

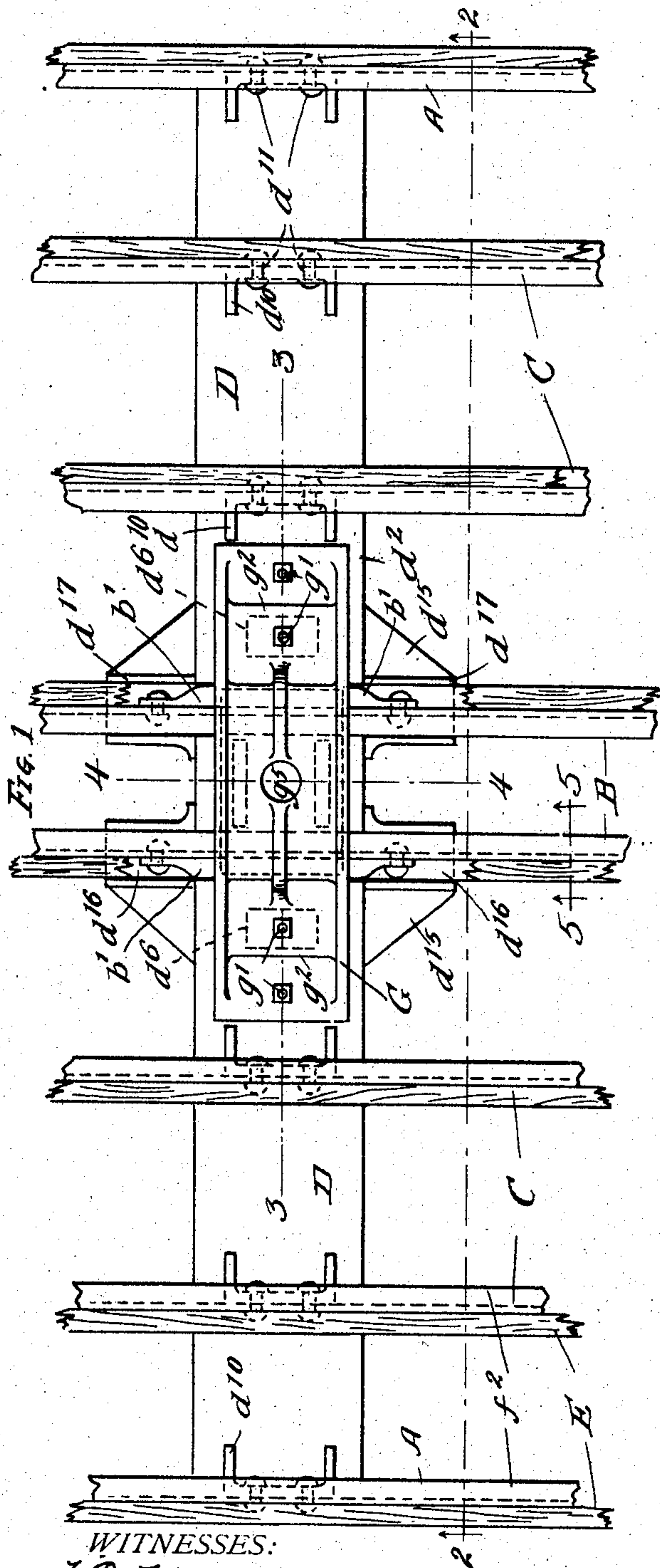
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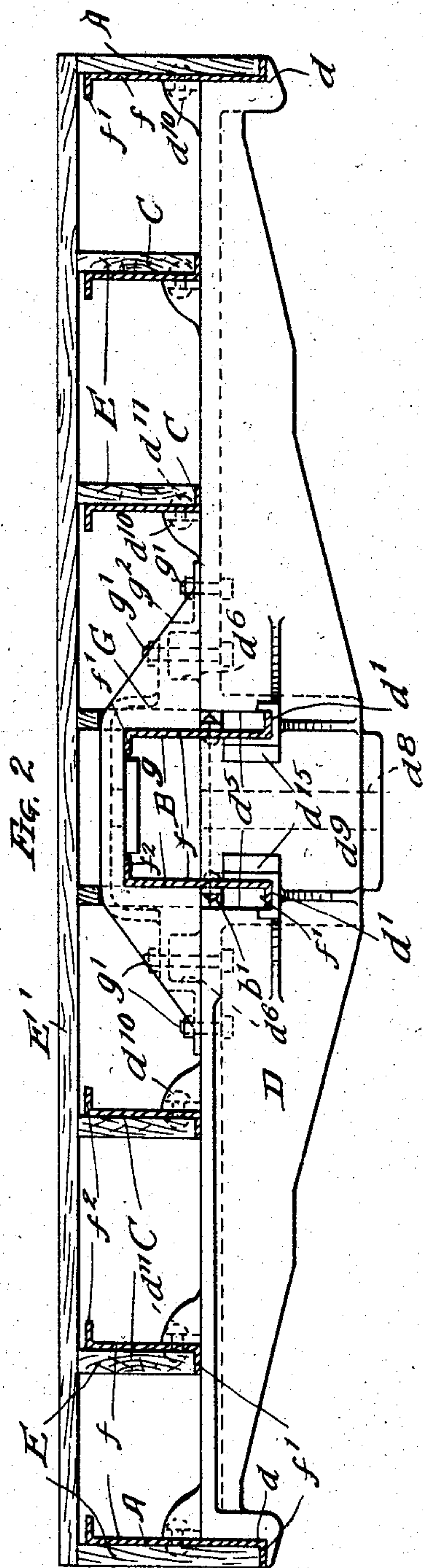
J. J. HENNESSEY.  
RAILWAY CAR FRAME AND BOLSTER.

