

No. 721,523.

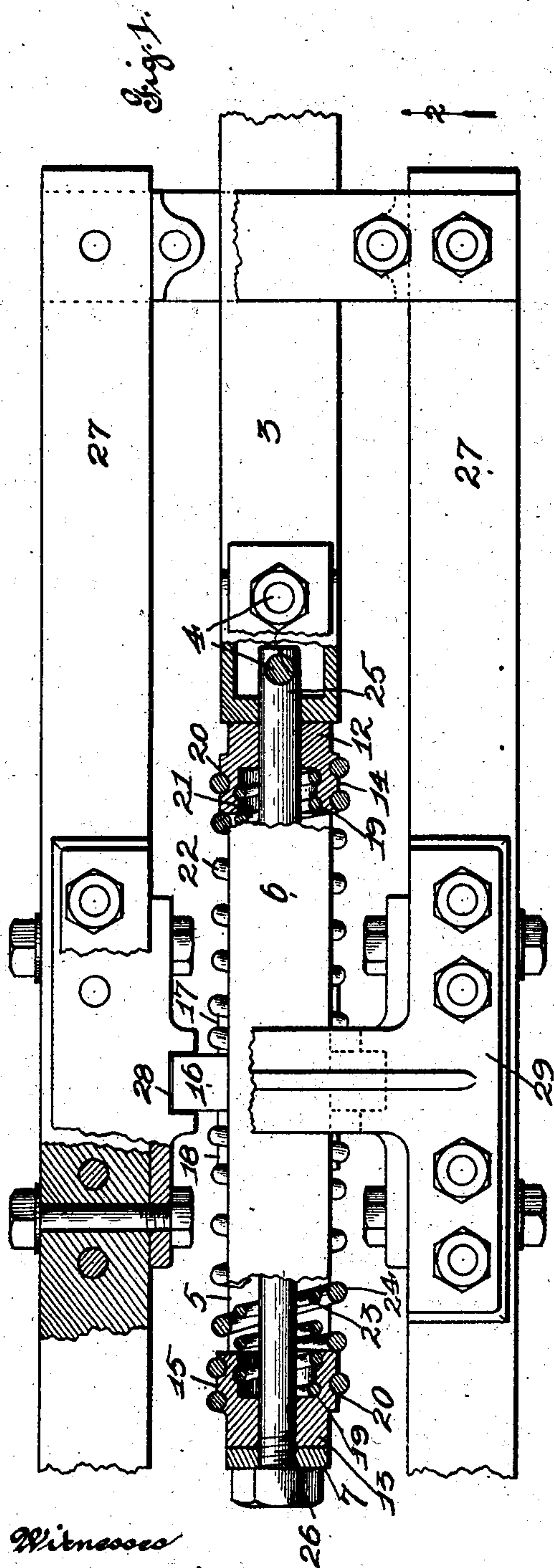
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J. J. O'BRIEN.

