No. 825,505. PATENTED JULY 10, 1906.

B. E. BARNEY.

DRAFT APPLIANCE.

APPLICATION FILED FEB. 10, 1906.

2 SHEETS—SHEET 1

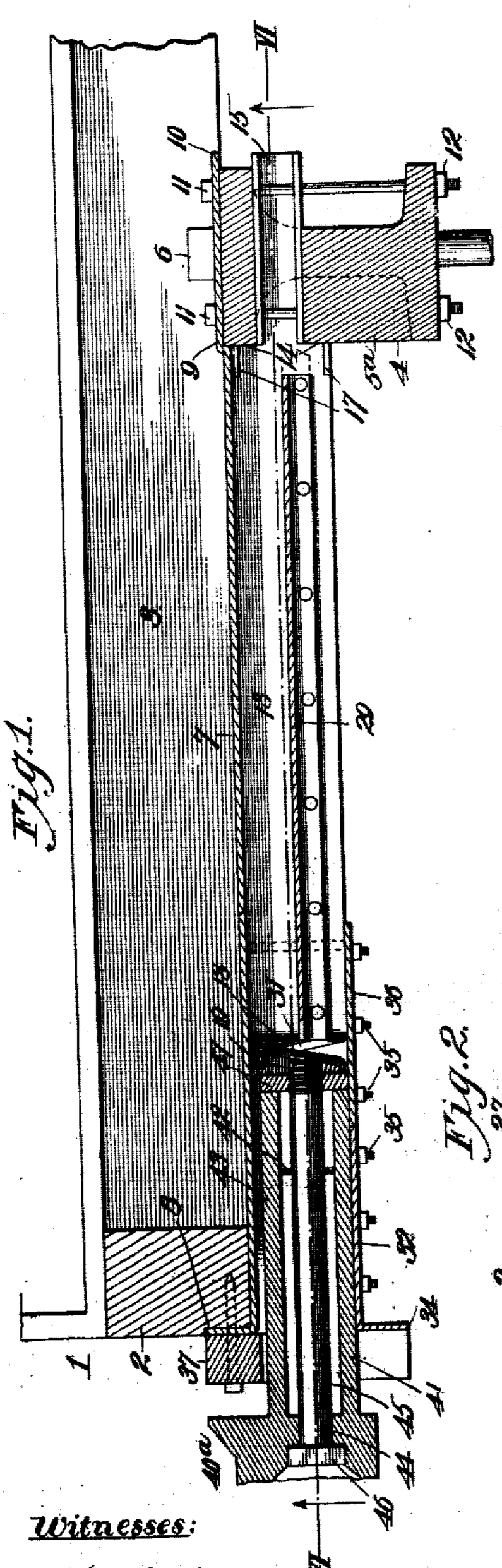

Fig. 1.

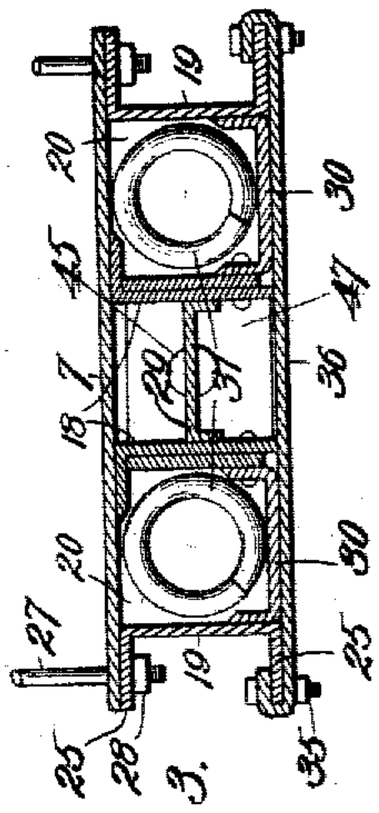

Fig. 3.

