

No. 617,549.

Patented Jan. 10, 1899.

F. A. WORDEN.
PUZZLE.

(Application filed Dec. 22, 1897.)

(No Model.)

Fig. 1.

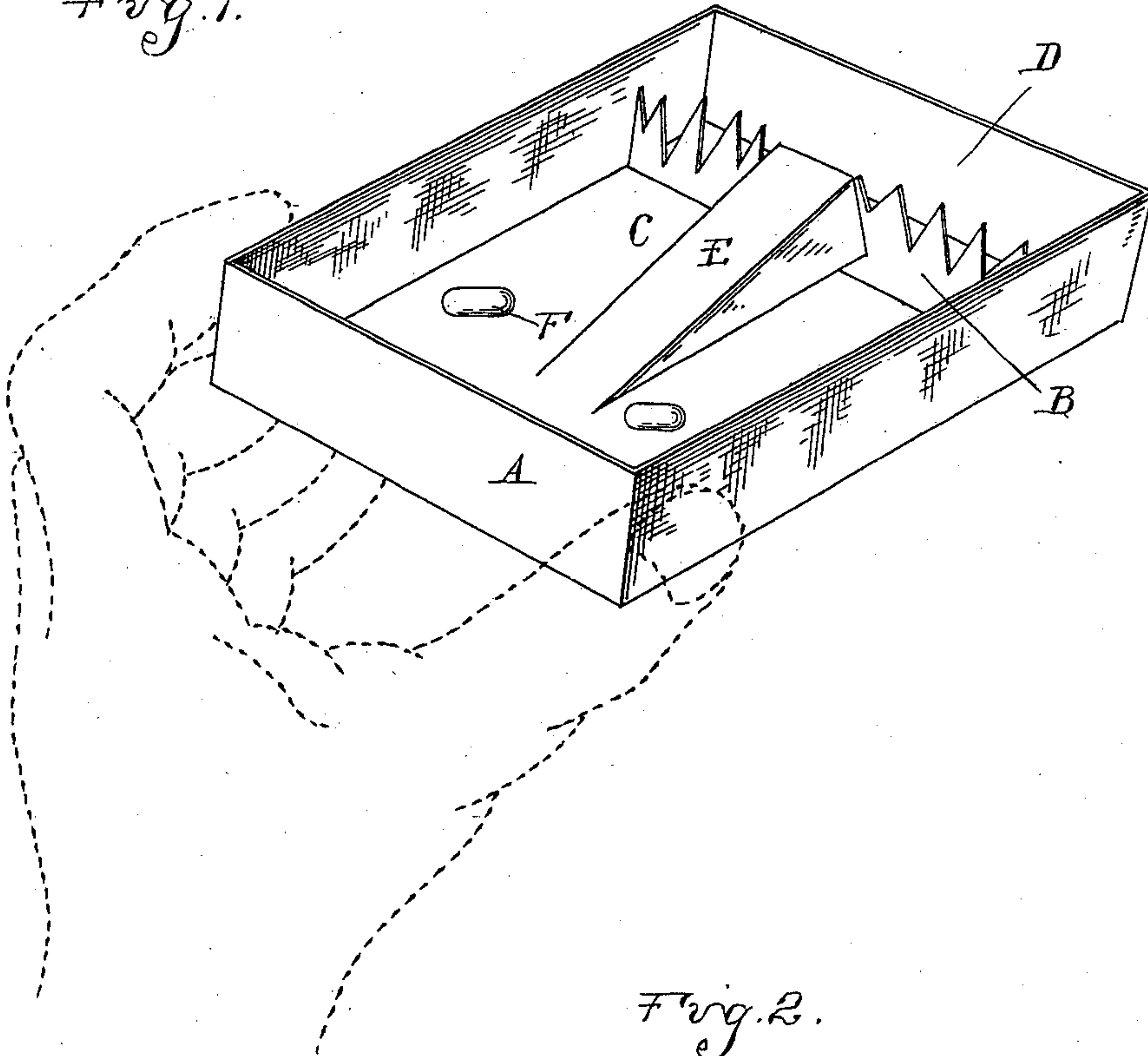


Fig. 2.

