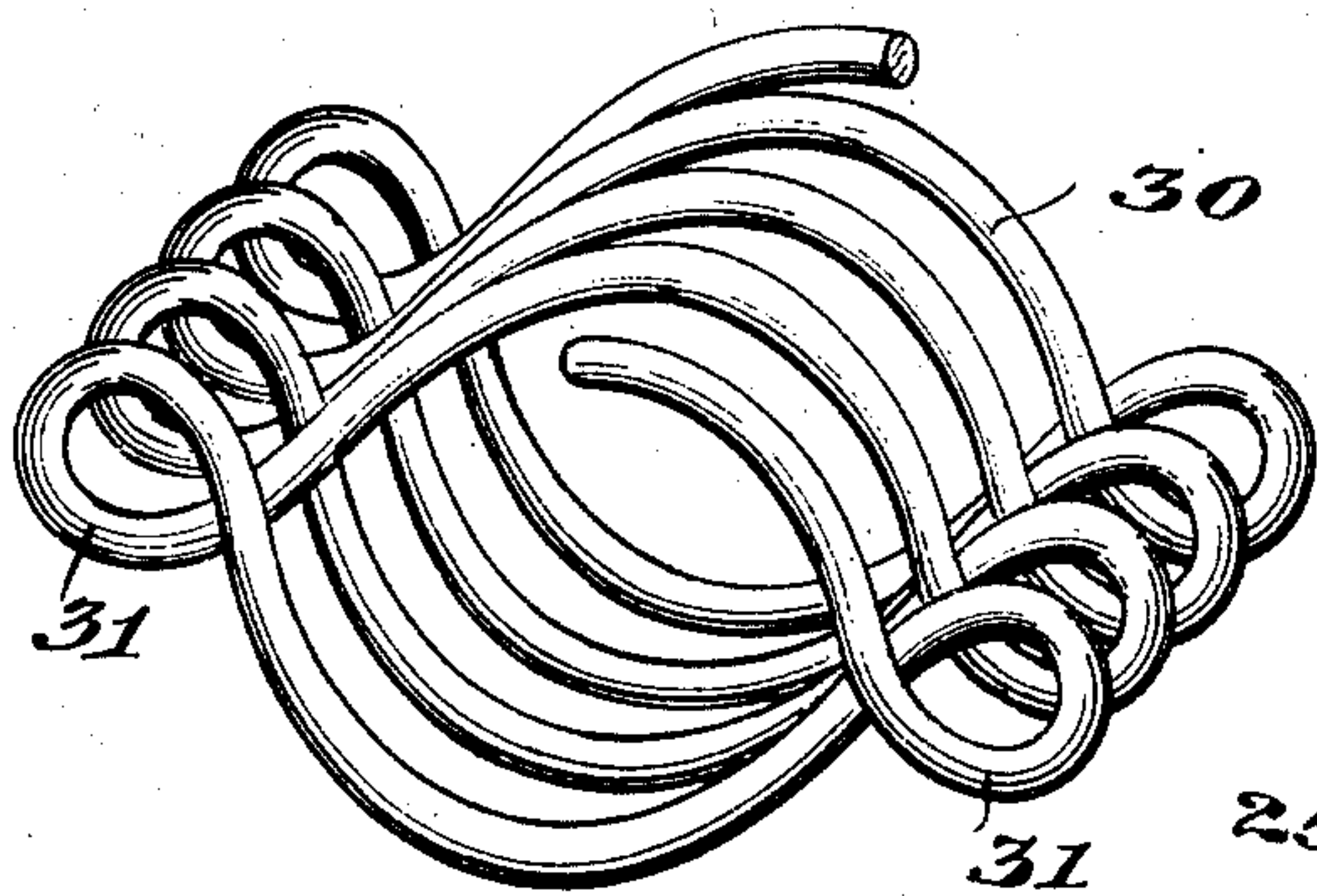
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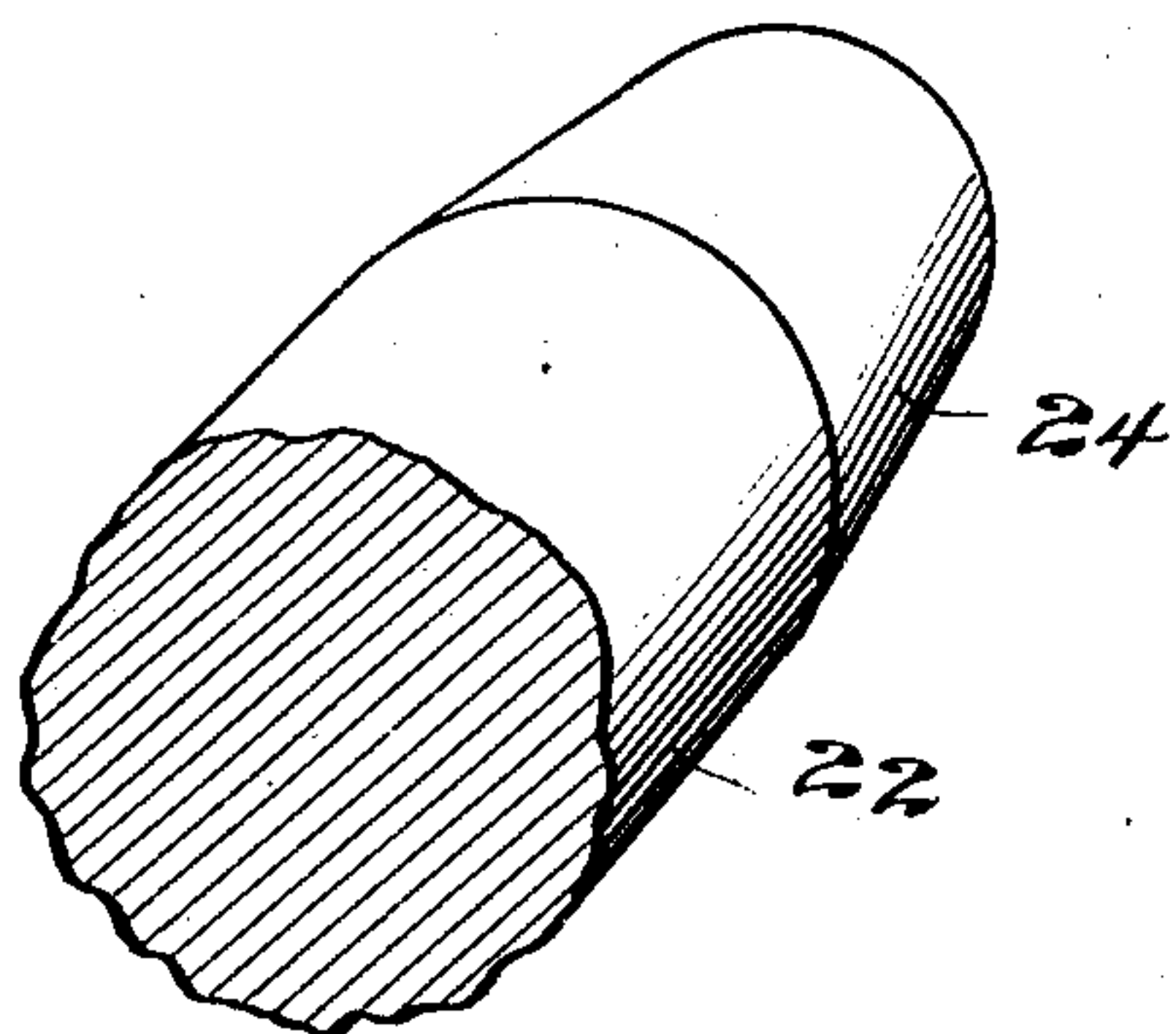
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2 SHEETS—SHEET 2.

