May 8, 1956 YIH-HUNG LEE 2,744,754

PUZZLE

Filed Aug. 20, 1953 2 Sheets-Sheet 1

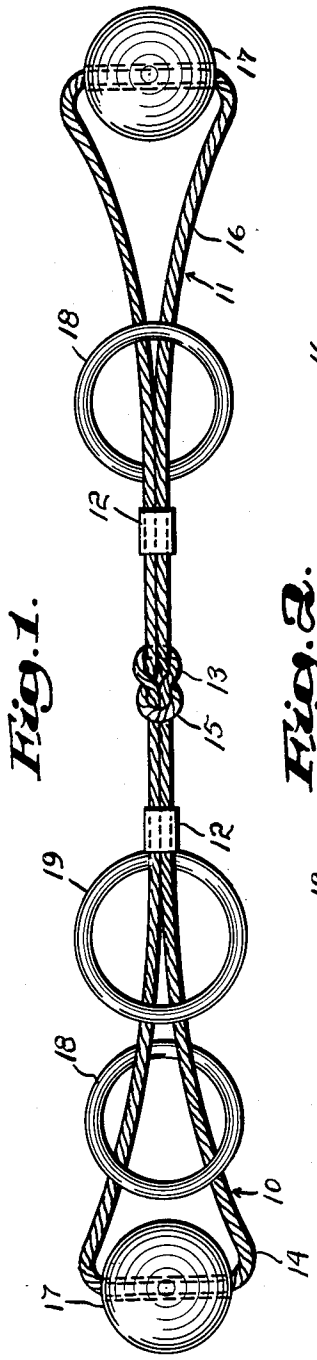


Fig. 1.

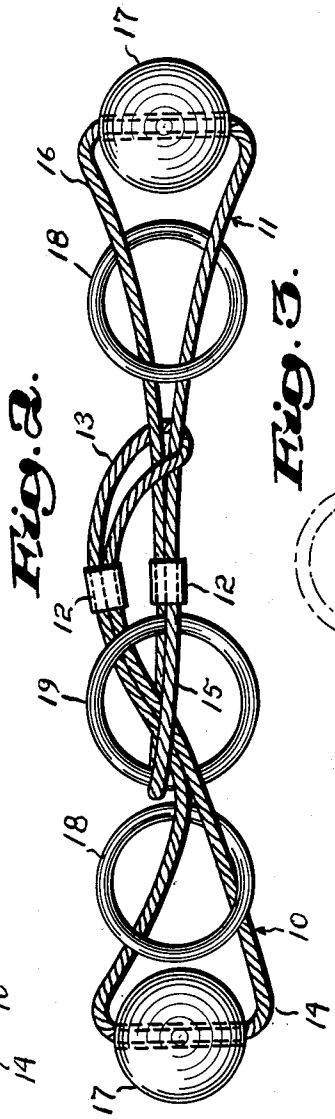


Fig. 2.

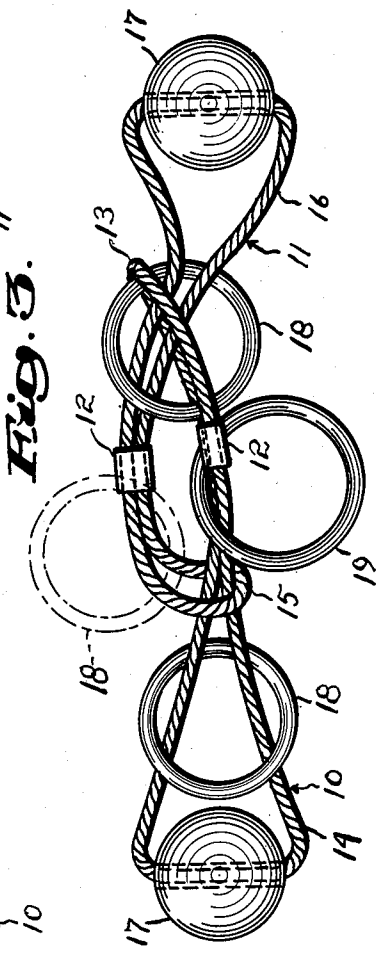


Fig. 3.

