Aug. 29, 1933. D. F. SPROUL 1,924,814

CUSHIONING DEVICE

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Fig. 1

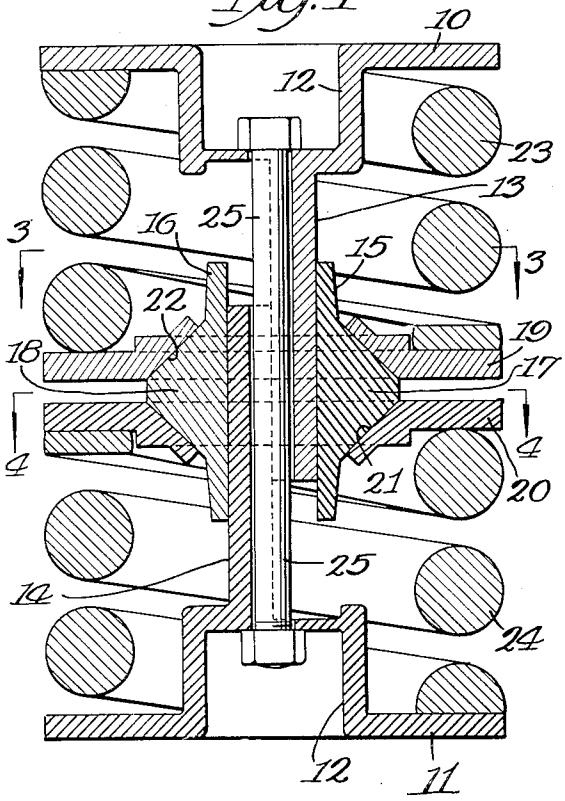


Fig. 2

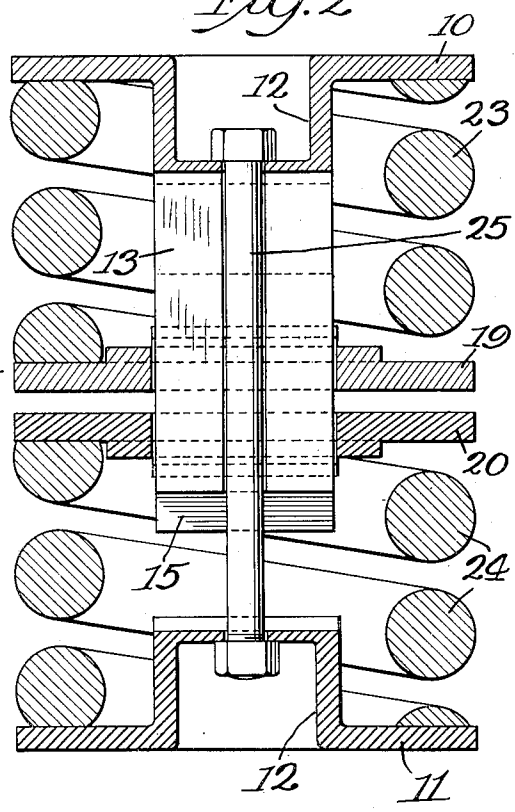


Fig. 3

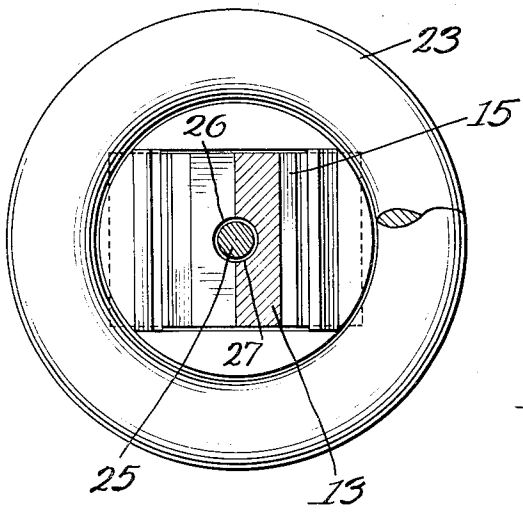
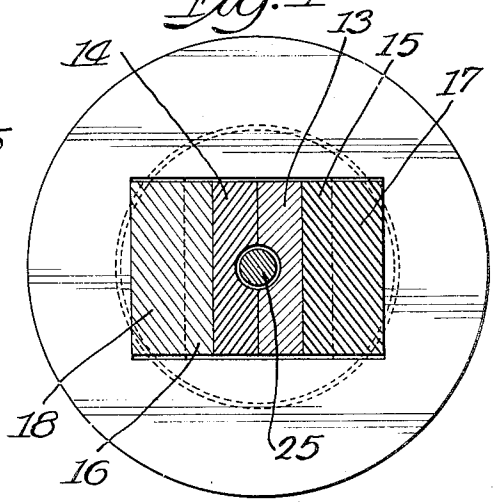


