

No. 862,932.

PATENTED AUG. 13, 1907.

J. F. O'CONNOR.  
TANDEM SPRING DRAFT RIGGING.

APPLICATION FILED JUNE 12, 1907.

2 SHEETS—SHEET 1.

FIG. 1.

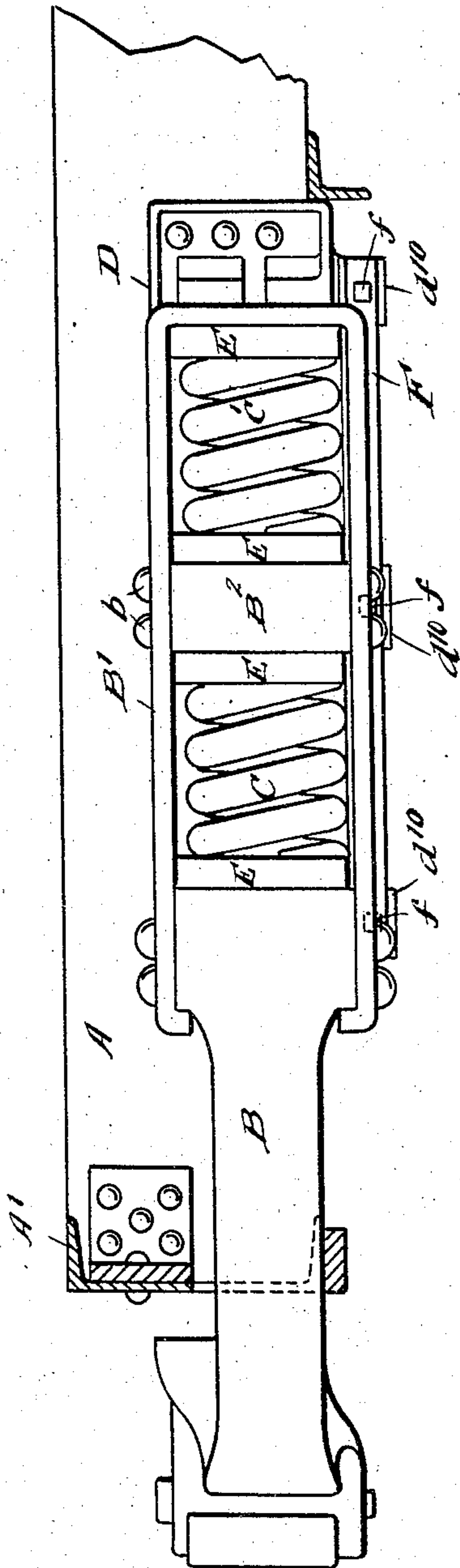
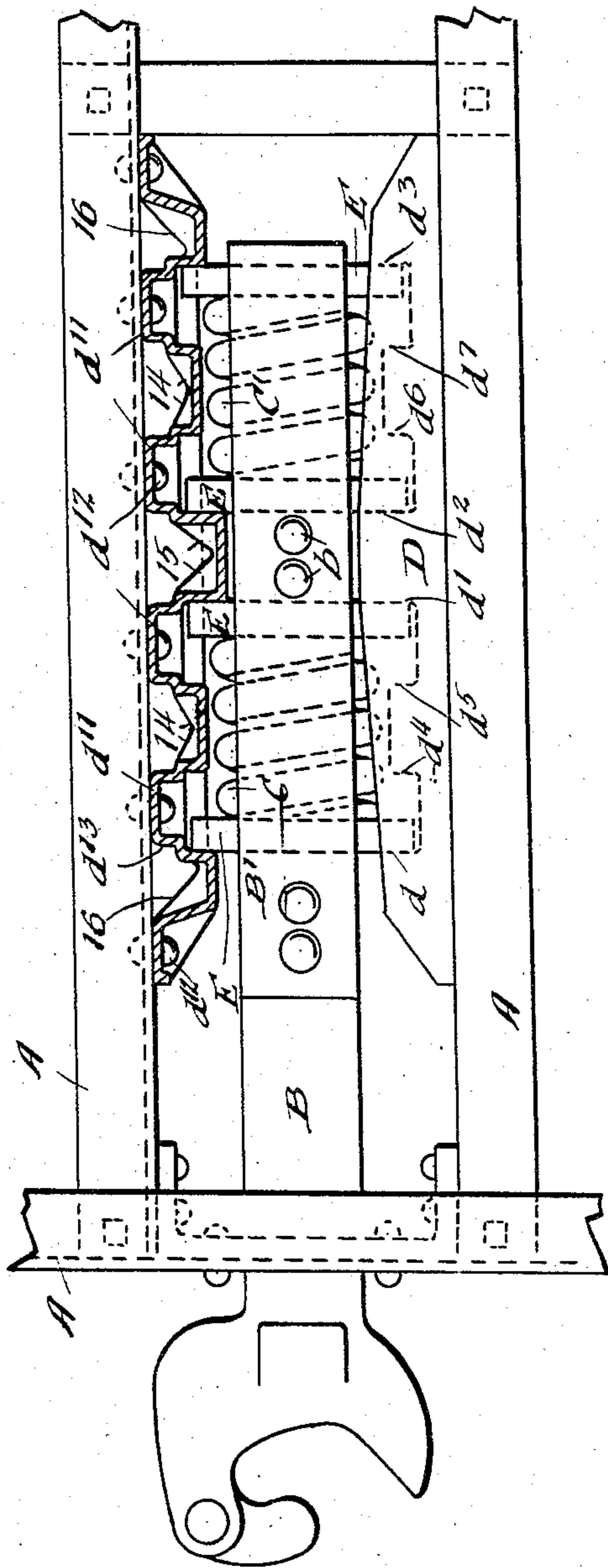