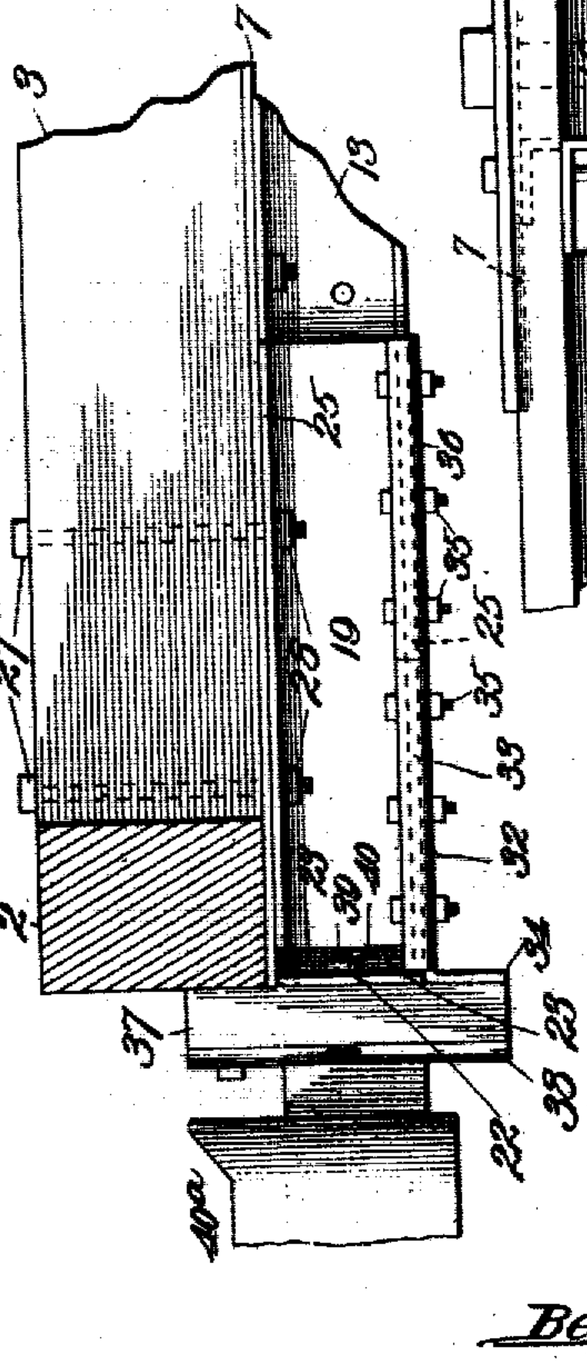

Fig. 2.

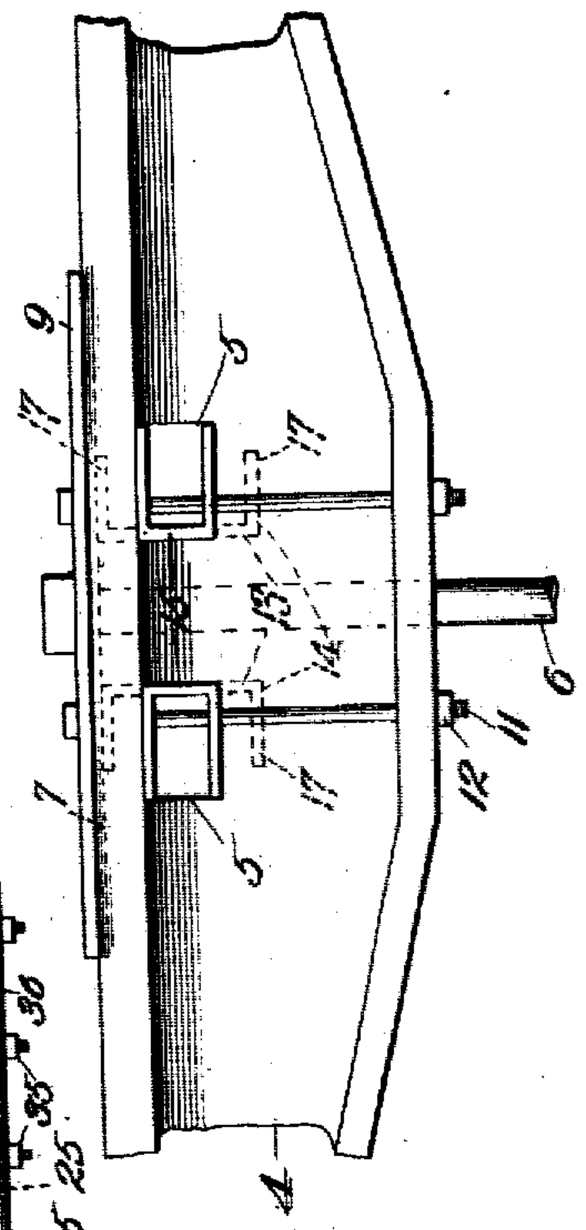

Fig. 4.