Fig. 4



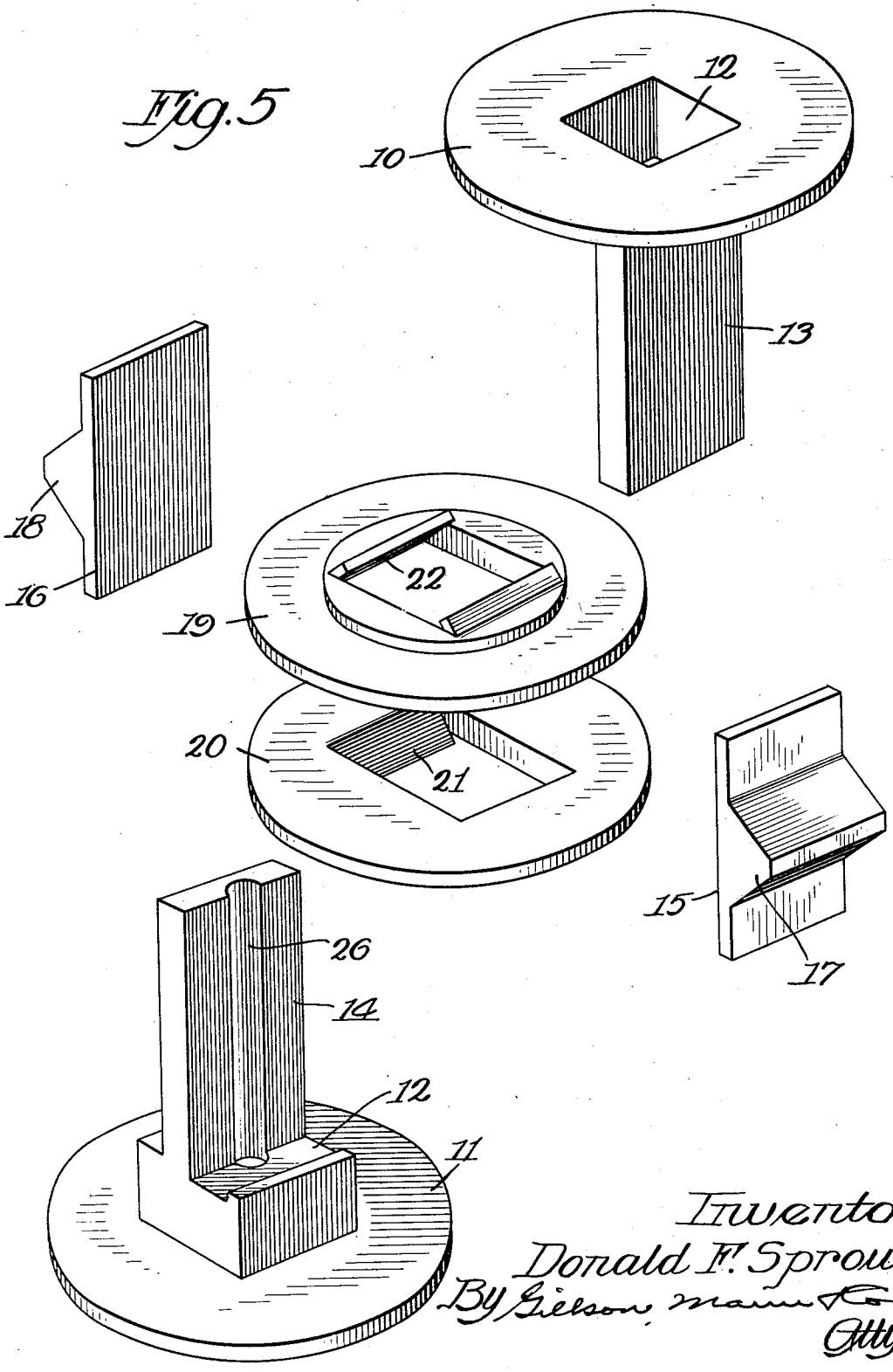
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Fig. 5



