

No. 751,212.

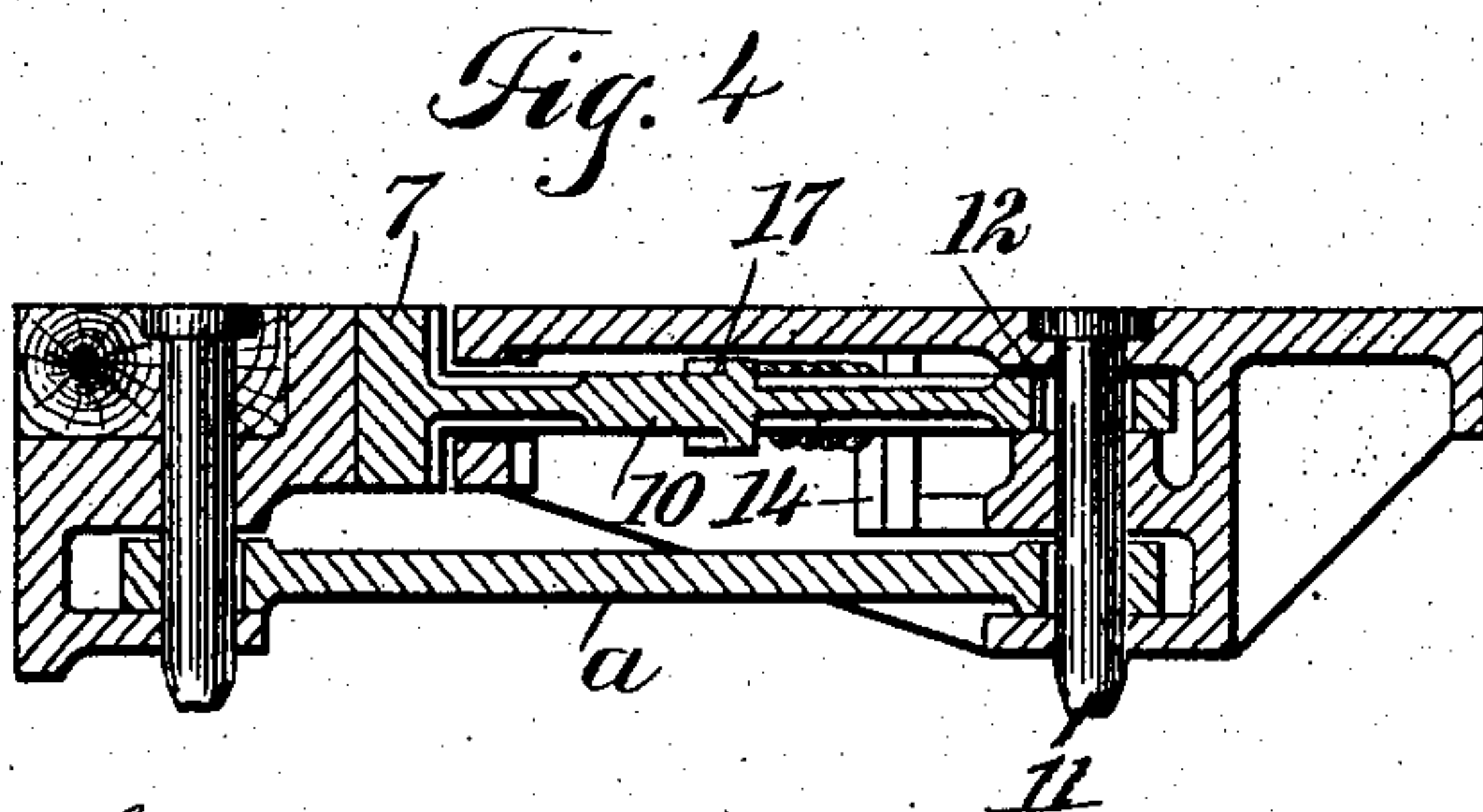
