(No Model.)

J. E. STANNARD.

PUZZLE.

No. 591,146. Patented Oct. 5, 1897.

Fig. 1.

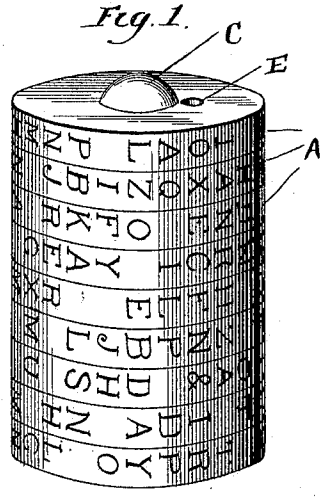


Fig. 2.

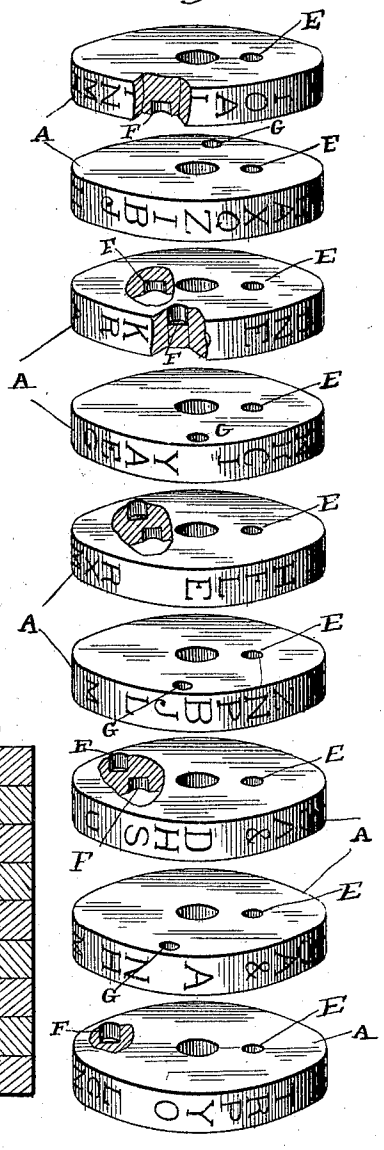


Fig. 3.

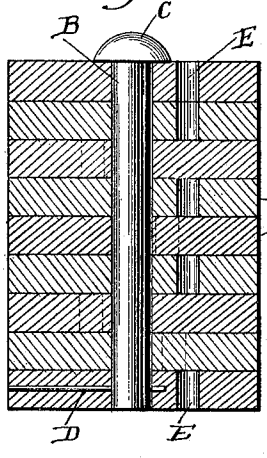
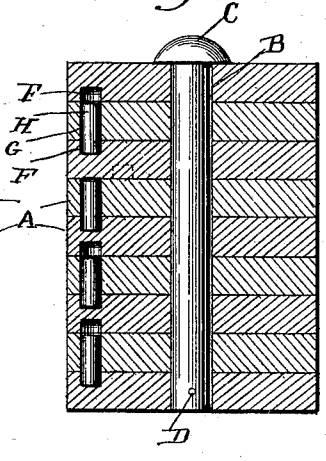


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PUZZLE.

SPECIFICATION forming part of Letters Patent No. 591,146, dated October 5, 1897.

Application filed February 1, 1897. Serial No. 621,433. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. STANNARD, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a certain Improvement in Puzzles, of which the following is a specification.

My invention relates to a new, amusing, and instructive puzzle, and has for its object to produce a simple and cheap device which may be utilized both as a puzzle and as an educational device and which when once solved will be as difficult of re-solution as though it had not been solved.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective of one embodiment of my invention; Fig. 2, a detail perspective of the several disks from which the puzzle is composed dismembered, so as to illustrate the position of the holes therein, portions of these disks being broken away to better accomplish this result; Fig. 3, a central longitudinal section of the puzzle, and Fig. 4 a similar view taken at an angle which includes the locking-pins.