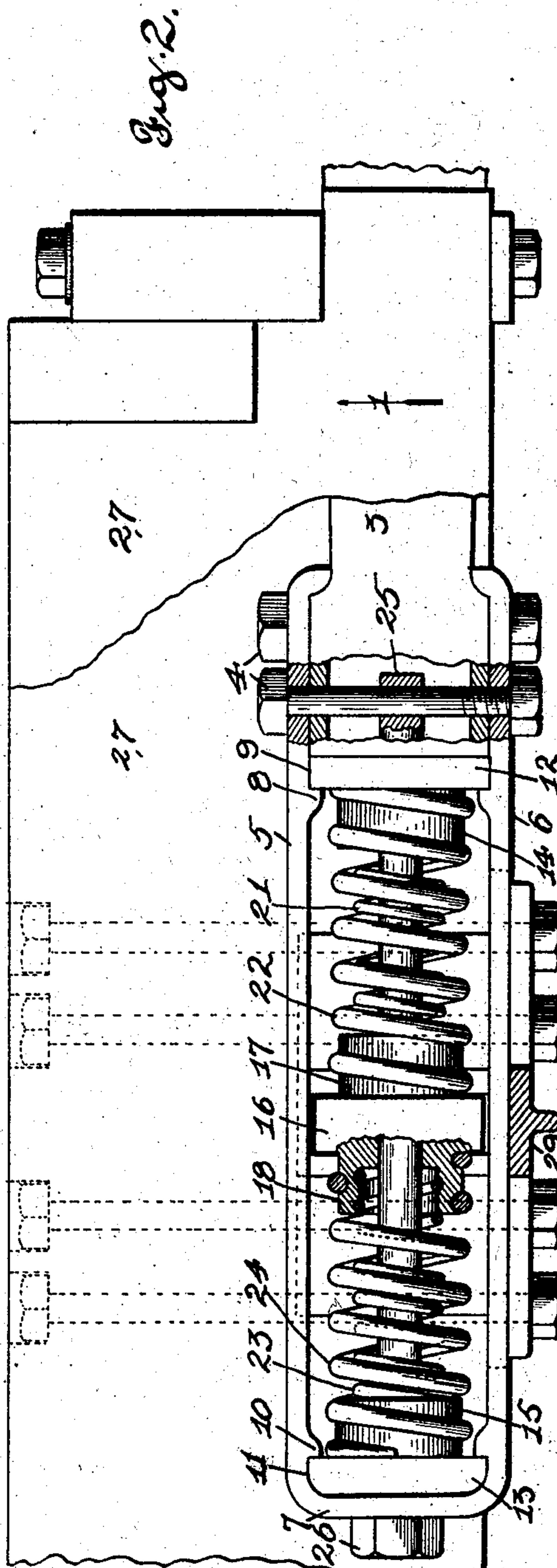
DRAW BAR EQUIPMENT.

APPLICATION FILED MAY 22, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN J. O'BRIEN, OF ST. LOUIS, MISSOURI.

DRAW-BAR EQUIPMENT.

SPECIFICATION forming part of Letters Patent No. 721,523, dated February 24, 1903.

Application filed May 22, 1902. Serial No. 108,466. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. O'BRIEN, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Draw-Bar Equipments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My object is to construct an improved draw-bar equipment for automatic car-couplers; and my invention consists of the combination, with the draw-bar of a car-coupler, of a pocket-sleeve rigidly fixed to and extending backwardly from the rear end of the draw-bar; a front pocket at the forward end of said sleeve; a rear pocket at the rear end of said sleeve; a front worm-lug base in the front pocket; a rear worm-lug base in the rear pocket; a front-pocket worm-lug extending backwardly from the front worm-lug base; a rear-pocket worm-lug extending forwardly from the rear worm-lug base; a follower mounted to slide longitudinally at the center of said sleeve; a front-follower worm-lug extending forwardly from said follower; a rear-follower worm-lug extending backwardly from said follower, all of said worm-lugs having interior and exterior worms to form screw-thread connections with the ends of coil-springs; a front interior coil-spring screwed into the interior worm of the front-pocket worm-lug and screwed into the interior worm of the front-follower worm-lug; a front exterior coil-spring screwed into the exterior worm of the front-pocket worm-lug and screwed into the exterior worm of the front-follower worm-lug; a rear interior coil-spring screwed into the interior worm of the rear-pocket worm-lug and screwed into the interior worm of the rear-follower worm-lug; a rear exterior coil-spring screwed into the exterior worm of the rear-pocket worm-lug and screwed into the exterior worm of the rear-follower worm-lug; a draw-bar rod extending backwardly from the draw-bar, through the front worm-lug base and worm-lug, through the front springs, through the follower and follower worm-lugs, through the rear springs, through the rear worm-lug and worm-lug base, and through the rear end of the pocket-sleeve to hold the follower and worm-lug bases in place in the sleeve and

pockets, said follower and worm-lug bases being removable from the sleeve when the rod is removed; timbers mounted one on each side of the draw-bar and extending backwardly beside the pocket-sleeve; follower-pockets fixed to said timbers, the ends of said follower being removably mounted in said follower-pockets, and a tie-plate connecting the lower sides of said timbers and forming a support for the pocket-sleeve, said front and rear springs being of equal tension, said tension being exerted to hold the draw-bar in a central position and said springs being connected to pull as well as push, so that when the forward springs are compressed the rear springs are expanded, and vice versa.

