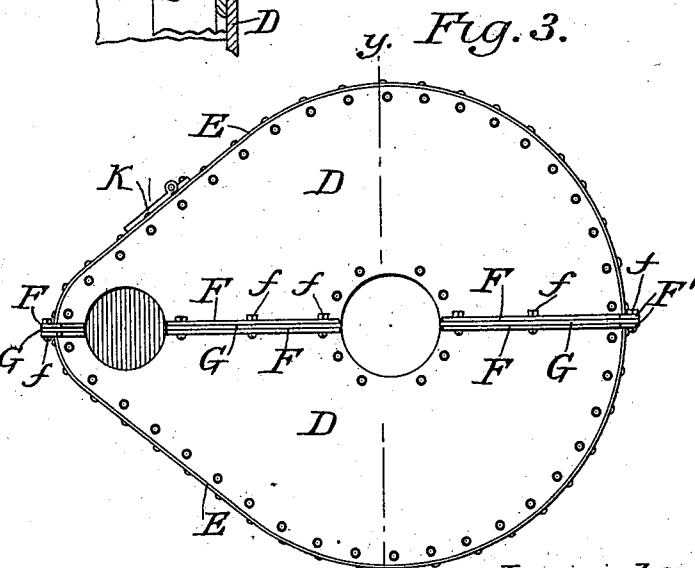
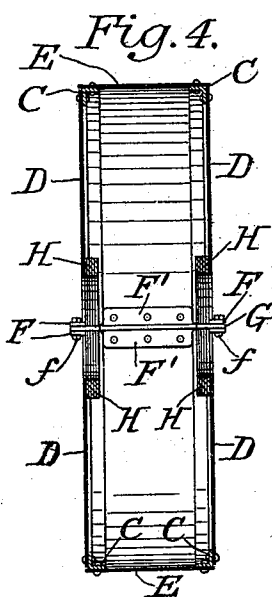
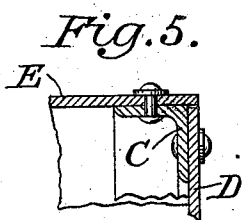
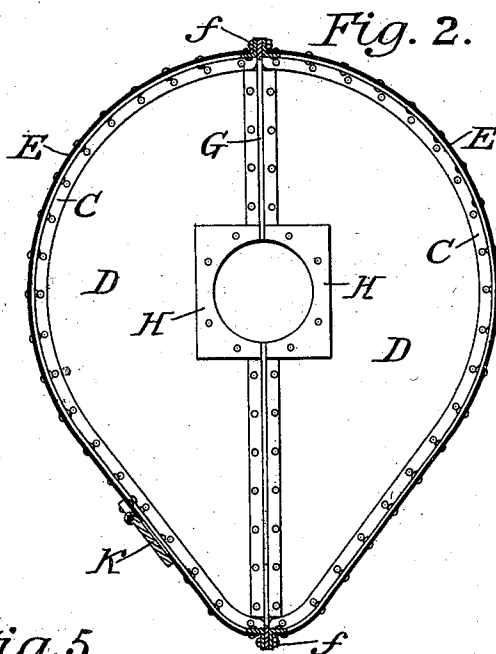
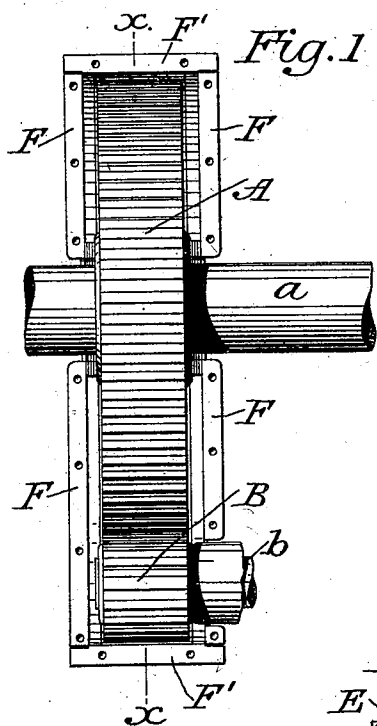


(No Model.)

