Feb. 26, 1952 W. T. PILKINGTON, JR 2,587,522

LEAF SPRING CONSTRUCTION

Filed July 25, 1947

Fig. 2.

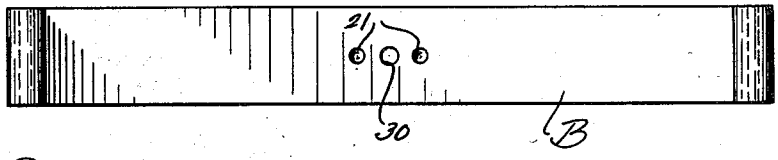


Fig. 1.

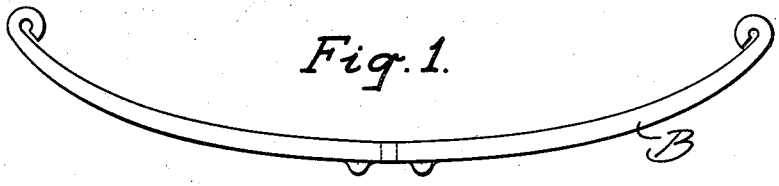


Fig. 3.

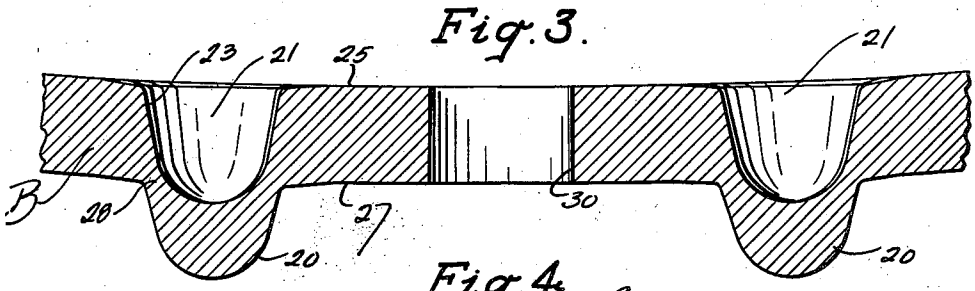
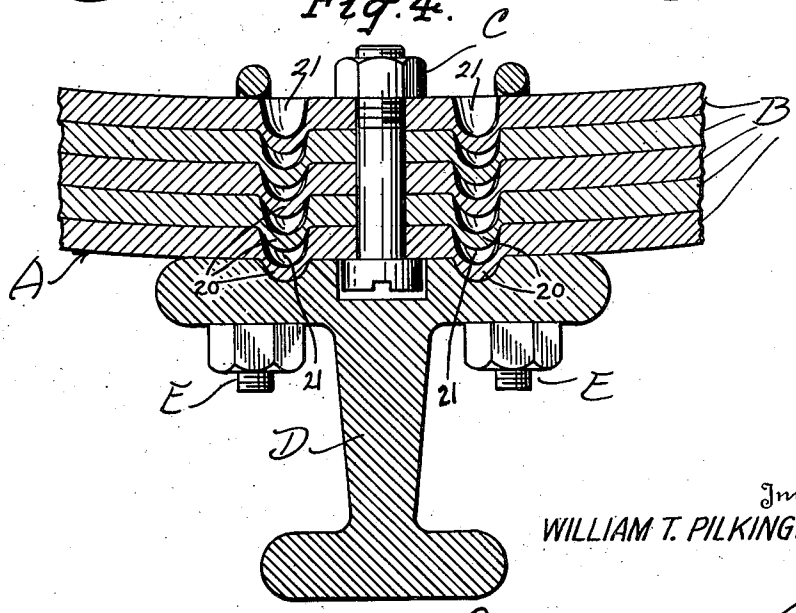


Fig. 4.



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Patented Feb. 26, 1952 2,587,522

UNITED STATES PATENT OFFICE

2,587,522

LEAF SPRING CONSTRUCTION

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Application July 25, 1947, Serial No. 763,551

2 Claims. (Cl. 267—52)

1

This invention relates to improvements in leaf spring structures.

In conventional leaf spring construction the leaf spring sections are generally connected together by means of a central bolt. This bolt is under constant shear stresses. To obviate this the leaf springs are provided with improved means to prevent relative movement of the springs at the time of flexure, at the bolt location, in non-interfering relation with proper flexing along the lengths of the springs beyond the bolt location.

A further object of this invention is the provision of an improved spring construction having means to prevent turning movement of the leaf spring sections without interfering with proper longitudinal flexure as an incident of use of the spring construction.

Other objects and advantages of the invention will be apparent from the following detailed description.

In the accompanying drawing, forming a part of this specification and wherein similar reference characters designate corresponding parts throughout the several views.

Figure 1 is a side elevation of one of the improved leaf sections of the spring structure.

