No. 753,266. PATENTED MAR. 1, 1904.

# O. L. HUBBARD.

## PUZZLE.

APPLICATION FILED APR. 21, 1902.

NO MODEL.

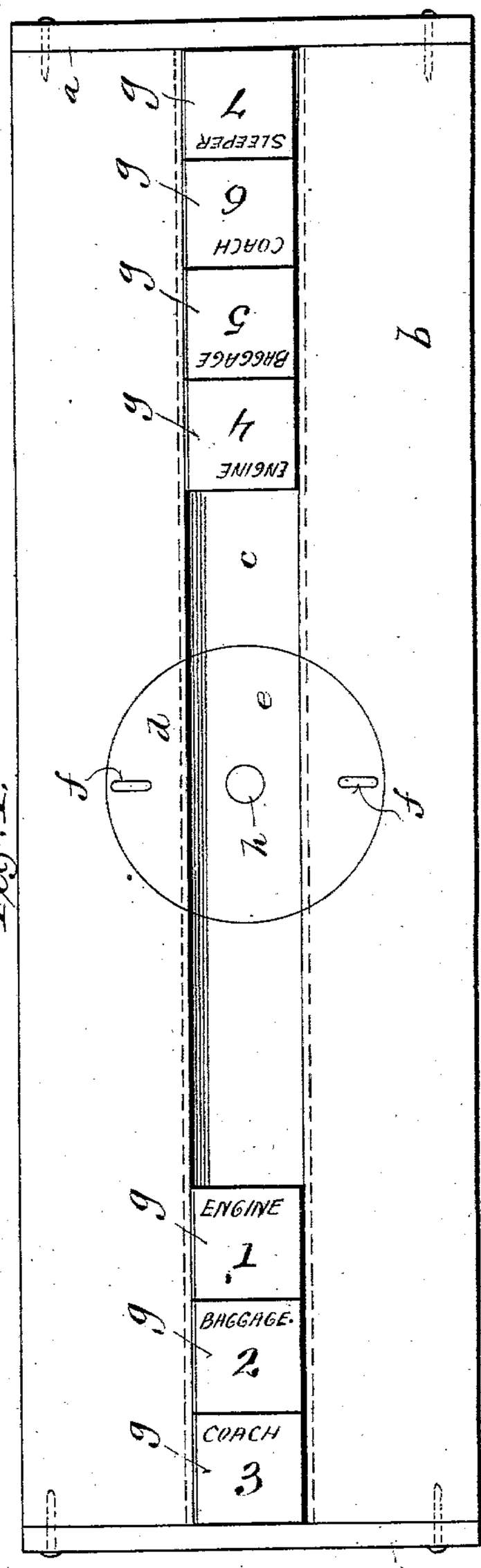


Fig. 1.

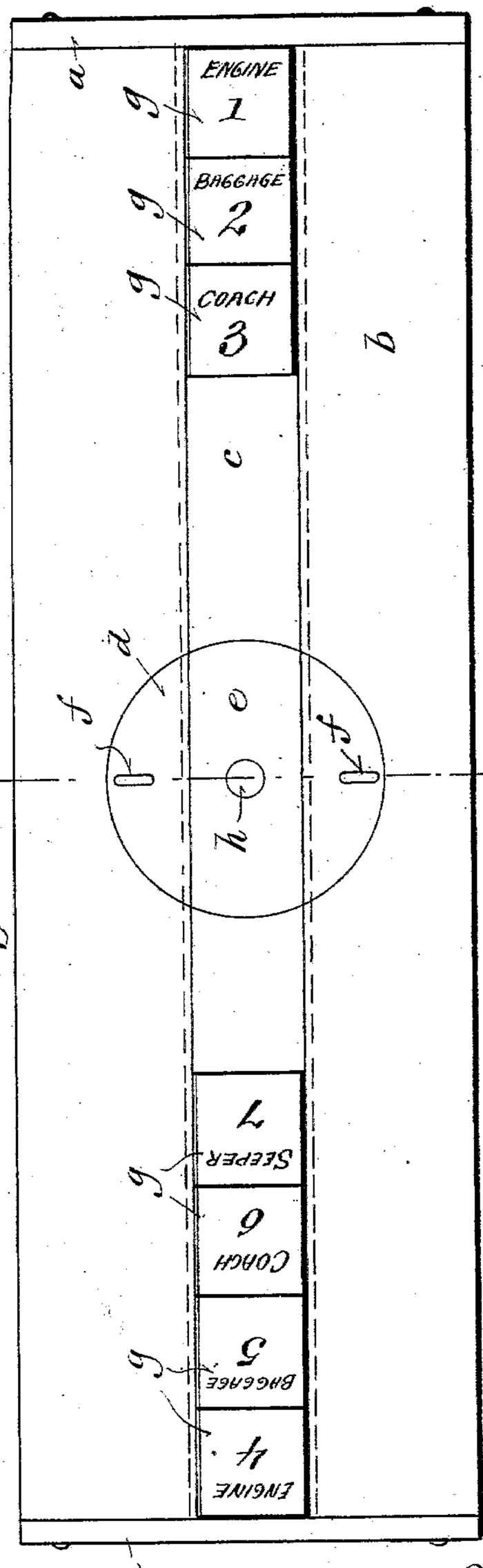


Fig. 2.