APPLICATION FILED AUG. 12, 1904.

3 SHEETS—SHEET 1.



WITNESSES:  
F. B. Townsend  
H. W. Munday



INVENTOR.  
John J. Hennessey  
BY  
Munday, Swarts & Adams,  
his ATTORNEYS

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Fig. 4

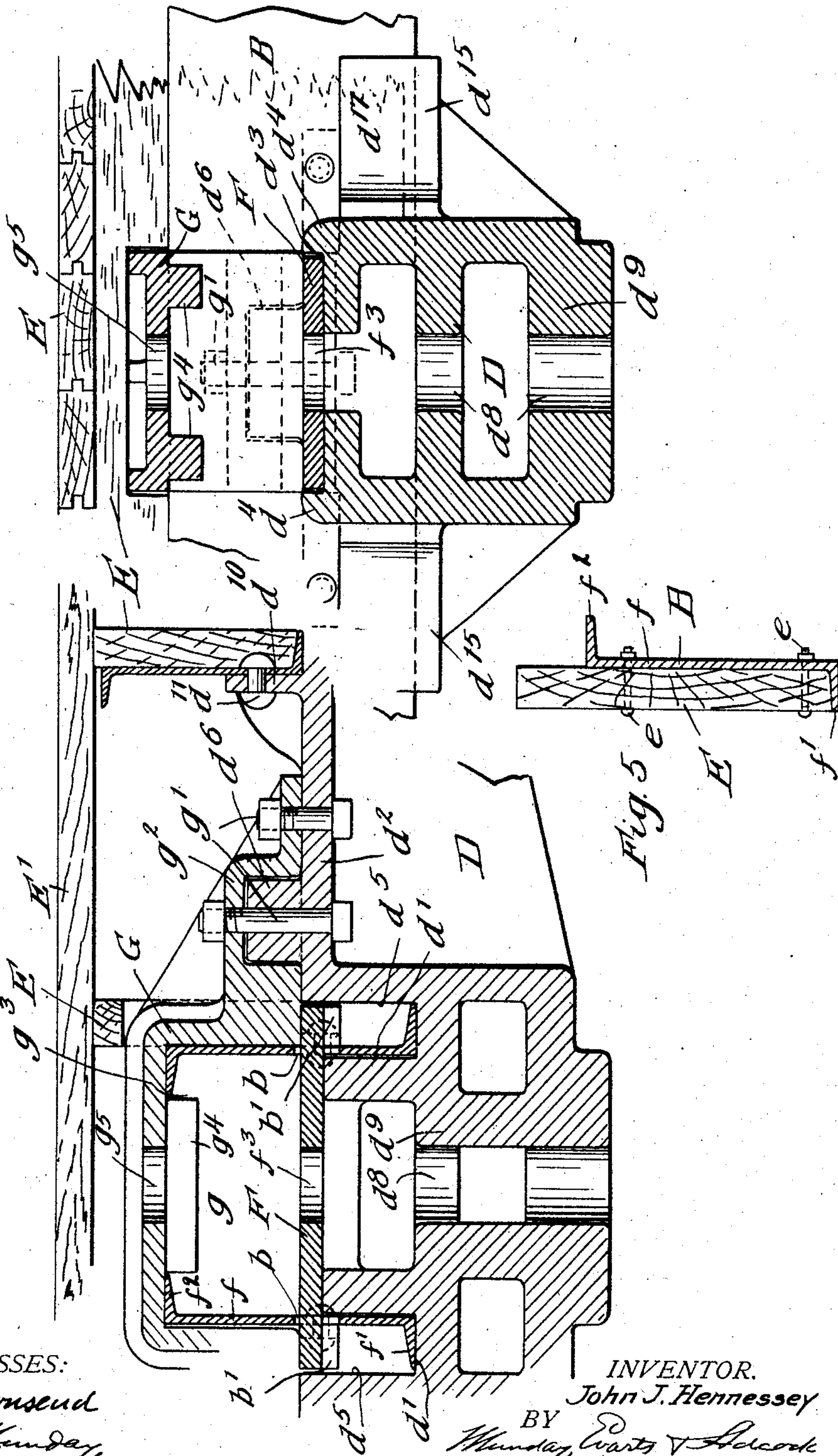


Fig. 3

Fig. 5

WITNESSES:

*J. B. Townsend*  
*A. M. Munday*

INVENTOR.

