

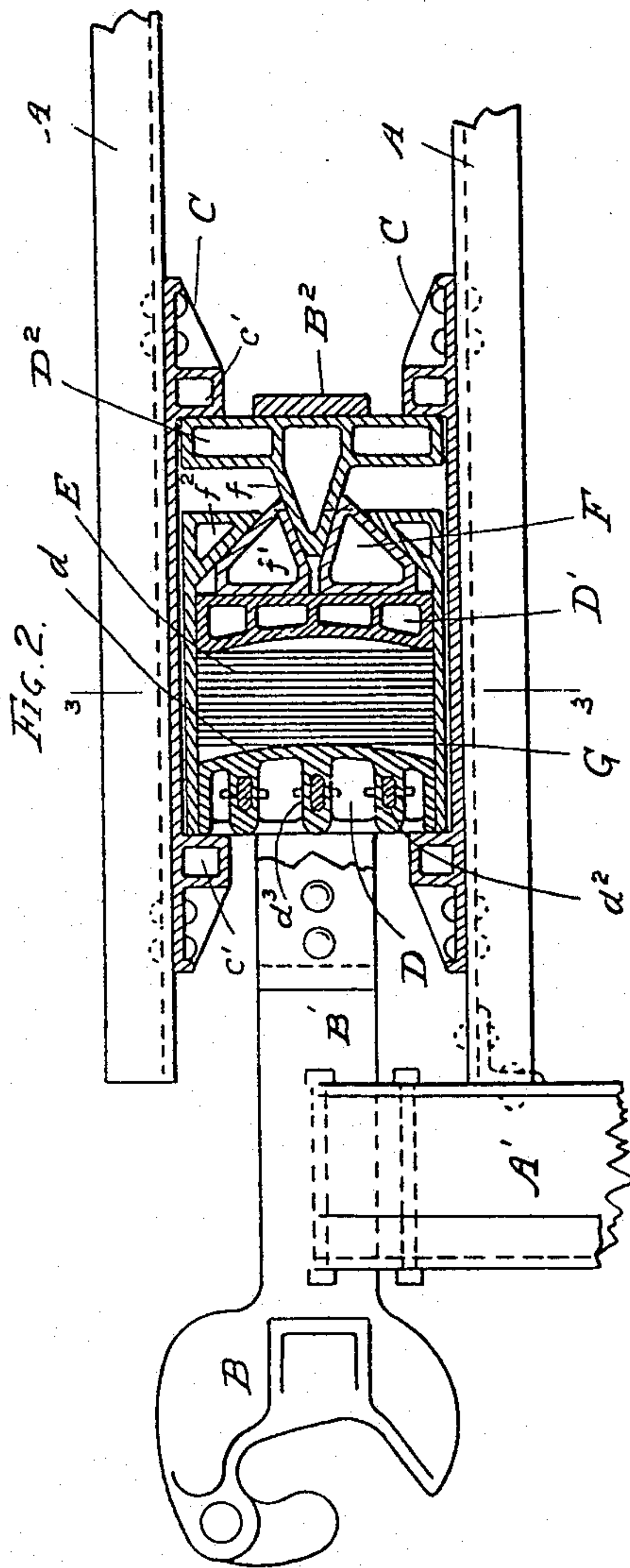
