

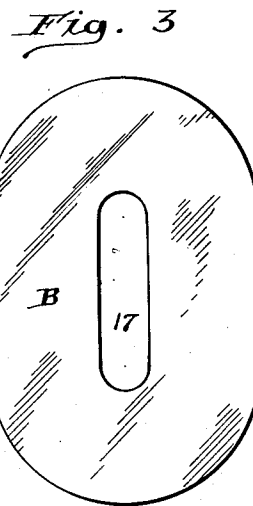
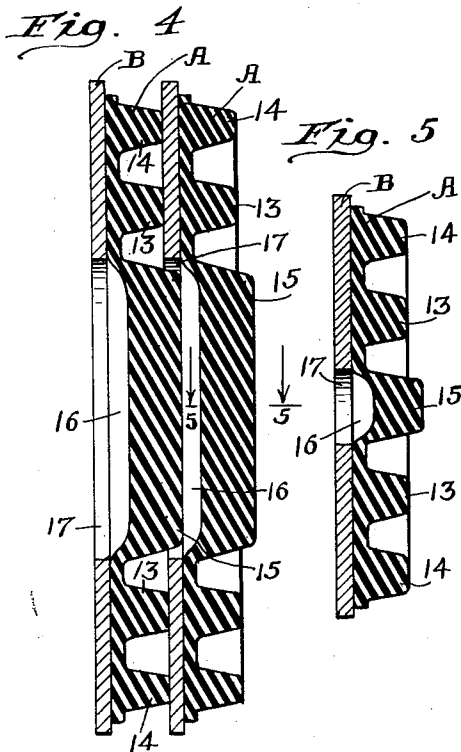
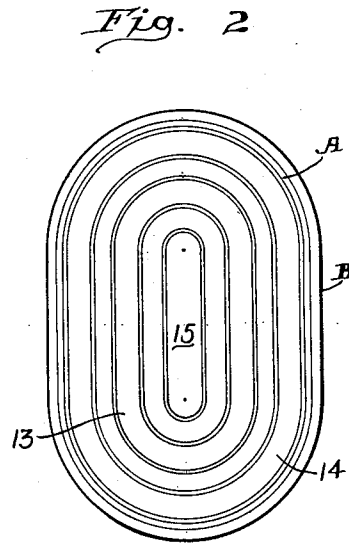
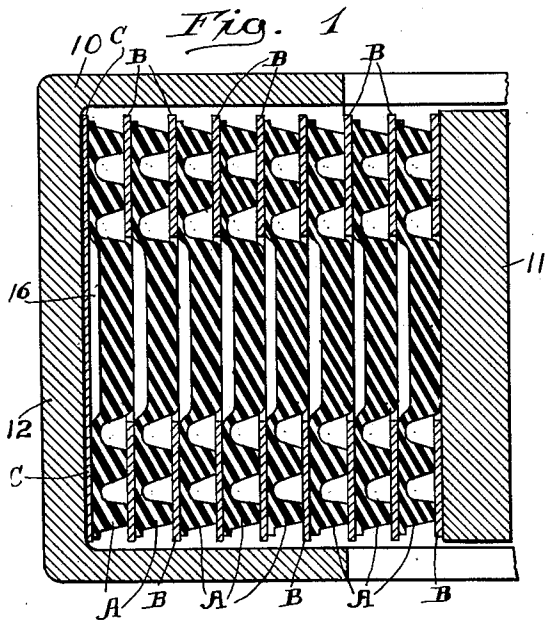
May 22, 1951

G. E. DATH

2,553,635

CUSHIONING UNIT FOR SHOCK ABSORBERS

Filed Dec. 7, 1948



Inventor
George E. Dath.
By *Henry Fuchs.*
Att'y

UNITED STATES PATENT OFFICE

2,553,635

CUSHIONING UNIT FOR SHOCK ABSORBERS

George E. Dath, Mokena, Ill., assignor to W. H. Miner, Inc., Chicago, Ill., a corporation of Delaware

Application December 7, 1948, Serial No. 63,949

8 Claims. (Cl. 213—45)

1

This invention relates to improvements in rubber cushioning means employed in shock absorbing mechanisms especially adapted for railway draft riggings.

One object of the invention is to provide a rubber cushioning unit of the character specified, composed of alternated rubber pads and metal spacing plates, wherein the rubber pads and plates are provided with cooperating means for preventing relative lateral displacement of the pads and plates with respect to each other.

A more specific object of the invention is to provide in a cushioning unit, as set forth in the preceding paragraph, centering means in the form of projections on the rubber pads engaged in openings of the spacing plates.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the accompanying drawing forming a part of this specification, Figure 1 is a longitudinal vertical sectional view, through a portion of a casing and cooperating follower member of a railway draft gear illustrating my improved cushioning unit in connection therewith. Figure 2 is an elevational view of one of the rubber pads of my improved unit, looking from right to left in Figure 1. Figure 3 is an elevational view of one of the metal spacing plates illustrated in Figure 1, looking from right to left in said figure. Figure 4 is a longitudinal vertical sectional view, on an enlarged scale, of two adjacent sets of rubber pads and spacing plates shown in Figure 1. Figure 5 is a horizontal sectional view, corresponding substantially to the line 5—5 of Figure 4, of the right hand spacing plate and rubber pad illustrated in said figure.

