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1,635,022

J. S. ALLEN

PUZZLE

Filed Jan. 25, 1927

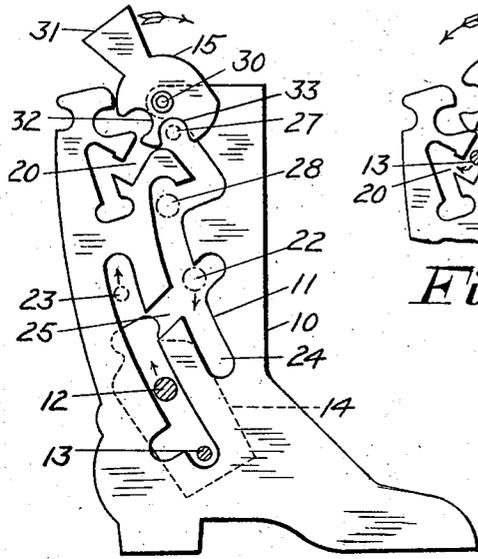


Fig. 1

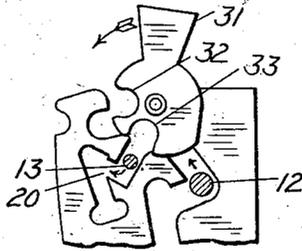


Fig. 5

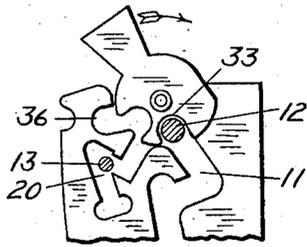


Fig. 6



Fig. 7 Fig. 3

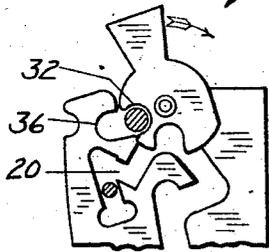


Fig. 8

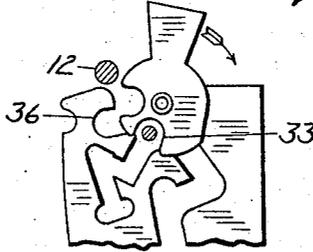


Fig. 9

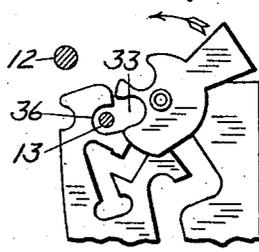


Fig. 10

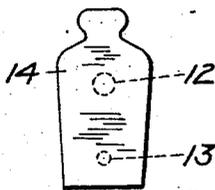


Fig. 2

WITNESS
A. G. Blodgett

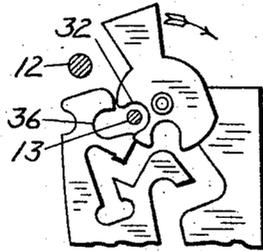


Fig. 11

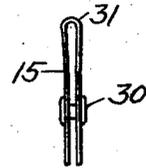


Fig. 4

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PUZZLE.

Application filed January 25, 1927. Serial No. 163,532.

This invention relates to puzzles and more particularly to one of that type which comprises two parts required to be separated from each other.

5 It is the primary object of this invention to provide a puzzle device which may be easily and economically manufactured and which involves such ingenuity in its arrangement of parts and construction that any one
10 attempting to solve the puzzle will be entertained and interested for a considerable length of time.

With this and other objects in view as will be apparent to one skilled in the art, my invention resides in the combination of parts
15 set forth in the specification and covered by the claims appended thereto.

In accordance with my invention, one form of the puzzle comprises a plate having a
20 grooved or perforated track arranged to form tortuous passages within which are located two pins of the rider to be removed from the plate. It is preferred that these pins be made of different sizes and that certain
25 portions of the tortuous passage be so constricted that only the narrower pin may pass therethrough. In order to render the puzzle more difficult, the body of the rider is made of sufficient size so that the worker
30 of the puzzle cannot readily see the pins. The tortuous passage opens at one end of the plate, but this exit is closed by a swinging gate provided with grooves arranged to cooperate with portions of the passage when
35 in certain positions and thus make it possible for one to remove the pins successively from the channel passage to the outside of the plate, provided the rider is moved in a certain manner for this purpose.

40 Referring more particularly to the drawings, I have there shown the puzzle in the form of a boot in which the gate is positioned to suggest the boot strap and the rider which is to be removed from the boot
45 is in the form of a bottle.

In these drawings, in which like numerals indicate like parts;

50 Fig. 1 is a vertical elevation of the puzzle plate, with the pins of the rider shown in cross section;

Fig. 2 is a vertical elevation of the rider;

Fig. 3 is an end elevation of the rider;

Fig. 4 is a detail showing the gate in elevation; and

55 Figs. 5 to 11 inclusive are fragmentary

details showing the manner of removing the rider from the carrying plate.

