

No. 658,097.

Patented Sept. 18, 1900.

C. A. SMITH.
PUZZLE.

(Application filed Dec. 19, 1899.)

(No Model.)

Fig. 1.

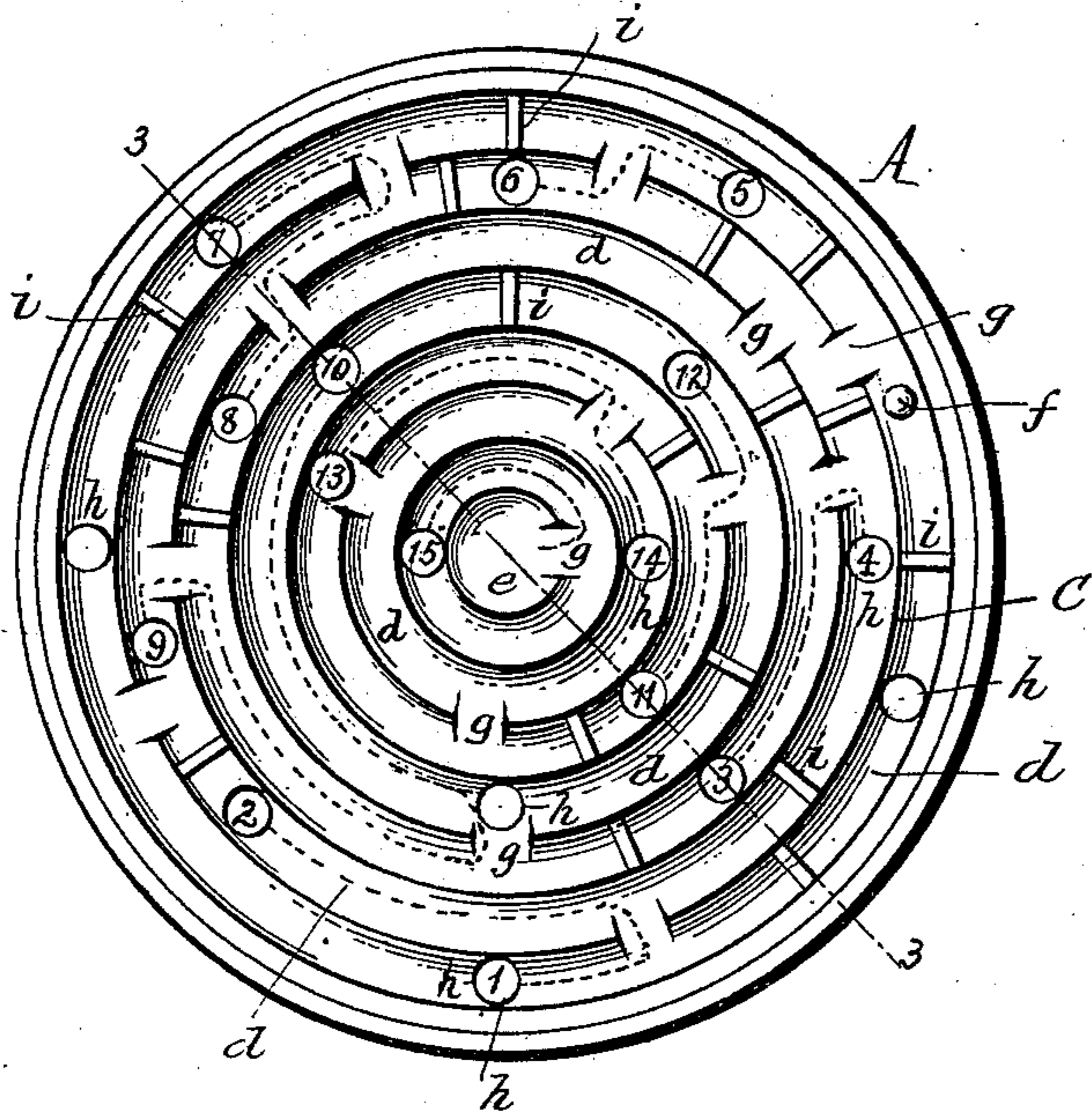


Fig. 2.