Figure 2 is a top plan view of the spring section.

Figure 3 is a fragmentary longitudinal cross sectional view taken through the central location of one of its leaf spring sections.

Figure 4 is a fragmentary cross sectional view showing the assemblage of the sections of the leaf spring and their mounting upon an axle.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the leaf spring construction. I may include a plurality of laminated leaf sections B connected centrally of their ends by means of a bolt C and having conventional saddle or clamping means E to secure the leaf spring structure centrally of its ends to an axle or similar construction D.

The improved means to prevent turning movement of the leaf sections B and to lock them together at their center locations so that there will be no shear upon the bolt C, preferably consists of providing each section B at its central location with depending anchoring studs 20 on the convex under surfacing thereof and complementary sockets 21 thereabove inwardly from the concaved side of the section B. This is preferably done by means of die stamping the structure. The sockets 21 have rounded bottom surfaces and sloping side walls 23 which diverge towards the concaved surface 25 of the sections B. Stamping of the sockets is such that the material forming the bosses or lugs 20 will be extruded upon the convex surfacing 27; the wall 28 annularly connecting the boss or projection 20 being sufficiently thick to protect the lug against shearing action. It is to be noted that the sockets 21 extend through substantially the entire normal thickness of the body portion of the leaf spring and may project just slightly into the boss 20 as shown in Figure 3 and elsewhere, altho this structure may vary as desired. The die stamping may be accomplished either cold or hot. The lugs and their sockets are located close to and at each side of the bolt opening 30. In the normal size of leaf spring the centers between the bolt opening and the lug and socket centers may approximate 1½" altho this distance may vary. It is given by way of example to show that the lugs and their sockets are located very close to the center portion of the leaf section so as not to interfere with proper longitudinal flexure of the leaf sections under load supporting use.

2

Upon the axle D the sections of the leaf spring construction are clamped by means of U-bolts E. It is to be noted that the bosses 20 are nested in the sockets of the adjacent lowermost spring section in vertical axial alignment close to the bolt C and preferably the clamping clips or bolts B are located directly adjacent to or at the outer sides of the nested lugs. The sockets 21 and lugs or bosses 20 are formed on a very small surface of the leaf spring so as not to weaken the structure thereof, and they do not extend transversely across the width of the sections. The bosses 20 are so formed that they snugly socket in the openings 21 and during flexure of the spring the lugs do not slide relative to the socket surfacing.

It is quite apparent from the foregoing that the leaf spring sections will be prevented from relative turning movement and they hold the position of the leaf spring between the nested sockets with respect to the bolt C so that the spring sections do not have relative movement at the bolt C and thus shearing action upon the bolt is prevented.

It is to be noted that the axle top surface is provided with sockets to receive the bosses of the lowermost leaf of the spring construction.

Various changes in the shape, size and arrangement of parts may be made to the form of invention herein shown and described without

departing from the spirit of the invention of the scope of the following claims.

I claim:

1. In a spring construction the combination of a plurality of leaf sections, a bolt extending through all of said sections and connecting said sections together centrally between the ends thereof, each of said spring sections closely adjacent to said bolt and at each side thereof at the longitudinal center line of the section being provided with an indentation upon one surface and a projecting boss upon the opposite surface with the bosses of one section fitting into the indentations of an adjacent section whereby to relatively connect said sections preventing relative longitudinal movement of said sections to obviate turning movement at the location of said bolt and against shear action upon said bolt.

2. In a leaf spring construction the combination of a plurality of elongated leaf spring sections, each being provided with a transverse opening centrally between the ends thereof, a bolt releasably extended thru all of said openings and clamping said leaf spring sections together, each of said spring sections closely adjacent to said bolt and at each side thereof at the longitudinal center line of the section being provided with an imperforate socket upon one surface and a directly opposed imperforate projecting boss upon the opposite surface, said leaf spring sections being assembled so that the bosses of one leaf spring section interfit into the sockets of the adjacent spring leaf section whereby to relatively connect said sections against turning upon the bolt as an axis and to prevent shear action upon said bolt as an incident of relative longitudinal sliding of said sections, and U-shaped bolts straddling and clamping the sections together immediately adjacent to but slightly outwardly beyond said bosses and sockets at each side of the first mentioned bolt.

WILLIAM T. PILKINGTON, JR.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
718,733	Shea	Jan. 20, 1903
1,294,338	Hawkins	Feb. 11, 1919
1,330,923	Utz	Feb. 17, 1920
1,377,430	Petty	May 10, 1921
1,379,798	Burgess	May 31, 1921
1,410,439	Wilson	Mar. 21, 1922
1,530,729	Laher	Mar. 24, 1925

FOREIGN PATENTS

Number	Country	Date
692,763	France	Aug. 5, 1930