Witnesses:

K. W. Imbodeu

H. B. Rodgers.

Inventor:

Benj. E. Barney

By. George H. Strong

Atty.

No. 825,505. PATENTED JULY 10, 1906.

B. E. BARNEY.

DRAFT APPLIANCE.

APPLICATION FILED FEB. 10, 1906.

2 SHEETS—SHEET 2.

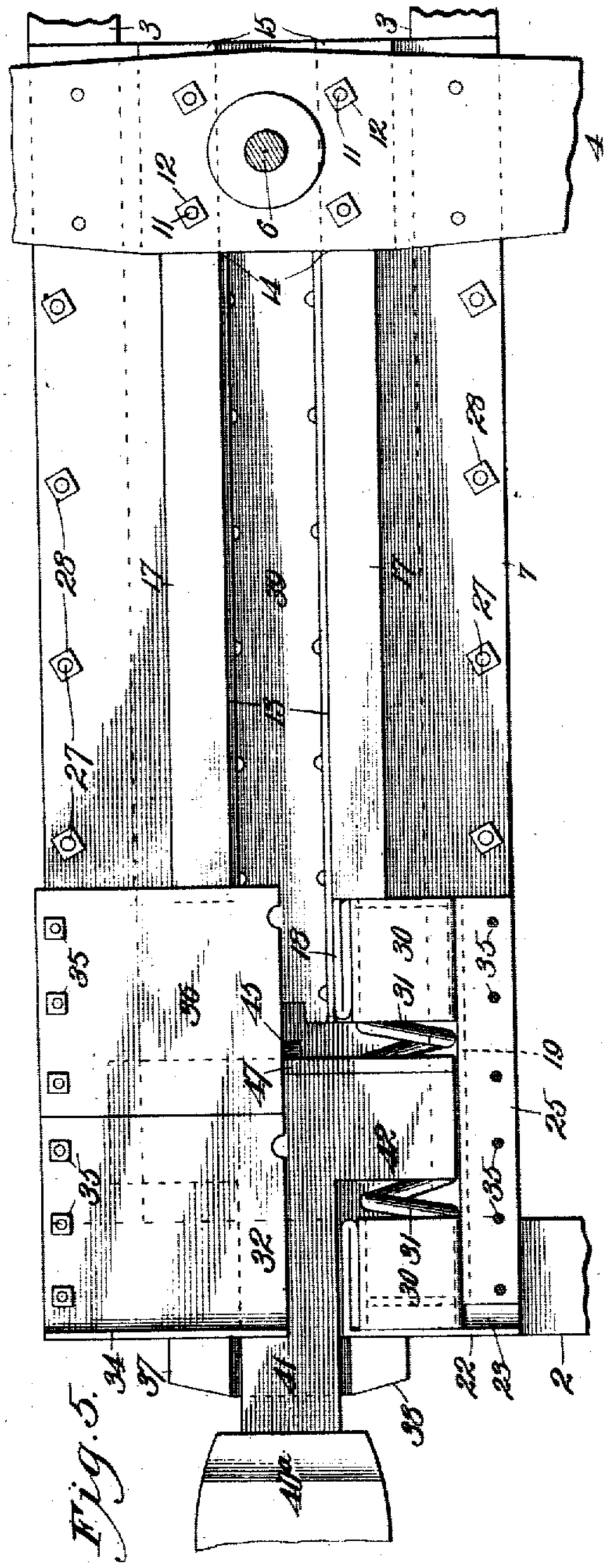

Fig. 5.

