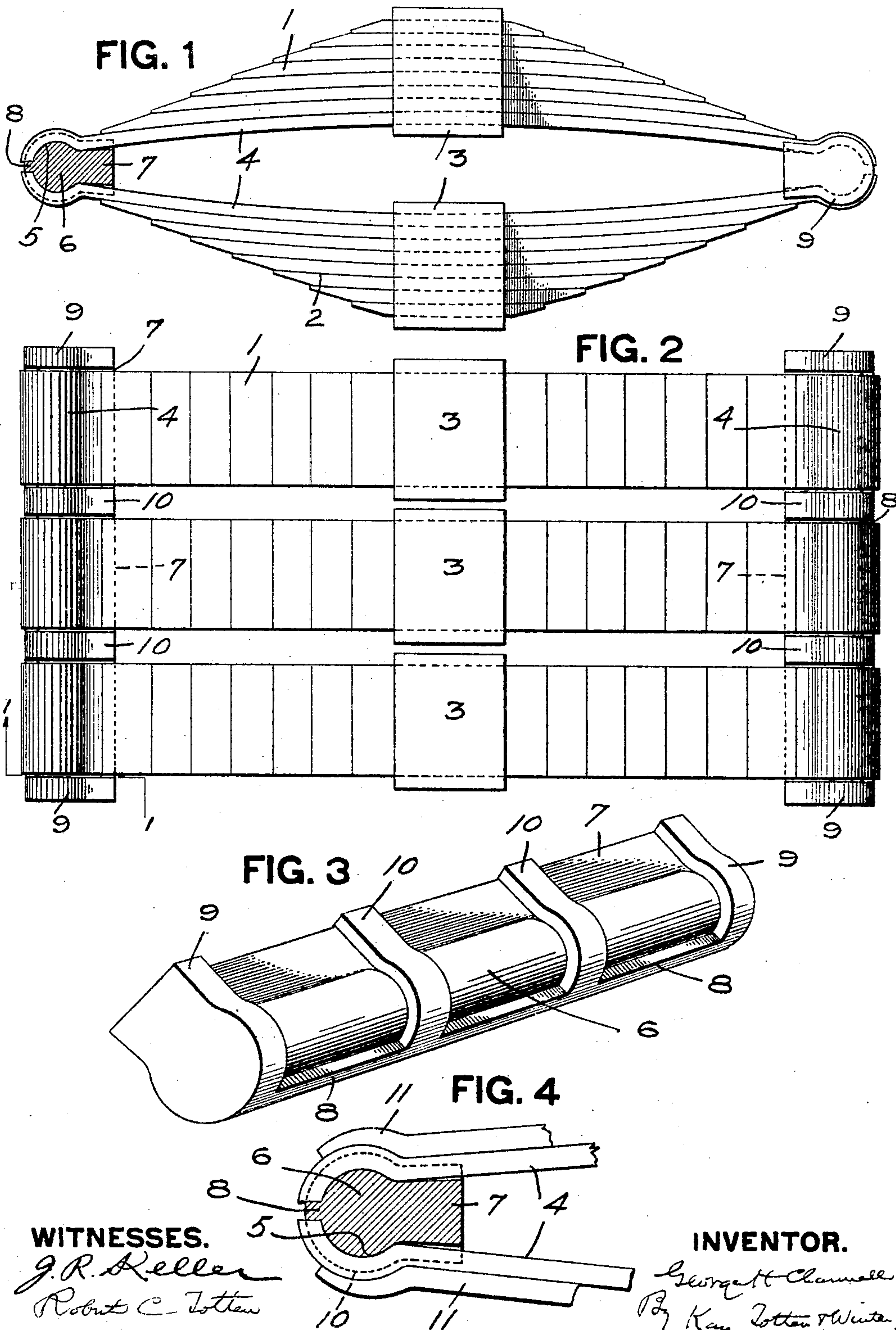


No. 809,173.

PATENTED JAN. 2, 1906.

G. H. CHANNELL.
SPRING END.

APPLICATION FILED MAR. 13, 1905.



UNITED STATES PATENT OFFICE.

GEORGE H. CHANNELL, OF NEW KENSINGTON, PENNSYLVANIA, ASSIGNOR
TO UNION SPRING AND MANUFACTURING CO., OF NEW KENSINGTON,
PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SPRING END.

No. 809,173.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed March 13, 1905. Serial No. 249,887.

To all whom it may concern:

Be it known that I, GEORGE H. CHANNELL, a resident of New Kensington, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Spring Ends; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to supports for the ends of leaf-springs, and more especially for double elliptic springs. Its object is to provide a spring-end support which is simple and cheap of construction, which is strong, which can be readily replaced when necessary, and which will be held by the springs themselves and without necessitating the ends of the springs to be bent so as to weaken the same.