*John J. Hennessey*

BY

*Munday, Evans & Adcock*  
his ATTORNEYS



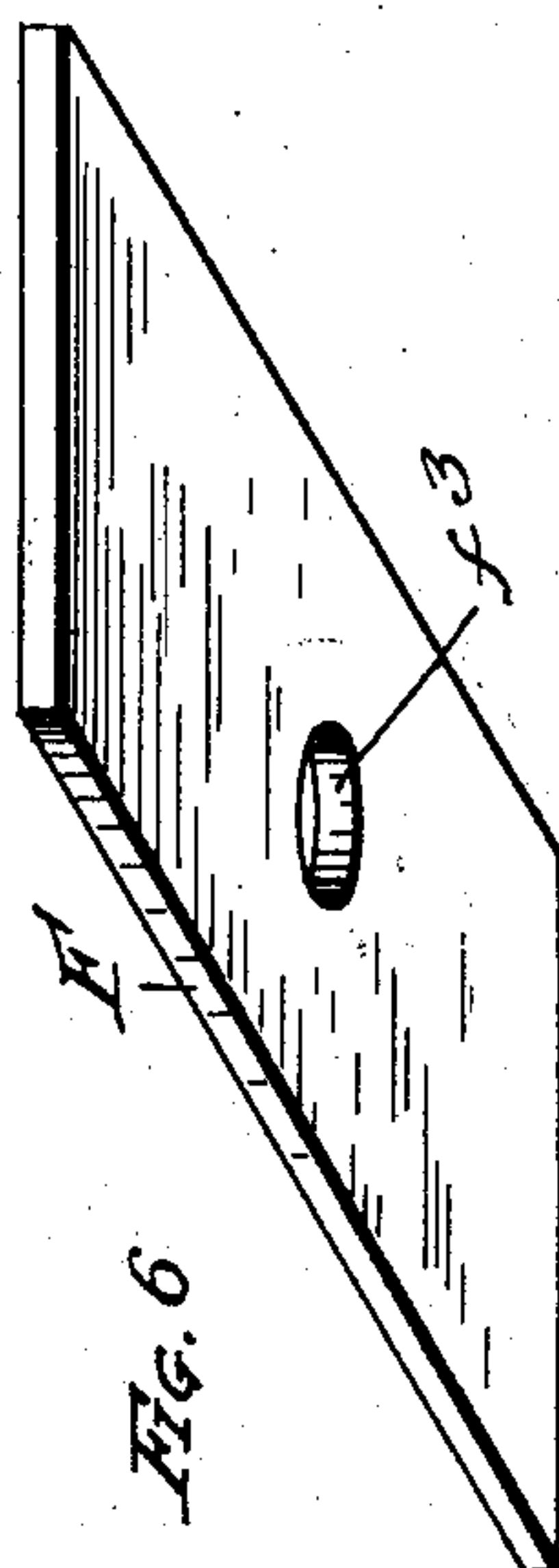