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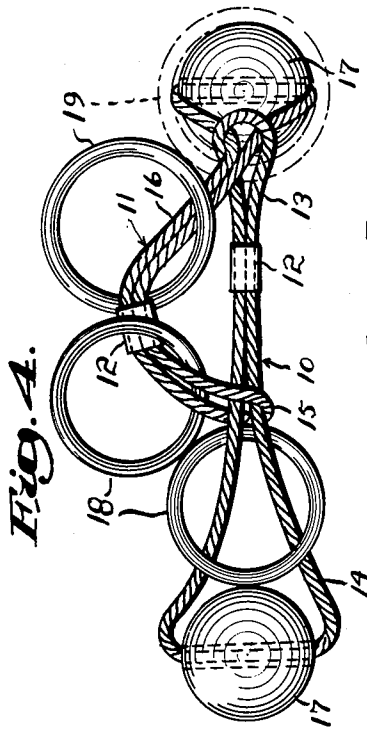


Fig. 4.

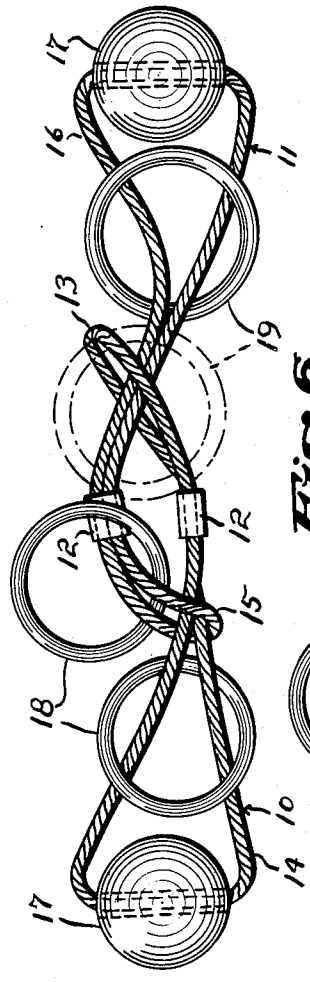


Fig. 5.

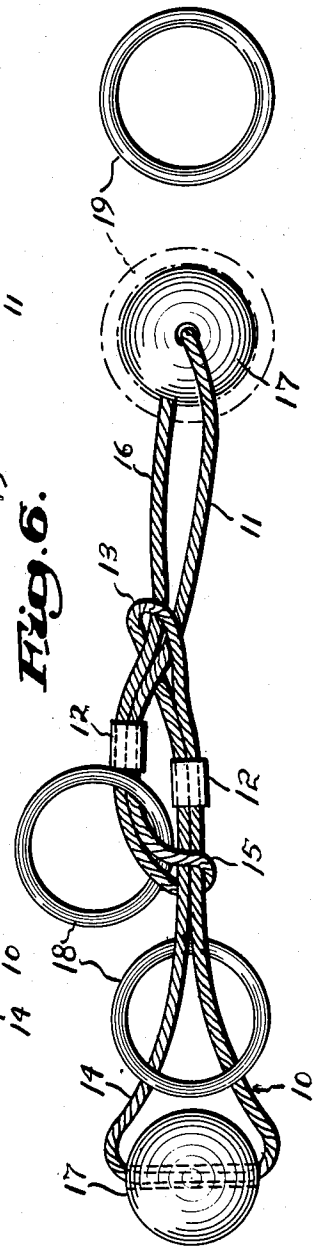


Fig. 6.

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United States Patent Office

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PUZZLE

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Application August 20, 1953, Serial No. 375,541

3 Claims. (Cl. 273—159)

This invention relates to a puzzle of the type whose solution involves the removal of a part that is seemingly impossible to free.

Mechanical puzzles have the advantage over printed puzzles in that they can be used repeatedly as even if a person knows the solution, there is real interest in seeing others work out the problem. This advantage is offset to a considerable extent by production costs of mechanical puzzles. There is, accordingly, a real demand for mechanical puzzles combining low cost with an intriguing solution. The principal objective of this invention is to provide puzzles to meet that demand.

In accordance with the invention, there is provided a pair of flexible strands each of which includes a loop. Each loop encircles the other and extends therethrough so that the strands may be drawn tightly together or loosened. Each strand carries a member whose dimensions are such that it cannot be passed through the loops. Between these members there are a pair of rings slidably supported by the strands. While the outside dimensions of these rings is such that the rings may be passed through the loops, they will not pass over the members. Between these rings and slidable along the strands is a third ring dimensioned to pass through the loops and over the members and to prevent either of the pair of rings from being passed therethrough.

In the accompanying drawings, there is shown an illustrative embodiment of the invention from which these and other of its objectives, novel features and advantages will be readily apparent.

