

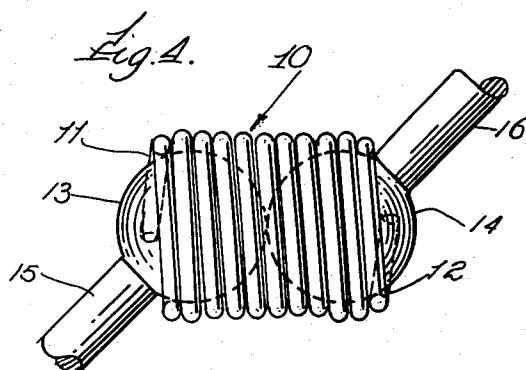
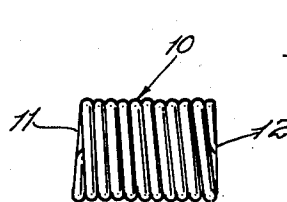
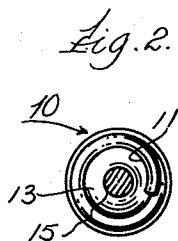
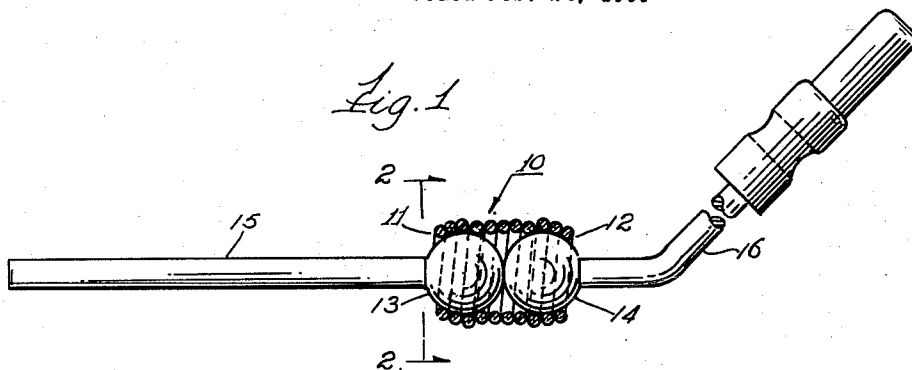
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FLEXIBLE CONNECTING MEANS FOR A ROD JOINT

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1

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FLEXIBLE CONNECTING MEANS FOR A ROD JOINT

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3 Claims. (Cl. 287-86)

The present invention relates to a coiled spring which resiliently holds in each end a pivotally held ball adapted to support an attachment thereto, thereby providing a flexible adjustable link between two parts or places.

It is among the objects of my invention to provide a single holding means for two spaced balls, having attachments, each attachment being adapted to be pivoted on its ball to a desired position without affecting the movement to desired position of the other attachment. My construction is long lasting in wear and economical in construction and operation, and needs no adjustment nor lubrication.

My invention also comprises such other objects, advantages and capabilities as will later more fully appear, and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, yet it is to be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings, Fig. 1 is a front elevational view of my connector, partly in section; Fig. 2 is a sectional view on line 2-2 of Fig. 1; Fig. 3 is a longitudinal view of the retaining spring; and Fig. 4 is an enlarged assembly view of my connector.

The embodiment selected to illustrate my invention comprises a coiled resilient expansible spring 10, coiled so as to provide opposite open ends 11 and 12. Within open end 11 is positioned a ball 13, and within open end 12 is positioned another ball 14. A rod 15 is attached to or integral with ball 13 and extends outwardly from said ball as it is held by said spring 10. A rod 16 is attached to or integral with said ball 14 and extends outwardly from said ball as it is held by said spring 10.

The coils of spring 10 are tightly wound around each ball 13 and 14 so as to hold each ball and prevent it leaving engagement with said spring. I prefer each ball 13 and 14 to be seated well within its respective open end 11 or 12, so that the greater portion of its outer surface is contacted and covered by the coils of the spring.

Prior to insertion of the balls in the spring, I provide that the diameter of the coils of the spring be slightly less than the diameter of each of the balls, so that in order to place the balls within the openings, it is necessary to expand or stretch the diameter of the coils of the spring so as to permit one ball to be inserted within each end opening of the spring. The expanding pressure on the spring is then released, so that the coils of the spring move back toward their original diameter and tightly grip the inserted balls.

It is, of course, within the contemplation of my invention that my spring may have more or less than the number of coils illustrated in the drawings, since the number of coils may vary to hold the size of the ball used. My spring may also vary in the coarseness or fineness of the coils, depending upon the strength de-

2

sired for supporting rods with connections thereto of different weights and/or lengths. However, regardless of the size or number of the coils of the spring or the size of the balls, the coils of the spring will always cover the greater portion of the outer surface of each ball. This prevents accidental or unauthorized disengagement of the balls from the spring.

The size, strength, length and material of my spring, balls, and rods depends upon the connection my device is to make, and the weight, size and length of the connection.

Balls 13 and 14 contact within spring 10 and pivot against each other providing increased rigidity and stability in chosen fixed positions, thereby co-operating with the spring for increased efficiency and compactness.

In spite of the tension holding each ball 13 and 14 by spring 10, each rod 15 and 16 may be moved against the tension of the spring to pivot its ball within the spring and permit movement of the rod to a desired position. When the rod has been so moved, the tension of the spring holds the ball in the chosen position. Either rod 15 or 16 may be moved to pivot on its respective ball as desired without any effect on the other rod 15 or 16 which may be moved and adjusted to the position desired. This permits wide variation of positions and movement of the rods 15 and 16 while still being held by a common holding means, namely spring 10.

Having thus described my invention, I claim:

1. A flexible connecting means for a rod joint comprising a closely coiled spring having opposite open ends, a ball positioned within each open end of said spring, said spring having a diameter slightly less than the diameter of each ball before their insertion in the open ends so that after insertion therein said balls are tightly but pivotally held within said spring, a rod connected to and extending outwardly from each ball, said rod being adapted to be pivoted with its ball to extend and be held by said spring in a desired direction.

2. A flexible connecting means for a rod joint comprising a closely coiled spring having opposite open ends, a ball positioned within each open end of said spring, said spring having a diameter slightly less than the diameter of each ball before their insertion in the open ends so that after insertion therein said balls are tightly but pivotally held within said spring, a rod connected to and extending outwardly from each ball, said rod being adapted to be pivoted with its ball to extend and be held by said spring in a desired direction, said spring covering the greater portion of each ball to prevent accidental and unauthorized withdrawal.

3. A flexible connecting means for a rod joint comprising a closely coiled spring having opposite open ends, a ball positioned within each open end of said spring, said spring having a diameter slightly less than the diameter of each ball before their insertion in the open ends so that after insertion therein said balls are tightly but pivotally held within said spring, a rod connected to and extending outwardly from each ball, said rod being adapted to be pivoted with its ball to extend and be held by said spring in a desired direction, each of said balls contacting and pivotable on each other for increased rigidity and maintenance of each rod in its desired position without any effect on the other rod in its desired position.

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