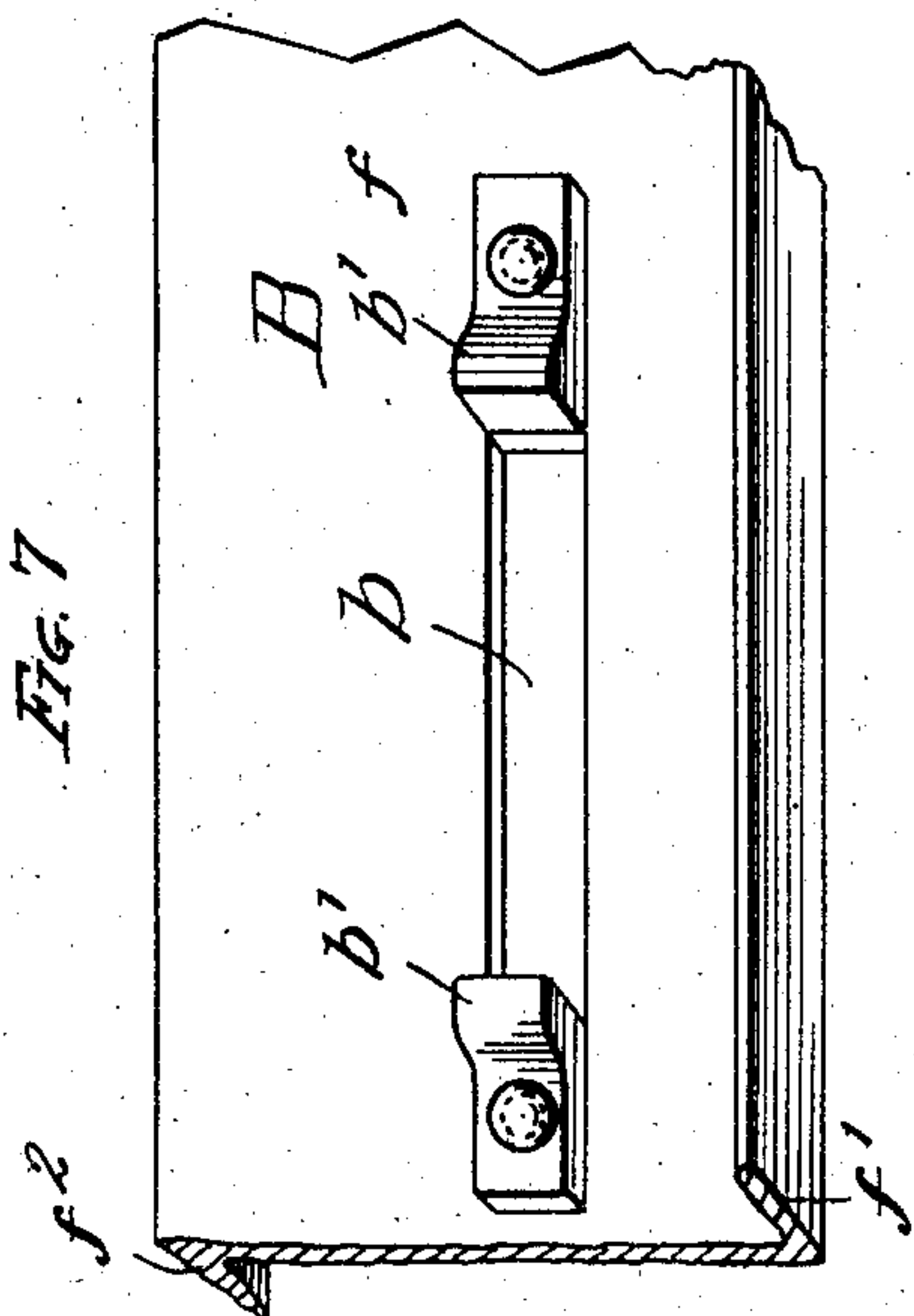
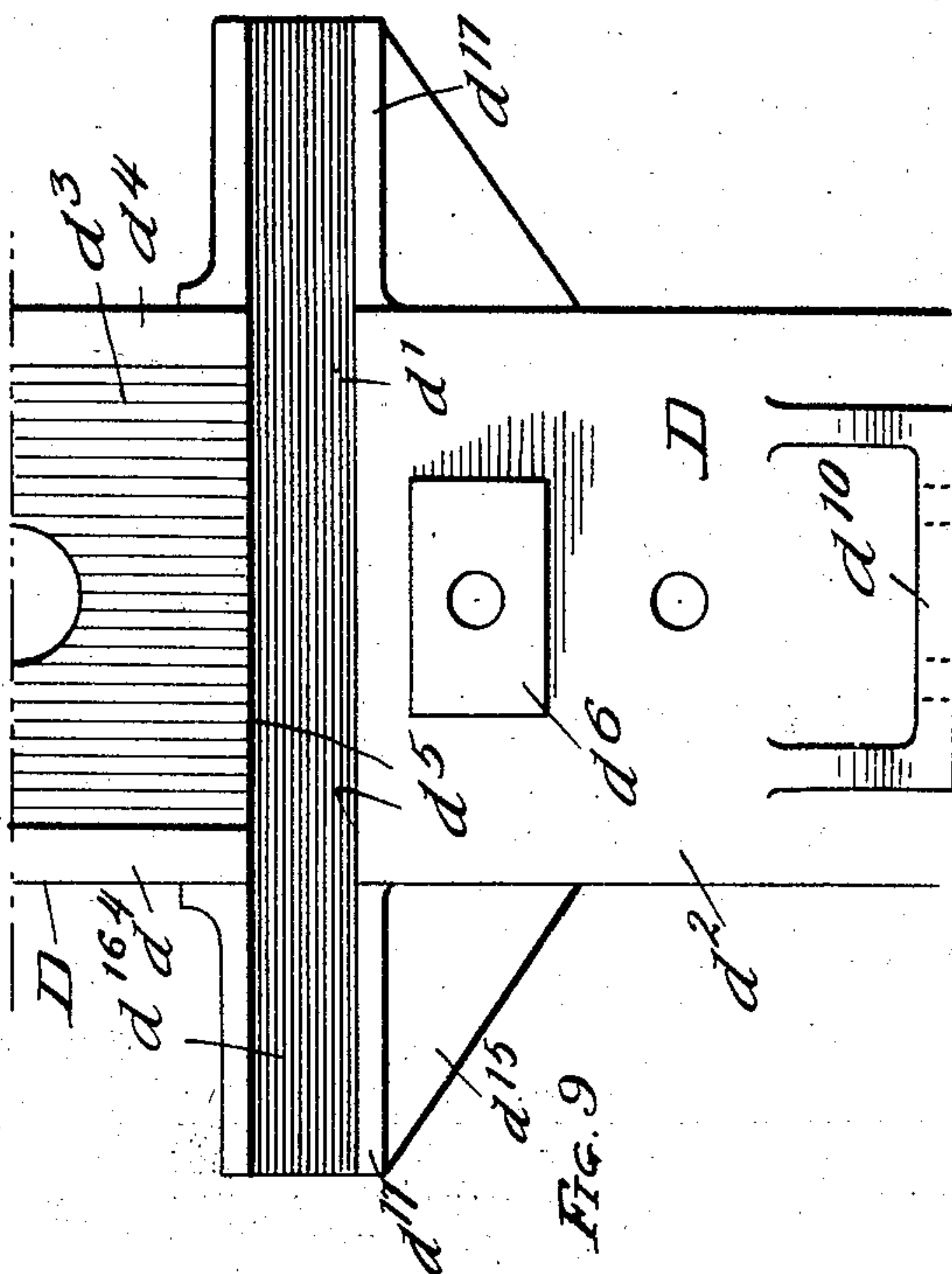