FIG. 2.



WITNESSES:

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*John F. O'Connor*  
BY  
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No. 862,932.

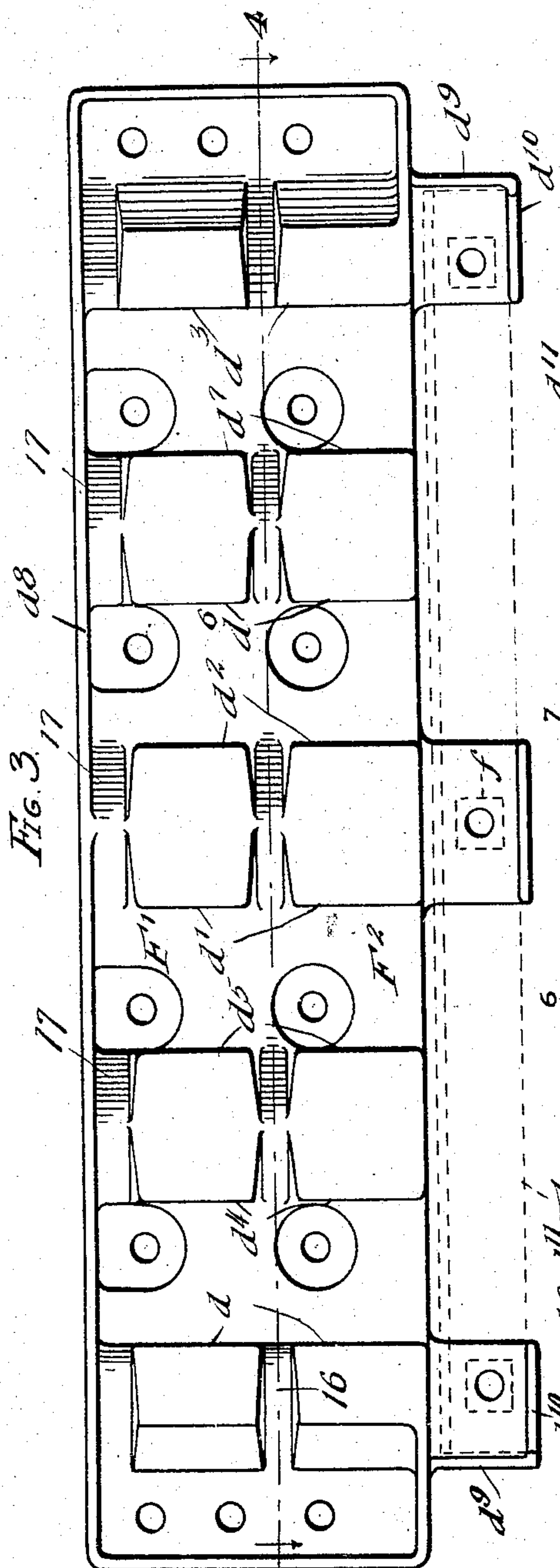
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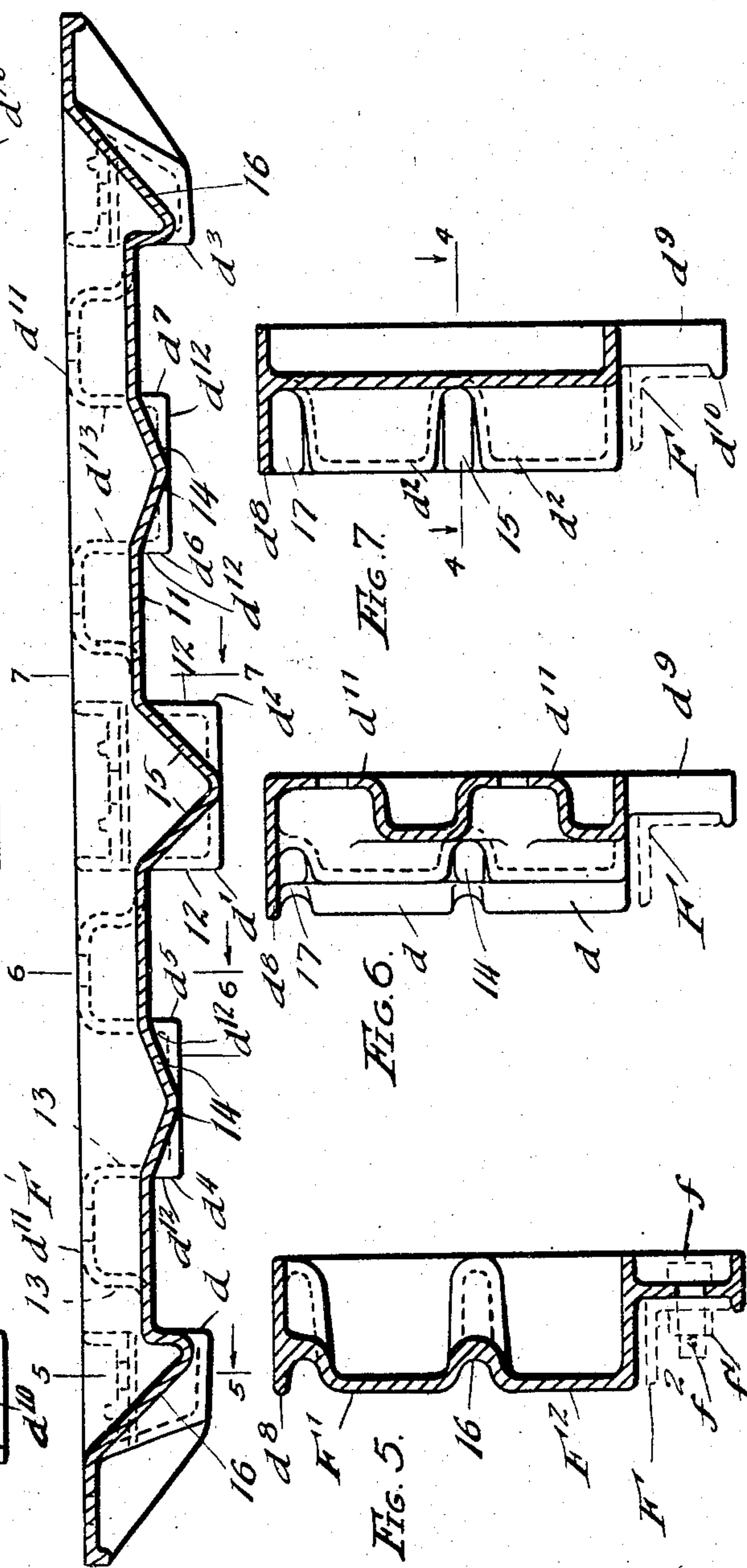
2 SHEETS—SHEET 2.



**WITNESSES:** ~~4~~

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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.

## TANDEM-SPRING DRAFT-RIGGING.

No. 862,932.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed June 12, 1907. Serial No. 378,487.

*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 Tandem-Spring Draft-Rigging, of which the following is a specification.