In said drawing, my improved cushioning unit is illustrated as employed in connection with a shock absorbing mechanism of the character employed in railway draft riggings, 10 indicating a portion of the casing of such a mechanism, and 11, the cooperating follower. As illustrated in Figure 1, the casing 10 is in the form of a tubular cage closed at the left hand end by a transverse wall 12 and open at the other end. As is well known, the follower 11 is slidable within the casing.

My improved cushioning unit, which is interposed between the wall 12 of the casing 10 and the follower 11, comprises broadly a series of rubber pads or mats A—A, a series of spacing plates B—B, and an end plate C, as shown in Figure 1.

Each rubber pad or mat A is in the form of a

2

flat member of generally oval outline, provided with inner and outer, annular ribs 13 and 14, and a central straight rib 15 projecting from one side thereof, these ribs being on the right hand side of each pad, as shown in Figures 1 and 4. The central rib 15 extends in the direction of the length of the pad, terminates short of the rib 13, and projects a greater distance from the pad than the ribs 13 and 14. At the region of the rib 15, the side of the pad opposite to this rib is recessed, as indicated at 16, for a purpose hereinafter pointed out. The ribs 13, 14, and 15 are preferably tapered outwardly, as shown in Figures 1, 4, and 5.

Each metal spacing plate B is in the form of a flat member of generally oval outline. The plates B are of slightly larger size than the pads A so that the plates project outwardly beyond the pads at all sides thereof when assembled with the same. Each plate B has an elongated, central slot or opening 17 therethrough which extends lengthwise of the plate and is adapted to register with the rib 15 of the adjacent pad and freely accommodate the projecting outer portion of said rib in the assembled condition of the unit.

As shown in Figure 1, the improved cushioning unit comprises a plurality of rubber pads A and a plurality of metal plates B. As illustrated, the rubber pads A are arranged in series with the spacer plates interposed between and alternated with said pads, each pad, as shown in Figures 1 and 4, having its flat side bearing on the plate at the left hand side thereof and the ribs 13 and 14 abutting the plate at the right hand side, with the rib 15 extending into the opening 17 of the last named plate. As will be evident, the projecting ribs 15—15 of the pads A—A, which engage within the slots 17—17 of the plates B—B, serve to center the plates with respect to the pads and prevent lateral displacement of the plates and pads with respect to each other.

The plate C, which is shown as interposed between the right hand end pad A of the cushioning unit and the wall 12 of the casing 10, is identical with the plate B, with the exception that it is not slotted.

The operation of my improved cushioning unit is as follows: Upon movement of the follower 11 inwardly of the casing 10, the cushioning unit is compressed against the wall 12 of the casing. As the cushioning unit is thus being compressed, the pads A are compressed or flattened out between the metal plate B, the ribs 13 and 14 being flattened by direct contact with the plates B. During initial flattening of the ribs 13 and 14, the

3

projecting portions of the ribs 15 are pushed through the openings 17 of the plates B and enter the recesses 16 of the adjacent pads and seat therein to assist in centering the pads with respect to each other. After the projecting portions of the ribs 15 have become thus seated, the same are also compressed by engagement with the adjacent pads.

In flattening out of the pads, the material of the ribs thereof is displaced or flows into the spaces between said ribs.

When the actuating force is reduced, after compression of the cushioning unit, the tendency of the distorted rubber pads to return to their normal shape causes the cushioning unit to expand, thereby returning the parts to the normal full release position shown in Figure 1.

I claim:

1. In a cushioning unit for shock absorbers, the combination with a series of rubber pads; of a series of spacing plates alternated with said pads, each of said plates being provided with a recess, and each of said pads having a centering projection thereon engaged in the recess of the adjacent plate to center the plate with respect to the pad.

2. In a cushioning unit for shock absorbers, the combination with a series of rubber pad members; of a series of spacing plate members alternated with said pad members; cooperating means on said pad members and plate members for centering the plate members with respect to the pad members, comprising interengaged centering projections and seats on said two series of members, respectively.

3. In a cushioning unit for shock absorbers, the combination with a series of rubber pad members; of a series of spacing plate members alternated with said pad members, the members of one of said series having recesses therein, and the members of the other of said series having projecting ribs engaged in said recesses to center said members of said two series with respect to each other.

4. In a cushioning unit for shock absorbers, the combination with a series of rubber pad members; of a series of spacing plate members

4

alternated with said pad members; and projecting centering ribs on the members of one of said series, said members of the other series having openings therethrough within which said ribs are engaged to center the members of one series with respect to the members of the other series.

5. In a cushioning unit for shock absorbers, the combination with a series of rubber pads; of a series of spacing plates alternated with said pads, said spacing plates having central openings therethrough; and projecting centering ribs on said pads engaged in said openings to center the plates with respect to said pads.

6. In a cushioning unit for shock absorbers, the combination with a rubber pad; of a metal plate bearing on said pad, said plate having an opening therethrough; and a centering projection on said pad engaged in said opening to center the plate with respect to the pad.

7. In a cushioning unit for shock absorbers, the combination with a rubber pad; of a metal plate bearing on said pad, said plate having an elongated opening extending therethrough; and a centering rib on said pad in alignment with said opening and projecting into the same to center the plate with respect to the pad.

8. In a cushioning unit for shock absorbers, the combination with a series of rubber pads; of a series of spacing plates alternated with said pads, each of said plates being provided with an opening therethrough; ribs on one side of each pad bearing on the adjacent plate; and an additional rib on each pad projecting beyond said first named ribs and into the opening of said adjacent plate to center the same with respect to said pad.

GEORGE E. DATH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,267,475	Miller	Dec. 23, 1941