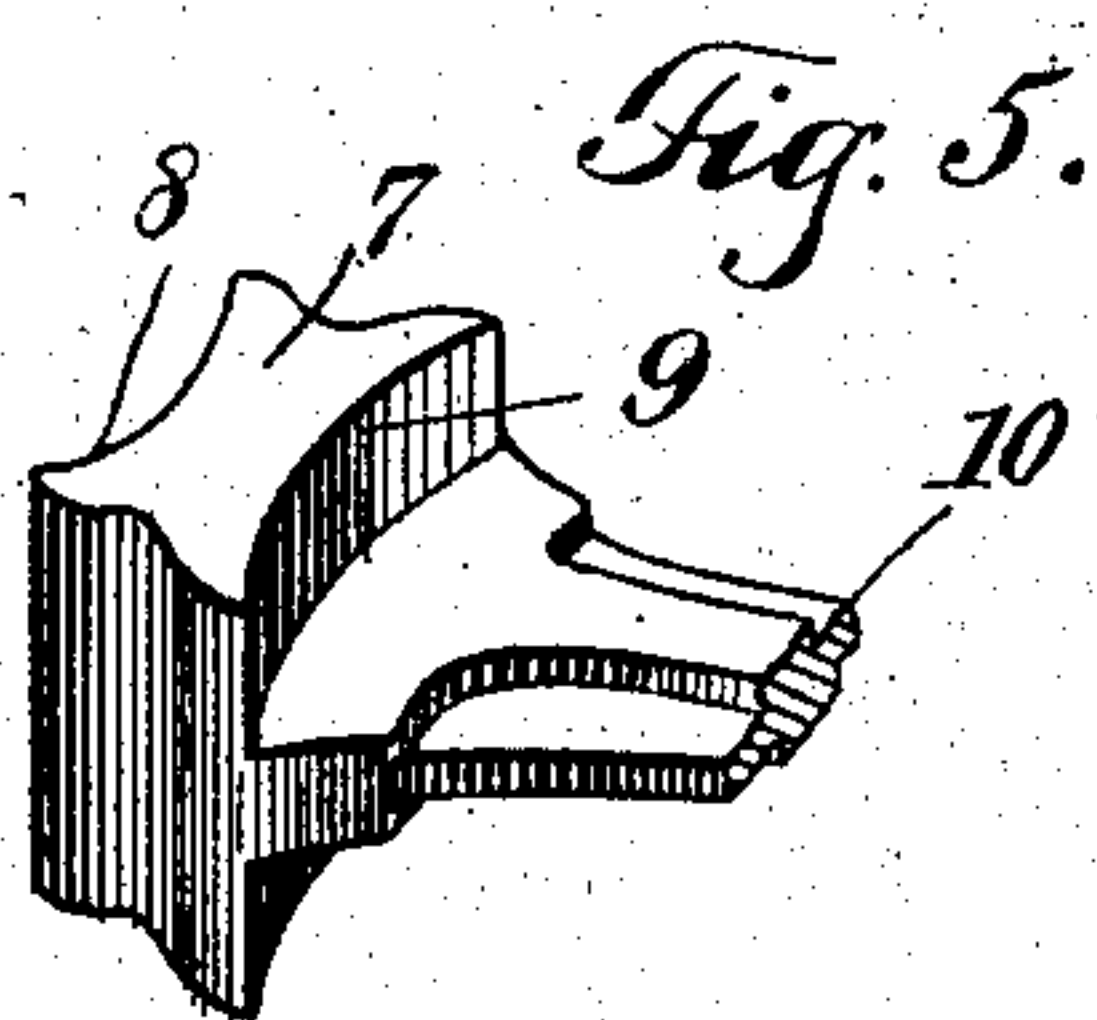