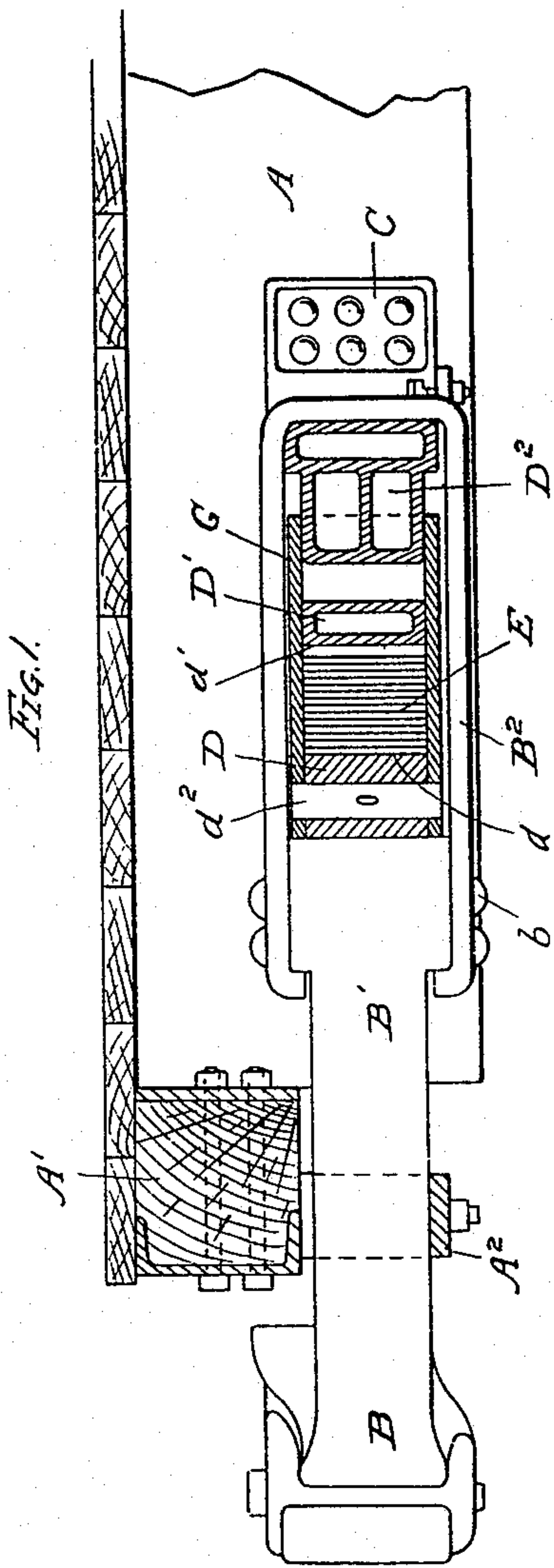
No. 835,248.