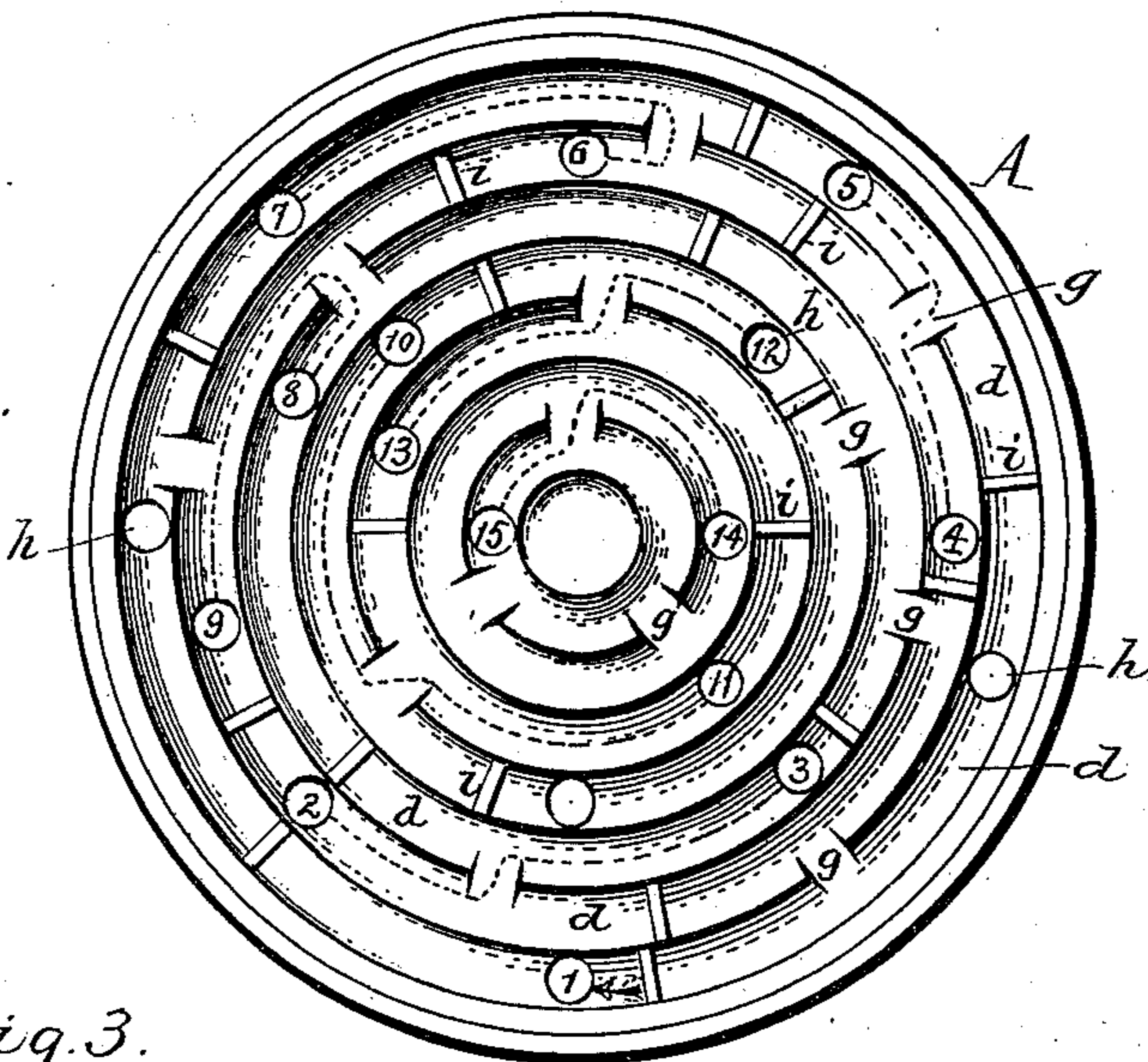
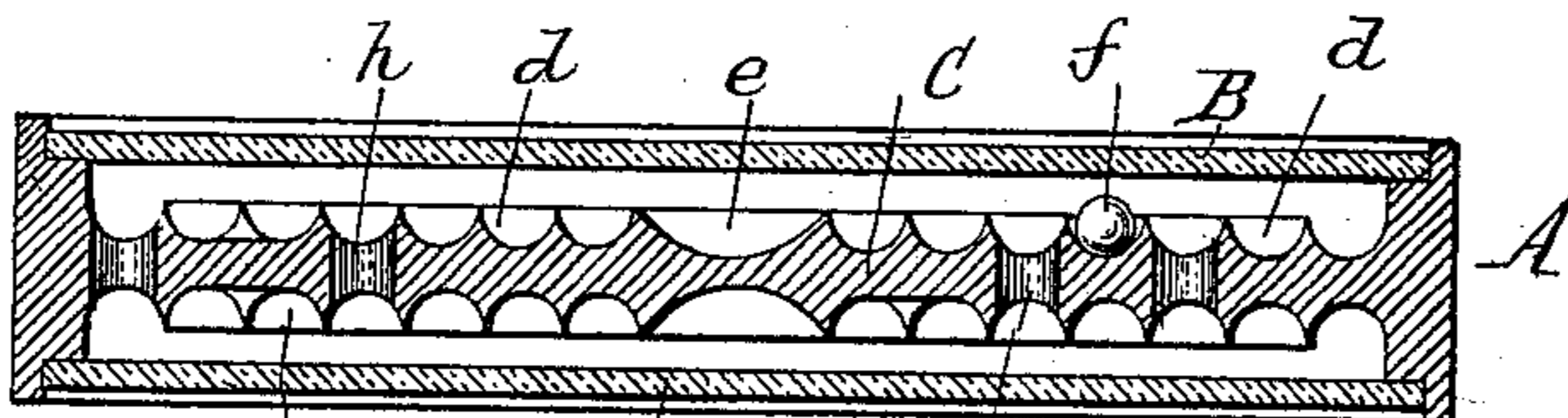


Fig. 3.