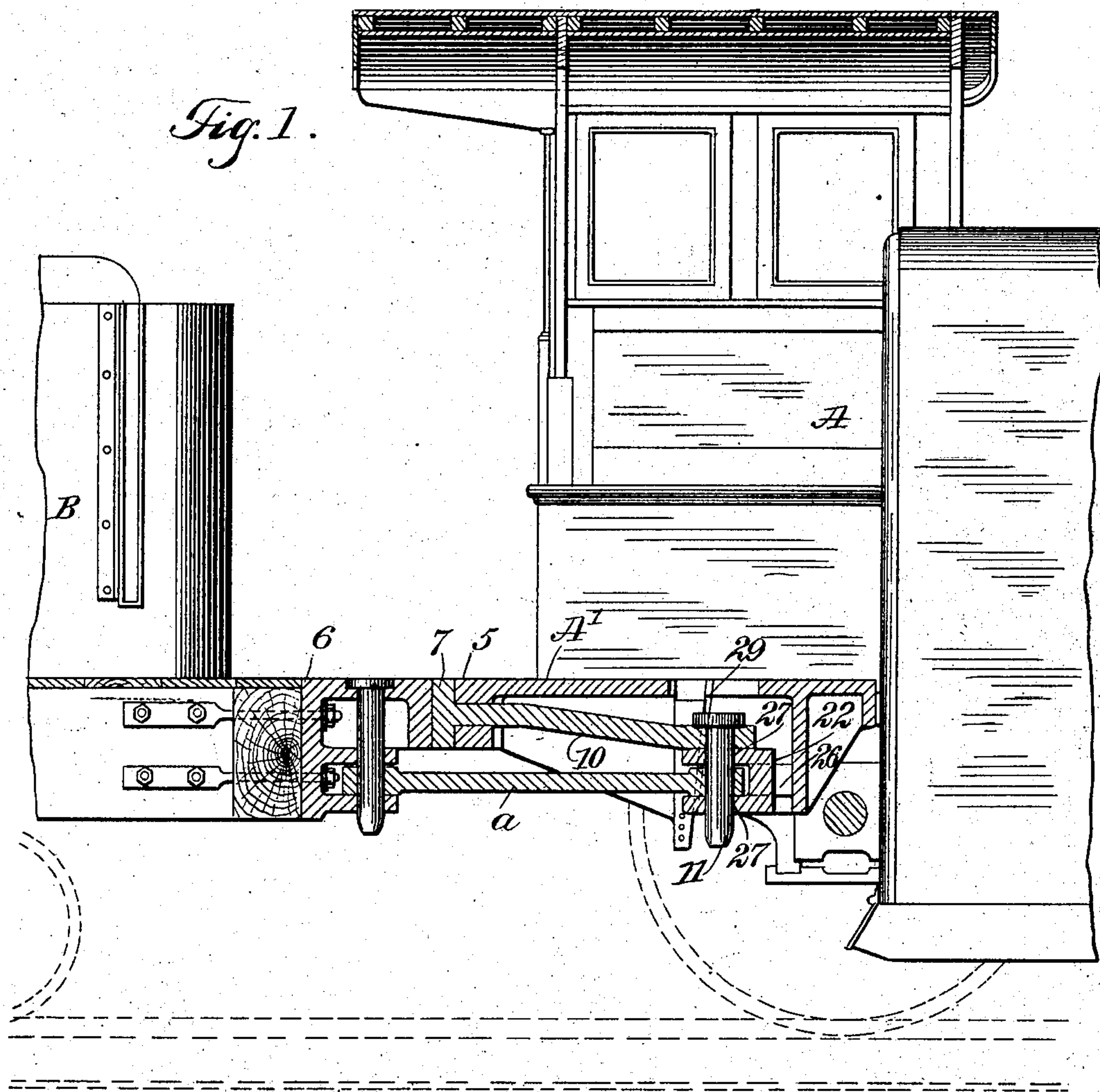
PATENTED FEB. 2, 1904.