PATENTED NOV. 6, 1906.

J. F. O'CONNOR.
DRAFT RIGGING.

APPLICATION FILED APR. 30, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

F. B. Townsend
H. M. Munday.

INVENTOR

John F. O'Connor

BY

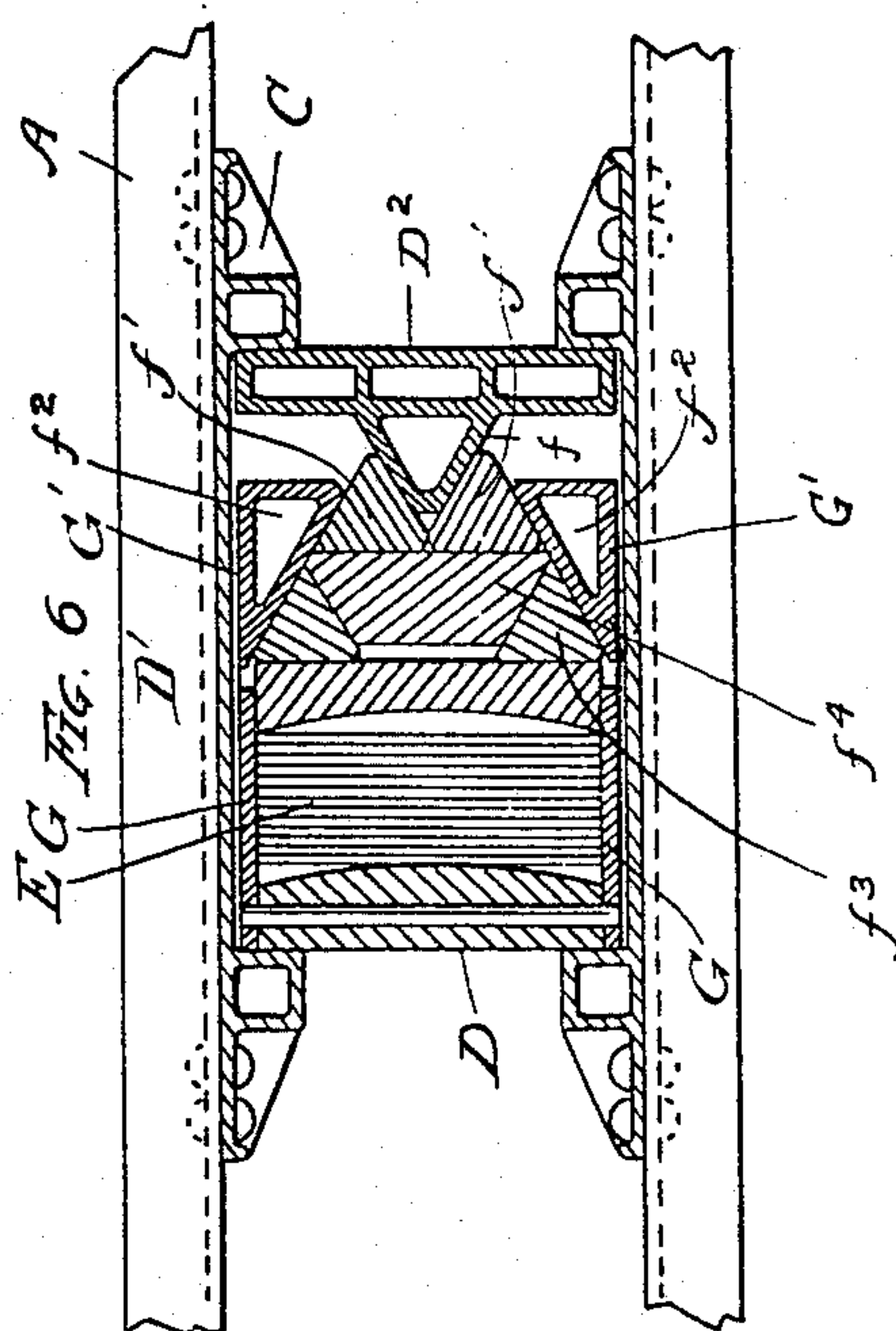
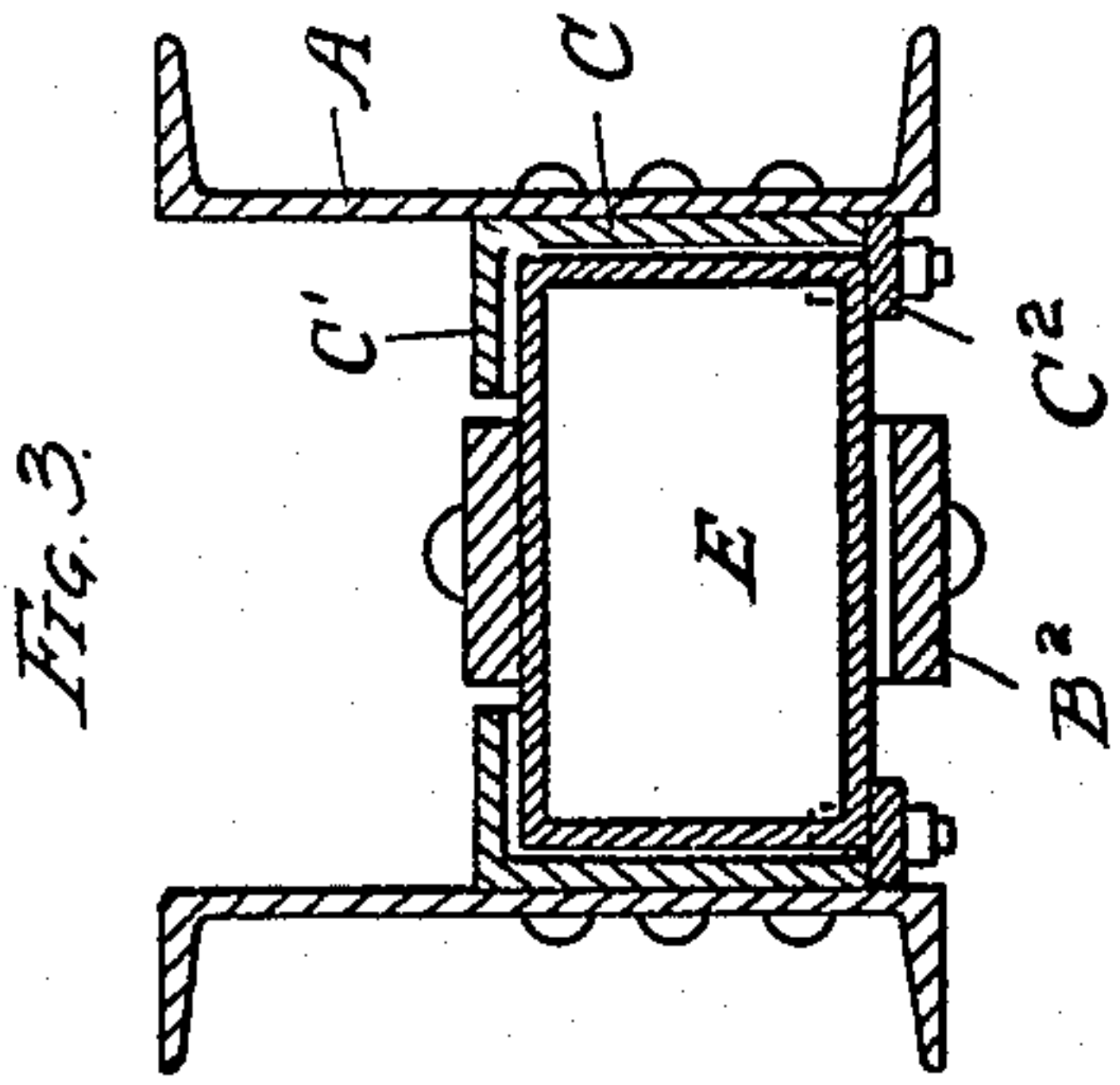