My invention relates to improvements in tandem spring draft rigging for railway cars, and more particularly to the construction of the side plates or stop castings of the draft rigging.

The object of my invention is to provide a tandem spring draft rigging side plate or stop casting of a simple, efficient and durable construction having the necessary main stops or shoulders for the followers to abut against and also the required intermediate stops to limit the movement of the followers, which will be composed of a main web of uniform thickness throughout and substantially free from T or other sections, liable to cause unequal shrinkage or casting strains, which may be perfectly produced in cast metal, and which may be readily and cheaply manufactured, and which at the same time will have special provision for bracing and strengthening the same longitudinally to prevent buckling.

My invention consists in the means I employ to practically accomplish this object or result as herein shown and described, and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation partly in vertical section of a tandem spring draft rigging embodying my invention. Fig. 2 is a plan view partly in horizontal section. Fig. 3 is a detail side elevation of one of the side plates or stop castings. Fig. 4 is a section on line 4—4 of Fig. 3. Figs. 5, 6 and 7 are detail cross sections on lines 5—5, 6—6 and 7—7 respectively of Fig. 4.

In the drawing, A represents the center sills, draft timbers or other longitudinal frame members to which the side plates or stop castings of the draft rigging are secured, A<sup>1</sup> the front or end sill, B the draw-bar, B<sup>1</sup> the draw-bar yoke, B<sup>2</sup> the intermediate abutment block secured to the yoke by rivets *b b*, C C<sup>1</sup> tandem arranged springs, D the side plates or stop castings and E the followers.

Each of the side plates or stop castings D is furnished with main, front, middle and rear stops or shoulders *d d<sup>1</sup> d<sup>2</sup> d<sup>3</sup>* for the followers to abut against, and intermediate stops or shoulders *d<sup>4</sup> d<sup>5</sup> d<sup>6</sup> d<sup>7</sup>* to limit the movement of the followers and the compression of the springs, and with an upper horizontally extending longitudinal integral guide flange *d<sup>8</sup>* for the followers. Each of the side plates or stop castings D are also fur-

nished with integral depending legs *d<sup>9</sup>* furnished with flanges or shoulders *d<sup>10</sup>* to receive the lower removable angle guides F upon which the followers reciprocate and which are secured in place by removable bolts *f*, having nuts *f<sup>1</sup>* and keys *f<sup>2</sup>*.

Each of the side plates or stop castings D consists of a main web 11 of substantially uniform thickness throughout, and substantially free from T or other thickened sections. This main web 11 is furnished with transverse right angle inwardly projecting bends or convolutions 12 therein, having slightly rounded corners to form the main stops *d d<sup>1</sup> d<sup>2</sup> d<sup>3</sup>* and the intermediate stops *d<sup>4</sup> d<sup>5</sup> d<sup>6</sup> d<sup>7</sup>* and a series of outwardly projecting right angle bends or convolutions 13 forming the bearing members or faces *d<sup>11</sup>* of the stop casting, which abut against the center sill or frame member of the car to which the side plate or stop casting is secured by the bolts *d<sup>12</sup>*. And the main web 11 of each of the side plates or stop castings D is furnished with a plurality of angle or V shaped bracing bends 14, 15, 16, extending through the longitudinal middle portion of the stop casting between the upper and lower portions of the stop bends, thus dividing each of the stop bends into an upper section or portion F<sup>1</sup> and a lower section or portion F<sup>2</sup>. The angle or V shaped bracing bends 14, 14 which bridge the intermediate stop bends 12, 12 are preferably comparatively obtuse as illustrated in Fig. 4 of the drawing, while the angle or V shaped bracing bend 15 which bridges the middle stop bend 12 is preferably considerably more acute, being about a right angle as illustrated in the drawing. By this construction of the side plate or stop casting D, it is very much braced and stiffened against buckling strains, while at the same time the casting is of a shape that it can be readily withdrawn upward from the casting mold and is composed of a single web of substantially uniform thickness throughout its whole area, as the web has an angle or V shaped longitudinal section at its middle and a substantially right angle bend or convolution section above and below its middle portion. The main web 11 of the side plate or stop casting may also be preferably furnished with angle or V shaped bracing bends 17 directly above the right angle transverse bends which form the main and intermediate stops, as will be readily understood from Fig. 3 of the drawing.

