H. B. LAYMAN.

LINK, LEVER, AND THE LIKE.

APPLICATION FILED APR. 26, 1916. RENEWED APR. 8, 1918.

1,380,659. Patented June 7, 1921.

2 SHEETS—SHEET 1.

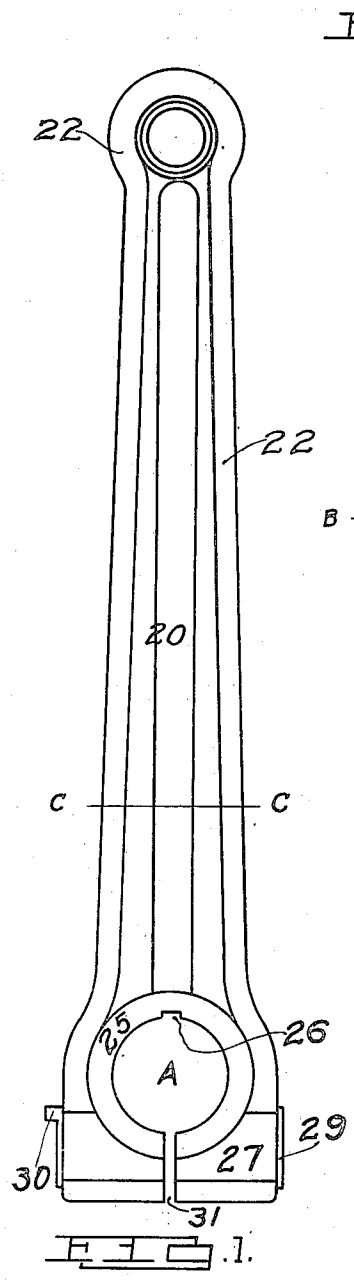


FIG. 1.

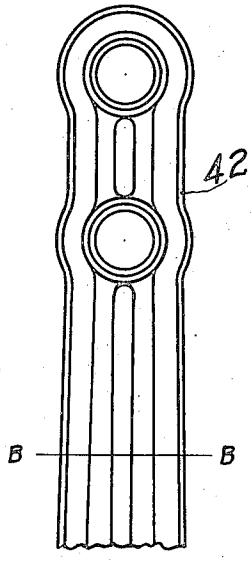


FIG. 3.

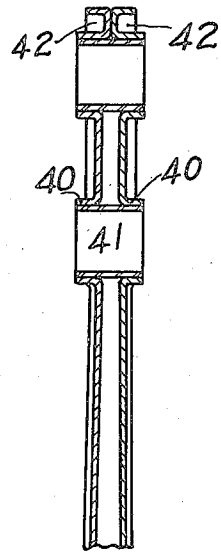


FIG. 4.

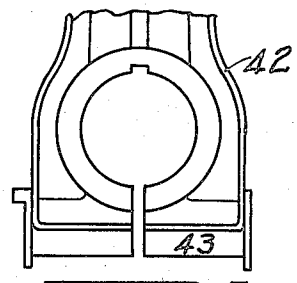


FIG. 5.

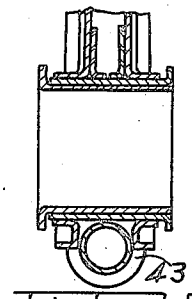


FIG. 6.

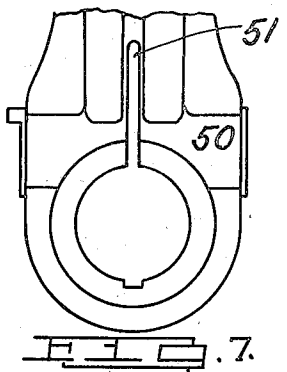


FIG. 7.

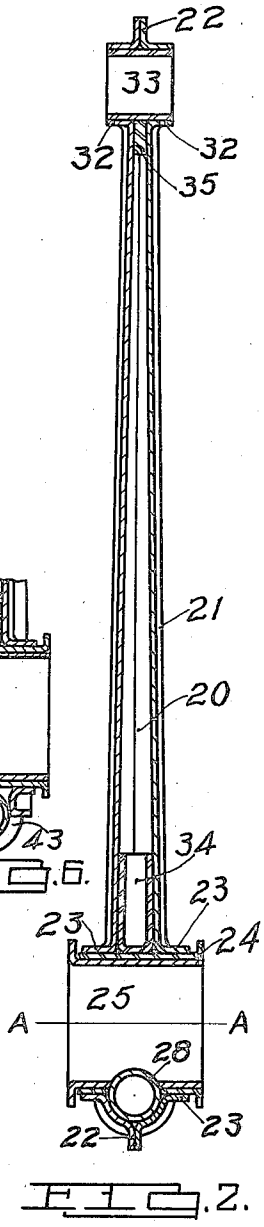


FIG. 2.