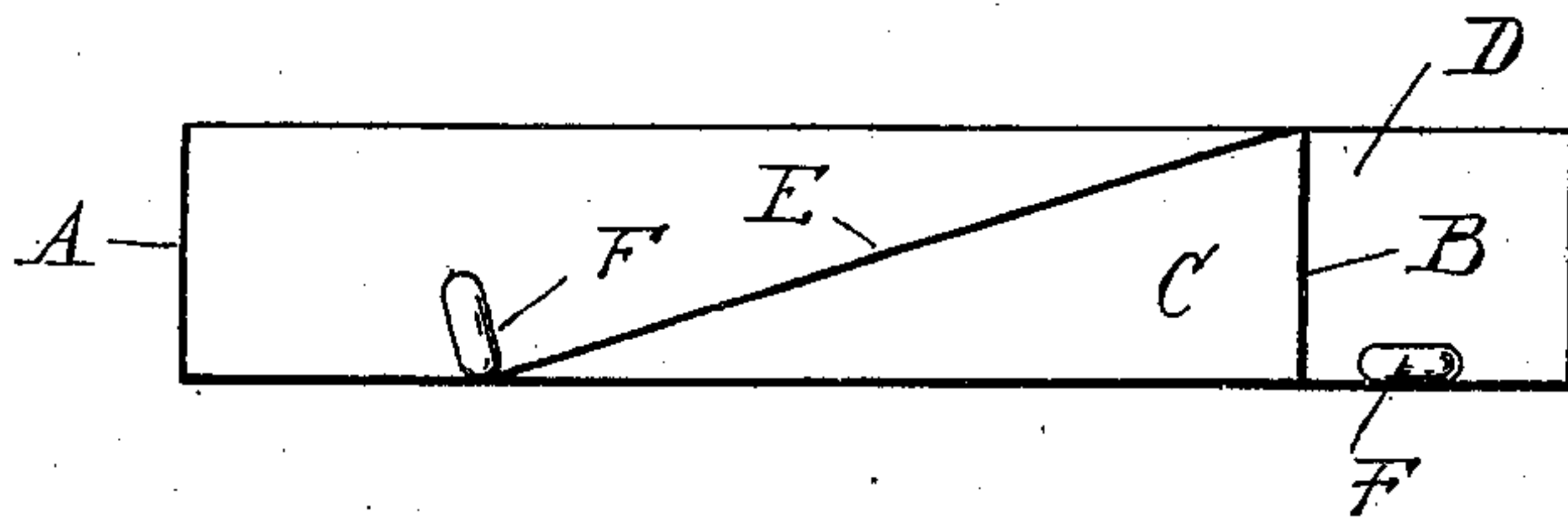
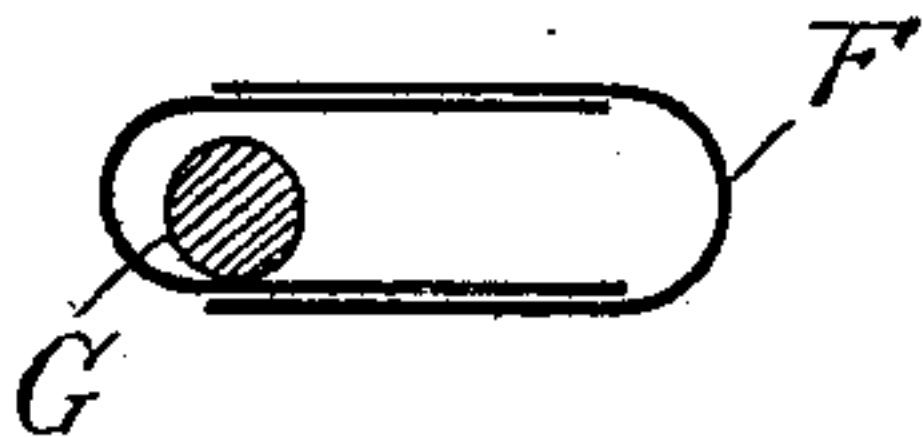


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK A. WORDEN, OF YPSILANTI, MICHIGAN.

PUZZLE.

SPECIFICATION forming part of Letters Patent No. 617,549, dated January 10, 1899.

Application filed December 22, 1897. Serial No. 663,080. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. WORDEN, a citizen of the United States, residing at Ypsilanti, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Puzzles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention is designed to amuse by a ludicrous illustration of the difficulties of climbing a pass.

To this end the invention consists in a small roller-shaped body which is adapted to have a very erratic movement and by reason thereof makes it a puzzling performance to roll it over the pass, all as more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a perspective view of my puzzle. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is an enlarged longitudinal section of the roller-shaped body.

A is a box, B is a partition dividing the same into two compartments C D, and E is a narrow incline leading up from the bottom of the compartment C to the top of the partition B.

F is a hollow roller-shaped body formed with rounded ends and inclosing a metallic ball G, free to roll from end to end therein. The preferable way in which I construct this body is by inclosing a suitably large shot in what is known as a "gelatin capsule."

In practice the operator, holding the box with one hand, places the body F in the compartment C and tries by skilful manipulation of the box to cause the body to travel over the incline or pass E and fall into the compartment D.

The operator will soon find out that this apparently simple proposition is a puzzle on account of the erratic movement of the body. This, owing to the outer configuration, should be that of any cylindrical body rolling on a flat surface; but as the loose ball or shot inside is free to move endwise at the slightest disturbance of the center of gravity it may all of a sudden change from a rolling motion into a sort of tumbling motion, end over end, comparable to the step-by-step motion of a person walking. When it thus changes its style of motion, it also changes abruptly the direction, and the constant efforts of the operator to control its movement by manipulating the box will be generally misdirected and

cause the body to walk or roll alternately in the most unlooked-for direction and render the solution—that of causing the body to walk over the pass E—a most puzzling one and one which is not only amusing, but also instructive at the same time, as it deals with a complicated problem of the law of gravity, the proper understanding of which will materially assist in the solution of the puzzle.

The use of a gelatin capsule (or, more properly speaking, two joined together, as in the usual manner) for the body is of particular adaptation for the purpose, as the inside thereof forms such a hard and polished surface for the inclosed shot that the latter moves with the greatest ease, and the walls being so very thin and light it allows the center of gravity to be placed so near the ends that, in conjunction with the rounding ends, the body has a facility to walk—i. e., tumble—equal to the facility with which it will roll, and thus the particular movement which the body will execute is difficult to be foreseen or controlled. In forming the body F suitably small a drop of mercury may be used in lieu of the small shot.

My invention, aside from its nature as a puzzle, forms an amusing toy. To this end I preferably provide several bodies, as F, in a suitable box, and the way in which these bodies will roll and tumble if the operator keeps them in motion in the box forms for itself amusement.

The appearance of the toy may be further enhanced by constructing the box to simulate two valleys C D, divided by a range of mountains B, over which leads a suitable pass, as E, adapted for the passage of miners F in the manner above described.

What I claim as my invention is—

In a game apparatus, the combination of a box, a dividing-partition therein, an incline leading to the top of the partition, and an object adapted to be rolled upon the incline, comprising a cylindrical shell closed at both ends by hemispherical walls, and a weight inclosed and free to move therein, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK A. WORDEN.

Witnesses:

ELMER C. ALLEN,
ALLEN BAYLEY.