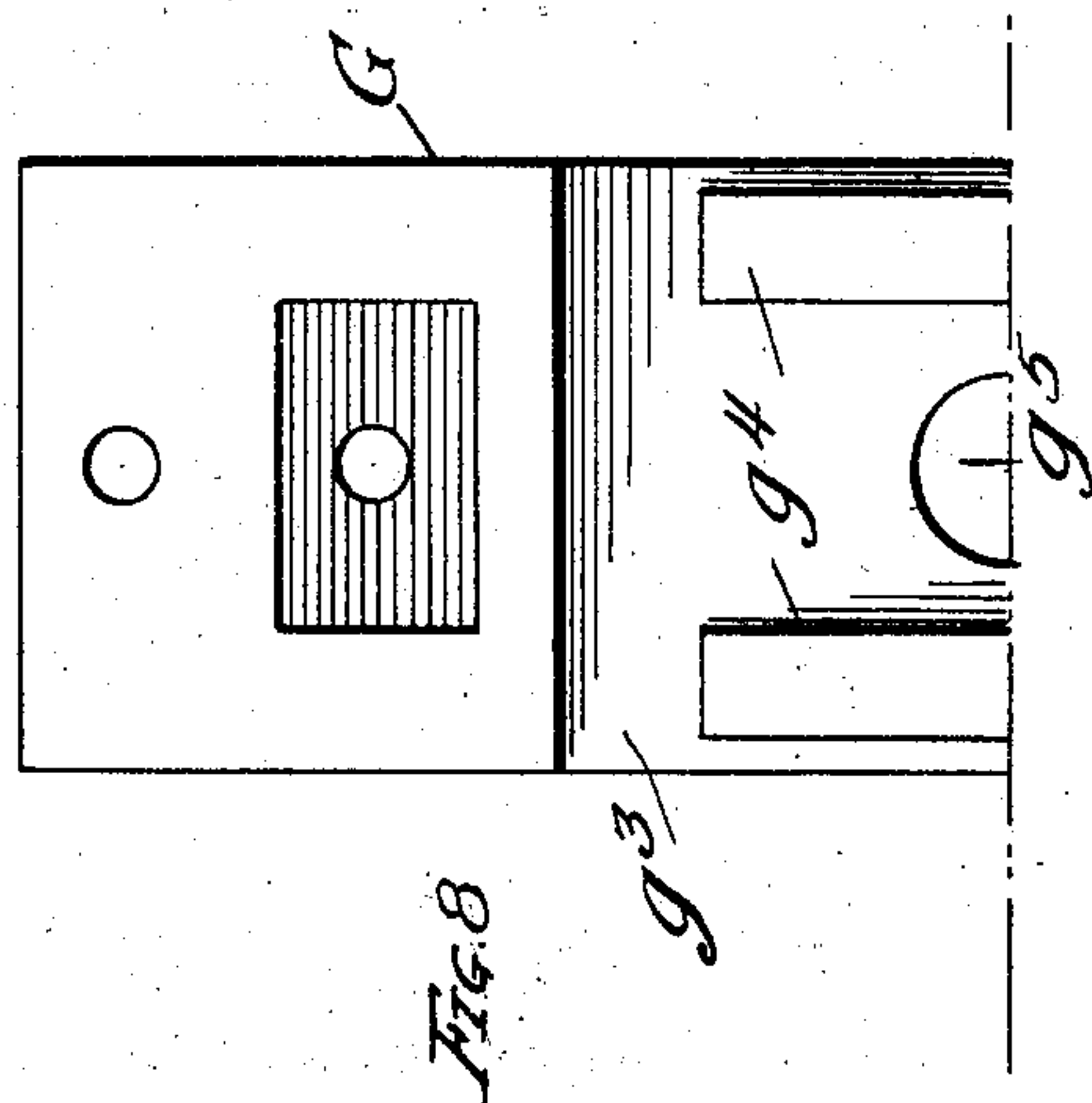
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H. W. Munday.