In the accompanying drawings, Figure 1 is a side elevation of a double elliptic spring, showing my invention applied thereto, one end being in vertical section on the line 1 1, Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of the spring-end support, and Fig. 4 is a vertical section showing a modification.

My invention can be applied to any form of leaf-spring, that shown in the drawings being a double elliptic spring having the top member 1 and bottom member 2, each made up of a series of superimposed leaves or plates which are substantially straight at their end portions and held together by the central collars or bands 3. The longer leaves 4 of the two series have their ends provided with transverse concave portions 5, which face each other and in which rests the circular body 6 of the end-support. The bent ends of the leaves 4 extend around this circular body sufficiently far to prevent displacement thereof. The end-support is provided with the bearing portion 7 of less thickness than the body and extending inwardly between the leaves 4 and preferably increasing slightly in thickness toward its inner end.

To hold the spring-end support accurately in place, it is provided with an outwardly-extending rib or projection 8, which lies between the ends of the leaves 4, and thus the latter hold the end-support against turning. To prevent endwise displacement of the end-support, it is provided with the end flanges or ribs 9, which bear against the edges of the spring-leaves. When a compound spring is

used, such as shown in Fig. 2, the end-support will also be provided with flanges or ribs 10, which will lie between adjacent spring members and hold the latter properly spaced apart.

The spring-support may be of any desired length for use with a spring having a single or any number of units, that shown in the drawings illustrating three such units. The circular body of the spring-support forms a good bearing for the ends of the springs and one which will permit the latter to accommodate themselves to the load and without imposing any severe strain thereon. The curvature in the ends of the springs in order to form a seat for the end-support is so slight that it subjects the metal to only slight strain, this having an important advantage over prior constructions, wherein the ends of the spring-leaves were given a sharp bend practically at right angles. The inwardly-projecting bearing portion 7 supports the leaves when the spring is compressed under load, and as this increases in thickness inwardly the effective length of the spring is shortened under increasing load, thus increasing the stiffness of the spring.

If desired, two or more leaves of each member of the spring may be extended to partially encircle the body of the spring-support, Fig. 4 showing a modification in which the second leaf 11 of each member of the spring is so extended.

Various other modifications may be made in the device without departing from the spirit of the invention.

What I claim is—

1. A spring-end support comprising a block having a rounded body adapted to have the spring ends lapped over the same, and an inwardly-projecting bearing portion of less thickness than the body.

2. A spring-end support comprising a block having a rounded body adapted to have the spring ends lapped over the same, and an inwardly-projecting bearing portion of less thickness than the body and of increasing thickness inwardly.

3. A spring-end support comprising a block having a rounded body adapted to have the spring ends lapped over the same, an inwardly-projecting bearing portion of less thickness than the body, and an outwardly-projecting

lug or rib adapted to lie between the ends of the springs.

4. A spring-end support comprising a block having a rounded body adapted to have the spring ends lapped over the same, an inwardly-projecting bearing portion of less thickness than the body, and end projections or flanges adapted to bear against the edges of the springs.

5. A spring-end support comprising a block having a body adapted to be embraced by the spring ends, and an inwardly-projecting bearing portion of less thickness than the body and of increasing thickness inwardly.

6. The combination of a leaf-spring comprising leaves substantially straight at their ends and having the longest leaf of each member provided at its ends with a concave portion extending transversely thereof, together with an end-support comprising a block having a rounded body seated in said concave portion and an inwardly-projecting bearing portion of less thickness than the body.

7. The combination of a leaf-spring comprising leaves substantially straight at their ends and having the longest leaf of each of its members provided at its ends with a concave portion extending transversely thereof, together with an end-support comprising a block having a rounded body seated in said concave portion and an inwardly-projecting bearing portion of less thickness than the body and of increasing thickness inwardly.

8. The combination of a leaf-spring comprising leaves substantially straight at their

ends and having the longest leaf of each of its members provided at its ends with a depression extending transversely thereof, together with an end-support comprising a block having a body seated in said depressions, an inwardly-extending bearing portion of less thickness than the body and an outwardly-projecting rib or lug lying between the ends of the ribs.

9. The combination with a leaf-spring comprising leaves substantially straight at their ends and having the longest leaf of each of these members provided at its ends with a depression extending transversely thereof, together with an end-support comprising a body seated in said depressions and provided with an inwardly-projecting bearing portion of less thickness than said body and of increasing thickness inwardly.

10. The combination of a leaf-spring comprising leaves substantially straight at their ends and having the longest leaf of each of its members provided at its ends with a depression extending transversely thereof, together with an end-support comprising a body seated in said depressions and having an inwardly-extending bearing portion and provided with flanges or projections adapted to bear against the edges of said spring-leaves.

In testimony whereof I, the said GEORGE H. CHANNELL, have hereunto set my hand.

GEORGE H. CHANNELL.

Witnesses:

R. H. BELLMAN,
ROBERT C. TOTTEN.