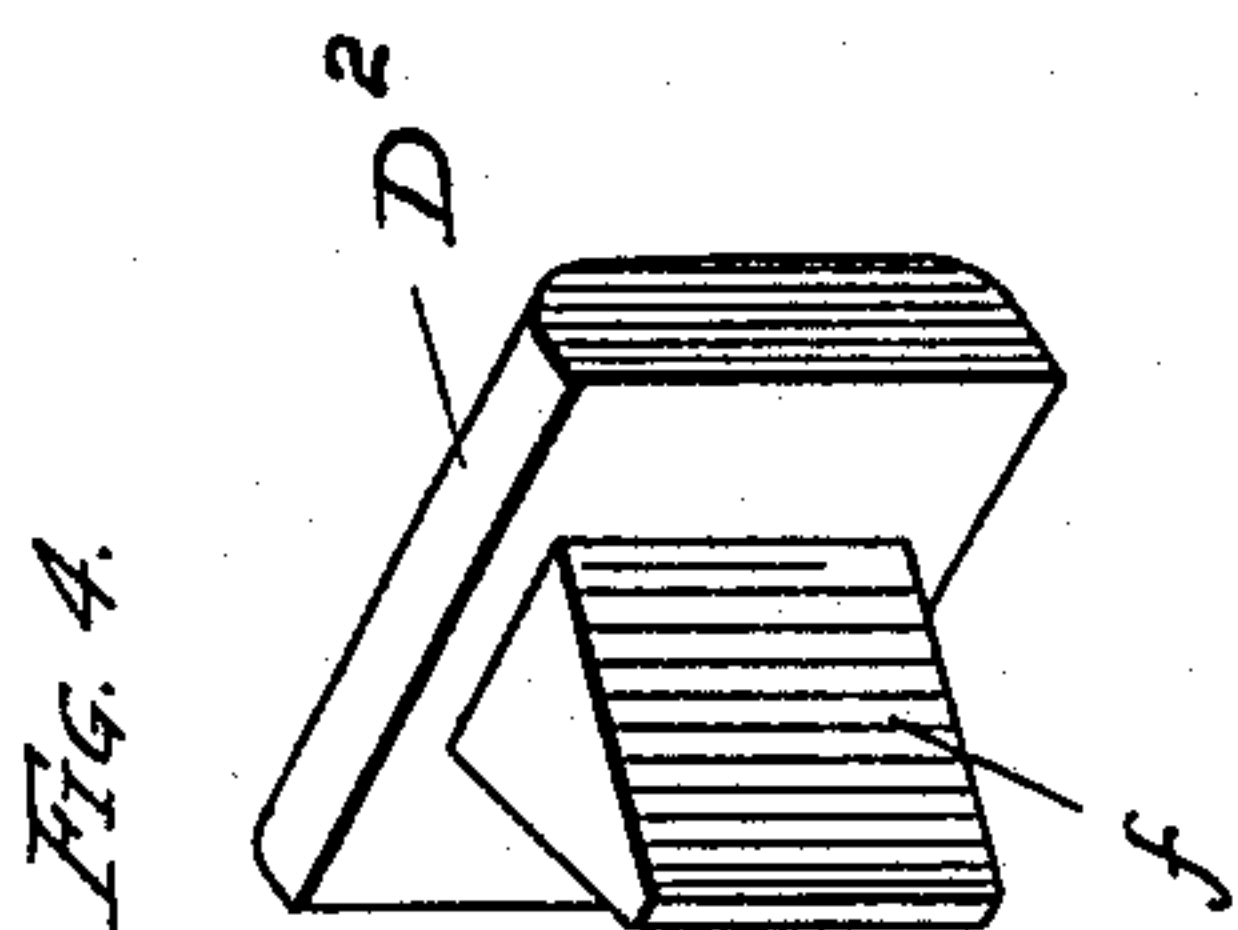
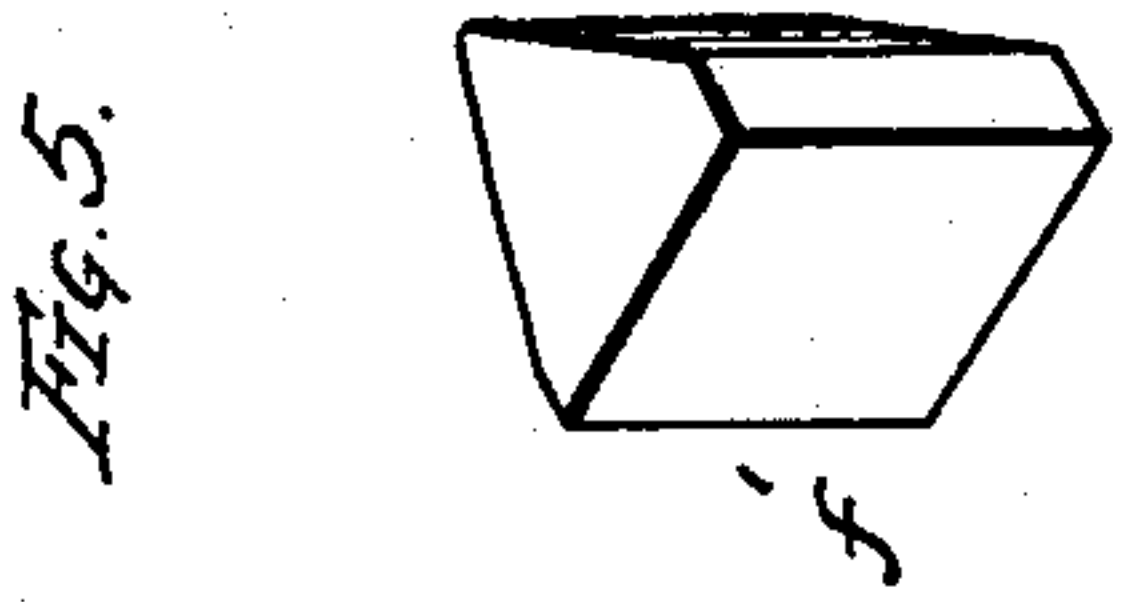
Munday, Evans & Adcock.
his ATTORNEYS