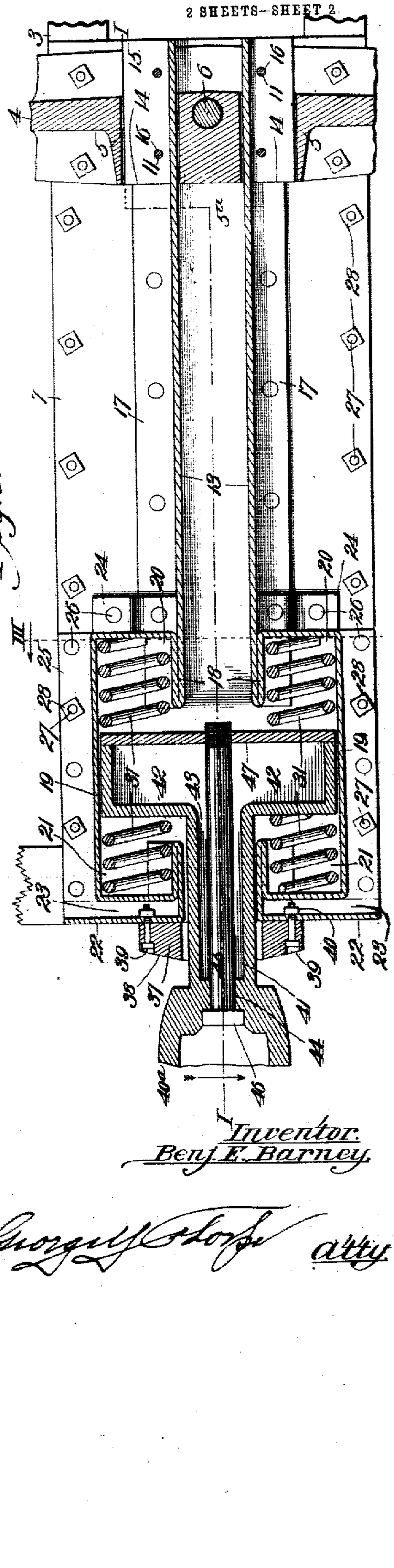

Fig. 6.

Witnesses:

K. M. Imboden

H. Rodgers

Inventor.
Benj. E. Barney.

By George L. Lodge atty.

UNITED STATES PATENT OFFICE.

BENJAMIN E. BARNEY, OF OSAWATOMIE, KANSAS.

DRAFT APPLIANCE.

No. 825,505. Specification of Letters Patent. Patented July 10, 1906.

Application filed February 10, 1906. Serial No. 300,426.

To all whom it may concern:

Be it known that I, BENJAMIN E. BARNEY, a citizen of the United States, residing at Osawatomie, in the county of Miami and State of Kansas, have invented certain new and useful Improvements in Draft Appliances, of which the following is a specification.

This invention relates to draft appliances, and more particularly to draft-bars and attachments for box-cars, and my object is to produce an appliance of this character which is exceedingly simple, strong, and durable of construction, can be easily and expeditiously secured in or removed from position, is adaptable to cars of standard pattern, and cannot drop to the road-bed should the front portion become detached from the car-sills.

With these and other objects in view, as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a vertical section of a draft appliance embodying my invention, taken on the line II of Fig. 6, said figure also showing a portion of the car with the end sill and contiguous transom in section. Fig. 2 is a side elevation of the front portion of the draft appliance and also shows the front sill of the car in section. Fig. 3 is a cross-section taken on the line III of Fig. 6. Fig. 4 is a view of the inner face of the transom of the car and the inner end of the draft appliance. Fig. 5 is an inverted plan view of the draft appliance, with one-half of each side plate omitted, a portion of the car structure being also shown. Fig. 6 is a section on the line VI VI of Fig. 1.

In the said drawings, where like reference characters indicate corresponding parts, 1 indicates a box-car, 2 one of the end sills, and 3 the inner pair of the longitudinal sills thereof.

4 indicates the transom provided with the usual openings 5 at opposite sides of its center and with its central portion provided with a projecting boss 5^a on its outer face, so as to provide a flat face for a purpose which hereinafter appears, and 6 indicates the usual king-bolt extending vertically through the transom.