In the drawings:

Fig. 1 is a view in elevation of the puzzle with its loops drawn tightly together;

Fig. 2 is a similar view but with the loops loosened and showing the first step;

Fig. 3 is a like view showing the second step;

Fig. 4 is a corresponding view illustrating the completion of the third step, and

Figs. 5 and 6 are similar views showing the final step in the solution of the puzzle.

The puzzle is shown as including a pair of flexible elements, generally indicated at **10** and **11**. Each such element may conveniently comprise a length of cord whose ends are locked together against an intermediate part thereof as by a connector **12**. The element **10** thus establishes a pair of loops **13** and **14** and the element **11** consists of similar loops **15** and **16**.

Each of the loops **13** and **15** encircle the other and passes therethrough so that the elements **10** and **11** may be extended with the loops **13** and **15** tightly engaged as shown in Fig. 1 or moved relative to each other to loosen them as shown in the other views.

Each of the loops **14** and **16** slidably supports a ball **17** whose outside diameter is such that it cannot be passed through either the loop **13** or the loop **15**. Slidable from end to end of the elements are a pair of identical rings **18** whose inside diameter is less than the diameter of the balls and whose outside diameter is such that said rings may be passed through either the loop **13** or the loop **15**. Between the rings **18** and slidable along the elements is a ring **19** whose outside diameter is such that it may be passed through either the loop **13** or the loop **15** and whose inside diameter is such that it may be passed over either of the balls **17** but will not pass over either ring **18**.

The position of the parts of the puzzle when it is to be solved, by removing the ring **19**, is shown in Fig. 1. The first step in the solution of the puzzle is to move the members **10** and **11** to loosen the loops **13** and **15** as shown in Fig. 2. The ring **19** is then passed through either the loop **13** or the loop **15**, say the loop **15**, so that it is supported by only the member **10** as shown in Fig. 3. The ring **18** that is on the member **11**, is then passed through the loop **13**.

At this point, as shown in Fig. 4, the ring **19** is passed over the ball **17**, which now is not blocked by a ring **18**, so that the ring **19** is now transferred to the member **11**, and is proximate to a ball **17** so that by passing it through the loop **13**, it may be freed by passing it over that ball as will be apparent from Figs. 5 and 6. It will be apparent that a like sequence of steps is required if the ring **19** is initially passed through the loop **13**.

It will thus be apparent that the invention provides a puzzle that combines simplicity of construction, economy of production with an interesting solution.

What I therefore claim and desire to secure by Letters Patent is:

1. A puzzle comprising a pair of flexible strands, means locking the ends of each strand together against an intermediate part thereof to establish first and second loops, each first loop encircling the other first loop and extending therethrough thus to connect them and enable them to be drawn tightly together and loosened, a ball carried by each second loop whose diameter is such that it cannot be passed through a first loop, and a pair of rings carried by said interconnected strands to be slid from end to end thereof, the outside diameter of each of said rings being such that it will pass through either first loop, and its inside diameter being less than that of said balls, and a ring between said pair of rings and slidable from end to end of said interconnected strands, the inside diameter of said last named ring being such as to enable said ball but not said pair of rings to pass therethrough, said rings being located between said balls.

2. A puzzle comprising a pair of flexible strands, means locking the ends of each strand together against an intermediate part thereof to establish first and second loops, each first loop encircling the other first loop and extending therethrough thus to connect them and enable them to be drawn tightly together and loosened, a member carried by each second loop, each member being of a circular section, whose diameter is such that it cannot be passed through a first loop, and a pair of rings carried by said interconnected strands to be slid from end to end thereof, the outside diameter of each of said rings being such that it will pass through either first loop, and its inside diameter being less than that of said section, and a ring between said pair of rings and slidable from end to end of said interconnected strands, the inside diameter of said last named ring being such as to enable said member but not said pair of rings to pass therethrough, said rings being located between said balls.

3. A puzzle comprising a pair of flexible strands, each including a loop, each loop encircling the other loop and extending therethrough thus to connect them and enable them to be drawn tightly together and loosened, a pair of first members, one carried by each strand, a second pair of members slidable on each loop, and a ring normally spacing one member of each pair on op-

posite sides thereof, said ring being slidable from end-to-end of said interconnected strands, the members of one pair being balls dimensioned to pass through the ring but not through a loop, and the members of the other pair being rings whose outside diameter is such that they may pass through a loop but may not pass through said first named ring but whose inside diameter is less than the diameter of the balls.

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