WITNESSES:
Ronald F. Knight
M. C. Meyer

INVENTOR.
Hebron Bernard Layman

H. B. LAYMAN.

LINK, LEVER, AND THE LIKE.

APPLICATION FILED APR. 26, 1916. RENEWED APR. 8, 1918.

1,380,659. Patented June 7, 1921.

2 SHEETS—SHEET 2.

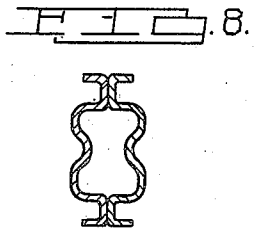


FIG. 8.

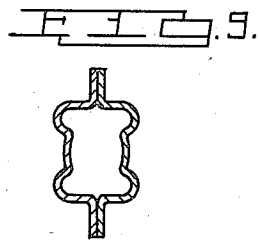


FIG. 9.

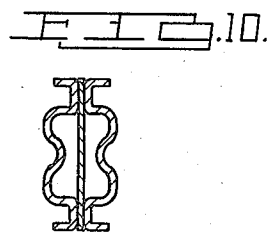


FIG. 10.

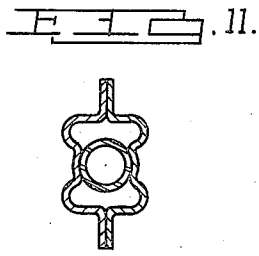


FIG. 11.

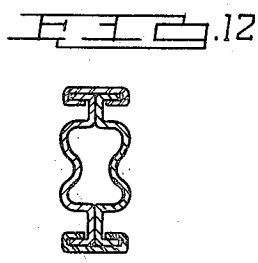


FIG. 12.

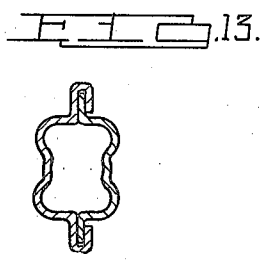


FIG. 13.

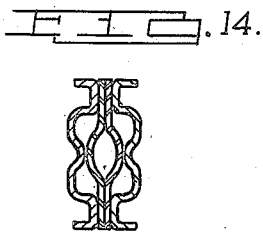


FIG. 14.

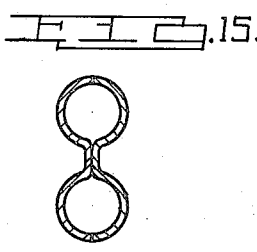


FIG. 15.

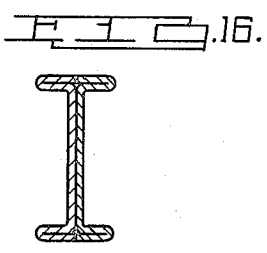


FIG. 16.

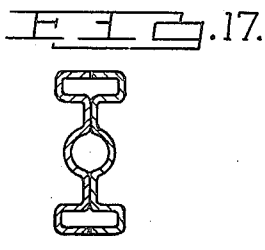


FIG. 17.

WITNESSES:
Ronald F. Knight
M. C. Meyer

Hebron Bernard Layman INVENTOR.

UNITED STATES PATENT OFFICE.

HEBRON BERNARD LAYMAN, OF NEW YORK, N. Y., ASSIGNOR TO THE LAYMAN PRESSED ROD COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LINK, LEVER, AND THE LIKE.

1,380,659. Specification of Letters Patent. Patented June 7, 1921.

Application filed April 26, 1916, Serial No. 93,606. Renewed April 8, 1918. Serial No. 227,373.

To all whom it may concern:

Be it known that I, HEBRON BERNARD LAYMAN, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Links, Levers, and the like, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to links, levers or the like, and more particularly to such articles when formed from sheet metal.

The object hereto is to provide such articles that will possess great strength while yet of extremely light weight.

Another object is to cheapen the cost of producing links, levers or the like of the sort to which the invention relates.

Other objects will appear hereafter in the specification and the claims.

By way of example I show in—

Figure 1 an exterior side elevation of a lever adapted to be used on the brake rocker-shaft of an automobile;

Fig. 2 is an elevation in section along the vertical center line of Fig. 1;

Fig. 3 is a side elevation of part of a modified lever;

Fig. 4 is a front elevation in section of the lever of Fig. 3;

Fig. 5 is a modified end portion of the lever of Fig. 3;

Fig. 6 is a front elevation in section of the head end of the lever of Fig. 5;

Fig. 7 is another modification of the head end embodying the invention.

Figs. 8 to 17 inclusive are various forms of shanks which I may employ in making links, levers or the like, within the scope of the appended claims.