I claim:—

1. In a draft rigging for railway cars, the combination with the draw-bar, draw-bar yoke, tandem arranged springs and followers, of stop castings for the followers to abut against, consisting each of a main web of substantially uniform thickness, furnished with transverse inwardly projecting right angle bends or convolutions forming the main and intermediate stops for the followers



to abut against and provided at its horizontal middle portion with angle or V shaped bracing webs extending longitudinally between the upper and lower portions of the stop bends, substantially as specified.

5 2. In a draft rigging for railway cars, the combination with the draw-bar, draw-bar yoke, tandem arranged springs and followers, of stop castings for the followers to abut against, consisting each of a main web of substantially uniform thickness, furnished with transverse inwardly projecting right angle bends or convolutions forming the main and intermediate stops for the followers to abut against and provided at its horizontal middle portion with angle or V shaped bracing webs extending longitudinally between the upper and lower portions of the stop bends, said stop castings being also provided with integral downwardly projecting lugs furnished with flanges to receive removable guides, and removable angle guides secured thereto to support the followers, substantially as specified.

10 3. In a draft rigging for railway cars, the combination with the draw-bar, draw-bar yoke, tandem arranged springs and followers, of stop castings for the followers to abut against, consisting each of a main web of substantially uniform thickness, furnished with transverse inwardly projecting right angle bends or convolutions forming the main and intermediate stops for the followers to abut against and provided at its horizontal middle portion with angle or V shaped bracing webs extending longitudinally between the upper and lower portions of the stop bends, each of said stop castings being further provided with angle or V shaped bracing webs extending longitudinally across the stop bends above the same, substantially as specified.

15 4. In a draft rigging for railway cars, the combination with the draw-bar, draw-bar yoke, tandem arranged springs and followers, of stop castings for the followers to abut against, consisting each of a main web of substantially uniform thickness, furnished with transverse inwardly projecting right angle bends or convolutions forming the main and intermediate stops for the followers to abut against and provided at its horizontal middle portion with angle or V shaped bracing webs extending longitudinally between the upper and lower portions of the stop bends, the main web of each of said stop castings being further provided with outwardly projecting transverse right angle bends to form bearing faces for the stop castings, substantially as specified.

20 5. A draft rigging stop casting consisting of a main web of substantially uniform thickness, furnished with integral right angle transverse bends or convolutions therein to form the stops and provided at its longitudinal middle

portion with an angle or V shaped bracing web dividing the stop bends into upper and lower portions, substantially as specified.

6. A draft rigging stop casting consisting of a main web of substantially uniform thickness, furnished with integral right angle transverse bends or convolutions therein to form the stops and provided at its longitudinal middle portion with an angle or V shaped bracing web dividing the stop bends into upper and lower portions, said angle webs bridging the middle stop bend and the intermediate stop bends, substantially as specified.

7. A draft rigging stop casting consisting of a main web of substantially uniform thickness having transverse right angle bends therein to form the stops and provided at its longitudinal middle portion with a V shaped bracing web bridging the intermediate stop, substantially as specified.

8. A draft rigging stop casting consisting of a main web of substantially uniform thickness having transverse right angle bends therein to form the stops and provided at its longitudinal middle portion with a V shaped bracing web bridging the middle stop, substantially as specified.

9. A side plate or stop casting, consisting of a main web of substantially uniform thickness, furnished with inwardly projecting transverse right angle bends or convolutions to form the stops, and outwardly projecting right angle transverse bends or convolutions to form bearing faces for the stop casting and provided with angle or V shaped bracing webs extending along the longitudinal middle portion of the stop casting, substantially as specified.

10. A side plate or stop casting, consisting of a main web of substantially uniform thickness, furnished with inwardly projecting transverse right angle bends or convolutions to form the stops, and outwardly projecting right angle transverse bends or convolutions to form bearing faces for the stop casting and provided with angle or V shaped bracing webs extending along the longitudinal middle portion of the stop casting, and provided with a further angle or V shaped bracing web above the stop bends, substantially as specified.

11. A draft rigging stop casting consisting of a main web of substantially uniform thickness, having transverse right angle bends therein forming stops, and provided with a longitudinally extending V shaped bracing web portion, substantially as specified.

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Witnesses:

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