G. F. STARBUCK.  
CAR BUFFER.

APPLICATION FILED MAY 18, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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*R. B. Cavanagh*

INVENTOR

*George F. Starbuck*

BY

*Munn*

ATTORNEYS.

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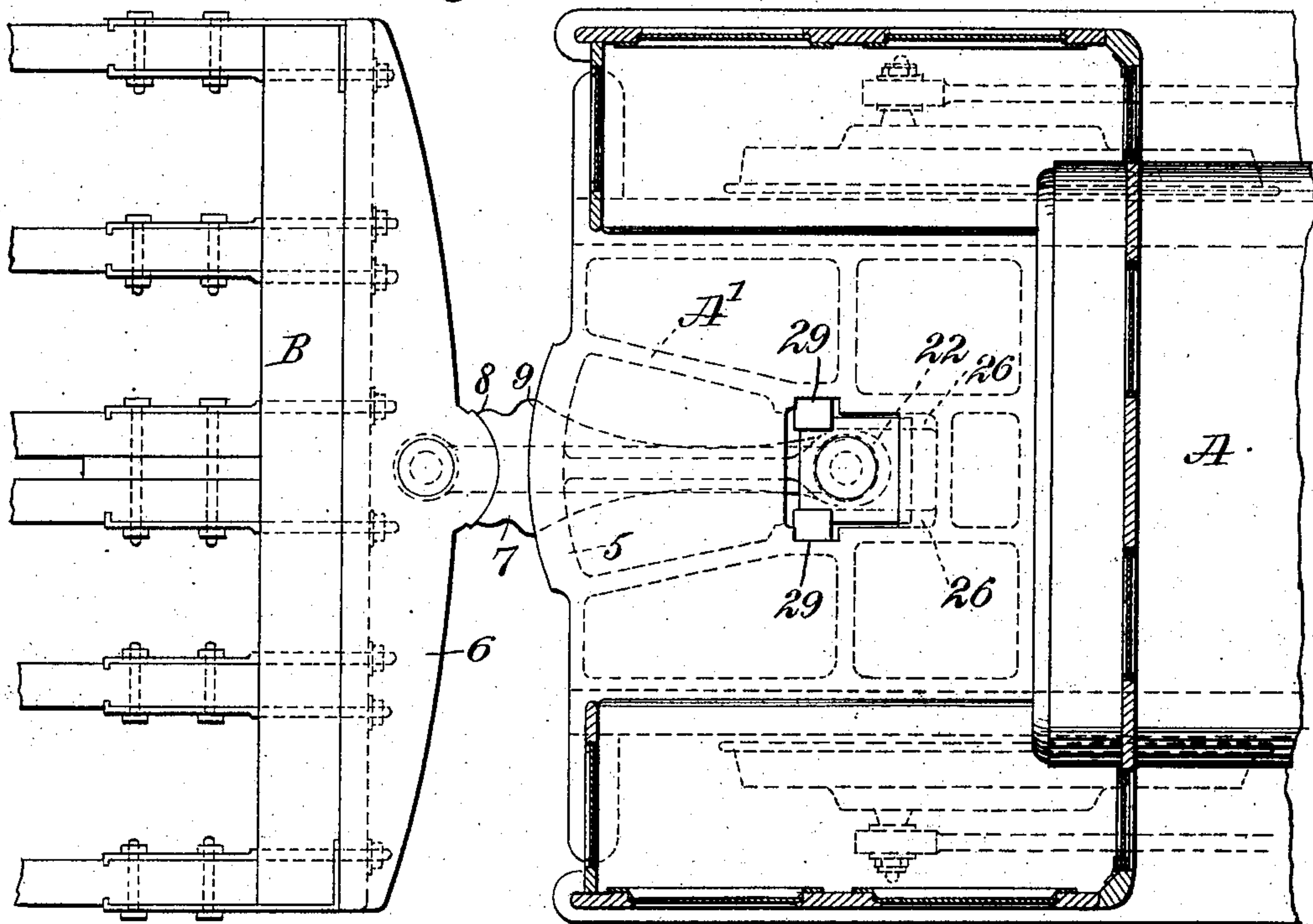
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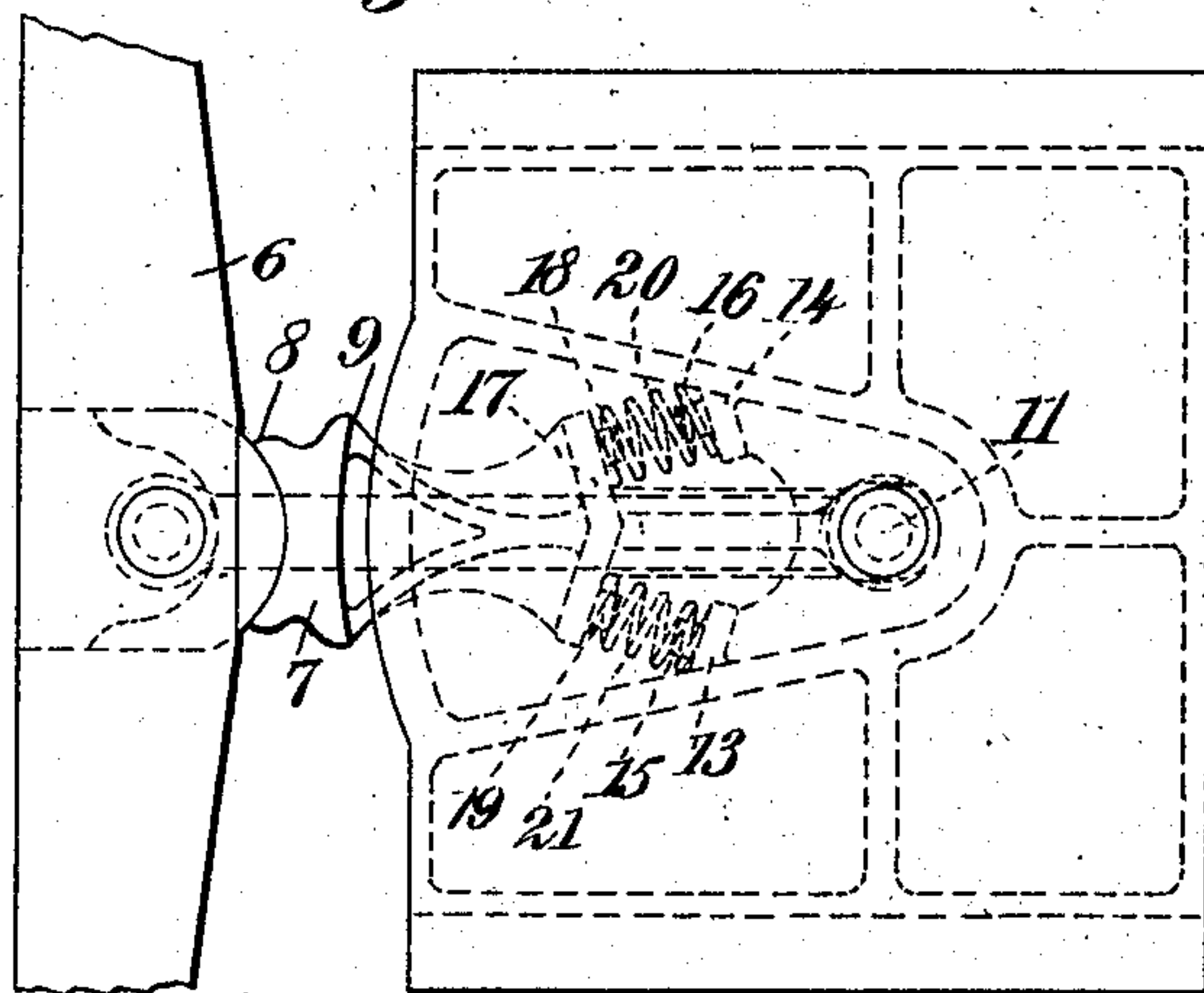
NO MODEL.