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UNITED STATES PATENT OFFICE

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CUSHIONING DEVICE

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Application July 6, 1931. Serial No. 548,917

3 Claims. (Cl. 267—9)

The invention relates to cushioning devices adapted for general use where shocks are to be absorbed, but is designed primarily for use in connection with railway cars for supporting the truck bolster.

In the drawings,

Figs. 1 and 2 are central longitudinal sections of the device in planes, respectively, 90° removed; Figs. 3 and 4 are transverse sections on the lines 3—3 and 4—4, respectively, of Fig. 1; and

Fig. 5 is a group of various elements of the device shown in perspective.

At 10, 11, are represented two opposing or end followers which, as shown, are of like construction. Each of these followers has a central hollow instanding boss 12, from each of which projects axially a plate 13, 14, the inner or adjacent faces of the two plates being in frictional contact. Bearing frictionally upon the outer face of each plate is a shoe 15, 16, which carries on its outer face a double-faced wedge 17, 18.

A pair of radially disposed plates 19, 20, centrally apertured to permit the passage therethrough of the plates 13, 14, and shoes 15, 16, are each provided with wedge faces, as 21, 22, cooperating with the wedges 17, 18.

Helical spring means is interposed between the followers 10, 11, and incloses the friction and wedging elements. The plates 19, 20, project between adjacent turns of the spring and are normally spaced apart, and are forced toward each other upon the compression of the spring. Preferably, though not necessarily, the spring means takes the form of a pair of springs 23, 24, reacting, respectively, between the follower 10 and plate 19, and the follower 11 and plate 20.

A tie-bolt 25 is located on the axis of the device and passes loosely through the inner walls of the bosses 12, 12. The plates 13, 14, are longitudinally channeled, as shown at 26, 27, to accommodate the bolt.

In operation the plates 13, 14 slide upon each other as the device is compressed. The springs 23, 24, are normally under some degree of compression because of the weight of the car, and consequently the wedges of the plates 19, 20, are acting to urge the plates 13, 14, together. Further compression of the springs increases the pressure upon the friction plates, and consequently the friction is augmented as the compression proceeds. The parts are restored to normal position by the expansion of the springs, the friction gradually decreasing. The action would be the same if the spring means were a single continuous element with the turns of which the plates 19, 20, interlock.

I claim as my invention—

1. In a cushioning device, in combination, a pair of followers, helical spring means separating the followers, a pair of cooperating friction plates carried by the followers, shoes frictionally engaging the plates and each having a double faced wedge on its outer face, a pair of spaced plates apertured to permit the passage therethrough of the friction plates and shoes and each having wedge faces cooperating with the shoe wedges, the spaced plates extending laterally between adjacent turns of the spring means.

2. In a cushioning device, in combination, a pair of opposed followers, a pair of cooperating friction plates carried one by each of the followers, a pair of friction shoes engaging, respectively, the outer faces of the plates and each having a double faced wedge formed on its outer face, a pair of spring seats apertured for the passage therethrough of the plates and shoes and each having wedge faces cooperating with the wedges of the shoes, and springs each reacting between one of the seats and one of the followers.

3. In a cushioning device, in combination, a pair of opposed followers, a pair of overlapping friction plates of uniform thickness each formed integrally with one of the followers, a friction shoe bearing against the outer face of each plate, each shoe having a double faced wedge formed on its outer face, a pair of annular plates enclosing the friction plates and friction shoes and each having wedge faces co-operating with the wedge faces of the shoes, and a pair of helical springs of like strength interposed one between each of the followers and the adjacent annular plate.

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