*INVENTOR.*

John J. Hennessey  
BY *Munday, Everts & Adcock.*  
his ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOHN J. HENNESSEY, OF MILWAUKEE, WISCONSIN.

## RAILWAY-CAR FRAME AND BOLSTER.

SPECIFICATION forming part of Letters Patent No. 778,364, dated December 27, 1904.

Application filed August 12, 1904. Serial No. 220,453.

*To all whom it may concern:*

Be it known that I, JOHN J. HENNESSEY, a citizen of the United States, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Railway-Car Frames and Bolsters, of which the following is a specification.

My invention relates to improvements in the frame or sill and bolster construction of railway-cars.

The object of my invention is to provide car-frame sills and bolsters of a simple, strong, efficient, and durable construction in which the center sills and body-bolsters will both be continuous and of full strength and properly anchored each in respect to the other and at the same time each be at the proper height or level in respect to the floor-frame and in which both the center sills and the body-bolster may be of simple form, capable of being cheaply manufactured and readily put together in constructing the car, and also to materially diminish the overhang of the center sills and their consequent liability to yield or give downward at the middle and ends of the sills.

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 side and intermediate sills and center sills of the car-floor frame, each of which may be of any suitable material, as wood or steel, and if of steel of any suitable form in cross-section—such as Z-beams, channel-beams, I-beams, or other suitable shape, but preferably Z-beams—of a body-bolster preferably of cast metal furnished with transverse slots or notches or recesses to receive the center sills preferably to about half the depth of the center sills and provided at its middle portion in its upper face with a longitudinal channel or recess to receive a flat stop-plate or key-plate which extends through central slots in the upright webs of the center sills and a bolster-reinforcing plate or strap, preferably of cast metal, extending over the center sills and having a recess or chamber to receive the center sills and securely riveted or bolted at its ends on each side of the center sills to the body-bolster. The short key

or stop plate, which extends through the slots of the center sills, fits and is clamped between the body-bolster and the bolster-strap or reinforcing-piece, and the center sills are thus securely anchored to the body-bolster by the key or stop plate, and the pulling and buffing strains of the draft-rigging on the center sills are thus communicated to and resisted by the body-bolster and the whole car-frame, which is connected thereto, and while the center sills, in a sense, pass through the body-bolster or through the opening between the recessed body-bolster and the recessed bolster-strap or reinforcing-piece the bolster by reason of the reinforcing piece or strap is, in fact, given as a whole a much deeper and more effective cross-section at its middle or recessed portion, and consequently much greater strength at its middle portion, than at other portions of its length, as the bolster-strap or reinforcing-piece, securely riveted or bolted at its ends to the bolster, may be considered as an upper bolster member or integral with the bolster, so far as imparting strength thereto is concerned.