The puzzle, in the form illustrated in the drawings, comprises a plate 10 shaped in the form of a boot having a tortuous passage
60 11 cut therethrough in which ride the pins 12 and 13 of the rider 14 which is shaped like a bottle. The tortuous passage 11 opens at the upper end of the boot but the opening is obstructed by a pivotally mounted
65 gate 15 which is so shaped and arranged that when the pins 12 and 13 are in proper positions they may be removed one at a time from the passage 11 to the exterior of
70 the plate.

The rider 14 is made of two side plates fastened together by the pins 12 and 13 as clearly shown in Figs. 2 and 3, and these side plates are preferably large in size, so
75 that the pins are quite well concealed between the two sides and their travel in the tortuous passage 11 cannot be seen easily. As will be observed, the pin 12 is made larger than the pin 13 and there are certain portions in the passage 11 which are constricted
80 so that the pin 12 cannot pass therethrough. It is therefore necessary that the rider be so turned and twisted in its passage from the lower end of the boot, as shown in Fig. 1,
85 to the top of the boot that the small pin 13 will pass through the narrower places, leaving the larger pin free to move outwardly through the gate.

The shape of the passage and the relations of the various parts will be readily apparent from the disclosure in the drawings and need not be described in detail except in so far as it is required for an understanding of the operation of the device. Assuming the rider to be located in the bottom of
90 the tortuous passage, as shown in Fig. 1 in dotted outline, it will be found that the bottle can not be moved upwardly when right side up because the larger pin cannot pass into the narrow portion 20 of the passage
100 11, as is necessary in order that the other pin may be removed through the gate. Therefore by turning the bottle over as permitted by the H-shaped portion of the passage at the bottom of the boot, the rider may
105 then be reversed to an upside down position by moving the pins 12 and 13 to the positions 22 and 23, shown in Fig. 1, and there revolved in the directions indicated by the small arrows, the larger pin going down in
110

to the portion 24 of the slot 11 and the smaller pin passing through the crossover 25, forming the bar of the H-shaped passage. Then the rider may be moved upwardly until the pins 13 and 12 have assumed the positions 27 and 28 (Fig. 1).

The gate 15 may be made of a single piece of metal bent as shown in Fig. 4 and pivotally fastened by means of the pin 30 to the upper portion of the boot as illustrated in the drawings. The upper portion 31 of the gate forms a handle which serves to move the gate and the lower portion has the two slots 32 and 33 so located and of such size that they may carry the larger pin entirely within the periphery of the gate.

If the gate is positioned as shown in Fig. 1, the small pin may be moved into the recess or slot 33 with a large pin located as shown in the position 28. Then upon revolving the gate in the direction of the arrow, the small pin is moved to the position shown in Fig. 5 and the large pin moved upwardly as there illustrated. The pin 13 is so narrow that it can pass readily through the constricted passage 20, and it may be moved into the position shown in Fig. 6 to permit the pin 12 to pass into the slot 33 of the gate. Upon rotating the gate in the direction shown by the arrow in Fig. 6 the pin 12 will now be moved into the slot 36 in the side of the passage 11 and the pin 13 will move downwardly in the passage 20, the new positions of the pins being as shown in Fig. 7. Then by moving the gate back in the direction shown by the arrow in Fig. 7 the slot 32 in the gate will be located opposite the pin 12, as shown in Fig. 8, and upon again moving the gate in the direction shown by the arrow in Fig. 8, the pin 12 will be moved through the exit opening of the tortuous passage to the outside of the boot, as illustrated in Fig. 9, and the little pin will have been brought up into position ready to enter the slot 33 of the gate.

Then upon moving the little pin into the slot 36 as shown in Fig. 10 and again moving the gate backwards in the manner indicated in Fig. 11, the pin 13 may be removed from the plate 10. These operations will obviously be reversed when the rider is to be put back onto the plate.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A puzzle comprising a plate having a tortuous passage provided with a constricted portion, a rider having pins of different sizes, one of which will and another which will not pass through the constricted portion, and a swinging gate having a recess arranged to cooperate with an enlarged portion of the passage which is so constructed that a pin of the rider may engage therein and be swung to a position outside of the gate, said parts being so arranged that the smaller pin must pass into the constricted portion of the passage before the other pin can be carried outwardly by the gate.

2. A puzzle comprising a thin plate having a tortuous passage which has an exit to the outside of the plate at one edge thereof, one portion of the channel adjacent the exit being constricted, a rider having two pins, one larger in diameter than the other, arranged to travel along said passage, except that the larger pin is unable to pass through the constricted portion, and a gate hinged to the plate and closing the exit of the passage and the entrance to the constricted portion and which has a slot so arranged relative to the constricted and wide portions of the passage that the smaller pin may pass to the constricted portion and each pin may be passed successively through the exit of the passage upon proper manipulation of the rider and gate.

Signed at Worcester, Mass., this 21st day of January, 1927.

JOHN S. ALLEN.