Figure 1 is a bottom plan view of my improved draw-bar equipment for automatic car-couplers as seen looking in the direction indicated by the arrow 1 in Fig. 2, the head of the draw-bar being broken away to economize space and the other parts being broken away and shown in section to illustrate the construction. Fig. 2 is a side elevation as seen looking in the direction indicated by the arrow 2 in Fig. 1, the rear timber being broken away to show the equipment and parts being shown in section to illustrate the construction.

Referring to the drawings in detail, the draw-bar 3 may be of the usual construction, and the pocket-sleeve is secured to the rear end of the draw-bar by means of the bolts 4, said pocket-sleeve comprising an upper bar 5, the lower bar 6, and the rear cross-piece 7, all formed integral. The lugs 8 extend inwardly at the forward ends of the bars 5 and 6 and form the front pocket 9, between said lugs 8 and the rear face of the draw-bar. The lugs 10 extend inwardly from the rear ends of the bars 5 and 6 and form the pocket 11, between the lugs 10 and the cross-piece 7. The front worm-lug base 12 is a rectangular or square plate adapted to fit in the pocket 9, and the rear worm-lug base 13 is a similar plate adapted to fit in the pocket 11. The front-pocket worm-lug 14 is a circular hollow body extending backwardly from the base 12, and the rear-pocket worm-lug 15 is a similar circular hollow body extending forwardly from the base 13. The follower 16 is a square or rectangular plate mounted to slide longi-

tudinally at the center of the sleeve and has
 the front-follower worm-lug 17 extending for-
 wardly and the rear-follower worm-lug 18
 extending backwardly, said worm-lugs 17 and
 5 18 being hollow cylindrical bodies similar to
 the lugs 14 and 15, and all of said lugs 14,
 15, 17, and 18 have interior worms 19 and ex-
 terior worms 20 to form screw-thread connec-
 tions with the ends of coil-springs. The
 10 front interior coil-spring 21 is screwed into
 the interior worm of the front-pocket worm-
 lug 14 and is screwed into the interior worm
 of the front-follower worm-lug 17. The front
 exterior coil-spring 22 is screwed into the ex-
 15 terior worms of the lugs 14 and 17. The rear
 interior coil-spring 23 is screwed into the in-
 terior worms of the lugs 15 and 18, and the rear
 exterior coil-spring 24 is screwed into the exte-
 rior worms of the lugs 15 and 18. The draw-
 20 bar rod 25 has an opening at its forward end,
 through which one of the bolts 4 passes, and
 said rod extends backwardly through the
 worm-lug base 12, the worm-lug 14, the front
 springs 21 and 22, the follower worm-lug 17,
 25 the follower 16, the follower worm-lug 18, the
 springs 23 and 24, the worm-lug 15 and the
 worm-lug base 13, and through the cross-
 piece 7, and a nut 26 is screw-seated upon
 the rear end of said rod, said rod holding the
 30 follower-bases, worm-lugs, and springs re-
 movably in position. The springs should be
 made the proper length so that the worm-
 lug bases 12 and 13 will slide readily into
 35 their pockets and may as readily be removed
 when the rod 25 is removed. The timbers 27
 are mounted beside the draw-bar and extend
 backwardly, one on each side of the equip-
 ment, and castings are secured to the inner
 faces of the timbers 27, said castings having
 40 the pockets 28 to receive the ends of the fol-
 lower 16, and the tie-plate 29 is secured to
 the lower sides of the timbers 27 and connects
 said timbers, said tie-plate forming a rigid
 connection between said timbers, as required
 45 to hold said timbers from spreading or buc-
 kling, and said tie-plate forming a bearing to
 support the pocket-sleeve.