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

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a device embodying my invention, showing, however, only the portion of the car-sills adjacent to the body-bolster. Fig. 2 is a cross-section on line 2 2 of Fig. 1. Fig. 3 is a vertical section longitudinal of the bolster on line 3 3 of Fig. 1. Fig. 4 is a vertical section on line 4 4 of Fig. 1. Fig. 5 is a cross-section on line 5 5 of Fig. 1. Fig. 6 is a detail perspective view of the stop-plate or key-plate. Fig. 7 is a detail perspective view showing the stops or shoulders on the center sill. Fig. 8 is a detail bottom view showing one end or half of the bolster-reinforcing piece or strip, and Fig. 9 is a detail top view showing one-half of the central portion of the bolster.

In the drawings, A represents the side sills, B the center sills, and C the intermediate sills, and D the body-bolster. The sills A, B, and C may be of any suitable material. In the draw-



ings I have indicated them as being of steel and of a Z shape in cross-section—that is to say, each having an upright web  $f$  and oppositely-turned horizontal flanges  $f'$   $f''$ —though  
 5 instead of using Z-beams, channel-beams, I-beams, or other suitable shapes may be used, as desired. I prefer to make the sills of a Z-beam form, as I am thus enabled to use cooperating wood or floor-nailing strips or members  
 10 E, which rest at their lower edges on the lower flange  $f'$  of the sills, which thus coact or cooperate with the sills to give great strength and stiffness thereto. The floor-nailing strips or members E project sufficiently above the  
 15 upper flanges  $f''$  of the sills to allow for shrinkage of the wood, and thus prevent the sills interfering with the floor E', nailed to the floor strips or members E.

The body-bolster D is preferably of cast  
 20 metal or steel and is provided at its ends with notches or recesses  $d$  to form seats for the side sills A, which are preferably made deeper than the other sills. The body-bolster D is also provided with transverse slots, notches, or recesses  $d'$   $d''$  at its middle portion in its upper  
 25 face, member, or plate  $d^2$ , preferably to a depth somewhat less than half the vertical height or depth of the center sills B to receive the center sills. The width of these notches  
 30 or recesses corresponds to the width of the foot or lower flange  $f'$  of the center sills, so that the walls of these recesses serve to space the center sills or hold them in place laterally. The body-bolster D is also provided at its up-  
 35 per face with a wide channel or recess  $d^3$  to receive a short flat key-plate or stop-plate F, which extends through central slots  $b$   $b'$  in the upright webs  $f$   $f'$  of the center sills B. This short flat strap-plate or key-plate is held in  
 40 place against the thrust of the center sills by the shoulders or walls  $d^4$  of the recess or channel  $d^3$  in the bolster, and this stop or key plate is held in place longitudinally of the bolster by the shoulders or walls  $d^5$  of the sill notches  
 45 or recesses  $d'$  in the bolster. The strap or key plate while a loose flat plate is thus securely held in place in every direction on the bolster.

G is the bolster-strap or reinforcing-piece, 50 the same having a central recess or chamber  $g$  to receive the upper portion of the center sills, over which sills the middle portion of this bolster-strap or reinforcing piece extends.

The bolster D and its reinforcing-piece or  
 55 strap G are firmly and rigidly secured together by bolts or rivets  $g'$ , which extend through the upper plate or member  $d^2$  of the bolster. The bolster-reinforcing piece or strap and bolster are further locked or secured  
 60 together by interengaging shoulders  $d^6$  and  $g^2$  on the bolster and reinforcing piece, respectively.

To diminish the overhang of the center sills and also to further strengthen the bolster at the  
 65 sill notches or recesses  $d'$   $d''$  therein, I provide

the bolster with integral side wings  $d^{15}$   $d^{16}$ , one on each side thereof, having grooves or channels  $d^{16}$  to receive the sills and upright flanges  $d^{17}$ . These side wings materially extend the  
 70 bearing of the center sills on the bolster, and thus diminish the overhang. The bolster, reinforcing piece or strap G is also provided with grooves or channels  $g^3$  to receive the upper flanges or edges  $f''$  of the center sills and with integral lugs  $g^4$ , which abut against  
 75 the center sills. The center sills are also furnished with stop shoulders or brackets  $b'$ , securely riveted thereto and abutting against the bolster at the front and rear sides thereof to increase the bearing of the center sills  
 80 against the bolster and aid in resisting the longitudinal pulling or buffing thrusts on the center sills imparted thereto from the draft-rigging. The bolster-reinforcing piece or strap G has a central hole  $g^5$  for the king-bolt  
 85 corresponding with the king-bolt hole  $f^3$  in the stop or key plate F and the king-bolt hole  $d^8$  in the integral center-piece portion  $d^9$  of the bolster D. The bolster D is also provided at intervals with shoulders  $d^{10}$  to fit  
 90 against the vertical faces of the sills. The sill-shoulders  $d^{10}$  are preferably integral with the bolster, and the sills are secured thereto by bolts or rivets  $d^{11}$ .