In Figs. 1 and 2 the lever shown is formed from two similar longitudinally abutting body sections 20, each with a centrally raised portion 21 ribbed longitudinally, and having a flange 22 extending entirely around the lever.

By means of these flanges the two parts are united, preferably by welding and brazing,—but in any desirable manner. These united flanges compose a substantial structure, especially adapted to withstand strain in the plane in which the lever operates, to wit; in rotation about the axis "A" of Figs. 1 and 2.

The larger end of each of the body sections 20 has an integral perforated boss 23 and these bosses together with the flanged bushings 24 and 25 compose the rocker shaft boss, having an aperture to receive the rocker shaft and a key-way 26 to key the lever to the shaft.

The flanges of the bushings 24 and 25 form a substantial reinforcement to prevent the boss going out-of-round.

By and between the two body sections 20 a pinch bolt boss 27 is formed. This boss has a reinforcing liner bushing 28, having a plain washer 29 on one end, and a stepped washer 30 at the other end, to restrain the pinch bolt from turning. At 31 the pinch bolt boss is sawn in two to allow the rocker shaft boss to be pinched around the shaft.

As usual in this class of levers, the distance of the pinch bolt boss from the axis "A" is such that the bolt itself will cut into the shaft or tube on which this lever is assembled, thus restraining the lever against axial motion. 32 are bosses drawn on the body sections 20, and together these form a pin boss, by means of which the brake pull-rod is connected to the lever. This boss has a liner bushing 33 which, though shown without flanges, may be flanged similarly to the bushings in the head end.

It will be seen that the links or levers have closed pin and crank ends. By closed end it is meant that the pin and crank ends are without detachable caps such as are used in connecting rods of the type shown in Patent No. 1,226,978 dated May 22, 1917. The closed end of the structure distinguishes the same from structures such as connecting rods in which one or both ends are capped to permit removal and adjustment of bearing surfaces.

Within the shank at the head end is a reinforcing member 34, which further unites the body sections to each other and to the bushings within the boss; at the small end a similar reinforcing member 35 is shown. This, however, is formed from a slug of metal.

In practice I prefer to spot weld these parts to hold them together, and then to braze them, preferably by immersion in the spelter.

In Figs. 3 and 4, additional bosses 40 are formed on two body sections, and these together with the bushing 41 form a second pin boss by means of which a second brake rod may be connected to the lever. 42 is a supplementary flange on each of the body sections, and these together form a T-shaped flange which extends entirely around the lever.

In Figs. 5 and 6, 43 is a ferrule located between and united to the two body sections. It will be observed that the body sections only partly inclose this ferrule. With this construction, the over-all dimension of the head end of the rod may be cut down.

In Fig. 7 the pinch bolt boss 50 as distinguished from Figs. 1 to 6 inclusive, is located between the shank portion and the head end portion. The saw-cut 51 provides the necessary spring under the tension of the bolt to be fitted in the pinch bolt boss.

Fig. 8 is a cross section on the line B—B of Fig. 3;

Fig. 9 is a cross section on the line C—C of Fig. 1;

In Fig. 10 the two body sections of Fig. 3 are shown with a sheet metal stamping between them. This forms a substantial reinforcement in a place in which the rod is subjected to shearing stress.

In Fig. 11 there is a tubular shank-reinforcing member inclosed by and united to the two body sections. This member may be used as a means of feeding lubricant to the several pins.

In Fig. 12 a sheet metal strip is bound over and around the T-shaped flange.

In links, levers or the like, for some services, this is a sufficient means of uniting the parts composing the link, lever or the like.

In Fig. 13 one of the body sections is shown with wider extending flange than the other, and this is bent to embrace the second body section.

Figs. 14 to 17 inclusive are further modifications of shanks which I may use.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A link lever or the like having closed pin and shaft ends, composed of substantially similar abutting parts having flanges, said flanges having parts in association therewith to receive and connect with a shaft and prevent independent rotational movement with respect thereto.

2. A link, lever or the like having closed pin and shaft ends composed of parts abutting in a plane at right angles to the axis of the coöperating shaft, and provided with a ferrule through which is passed a bolt to prevent a relative rotational movement of the link, lever or the like and its coöperating shaft.

3. A link, lever or the like having closed pin and shaft ends adapted to rock a shaft, said link or lever being composed of similar abutting parts surrounding the shaft and having a bolt aperture formed by and between the said parts.

4. A link, lever, or the like, composed of substantially similar abutting parts having closed pin and shaft ends, a bolt boss formed by and between the abutting parts which compose the shaft end of the link, lever or the like, said bolt boss being provided with a reinforcing member, the said link or lever having provisions to prevent independent rotation of the coöperating shaft and lever.