Referring now to the draft appliances and first to that part technically known as the "attachment" thereof, 7 indicates a horizontal plate extending longitudinally and disposed against the under sides of the end sill and sills 3, and said plate is provided with an upwardly-projecting flange 8, mortised into the outer face of sill 2 by preference. Near its rear end the plate 7 is bent upward, so as to fit against the outer face and rest upon the upper side of the transom, as at 9, the portion 9 being preferably mortised into the sills 3, as at 10. The king-bolt extends through said portion 9 of the plate, and a series of vertical bolts 11 also extend through said portion 9 and the transom and are engaged at their lower ends by the nuts 12.

13 indicates the side or cheek pieces of the attachment, the same extending longitudinally of and below the top plate 7. Near their rear ends they are slit vertically, as at 14, and the portions rearward of the slits are bent outwardly from the bases of the slits, so as to provide flanged portions 15 of less depth than the body portions 13, which flanged portions extend through the openings 5 of the transom with the rear ends of the body portions 13 bearing squarely and flatly against the face of boss 5^a of the transom above and below said openings 5, and through the openings 16 of the flanges of said reduced portions 15 bolts 11 extend. By thus securing the rear ends of the bars 13 to the transom it will be apparent that the front end of the bars cannot sag materially should the supporting means at the front end, hereinafter described, become broken or otherwise ineffective.

The bars 13 are provided at their upper and lower margins with outwardly-projecting flanges 17, the upper ones being riveted to the top plate 7. A suitable distance from the front end of the top plate bars 13 are bent back upon themselves, as at 18, and are then bent, as at 19, to form the longitudinally-alined and oppositely-disposed pockets 20 and 21. The bars are then bent to project outwardly to provide the front end walls 22, disposed by preference flush with the outer face of sill 2 and some distance outward of the bases of pockets 21, so as to provide the interposed chambers 23, into which a wrench or equivalent tool may be inserted for a purpose which hereinafter appears. To make the connection firm and secure between the portions 19 of bars 13 and the top plate, the former have inwardly-projecting flanges 24 at their inner ends and outwardly-projecting flanges 25 at their outer sides secured by rivets 26 to plate 7, and to unite the front end of the at-

tachment reliably to the car bolts 27 extend down through sills 3 and through plate 7 and flanges 25 and are engaged at their lower ends by nuts 28.

29 indicates a bar secured to and between and forming a brace-rib for the body portions of bars 13 to prevent them bending outward or inward.

30 indicates channel-plates secured to the inner sides of the lower portion of each pocket to form a bottom for the latter to support therein the spiral springs or cushions 31.

32 indicates a plate bridging the space between and underlying the pockets 21, said plate being bent back at its margins to provide inwardly-opening grooved portions 33, slidingly engaging the lower flanges 25 of portions 19, and the outer end of said plate is bent down to provide depending flange 34, and said slide-plate is bolted, as at 35, to the engaging flanges of portions 19. A slide-plate 36, similar in construction and arrangement with reference to portions 19, bridges the space between and underlies pockets 20 and is bolted, as at 35, to the flanges 25. It is obvious of course that a single detachable plate may be used in lieu of the two plates 32 and 36; but the two-plate construction is preferred. The slide-plates prevent the side portions 19 from spreading apart and are detachably secured in position, as explained, for convenience in giving access to the interior of the attachment for the insertion or removal of the springs and also to permit of the insertion or removal of a locking-nut hereinafter described.

37 indicates a yoke-shaped buffer having its face tapered in opposite directions, as at 38. Bolts 39 extend through the buffer and portions 22 of the attachment and are engaged by nuts 40, occupying chambers 23, these chambers being provided for the reception of these nuts and also to enable the operator to engage and hold the same by means of a wrench or other tool.

40ª indicates the coupler-head of the draft-bar 41, the latter extending through the yoke-shaped buffer 37 and between the pockets 21, the top plate 7, and slide-plate 32. The rear end of the stem is formed with outwardly-projecting shoulders 42, and said stem is provided with a longitudinal passage 43, communicating at its front end with a passage 44 in the coupler-head.

