Feb. 18, 1930. S. GROSS 1,747,238

BUFFER

Filed Nov. 26, 1927

Fig. 1.

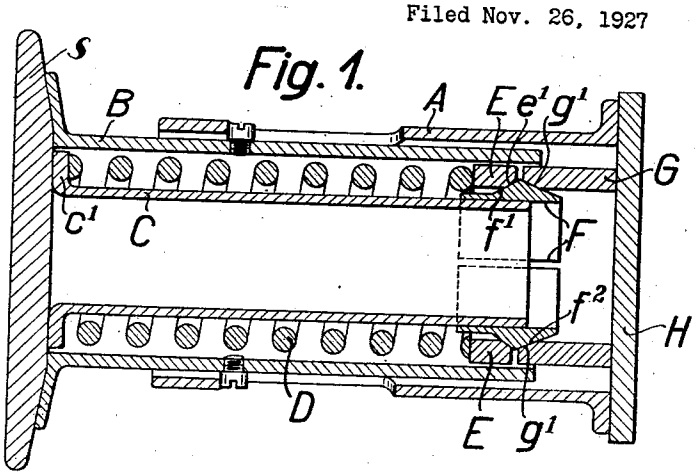


Fig. 2.

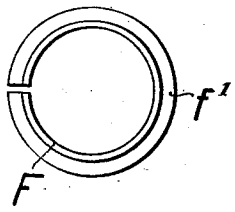


Fig. 3.

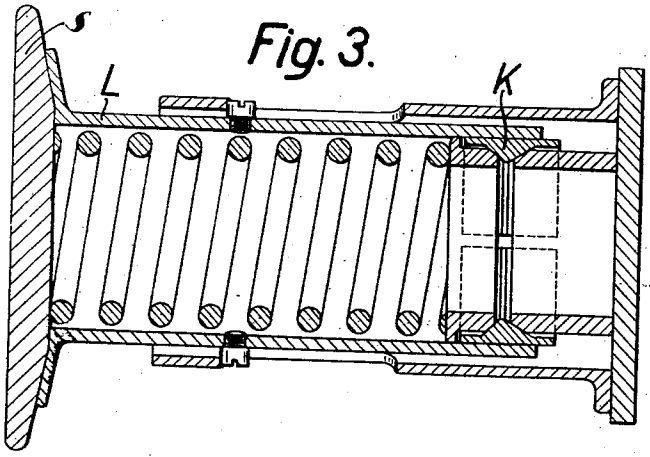


Fig. 4.

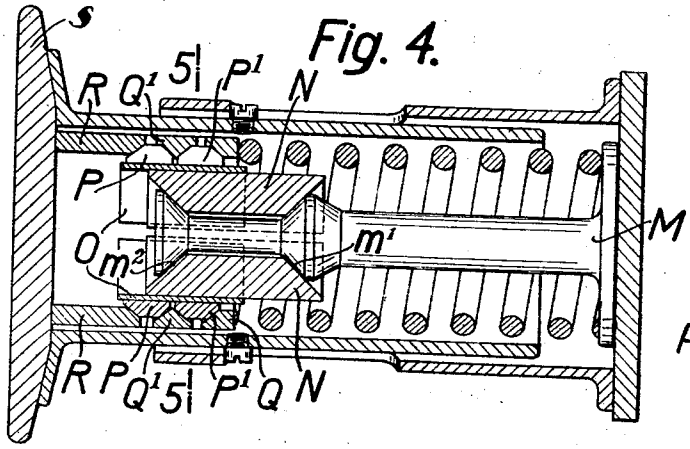
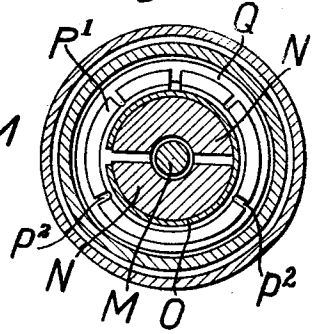


Fig. 5.



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UNITED STATES PATENT OFFICE

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BUFFER

Application filed November 26, 1927, Serial No. 235,874, and in Germany January 13, 1927.

This invention relates to buffers.