Witnesses:
F. F. Schuyler.
E. A. Volk.

Chas. A. Smith Inventor.
By Wilhelm Bonner. Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES A. SMITH, OF BUFFALO, NEW YORK.

PUZZLE.

SPECIFICATION forming part of Letters Patent No. 658,097, dated September 18, 1900.

Application filed December 19, 1899. Serial No. 740,871. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SMITH, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Puzzles, of which the following is a specification.

This invention relates to puzzles which comprise a box or board having a labyrinthian channel or passage and a ball which is arranged in the channel and is rolled along the same toward the terminus of the labyrinth by adroitly manipulating the puzzle-box.

The object of my invention is the production of an intricate and amusing puzzle of this kind.

In the accompanying drawings, Figures 1 and 2 are plan views of opposite sides of the puzzle-box. Fig. 3 is a cross-section thereof in line 3 3, Fig. 1.

Like letters of reference refer to like parts in the several figures.

The puzzle consists of a shallow box or case A, preferably of circular form, having heads or covers B B, of glass or other transparent material. This box contains a central diaphragm C, which is arranged parallel with the heads B and divides the box into two similar chambers or compartments. This diaphragm is provided in both sides with irregular grooves or channels *d*, which lead from the periphery of the box toward a pocket or terminus *e*, arranged centrally in the diaphragm and in which one or more balls or shot *f* are placed. The channel on each side of the diaphragm consists of a series of grooves or passages arranged concentrically or one within another, and the adjacent grooves communicate with each other by transverse gates or passages *g*, located at suitable intervals in the walls which separate the grooves and arranged in such manner that the gates of adjacent grooves are out of line, as shown in Figs. 1 and 2. The corresponding grooves on opposite sides of the diaphragm communicate with each other at suitable intervals by apertures *h*, which extend through the diaphragm and through which the ball *f* is adapted to pass from one side of the diaphragm to the other. Each series of grooves on the same side of the diaphragm forms one-half of the complete labyrinthian

channel, and the grooves and connecting-apertures *h* of the two series are so arranged that the ball must be transferred from one side of the diaphragm to the other in order to roll the same into the terminal pocket *e* and so solve the puzzle.

The transparent covers B are arranged at such a distance from the bottom of the grooves *d* that they confine the ball *f* in the grooves and prevent the same from rolling over the walls between the same. In other words, the ball is of such a diameter that it is free to roll in the grooves, but is so large that it cannot pass laterally through the space between the walls of the grooves and the transparent covers. *i* indicates stops, partitions, or abutments extending across the channels *d* at suitable intervals, so as to prevent the ball from being rolled from one groove to the next on the same side of the diaphragm. These partitions may be placed as shown in the drawings or in other situations, and the partitions and the apertures *h* may be increased or reduced in number to render the solution of the puzzle more or less difficult.

In operating the puzzle the box is tilted so as to cause the ball *f* to roll toward the aperture *h* immediately in front of the ball and drop through the same. The ball now rests upon the cover B, which for the time being forms the bottom of the box, and lies in the groove directly opposite that which it occupied before dropping through said aperture. The box is now slightly tilted and at the same time quickly reversed, whereby the ball is rolled out of line with said aperture and prevented from falling back through the same. The box is again tilted to cause the ball to roll toward and drop through the aperture *h* in advance of it, after which the box is again reversed and tilted to direct it toward the next aperture, the ball being in this manner rolled from one groove to the next and transferred until it is finally deposited in the terminal pocket *e*. In Figs. 1 and 2 the dotted lines and the reference-numerals indicate the course over which the ball must be rolled in order to reach the terminal pocket *e*, the corresponding apertures *h* of said figures being numbered alike to enable the course of the ball from one side of the diaphragm to the

other to be readily traced. When the ball arrives at an aperture which stands in front of one of the gates *g*, the box must be inverted and the ball rolled upon the transparent cover which temporarily forms the bottom of the box in order to allow the ball to enter said gate.

While I prefer to employ a circular puzzle-box and circular grooves or channels for the ball *f*, the box may be made of any other suitable form without departing from my invention. For instance, the box may be square or oblong, in which case the channels are arranged parallel with the sides of the box.

I claim as my invention—

1. A puzzle comprising a box having heads or covers both of which are transparent, a diaphragm dividing the box into separate compartments and provided in both sides with irregular channels, and with transverse apertures which connect the corresponding channels on opposite sides of the diaphragm, the two sets of channels and their connecting-

apertures forming together a labyrinthian course which leads to a pocket or terminus, and one or more balls adapted to traverse said channels and apertures, substantially as set forth.

2. A puzzle comprising a box having transparent heads or covers, a diaphragm arranged parallel with said heads and dividing the box into separate compartments, and provided in both sides thereof with irregular channels; and apertures extending transversely through said diaphragm and connecting the corresponding channels on opposite sides of the diaphragm, stops or partitions arranged in said channels between said apertures, and one or more balls adapted to traverse said channels and apertures, substantially as set forth.

Witness my hand this 14th day of December, 1899.

CHARLES A. SMITH.

Witnesses:

JNO. J. BONNER,

CLAUDIA M. BENTLEY.