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN F. O'CONNOR, OF CHICAGO, ILLINOIS, ASSIGNOR TO W. H. MINER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DRAFT-RIGGING.

No. 835,248.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed April 30, 1906. Serial No. 314,369.

To all whom it may concern:

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Draft-Rigging, of which the following is a specification.

My invention relates to improvements in draft-rigging for railway-cars, and more particularly to improvements upon the draft-rigging heretofore patented to me in my Letters Patent No. 784,697, dated February 21, 1905.

In my said patented draft-rigging it is necessary that the flat steel-plate springs should be made of comparatively thin plates about one-eighth of an inch in thickness, or of No. 11 gage, in order that the draw-bar may have the required extent of movement, ordinarily about two inches, without imparting to the flat steel spring-plates any permanent flexure or set, as would be the case if the plates were made materially thicker and bent or flexed to the extent represented by this movement of the draw-bar, as the plates are necessarily short in length, their length being necessarily limited to the space between the side plates or stop-castings of the draft-rigging. As such thin plates are comparatively expensive per pound, this adds materially to the cost of my patented draft-rigging.

The object of my present invention is to improve and perfect my said patented draft-rigging and enable it to be manufactured at small cost without interfering with its operation or in any way detracting from its merit, efficiency, and advantages as a draft-rigging.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists, in connection with the draw-bar and draw-bar strap or extension, of a pair of followers having cooperating convex and concave bearing-faces to engage the springs, a series of flat straight steel-plate springs interposed between the convex and concave bearing-faces of the followers, and a motion-reducing device, preferably a plurality of wedges interposed between one of the followers and the draw-bar or its strap or extension, so that such follower will have a materially less movement than the draw-bar, and thus impart a corresponding less flexure to the flat spring-plates, and thereby enable the spring-plates to be reduced in num-

ber and made each materially thicker, and thus reduce the cost of the draft-rigging without interfering with its cushioning power or efficiency in operation.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation, partly in central longitudinal section, of a draft-rigging embodying my invention. Fig. 2 is a plan view, partly in horizontal section. Fig. 3 is a vertical cross-section on line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of the rear supplemental follower furnished with a wedge or motion-reducing device. Fig. 5 is a detail perspective view of one of the cooperating wedges or motion-reducing devices; and Fig. 6 is a plan view, partly in horizontal section, illustrating a modified construction of the motion-reducing device.

In the drawings, A represents the center sills or draft-sills or car-framework to which the draft-rigging is applied, A', the front or cross sill, and A² the carry-iron.

B is the coupler, B' the draw-bar, and D² the draw-bar extension or strap secured to the draw-bar in the customary manner by bolts or rivets b.

C C are the side plates, cheek-plates, or stop-castings of the draft-rigging, the same having front and rear stops or shoulders c' c' for the followers to abut against.

D is the front follower, the same having, preferably, a convex bearing-face d to bear against the straight flat steel springs E; D', the rear follower, the same having, preferably, a cooperating concave bearing-face d' to engage the springs, and D² is a supplemental follower which is interposed between the draw-bar strap and the rear spring-engaging follower D' and between which and the rear spring-engaging follower D' there is interposed a motion-reducing device F, preferably consisting of a plurality of wedges f, f', and f², the former, f, being preferably made integral with the supplemental follower D². The angles of the cooperating wedges f f' f² are preferably such that the motion is reduced about one-quarter, so that the spring-bearing follower D' will have about one-quarter the movement of the draw-bar, thus

enabling the spring-plates E to be made of commercial steel plate of about No. 3 gage, or one-fourth of an inch in thickness.

G is a sliding or reciprocating spring cage 5 or box containing the springs E and preferably the followers D and D', the same serving to confine the springs and also being a convenience in assembling the parts of the draft-rigging and removing it from and re-
10 placing it in the car. This spring cage or box G may preferably have formed integrally thereon two of the cooperating wedges f^2 , as illustrated in Fig. 2 of the drawings.

In the modification illustrated in Fig. 6 15 the wedges or blocks f^2 are formed on a supplemental case or box G', and further or additional wedges f^3 and f^4 are interposed between the spring-bearing follower D' and the supplemental follower D². This enables the
20 angle of the wedge f to be made less acute than is shown in Figs. 2 and 4, as will be readily understood from Fig. 6.

The front follower D may be preferably connected to the reciprocating spring box or 25 cage G by a key or keys d^2 inserted through lugs d^3 , thus closing this end of the spring box or cage G.

The side plates or stop-castings C are furnished with the customary integral upper 30 flanges or guides C' and removable guides C² to support the followers and spring box or cage G and the draw-bar.