W. H. FORBES & G. B. SHEPLEY.
GEAR CASING.

No. 504,338.

Patented Sept. 5, 1893.



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UNITED STATES PATENT OFFICE.

WILLIAM H. FORBES AND GEORGE B. SHEPLEY, OF BROOKLYN, N. Y.

GEAR-CASING.

SPECIFICATION forming part of Letters Patent No. 504,338, dated September 5, 1893.

Application filed November 23, 1892. Serial No. 452,894. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. FORBES and GEORGE B. SHEPLEY, both of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Gear-Casings; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The necessity for the use of some sort of casing for the driving gears of street-railway dummies or cars equipped with their own motors is now well recognized. Heretofore, however, such casings have been made wholly of metal and are therefore objectionable on account of their costliness, noisiness, great weight and liability themselves to be ruined by a blow from an obstacle on the roadway and sometimes to cause injury to the motor by the flying of fragments into its working-parts. If the use of non-metallic casings has even been contemplated (which is not the case so far as we know) such use has been given upon account of the failure hitherto to give such casings sufficient structural strength to stand the wear to which they are subjected. We have devised a construction which permits the use of a non-metallic material, such as leatheroid, for the body of the casing, thereby securing lightness, freedom from noise, and sufficient elasticity to prevent fracture, while having sufficient test to stand the wear indefinitely.

Accordingly our invention consists in the construction of gear casings as hereinafter described and claimed.

In the drawings: Figure 1 is a plan view of the lower half of the casing with the gears and shafts. Fig. 2 is a longitudinal section of the complete casing on the line $x-x$ of Fig. 1. Fig. 3 is a side elevation of the casing from the right of Fig. 1. Fig. 4 is a vertical section on the line $y-y$ of Fig. 3. Fig. 5 is a sectional detail view.

The gear A and pinion B, with their respective shafts a and b , are represented in

Fig. 1 of the drawings as of the usual character and arrangement of those commonly employed and our casing is represented in the several figures as adapted in form to such gear and pinion. It will be obvious, however, that the casing may be varied in form to suit the gears to which it may be applied.

Our improved casing is composed in effect of a skeleton with sides and ends of leatheroid or other analogous non-metallic material, and is generally made in upper and lower parts for convenience in application to the gears. In the construction of each half, two angle-irons or stays C, C, are bent to the required shape and to them are secured, by rivets or otherwise, the two sides or cheek-pieces D, D, and the end piece E. If desired, the sides and ends constituting the half of the casing might be molded or pressed in one piece and the stays C, C, be either molded in or subsequently secured thereto, but the construction shown is both efficient and economical. To the edges of each half are secured the lip pieces F, F', through which bolts f may be passed to secure the two halves of the casing together. These flanges may be molded directly on the edges of the two halves of the casing or they may be secured thereto by rivets as shown in the drawings or in any convenient manner. In either case they serve not only to unite the two halves closely together but they materially strengthen and stiffen the whole structure. Between the meeting faces of the flanges F, F', as the two halves of the casing are secured together, we prefer to interpose a packing G to make the joint practically both dust and oil tight. To each side or cheek-piece D on its inner face, about the aperture for the shaft, we secure several thicknesses of the non-metallic material, as at H, H, which constitute a bearing for the casing upon the shaft. The upper half of the casing may be provided with a hand-hole and cover therefor as at K.

Long continued tests and practical use have shown that gear-casings constructed as described are not only light and practically noiseless, but are possessed of such a degree

of elasticity as well as of strength that instead of being fractured by striking an obstacle on the roadway, as would the ordinary cast iron casing, they will yield and return
5 again to their original form.

We claim as our invention—

A gear casing comprising sections, each of which consists of a skeleton frame, leatheroid plates fastened upon said frames, flanges upon
10 the plates at their line of juncture whereby the parts may be secured together, and jour-

nal bearings fastened upon the inside of the casing; substantially as described.

In testimony whereof we have signed our names to this specification in the presence of 15 two subscribing witnesses.

WILLIAM H. FORBES.
GEORGE B. SHEPLEY.

Witnesses:

A. N. JESBERA,
A. WIDDER.