*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

ETHAN I. DODDS, OF PULLMAN, ILLINOIS, ASSIGNOR TO THE PULLMAN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## FRICTION DRAFT-RIGGING.

No. 829,636.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed September 13, 1905. Serial No. 278,932.

*To all whom it may concern:*

Be it known that I, ETHAN I. DODDS, a citizen of the United States, residing at Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Friction Draft-Rigging, of which the following is a specification.

My present invention relates to the draft-rigging of railway-cars, its principal object being the provision of a simple means of large capacity for effecting an elastic and cushioned connection between the coupler and draft-sills. For this purpose I employ by itself or in conjunction with one or more draft-springs a mechanism comprising a plurality of expansible sectors encircled and elastically held together against a center sleeve or tube by a special form of spring, wedging conical-shaped separating members attached to the follower-plates being adapted to engage the sectors and force them apart in opposition to the action of the surrounding spring, whereby an effective, elastic, and frictional connection is secured between the coupler and car proper, which is capable of cushioning and absorbing momentary abnormal pulls or thrusts exerted on the coupler.

In the accompanying drawings I have illustrated a preferred embodiment of my invention, like reference characters on all the figures referring to the same parts.

Figure 1 is a longitudinal vertical section of the end portion of a car, illustrating my improved form of draft-gear. Fig. 2 is a fragmentary plan view of the car under-frame and draft-rigging. Fig. 3 is a longitudinal section of a portion of my improved elastic friction mechanism. Fig. 4 is a cross-section of the same parts. Fig. 5 is an enlarged perspective view of the special form of spring employed in my device, and Fig. 6 illustrates in perspective the expansible sectors of the draft-gear in conjunction with their cooperating central tube and wedging members.