5. A link, lever, or the like, composed of substantially similar abutting and joined sheet metal parts adapted to rock a shaft, said parts having a pinch bolt boss formed by and between the abutting parts which compose the shaft end thereof, said link or lever having provisions to prevent independent rotational movement of the coöperating shaft and the link, lever or the like.

6. A link, lever or the like having closed pin and shaft ends adapted to rock a shaft and having a pin end portion and a shaft end portion, the said link lever or the like being composed of sheet metal parts, the said parts having abutting flanges extending around the shaft end of the link or lever, and having a bolt boss formed by and between the said parts at the shaft end thereof, and provisions at the shaft end of the lever for preventing independent rotational movement of the lever and its coöperating shaft.

7. A link, lever or the like having closed pin and shaft ends comprising a shank portion, a pin end portion and a shaft end portion, the said end portions being provided with bosses, the shaft end portion having provisions to prevent an independent rotational movement of the link, lever and the like and its coöperating shaft, and said link, lever or the like being provided with a T-shaped flange which extends around the same and is formed integrally therewith.

8. A link, lever or the like adapted to rock a shaft having closed pin and shaft ends comprising a shank portion and end portions, said link, lever or the like being composed of two similar parts of sheet metal, the said end portions being provided with bosses, the shaft end boss having provisions to prevent independent rotational movement of the shaft and the link, lever or the like, and said link, lever or the like being provided with a T-shaped flange which extends around the same and is formed from the separate parts thereof, said flange being provided with a binding strip, which is passed around the same, and the edges of which are folded inwardly around the laterally directed edges of the T-shaped flange.

9. A link, lever or the like adapted to

rock a shaft having closed pin and shaft ends composed of a plurality of sheet metal parts, having a bolt boss formed thereby and between, means for securing said parts together and means for preventing any independent rotation of the shaft and the link, lever or the like.

10. A link, lever or the like adapted to rock a shaft having closed pin and shaft ends composed of a plurality of sheet metal parts, having a bolt boss formed thereby and therebetween, means for securing said parts together, and means for reinforcing said bolt boss, said reinforcing means being adapted to coöperate with the shaft and prevent independent rotational movement of the shaft and the link, lever or the like.

11. A link, lever or the like adapted to rock a shaft composed of a plurality of sheet metal parts, and provided with a bolt boss formed thereby and therebetween, and means uniting said parts and serving to form a seat for the bolt for said boss, the said link or lever having provisions to prevent relative rotation between the shaft and the link or lever.

12. A link, lever or the like adapted to rock a shaft having closed pin and shaft ends composed of parts which abut around the shaft boss, the said shaft boss having provisions to prevent relative rotation between the shaft and the link, lever or the like and being provided with circumferential flanges in planes at right angles to said boss.

13. A link, lever or the like composed of substantially similar abutting parts and having a pin end and a shaft end, the shaft end of the said link or lever having a slot therein, and a key way to receive a key and prevent independent rotation of the shaft and the link or lever.

14. A link, lever or the like having closed pin and shaft ends composed of substantially similar abutting parts having a pin end and a shaft end and having a bolt boss formed by and between the said parts at the shaft end of the link or lever and adapted to receive a bolt, said bolt boss being so positioned with respect to the shaft that independent rotational movement of the shaft and the link or lever is prevented.

15. A link, lever or the like composed of substantially similar abutting parts having a pin end and a shaft end, the said shaft end being slotted to allow the link or lever to be clamped to its coöperating shaft, and means for clamping the said slotted end together.

16. A link, lever or the like having closed pin and shaft ends composed of substantially similar abutting parts having an end adapted to surround a shaft, said end having a bolt boss formed by and between the parts, a reinforcing member in the said bolt boss and a bolt in said reinforcing member, the said bolt and reinforcing member being adapted to coöperate with the shaft and prevent independent rotational movement of the shaft and the link, lever or the like.

17. A link, lever or the like adapted to rock a shaft composed of substantially similar abutting parts having one end adapted to surround the shaft to be rocked, said end having a key way therein to receive a key, said end having a bolt boss formed by and between the parts, and a bolt therein, the said bolt and key being adapted to prevent relative rotation of the link, lever or the like and the said shaft.

18. A link lever or the like having closed pin and shaft ends, said link being composed of substantially similar abutting parts having a small pin end in which a pin is freely rotatable and a large shaft end, said shaft end being slotted to permit the clamping of the same to the shaft, said shaft end having a bolt boss and a clamping bolt therein to clamp the shaft end to the shaft, said bolt intersecting the shaft end to prevent independent rotational movement of the coöperating shaft and link.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of the subscribing witnesses this 12th day of April, 1916.

HEBRON BERNARD LAYMAN.

Witnesses:

HAROLD A. SOULIS,

M. C. MEYER.