2 SHEETS—SHEET 2.

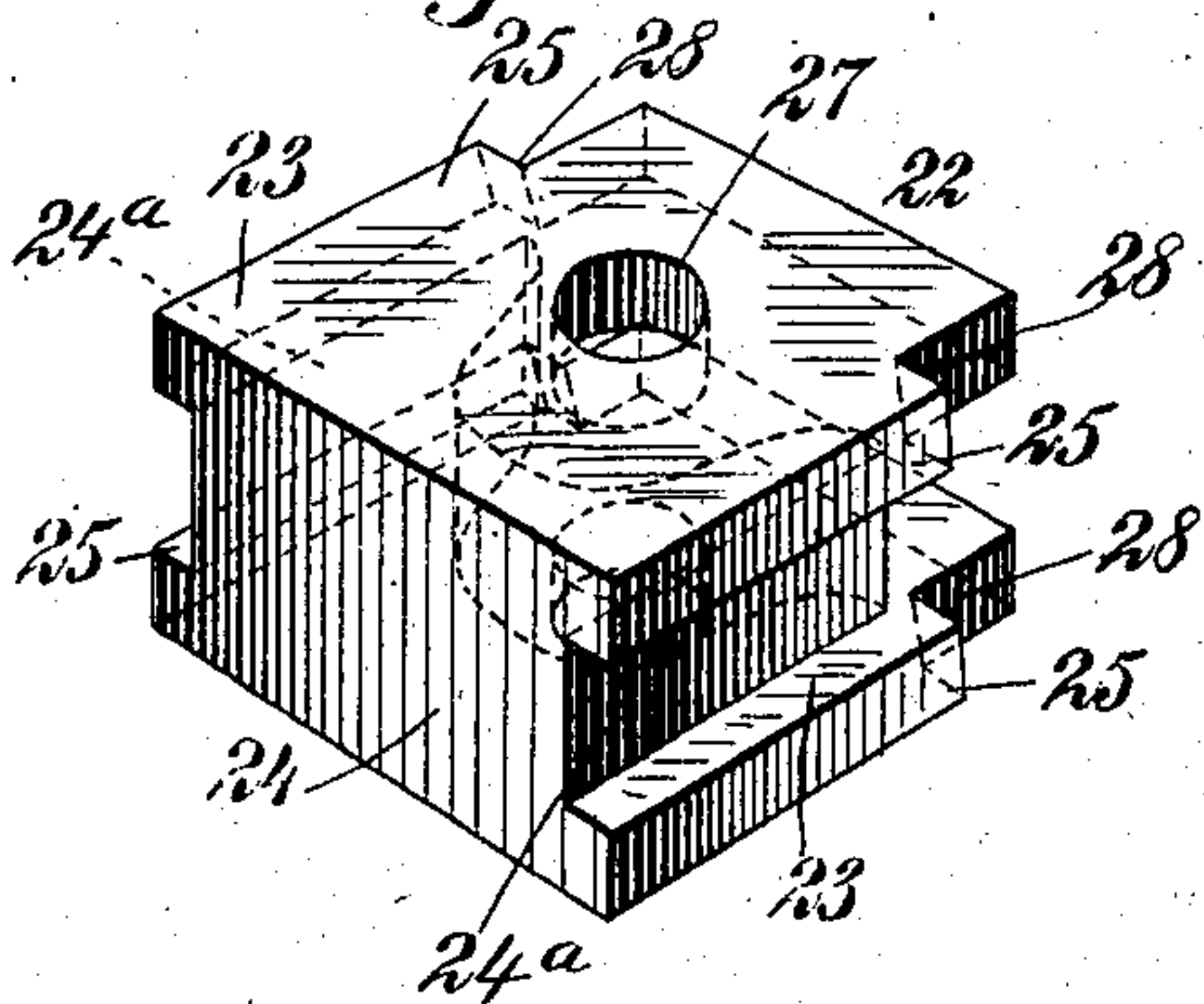
*Fig. 2*



*Fig. 3.*



*Fig. 6.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

GEORGE FRANKLIN STARBUCK, OF WALTHAM, MASSACHUSETTS.

## CAR-BUFFER.

SPECIFICATION forming part of Letters Patent No. 751,212, dated February 2, 1904.

Application filed May 18, 1903. Serial No. 157,616. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE FRANKLIN STARBUCK, a citizen of the United States, and a resident of Waltham, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Car-Buffers, of which the following is a full, clear, and exact description.