The wood nailing-strips E are secured to 95 the sills by bolts or rivets  $e$ .

I claim—

1. In a car-frame, the combination with center sills having central slots to receive a stop or key plate, of a body-bolster having  
 100 transverse slots or recesses to receive the center sills and a channel in its upper face to receive the stop or key plate, of a stop or key plate passing through the slots of the center sills and fitting in said channel or recess in  
 105 the bolster, and a bolster-reinforcing piece or strap extending over the center sills and secured at each end thereof to the bolster, substantially as specified.

2. In a car-frame, the combination with center 110 sills having key-slots therein, of a bolster having transverse slots to receive the center sills and a channel to receive a key-plate, a key-plate fitting in said channel and extending through the slots of the center sills, and  
 115 a bolster-reinforcing piece or strap having a transverse channel or recess to receive the center sills and extending over the center sills and secured at its ends to the bolster, substantially as specified. 120

3. In a car-frame, the combination with center sills having key-slots therein, of a bolster having transverse slots to receive the center sills and a channel to receive a key-plate, a  
 125 key-plate fitting in said channel and extending through the slots of the center sills, and a bolster-reinforcing piece or strap having a transverse channel or recess to receive the center-sills and extending over the center sills and secured at its ends to the bolster, said bolster and 130



bolster-reinforcing piece or strap having interengaging shoulders, substantially as specified.

4. In a car-frame, the combination with center sills having key-slots therein, of a bolster having transverse slots to receive the center sills and a channel to receive a key-plate, a key-plate fitting in said channel and extending through the slots of the center sills, and a bolster-reinforcing piece or strap having a transverse channel or recess to receive the center sills and extending over the center sills and secured at its ends to the bolster, said center sills having stop shoulders or brackets on each side of the bolster, substantially as specified.

5. In a car-frame, the combination with center sills having key-slots therein, of a bolster having transverse slots to receive the center sills and a channel to receive a key-plate, a key-plate fitting in said channel and extending through the slots of the center sills, and a bolster-reinforcing piece or strap having a transverse channel or recess to receive the center sills and extending over the center sills and secured at its ends to the bolster, said bolster having side wings to increase the bearing of the center sills thereon and strengthen the same at the sill-receiving slots therein, substantially as specified.

6. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap having a transverse channel or recess to receive the upper portion of the center sills and extending over the center sills and secured at its ends to the bolster, substantially as specified.

7. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said center sills having stop shoulders or brackets engaging the bolster, substantially as specified.

8. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said center sills having stop shoulders or brackets engaging the bolster on each side thereof, substantially as specified.

9. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said bolster and bolster-reinforcing piece having interengaging shoulders, substantially as specified.

10. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center

sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said bolster and bolster-reinforcing piece having interengaging shoulders, and said reinforcing piece or strap having grooves or channels to receive the upper flanges or edges of the center sills, substantially as specified.

11. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills, a channel in its upper face to receive a key-plate and shoulders at each side and end of the key-plate to hold it in place, and a bolster-reinforcing piece or strap extending over the center sills and furnished with grooves or channels to receive the upper flanges of the center sills, and interengaging shoulders and bolts or rivets for securing said bolster-reinforcing piece to the bolster, substantially as specified.

12. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills, a channel in its upper face to receive a key-plate and shoulder at each side and end of the key-plate to hold it in place, a bolster-reinforcing piece or strap extending over the center sills and furnished with grooves or channels to receive the upper flanges of the center sills, interengaging shoulders and bolts or rivets for securing said bolster-reinforcing piece to the bolster, and wood nailing-strips for the floor secured to said sills and extending over the bolster-reinforcing piece, substantially as specified.

13. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said bolster having side wings projecting under the center sills to increase the bearing of the center sills on the bolster and diminish the overhang, substantially as specified.

14. In a car-frame, the combination with center sills, of a body-bolster having transverse slots or recesses to receive the center sills and a bolster-reinforcing piece or strap extending over the center sills and secured at its ends to the bolster, said bolster having side wings projecting under the center sills to increase the bearing of the center sills on the bolster and diminish the overhang, said side wings being furnished with grooves or channels having upright flanges to receive the foot or lower flange of the center sills, substantially as specified.

JOHN J. HENNESSEY.

Witnesses:

H. M. MUNDAY,

WILLIAM A. GEIGER.