April 15, 1930. R. F. COWELL 1,754,309

SHOCK INSULATOR DRAWBAR

Filed Nov. 30. 1928 2 Sheets-Sheet 1

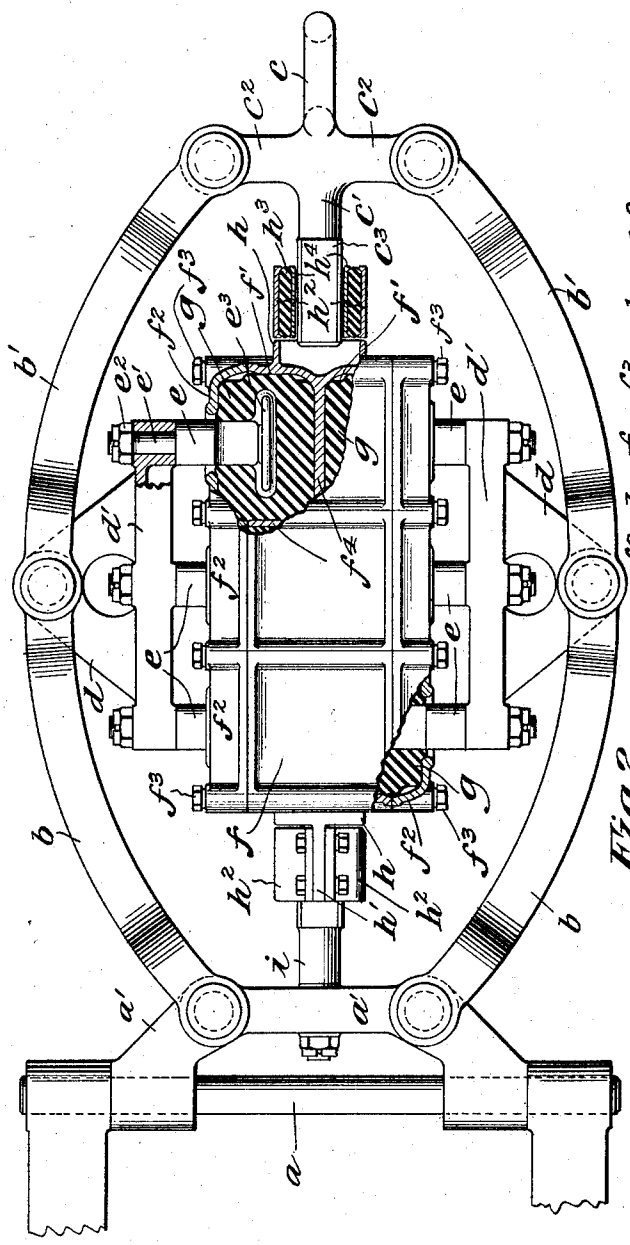


Fig. 1.

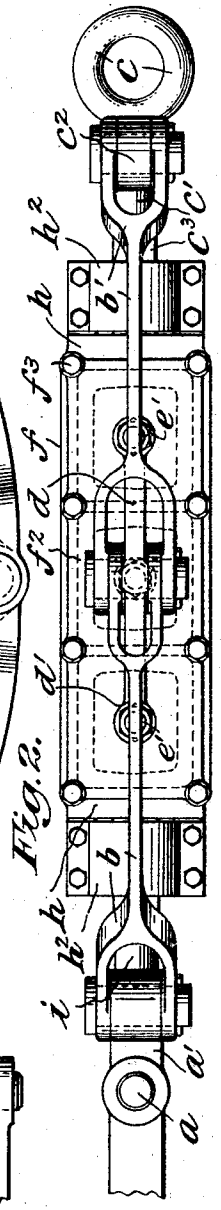


Fig. 2.