My invention has relation to certain novel and useful improvements in car-buffers, and has particular application to a buffer attachment designed for use between the locomotives and tenders of railway-trains.

In carrying out my invention I have especially in contemplation as objects, first, the decrease in wear; second, prevention of change of form due to wear, and, third, consequent to the preceding, the avoidance of unnecessary stresses due to the improper forms of the rubbing-surfaces.

The ordinary form of buffer in general consists of blocks, at least one of which is somewhat rounded on its bearing-surface, but little attention being paid to the radius of rounding. The wear to which a buffer of this character is subjected is very great and rapid, owing to the fact that the surface of contact is very small, the friction and rubbing of the parts flattening the rounded surfaces. This wear of the buffing parts causes a stretching of the draw-bar when the train is rounding curves, thus tending to produce "slack" in the draw-bar, which necessitates sending the engine to the repair-shop to have the draw-bar "upset." With my improved buffing arrangement wear and stress are reduced and the necessity of frequent upsetting of the draw-bar avoided.

A further object of my invention is to provide an improved means for taking up the slack of the draw-bar.

To the attainment of the above-recited ends and others of a similar nature, the invention consists in the construction, combination, and arrangement of parts, as is described in this specification, delineated in the drawings, and set forth in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification,

in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a view, partly in elevation and partly in section, of portions of a locomotive and tender and illustrating the application of my improvements thereto. Fig. 2 is a top view of the same, parts of the locomotive and tender being removed to more clearly show the arrangement of the device employed for taking up slack of the draw-bar. Fig. 3 is a top plan view of the foot-plate of a locomotive and the sill of a tender, showing the application of compression-springs to my improvement. Fig. 4 is a longitudinal vertical sectional view of the arrangement shown in Fig. 3. Fig. 5 is a perspective view of the head portion of my improved buffer-block, and Fig. 6 is a perspective view of the sliding block of the device for taking up slack of the draw-bar.

In the accompanying drawings, wherein is illustrated an embodiment of my invention, A designates the rear end or cab portion of a locomotive, the foot-plate of the engine being indicated by the letter A', said plate having extending transversely thereof the convex sill member 5. The tender of the locomotive I have designated B, such tender having also a convex sill portion 6, arranged at the front portion thereof. Between these two convex portions is adapted to be interposed when the engine and tender are coupled the filling-block 7, having two longitudinal concave faces 8 and 9. This block is approximately equal in thickness to the convex portions of the sills 5 and 6, the concave faces being adapted to bear against or seat such convex surfaces. The block 7 is attached to and supported from an arm 10, which arm is in turn pivotally secured to the engine through the medium of the pin 11 of the draw-bar *a*, which pin passes through a slot 12, formed in the end of the arm or shank of the block, the construction being such that the arm and its block may swing or oscillate with the movement of the train, the concave surfaces of such block always remaining in a position of contact with the convex members. I wish it to be understood in this connection that the block and arm may be piv-



oted to the tender instead of to the locomotive without departing from the spirit or scope of the invention.

In Figs. 3 and 4 of the drawings I have shown an arrangement of compression means for replacing the rigid frictional contact between the concaved walls of the block and the convex member of the engine foot-plate. This construction may be briefly described as follows: Secured to the under side of said foot-plate are the depending brackets or lugs 13 and 14, arranged on opposite sides of the pin 11, studs 15 and 16 being formed on said lugs. The shank or arm of the block is formed with a transversely-extending web, as at 17, said web having secured thereto the studs or pins 18 and 19, which diverge in a direction toward the aforesaid lugs on the engine-plate. A helical compression-spring 20 is held by the studs 16 and 18 between the web 17 and the lug 14, while a similar compression-spring 21 is likewise supported by the studs 15 and 19 intermediately between the lug 13 and the web 17. It will be observed from this construction that the compression-springs may act to some extent to relieve the jar upon the block and the draw-bars of the engine and tender.