Friction buffers are already known, which have a buffer spring and a friction brake, connected in series with the spring, comprising rings having inclined surfaces that are in contact with one another. The braking action is due to the guiding with pressure of the rings of the brake on a surface, when the buffer is compressed. The objects of this invention are to so improve buffers of this type, that a possible locking of the friction surfaces against one another is eliminated, and to insure the return of the friction brake to its initial position.

Some preferred embodiments of a buffer designed in accordance with this invention are illustrated, by way of example, in the drawing which accompanies and forms part of this specification. In this drawing:

Figure 1 is a sectional view through the axis of a buffer according to one embodiment of my invention,

Figure 2 shows a detail of the embodiment illustrated in Figure 1, in front view,

Figure 3 is a sectional view through the axis of a buffer according to a second embodiment of my invention, and

Figure 4 is a sectional view of a buffer according to a third embodiment of my invention,

Figure 5 is a sectional view of Figure 4 taken along line 5—5.

Referring first to the embodiment shown in Figure 1, A denotes the buffer case and C the buffer plunger having the usual head S. Plunger C extends through a tube B also fast on head S. One end of the buffer spring D abuts on a flange c^1 of plunger C. The other end of spring D abuts on a ring E which has a conical surface e^1. A split ring, F, made of cast iron or some other suitable material, is slid on plunger C, which ring has inclined surfaces f^1 and f^2. The ring F has further such a width, that it projects notably on one end beyond the corresponding inclined surface f^1. The inclined surface f^1 is permanently in contact with the inclined surface e^1 of ring E, while the surface f^2 is in permanent contact with an inclined surface g^1 of a third ring G abutting on the base plate H of the buffer.

When the buffer is compressed, the plunger C is shifted relatively to case A and compresses spring D. In consequence thereof the inclined surfaces e^1 and g^1 exert an increased pressure upon ring F and cause the latter to contract in diameter, so that ring F abuts on plunger C with increased friction and exerts a powerful braking action upon the plunger. Upon the buffer compression ceasing, ring F reverts to its original shape according to the decreasing pressure exerted by spring D, so that this spring is able to return the plunger to its initial position. As one end of ring F projects somewhat beyond the inclined surface f^1, ring F is unable to cant when the buffer is compressed. On the contrary, it closely abuts plunger C, so that a uniform distribution of the pressure and a uniform wear of the friction surfaces is obtained and any clamping or locking is avoided.

In the embodiment illustrated in Figure 3 the split ring K abuts on the inner surface of the plunger L, so that the tube B of Fig. 1 becomes a plunger and the member C is rendered superfluous. Besides, the ring K projects on both sides beyond the inclined surfaces. As to the rest of the buffer shown in Figure 3, it acts in the same manner as that of the first embodiment.

In the embodiment illustrated in Figures 4 and 5, a rod M is fixed in the buffer case. A cylinder N composed of two semi-cylindrical sections is carried on rod M by means of a collar m^1 and a head m^2. A split sleeve O is guided on cylinder N, and carries two split rings P and P^1. Sleeve O projects at both ends beyond the rings P, P^1. These two rings are so connected with sleeve O, for example by means of pins, that they may be bent in radial direction relatively to sleeve O, but are unable to shift axially. The rings P, P^1 have further radial recesses p^2, see Figure 5, which lower their resistance to bending.

Inclined surfaces provided on the rings P, P^1 engage inclined surfaces of rings Q, Q^1 and R. When the buffer is compressed,

the rings Q, Q^1, R are forced together. This causes the rings P, P^1 to bend, which in turn cause sleeve O to bend. Sleeve O then presses against cylinder N producing a braking action. The rest of the buffer operates in the same manner as that of the first embodiment.

What I claim and desire to secure by Letters patent, is:—

In a device of the kind described, a base, a brake member fixed to said base, a friction member concentric with said brake member, slidable theron and resilient in radial direction, a buffer head, an abutment fixed to said head, a spring resting on said base, a loose abutment between said spring and said fixed abutment, said loose and said fixed abutments having oppositely inclined adjacent faces, and an intermediate radially yieldable member between said abutments and said friction member concentric to the latter and having inclined faces abutting against the faces of said abutments.

The foregoing specification signed at Cologne, Germany, this 2nd day of November, 1927.

SIEGFRIED GROSS.