Inventor:
Robert F. Cowell

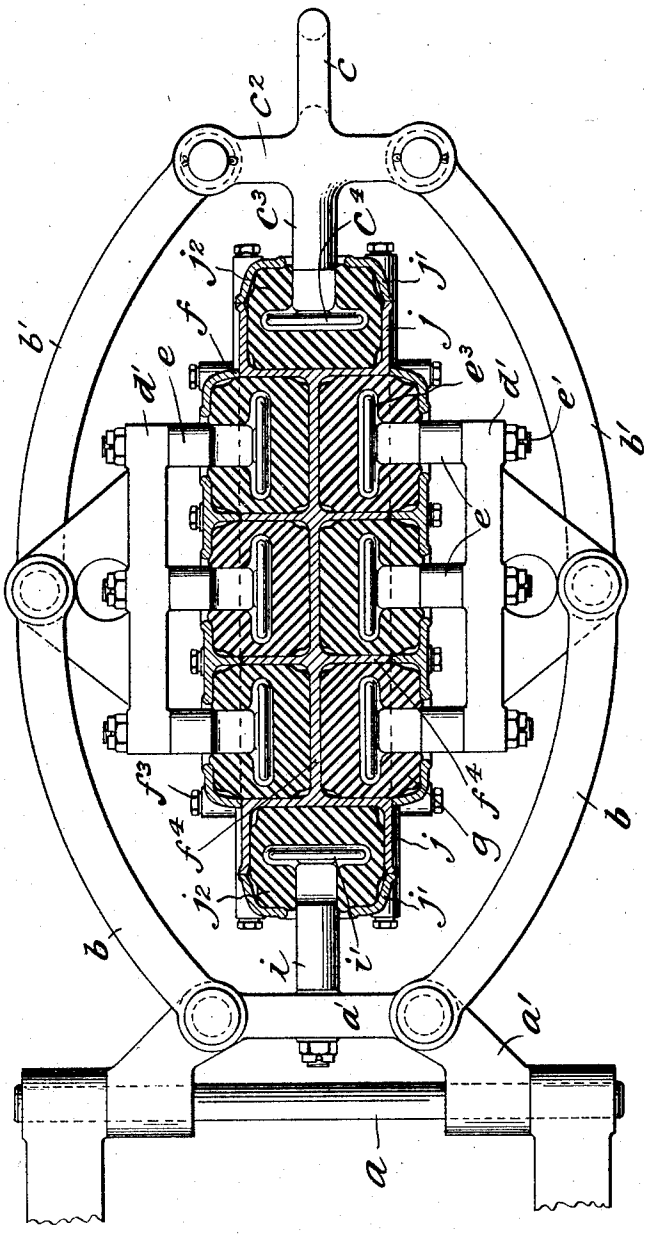
By his Attorneys
Redding, Greeley, O'Shea & Campbell

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Fig. 3.



Inventor:
Robert F. Cowell

By his Attorneys
Redding, Greeley, O'Shea & Campbell

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UNITED STATES PATENT OFFICE

ROBERT F. COWELL, OF TEANECK, NEW JERSEY, ASSIGNOR TO INTERNATIONAL MOTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE

SHOCK-INSULATOR DRAWBAR

Application filed November 30, 1928. Serial No. 322,661.

The present invention relates to improved connections, or draft appliances to be mounted between two vehicles, one of which is to be drawn by the other. More particularly, the invention embodies an improved form of draw bar connection wherein the draft forces are cushioned, thus reducing the shocks and vibrations ordinarily transmitted from one vehicle to another.

The well known friction draft gear and draft gears utilizing metallic springs have long been used where heavy loads are to be drawn, particularly in railway service. The use of rubber in draft appliances of this character has been considered impracticable by reason of the fact that the load carried and the forces exerted upon the rubber are so great in practice as to require a prohibitive quantity of rubber.

An object of the present invention is to provide a connection of the above character wherein the draft forces are cushioned by means of yielding non-metallic material, the construction being such that a relatively small amount of yielding non-metallic material is used.

Further objects will appear as the invention is described in greater detail in connection with the accompanying drawings, wherein:

Figure 1 is a plan view, partly broken away and in section, showing one form of the invention.

Figure 2 is a view in side elevation, showing the device of Figure 1.

Figure 3 is a view, similar to Figure 1, showing a modified form of the invention.