In Figs. 1 and 2 of the drawings I have shown my improved arrangement for taking up whatever slight wear may be incident to the buffer or to the draw-bar pins, which wear causes slack of the draw-bar. This device comprises a block 22, such as shown in Fig. 6, said block comprising two horizontal side members 23 23, spaced apart and connected by the vertical rear member 24 and the vertical side members 24<sup>a</sup>, the horizontal side members having lateral extensions or flanges 25, forming guideways, whereby the block may engage with and move along the horizontal ribs 26 26, formed beneath the foot-plate of the engine, such ribs lying within the guideway formed by the extensions 25. Registering orifices, as at 27, are formed approximately centrally of the members 23 23 for the passage of the draw-bar pin, while the front ends of the flanges 25, which form the rear walls of the shoulders 28, are slightly inclined or beveled downwardly, said shoulders forming bearing or abutting surfaces for the wedge-pins 29, through the medium of which the block may be forced back or away from the tender to take up any slack of the draw-bar.

While various other means may be employed for taking up the slack, still I prefer to make use of the device described, as it will be found to be positive in its operation, durable, and convenient.

If desired, the compression-springs 20 and 21 may be omitted in constructing my improvements and the concaved filling-block so connected to the tender or to the engine that it will have a motion as if pivoted, allowing two surfaces to remain in contact whether the engine is on a straight or curved track.

While I have shown and herein described one particular embodiment of my invention, it is of course to be understood that I do not limit myself to the precise details of construction shown herein, as there may be modifications and variations in certain respects without departing from the essential features of the invention or sacrificing any of the advantages thereof.

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

1. The combination of a support, a buffer therefor having oppositely-disposed concave buffing-surfaces, and means carried by and movable beneath the support for taking up the wear or slack of the buffer, substantially as set forth.

2. The combination with a support, of a buffer therefor, said buffer having a concave buffing-surface, and a device for taking up the wear or slack of the buffer, said device including a block arranged beneath the support, and means adapted to engage with and move said block relative to said support, substantially as set forth.

3. The combination with a support, of a yieldable buffer carried thereby, said buffer having oppositely-disposed concave buffing-surfaces, and means for taking up the wear or slack of said buffer, substantially as set forth.

4. The combination with a support, of a buffer comprising an arm, a head portion carried by said arm, said head having a concave buffing-surface, and means for pivotally connecting the buffer to the support, substantially as set forth.

5. The combination with a support, of a buffer comprising an arm, a head portion at one end of said arm, said head having a concave buffing-surface, means for pivotally connecting the arm to the support, and resilient means interposed between the buffer and the support, substantially as set forth.

6. The combination with coupled vehicles having oppositely-disposed convex buffing-sills, of a buffer having oppositely-disposed concave buffing-surfaces interposed between said sills, the concave surfaces of the buffer being designed to seat the convex sills, and resilient means interposed between one of said vehicles and the buffer, substantially as set forth.

7. The combination with a support, of a buffer comprising an arm or shank portion and a head portion, said head having oppositely-concaved buffing-surfaces, and means passing through an aperture in the arm or shank for pivotally connecting the buffer with the support, substantially as set forth.

8. The combination with a support, of a buffer pivoted thereto, said buffer comprising an arm portion and a head formed at the free end of said arm portion, a web formed on said arm, studs secured to said web, lugs formed



on the support, and compression-springs coiled about the studs on the web and the lugs, the construction being such that said springs will be interposed between said web and lugs, substantially as set forth.

5 9. The combination with coupled vehicles having oppositely-disposed convex members or sills, of a spring-resisted buffer pivoted to one of said vehicles and having oppositely-disposed concave surfaces adapted to seat the convex sills of the vehicles, substantially as set forth.

10 10. The combination of a plurality of vehicles, means including a bar for coupling the

same, and a device for taking up the wear or 15 slack of the bar, such device comprising a block slidable in guideways formed beneath the vehicles, and wedge-pins adapted to bear against the sliding block for moving the latter along the guideways, substantially as set 20 forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE FRANKLIN STARBUCK.

Witnesses:

WALTER F. STARBUCK,  
ALEXR. STARBUCK.