45 indicates a tie-bolt extending through passages 43 and 44 and having its angular head 46 countersunk in the coupler-head, so that it cannot turn therein, and its threaded end engaged by an oblong rectangular locking-nut 47, which fits slidingly between portions 19, top plate 7, and the slide-plates 32 and 36, so that as long as the head of the bolt is countersunk in the coupling-head there is no possibility of disconnection between the bolt and nut 47 unless a breakage of one or the other occurs. This tie-bolt is employed so that in case the draw-bar breaks at any point between its head and shoulders the broken parts will be held together. Should the draw-bar and bolt both break, the forward parts would be withdrawn and fall to the road-bed, but would do no damage because the car would pass over them without contact. It is obvious that the entire draw-bar cannot be withdrawn because shoulders 42 and nut 47 would be resisted by that portion of the attachment in their path. It will also be apparent that if either or both shoulders of the draw-bar should become broken the tie-bolt and locking-nut connection, in cooperation with the attachment, would hold the draw-bar in place until an opportunity for repair occurred, the tie-bolt being of sufficient strength for the purpose.

In practice the coupling of a car equipped with this draft appliance would result in inward movement of the draw-bar, the springs 31 in pockets 20 cushioning such movement, the proportions being such that before the cushions could be compressed sufficiently to break them the locking-nut would come into contact with the inner walls of the pockets, which thus form abutments to positively limit the inward movement of the draw-bar. After the coupling action the outward pull on the draw-bar would be resisted by the cushions or springs in pockets 21, the outward movement of the draw-bar being limited before a destructive pressure was imposed on the springs by the contact of the shoulders 42 with the inner walls of the pockets 21, as will be readily understood by reference to Fig. 6 particularly.

From the above description it will be apparent that I have produced a draft appliance for box-cars which possesses the features of advantage enumerated as desirable and which obviously may be modified in minor particulars without departing from the principle of construction involved.

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

1. The combination with a car, of a draw-bar attachment having pockets opening toward each other, the pockets having their inner walls forming abutments, springs in said pockets and projecting beyond and of greater length than said inner walls, and a draw-bar having laterally-projecting portions interposed between said inner walls and between said springs.

2. The combination with a car, of a draw-bar attachment having pockets opening toward each other, springs in said pockets, a draw-bar having laterally-projecting portions interposed between said springs, and a top plate overlying the draw-bar and the pockets and rigid with the latter.

3. The combination with a car, of a draw-

bar attachment having longitudinally-alined sets of pockets, the pockets of each set opening toward each other and having laterally-projecting end walls, springs in said pockets, a draw-bar extending slidingly between the sets of pockets and provided with laterally-projecting shoulder portions between the springs of alined pockets, and a yoke-buffer fitting over the draw-bar and secured to said walls.

4. The combination with a car, of a draw-bar attachment having longitudinally-alined sets of pockets, the pockets of each set opening toward each other and having laterally-projecting end walls spaced apart from the contiguous pockets, springs in said pockets, a draw-bar extending slidingly between the sets of pockets and provided with laterally-projecting shoulder portions between the springs of alined pockets, a yoke-buffer fitting over the draw-bar and secured to said walls, bolts extending through the buffer, and nuts engaging the bolts between said walls and the contiguous plates.

5. The combination with a car, of a draw-bar attachment having two sets of pockets, the pockets of each set opening toward each other, springs in said pockets, a yoke secured outward of and rigid with respect to said pockets, a coupling-head having a draw-bar extending through said yoke and between the sets of pockets and provided with laterally-projecting shoulder portions between the springs of each set of pockets, a bolt extending through the draw-bar and having its head fitting non-rotatably in the coupling-head, and a nut engaging the rear end of the bolt and interposed between the shoulder portions of the draw-bar and the contiguous springs.

6. A coupling-head having a draw-bar provided with a longitudinal passage and laterally-projecting shoulder portions, a bolt extending through said draw-bar and having its head bearing against the coupling-head, and a nut engaging the threaded end of the bolt and the shoulder portions of said bar.

7. The combination with a car, having a transom provided with openings, a pair of bars abutting at their rear ends against the outer face of the transom and provided with reduced portions extending through the openings of the transom, and provided at their front ends and outer sides with alined pockets having their open ends disposed toward each other, a top plate secured upon said bars, bolts extending through the transom and the reduced portions of said bars, springs in said pockets, and a draw-bar extending between said pockets and having laterally-projecting shoulder portions between the springs of alined pockets, and a bottom plate secured to said bars and underlying said draw-bar.

In testimony whereof I affix my signature in the presence of two witnesses.

BENJAMIN E. BARNEY.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.