In carrying out my invention as here shown I provide a series of disks A, which are arranged concentrically upon a spindle B, having a head C upon one end and a pin D passed through one of the end disks and into this spindle, so as to secure the several parts of the device together. Through these disks are formed the holes E, which are so located that they may register by a proper manipulation of the disks. A hole G is formed through every alternate disk, and as there are an uneven number of these disks the two end disks do not have these holes formed therein, and within each of the holes G is fitted a pin H of greater length than the thickness of the disk, so that one end of each of said pins projects within one of the depressions F, the latter being formed in each of the disks which have not the holes G formed therein. When the hole G and a depression F in either of the disks register, the holes E in said disks do not register. Thus it will be seen that the disks will at all times be locked into pairs or triplets, and when so locked a ball may not pass directly through the holes E from one end of the device to the other.

Now the object of the puzzle is to place a small ball or shot in a hole in one of the outer disks and then by manipulating the disks to cause said ball to pass through the entire series thereof and emerge from the opposite end of the device; but since the position of the holes E within the disks cannot be determined by the eye and the ball must be passed from one disk to the other by bringing these holes in alinement, and as these holes cannot be brought into alinement so long as the pins H lock in two or in three of the disks together, it follows that patience and judgment must be exercised in accomplishing the successive unlocking of the disks and the bringing of the holes E one by one into alinement and permitting the ball to pass step by step from one disk to another until finally emerging from one end of the device, and after it has once been accomplished it will be as difficult of reaccomplishment as in the first instance.

In solving the puzzle a ball is placed in the hole E in one of the disks and this hole brought into alinement with the corresponding hole in the next disk by holding the puzzle in such a position as to cause the first pin H to drop from the depression F in the end disk to the depression in the third disk from the end and then turning the end disk so as to prevent the ball from escaping through the hole E therein, then reversing the position of the puzzle and so manipulating the end disk as to cause the pin H to drop from the depression in the third disk from the end to the depression in the end disk, then manipulating the third disk until the hole E therein is in alinement with the hole E of the second disk, and again reversing the position of the puzzle so as to cause the ball to pass from the second disk to the third disk, and these

operations are continued until the ball has traveled throughout the length of the puzzle, which is obviously a very difficult task to perform, requiring the exercise of much patience and judgment, and after having been once solved the solution of the puzzle will be as difficult of reaccomplishment as in the first instance.

When the puzzle is not in use, the ball may be left in one of the holes E and the latter turned out of alinement with the remaining holes E for storing the ball within the puzzle, and one solution of said puzzle may be the withdrawal of the ball from the puzzle after it has thus been stored.

As a further means of complicating the puzzle a hole G may be formed through each of the disks and a second series of pins H set therein, while depressions which correspond to the depressions F may be formed at each end of the pins in the disks lying next adjacent thereto, so as to make a compound locking device, if desired. The peripheries of the disks may be divided into spaces, in which are placed letters, figures, or other arbitrary characters, so that a variety of combinations may be made therefrom—such as words, composite numbers, or the like—from which it will be seen that the puzzle may be utilized for educational puposes, such as teaching children their letters and the formation of words from said letters, and a further use these characters may have is to determine the position of the holes E.

A puzzle of this description may be made at an exceedingly small cost, since the disks may be sawed from a round piece of wood which has previously been bored, so that it will only be necessary to pass the spindle therethrough and secure them upon said spindle to complete the device.

Having thus fully described this invention, what I claim as new and useful is—

1. A puzzle, consisting of a series of disks, journaled concentric upon a spindle, said disks having holes therethrough, and means for locking the disks together in pairs, substantially as and for the purpose set forth.

2. A puzzle, consisting of a series of disks, a spindle upon which said disks are journaled, means for securing said disks upon the spindle, said disks having the holes E formed therethrough and each alternate disk a hole G formed therethrough, while the remaining disks have the depressions F formed therein, and pins H fitted in the holes G and adapted to lock the disks together in pairs, substantially as and for the purpose set forth.

3. A puzzle, consisting of a series of disks, a spindle upon which said disks are journaled, means for securing said disks upon the spindle, said disks having the holes E formed therethrough and each alternate disk a hole G formed therethrough, while the remaining disks have the depressions F formed therein, pins H fitted in the holes G and adapted to lock the disks together in pairs, and a series of letters, numbers and arbitrary characters placed upon the peripheries of the disks, substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOHN E. STANNARD.

Witnesses:
S. S. WILLIAMSON,
JAMES L. BOWEN.