Shank 10 of coupler 11 has secured to its inner end yoke 12 the inner follower-plate 13, sliding on guides 14, which are fastened to the adjacent sides of the draft-sills 15 and cooperating with stops 16, secured to the sills 15, the plate 13 being held against the end of yoke 12 by draft-spring 17. Reciprocating on guides 14 is a similar outer follower-plate

18, coacting with fixed stops 19 and thrust against the yoke end of the coupler by draft-spring 20. Projecting toward each other and secured to the follower-plates described above are cylindrical wedging members 21 and 22, having conical ends 23 and 24, respectively. Between the followers 13 and 18 is placed a member comprising a plurality of sectors 25, grouped about a central tube or sleeve 29, each of said sectors having at both ends laterally-projecting curved flanges 26 and longitudinally-extended curved flanges 27. The ends of sectors 25 are hollowed out or concaved obliquely of their inner surfaces, so as to unitedly form conical recesses 28, within which the conical ends 23 and 24 of the wedging members 21 and 22 are adapted to fit under certain conditions. Sectors 25 are normally held together and against central tube 29 by an encircling laterally-expansible spiral spring 30, disposed between the end flanges 26 of the sectors, each coil of the spring being provided on opposite sides with loops 31 to increase the lateral resiliency or elastic capacity thereof. The adjacent ends of draft-springs 17 and 20 engage the ends of sectors 25, being held in place by the curved flanges 27 of the latter. It should be noted that when the parts are assembled the sectors and their tube are in alinement with the cylindrical wedging members.

The operation of the apparatus may be described as follows: When the coupler 11, its shank 10, and attached yoke 12 are drawn forwardly, the follower 13, with its wedging member 21, travels in the same direction because of its engagement with the inner end of the yoke. Follower 18, abutting against draft-lugs 19, receives the pull transmitted through follower 13, spring 17, sectors 25, and spring 20 and transmits the same to the draft-sills of the car. Under normal conditions the expansible sectors and their cooperating wedges do not come into action except to the extent that they travel forwardly as springs 17 and 20 are compressed; but in case an excessive pull is exerted upon the coupler before the compressibility of springs 17 and 20 is exhausted the sectors will have traveled in the direction of the pull sufficiently so that the conical ends of wedging members 21 and 22 simultaneously contact with the sides of the conical recesses at the ends of the sectors and



force the same apart laterally in opposition to the action of spring 30. The unusual strain put upon the coupler, if only momentary, is thus largely if not wholly absorbed in friction. When the coupler is forced inwardly with a normal thrust, its movement is transmitted through the follower 18, spring 20, sectors 25, and spring 17 to the follower 13 and the draft-lugs 16. In case the inward thrust is excessive the auxiliary apparatus comprising the sectors, their encircling spring, and the wedging members comes into operation to absorb the shock.

Although I have shown three sectors in the draft-gear, it is obvious that any number more or less than that described may be utilized, and it is further evident that the usual draft-springs 17 and 20 may be omitted, the remaining parts constituting an operative and effective friction draft-rigging.

To those skilled in the art other mechanical changes will suggest themselves, and hence my invention is not limited to the details shown and described except to the extent that they are made the subject-matter of specific claims.

This patent is intended to embrace only so much of the disclosure made herein as is covered by the claims.

The type of spring encircling the sectors described in this application is claimed in my copending divisional application, Serial No. 300,755, filed February 12, 1906.

I claim—

1. In a railway-car draft-rigging, the combination of a plurality of sectors, a spring normally compressing said sectors toward each other, said spring having integral parts serving to augment its normal elastic capacity, and wedging means coacting with said sectors to separate the same in opposition to the action of said spring, substantially as described.

2. In a railway-car draft-rigging, the combination of a plurality of sectors, a spring encircling said sectors holding the same together and permitting their expansion, said spring having one or more loops to augment its elastic capacity, and wedging means coacting with said sectors to separate the same in opposition to the action of said spring, substantially as described.

3. In a railway-car draft-rigging, the combination of a plurality of sectors, a spiral spring encircling said sectors and permitting their expansion, each coil of said spring having one or more loops to increase its lateral resiliency, and wedging means coacting with said sectors to separate the same in opposi-

tion to the action of said spring, substantially as described.

4. In a railway-car draft-rigging, the combination of a plurality of sectors having both ends tapered, a spring encircling said sectors holding the same together and permitting their expansion, and cooperating members having tapered ends coacting with said sectors to force the same apart in opposition to the action of said spring, substantially as described.

5. In a railway-car draft-rigging, the combination of a coupler, a yoke secured thereto, a follower, a wedging member actuated by said follower, a plurality of sectors with which said wedging member cooperates, and an encircling spiral spring having integral parts serving to augment its normal elastic capacity coacting with said sectors holding them together and allowing their expansion, substantially as described.

6. In a railway-car draft-rigging, the combination of a coupler, a yoke secured thereto, followers within said yoke, a wedging member with a conical end secured to and movable with each follower, a plurality of sectors having a conical recess at each end with which said wedging members cooperate, and an encircling spring coacting with said sectors holding them together and allowing their expansion, substantially as described.

7. In a railway-car draft-rigging, the combination of a coupler, a yoke secured thereto, followers within said yoke, a wedging member secured to and movable with each follower, a plurality of sectors, an encircling spring coacting with said sectors holding them together and allowing their expansion, said wedging members being adapted to separate said sectors in opposition to the action of said spring, and draft-springs interposed between said followers and the ends of said sectors, substantially as described.

8. In a railway-car draft-rigging, the combination of a coupler, a yoke secured thereto, followers within said yoke, a wedging member with a conical end secured to and movable with each follower, a plurality of sectors having a conical recess at each end with which said wedging members cooperate, an encircling spring coacting with said sectors holding them together and permitting their expansion, and draft-springs interposed between said followers and the ends of said sectors, substantially as described.

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