Referring to the above drawings, a indicates a front bar carried by a vehicle which mounts, pivotally, a bracket a'. Links b are pivoted to the brackets and cooperating toggle links b' are pivoted to the ends of links b in such manner that the links form a toggle connection between the bracket a' and an eye c mounted upon a bar c'. The bar c' is provided with arms c^2 to which the ends of the links b' are pivoted. At the pivot connection between the links b and b', a bracket d is pivoted, the brackets carrying cross bars d' which, in turn, mount bearing arms e. These arms may be formed with bolts e' upon their extremities for passing through the cross bars d'. Nuts e^2 may be used to secure the bearing arms e to the cross bars d'. These arms e are formed with bearing pads or feet e^3 for the purpose described hereinafter.

A housing f, formed of a plurality of compartments f', is provided with apertured covers f^2 which are longitudinally secured to either side of the housing by means of bolts f^3. Through the apertures in these covers the bearing arms e extend and within the compartments f', blocks of yielding non-metallic material g are secured. The compartments and covers are made of such size that the blocks of yielding non-metallic material are maintained under a desired degree of compression to increase the serviceability of the connection. The interior of the housing is illustrated in Figure 3, wherein longitudinal and transverse webs f^4 are formed to divide the housing into the desired number of compartments for receiving the blocks of yielding non-metallic material.

At either end of the housing f, extensions h are formed, having outwardly extending projections h'. Between these projections an annular block h^3 of yielding non-metallic material is positioned, top and bottom covers h^2 serving to maintain this block under a desired degree of compression. The blocks h^3 may have a bearing cylinder h^4 upon their internal peripheries to prevent chafing and wearing of the surface of the yielding non-metallic material. An arm i is secured to the bracket a' and projects within one of the blocks of yielding non-metallic material h^3. This construction serves to center the housing f and prevent excess movement thereof under abnormal conditions. A rearwardly extend-

ing arm c^3 on the front piece c is received within the other annulus h^3, as clearly shown in Figure 1.

Figure 2 illustrates the manner in which the links b and b' are pivoted together and to the front and rear members a' and c^2, yokes being formed on the extremities of these links to accommodate the various elements described.

Figure 3 illustrates a modified construction wherein the housing f is provided with end compartments j instead of the projecting members h and h'. These compartments are provided with covers j' and blocks of yielding non-metallic material j^2 are carried within the end compartments j. The inwardly projecting arms i and c^3 are formed with bearing pads i' and c^4, respectively. These bearing pads are received within the blocks of yielding non-metallic material j^2 in an obvious manner and serve the same function as the corresponding connections shown in Figure 1.

It is obvious that this construction is adapted for use in many forms of connections and is not to be construed as being limited to draw bar connections between vehicles. Wherever a force is to be exerted upon an element, whether a pulling or restraining force, and it is desired that such force be cushioned, the construction described above may be utilized. Although the invention has been described with specific reference to the constructions shown in the accompanying drawings, it is not to be limited, save as defined in the appended claims.

I claim as my invention:

1. A force transmitting connection comprising means to engage a force exerting member, means to engage a member upon which a force is to be exerted, links connected to one of the engaging means, toggle links connected to the other engaging means, means to pivot the adjacent ends of the links together, yielding non-metallic material, and means connected between the pivot points of the links to exert a force on the yielding material at an angle to the links.

2. A force transmitting connecton comprising means to engage a force exerting member, means to engage a member upon which a force is to be exerted, links connected to one of the engaging means, toggle links connected to the other engaging means, means to pivot the adjacent ends of the links together, a housing, yielding non-metallic material in the housing, and bearing pads received in the yielding material and pivoted to the pivot point of the links whereby movements of the members toward and away from each other are cushioned.

3. A force transmitting connection comprising means to engage a force exerting member, centering means projecting therefrom, means to engage a member upon which a force is to be exerted, centering means projecting therefrom, a plurality of links pivoted to each engaging means, a housing, yielding non-metallic material in the housing, bearing pads received in the yielding material and pivoted to the pivot point of the links, and yielding non-metallic means carried by the housing and engaging the centering means.

This specification signed this 26th day of November, A. D. 1928.

ROBERT F. COWELL.