The worms into which the springs are
 screwed are screw-threads or spiral grooves
 50 adapted to closely fit the springs, so that the
 springs will not pull out of connection with
 the worms. The front springs are substan-
 tially of equal tension with the rear springs
 and will hold the draw-bar in its normal cen-
 55 tral position, so that if the draw-bar is pulled
 forwardly the rear springs will be compressed
 and the forward springs will be expanded,
 and when the draw-bar is pushed backwardly
 the forward springs will be compressed and
 60 the rear springs expanded, so that the springs
 will alternately be compressed and expanded
 and will by this alternate compression and
 expansion be kept in their normal lengths,
 thus eliminating the possibility of slack or
 65 lost motion between the draw-bar and the
 timbers. The tension of the springs is also
 exerted to hold the draw-bar in its central

position between the ends of the timbers 27,
 and when the draw-bar is forcibly moved lat-
 erally the springs yield, and their tension is 70
 exerted to return the draw-bar to its normal
 position.

The essentials are a sleeve or other suit-
 able framework extending backwardly from
 the draw-bar, a follower slidingly mounted 75
 in the sleeve or framework, means of hold-
 ing the follower from longitudinal motion,
 and springs mounted upon each side of the
 follower and connected to the sleeve or frame-
 work, so that when the front springs are com- 80
 pressed the rear springs are expanded, and
 vice versa.

In other words, my invention consists,
 broadly, of the combination, with the draw-
 bar, of the springs connecting the draw-bar 85
 to the frame and so connected that they are
 alternately compressed and expanded, there-
 by keeping the springs in their normal length
 and eliminating the possibility of slack or
 lost motion between the draw-bar and the 90
 frame.

I claim—

1. The combination with a draw-bar and a
 sleeve connected thereto; of springs in said 95
 sleeve and connecting the draw-bar to the
 bed of the car so that the springs are alter-
 nately compressed and expanded, substan-
 tially as specified.

2. The combination with the draw-bar and
 the bed of the car; of a sleeve, a draw-bar 100
 rod, a follower rigidly mounted relative to the
 bed of the car; and springs connecting the
 follower to the draw-bar so that when one
 half of the springs are compressed, the other
 half of the springs are expanded, substan- 105
 tially as specified.

3. In a draw-bar equipment, the draw-bar
 connected to the draft-frame by means of
 springs which are secured at both ends, where-
 by when a buffing strain is thrown upon said 110
 springs the same will be strained in a given
 direction, and when a pull is exerted upon
 said springs the same will be strained in an
 opposite direction, substantially as specified.

4. In a draw-bar equipment, a sleeve ex- 115
 tending backwardly from the draw-bar; a fol-
 lower slidingly mounted at the center of the
 sleeve and rigidly connected to the frame;
 springs connecting the follower to the rear
 end of the draw-bar; and springs connecting 120
 the follower to the rear end of the sleeve,
 said springs being connected to pull as well
 as push, so that when the forward springs
 are compressed, the rear springs are expand-
 ed and vice versa, substantially as specified. 125

5. In a draw-bar equipment, a sleeve ex-
 tending backwardly from the draw-bar; a fol-
 lower slidingly mounted at the center of the
 sleeve and rigidly connected to the frame;
 springs connecting the follower to the rear 130
 end of the draw-bar; and springs connecting
 the follower to the rear end of the sleeve, said
 springs being connected to pull as well as push,
 so that when the forward springs are com-

pressed, the rear springs are expanded and
vice versa; timbers mounted upon each side
of said sleeve; and a tie-plate connecting the
lower faces of said timbers and forming a
5 rigid support between said timbers, and form-
ing a bearing to support said sleeve, substan-
tially as specified.

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

JOHN J. O'BRIEN.

Witnesses:

ALFRED A. EICKS,
M. G. IRION.