I claim—

1. In a draft-rigging, the combination with 35 a draw-bar and draw-bar strap or extension, of a series of flat, straight spring-plates extending transversely between the upper and lower members of the draw-bar strap or extension, a pair of followers having cooperating
40 ing convex and concave bearing-faces engaging the springs, and a motion-reducing device interposed between one of the followers and the draw-bar to enable the draw-bar to have a greater extent of movement rela-
45 tive to the movement of the flat straight spring-plates, substantially as specified.

2. In a draft-rigging, the combination with a draw-bar, of a pair of followers having co-
50 operating convex and concave bearing-faces to engage the springs, a series of flat, straight springs interposed between said followers, a motion-reducing device interposed between one of the followers and the draw-bar, and a
55 spring box or case made in two separate parts and one of said parts containing the said springs and the other of said parts containing the motion-reducing device, substan-
tially as specified.

3. In a draft-rigging, the combination with 60 a draw-bar, of a pair of followers having co-operating convex and concave bearing-faces to engage the springs, a series of straight, flat spring-plates interposed between said followers, a supplemental follower interposed
65 between one of said followers and the draw-

bar, and a motion-reducing device interposed between said supplemental follower and one of said spring-engaging followers, substan-
tially as specified.

4. In a draft-rigging, the combination with 70 a draw-bar, of a pair of followers having co-operating convex and concave bearing-faces to engage the springs, a series of straight, flat spring-plates interposed between said followers, a supplemental follower interposed 75
between one of said followers and the draw-bar, a motion-reducing device interposed between said supplemental follower and one of said spring-engaging followers, and a recip-
80 rocating spring box or case containing the springs, substantially as specified.

5. In a draft-rigging, the combination with a draw-bar, of a pair of followers having co-
85 operating convex and concave bearing-faces to engage the springs, a series of straight flat spring-plates interposed between said followers, and a plurality of motion-reducing wedges interposed between one of said fol-
90 lowers and the draw-bar, substantially as specified.

6. In a draft-rigging, the combination with a draw-bar, a pair of followers having convex and concave bearing-faces to engage the
95 springs, a series of straight flat spring-plates interposed between said followers, a supplemental follower interposed between one of said followers and the draw-bar, and a plu-
rality of wedges interposed between the sup-
100 plemental follower and one of the spring-bearing followers to reduce the motion of the latter and of the flat spring-plates relative to the movement of the draw-bar, substantially as specified.

7. In a draft-rigging, the combination with a draw-bar, a pair of followers having convex 105
and concave bearing-faces to engage the springs, a series of straight flat spring-plates interposed between said followers, a sup-
plemental follower interposed between one of said followers and the draw-bar, a plu- 110
rality of wedges interposed between the supplemental follower and one of the spring-bearing followers to reduce the motion of the latter and of the flat spring-plates relative to the movement of the draw-bar, and a recip- 115
rocating box for the springs, substantially as specified.

8. In a draft-rigging, the combination with a draw-bar, a pair of followers having convex 120
and concave bearing-faces to engage the springs, a series of straight flat spring-plates interposed between said followers, a sup-
plemental follower interposed between one of said followers and the draw-bar, and a plu-
125 rality of wedges having angles of less than forty-five degrees interposed between the supplemental follower and one of the spring-bearing followers to reduce the motion of the latter and of the flat spring-plates relative to the motion of the draw-bar, one of said wedges 130

being integral with the supplemental follower, substantially as specified.

5 9. In a draft-rigging, the combination with a draw-bar, a pair of followers having convex and concave bearing-faces to engage the springs, a series of straight flat spring-plates interposed between one of said followers and the draw-bar and a plurality of motion-reducing wedges interposed between the supplemental follower and one of the spring-bearing followers, said spring box or case being adapted to reciprocate and having integral wedges formed thereon, substantially as specified.

15 10. In a draft-rigging, the combination of a draw-bar, a draw-bar strap or extension,

a series of flat, straight spring-plates extending transversely through the draw-bar extension between the upper and lower limbs thereof, front and rear bearings or followers 20 for the said spring-plates arranged within the draw-bar extension, one of the followers engaging the spring-plates at the middle and the other follower engaging the spring-plates near the edges, and a frictional motion-reducing device interposed between the rear follower and the rear part of the draw-bar extension, substantially as set forth. 25

JOHN F. O'CONNOR.

Witnesses:

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