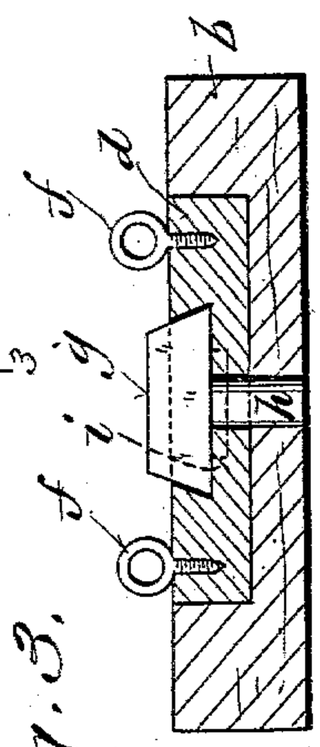


Fig. 3.

Witnesses
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No. 753,266. Patented March 1, 1904.

# UNITED STATES PATENT OFFICE.

ORRIL L. HUBBARD, OF WAUKESHA, WISCONSIN, ASSIGNOR OF ONE-HALF TO JOHN J. McMAHON, OF LAKE VILLA, ILLINOIS.

## PUZZLE.

SPECIFICATION forming part of Letters Patent No. 753,266, dated March 1, 1904.

Application filed April 21, 1902. Serial No. 103,870. (No model.)

*To all whom it may concern:*

Be it known that I, ORRIL L. HUBBARD, a citizen of the United States, and a resident of Waukesha, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Puzzles; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to that class of game apparatus which is designed for the working out of problems; and it consists in certain peculiarities of construction and combination of parts, as will be fully set forth hereinafter in connection with the accompanying drawings and subsequently claimed.

In the said drawings, Figure 1 is a plan view of my said apparatus with the sliding blocks set in the preferred position to present the problem for solution. Fig. 2 is a like view showing the position of said blocks when the problem has been solved. Fig. 3 is a transverse vertical sectional view through the game-board, taken on the line 3 3 of Fig. 2 and showing one of the sliding blocks.

My said apparatus is designed for the working out of various problems, that selected for illustration in the present case being the safe passage of two trains on a single track by the aid of a turn-table of just sufficient capacity to hold an engine and coach or two coaches at any one time.

Referring to the drawings, *b* represents a game-board having a longitudinal groove *c* with obliquely-undercut side walls extending from end to end thereof, the open ends of the grooves being closed by the end pieces *a a* of the board. At the center of the said board *b* the same is formed with a circular recess extending below the plane of the bottom of the groove *c* and formed with a straight annular wall for the reception of the turn-table *d*, which latter is formed with a groove *e* through the upper portion thereof corresponding exactly in depth, width, and inclination of its side walls with the described groove *c* in the board, so that when the turn-table is disposed as shown in the drawings the groove *c e c* is continuous from one end of the board to the other. To facilitate the turning of said turn-table *d*, the same is preferably supplied with an opposed pair of screw-eyes *f f*. Fitting within the described longitudinal groove *c e c* are two series of sliding blocks *g g*, all of equal size, having oblique side walls fitting against the oblique side walls of the groove, so that after the said blocks have been fitted to place within the groove (which is easily done by first lifting out the turn-table *e*) the said blocks cannot be lifted out of the groove, owing to the described side walls of said groove being undercut, as stated. In the preferred form of this device herein illustrated the turn-table is shown revoluble on a fixed central pivot *h*, which is of equal diameter throughout, so that the turn-table can be readily lifted out, as described, for placing the blocks within the groove; but in order to guard against the problem being fraudulently "worked" through such lifting out and to render the device incapable of being tampered with I construct the same in such cases with a head or flange *i* to the pivot *h*, as shown in dotted lines at *i* in Fig. 3, and in this style the blocks *g g* are pushed in from one end of the board before the end piece *a* on that end is secured to place.

The described blocks *g g* represent the individual members of two railroad-trains and are lettered and numbered to indicate this more clearly and to show that the problems are correctly solved. One train here represented is composed of engine 1, baggage-car 2, and coach 3, and the other train is made up with engine 4, baggage-car 5, coach 6, and sleeper 7. It will be understood that this is purely arbitrary and non-essential, save that the numerals are useful for indicating the order of the engine and cars or coaches in each train, and the direction in which the said numerals are placed indicates at a glance the front and rear end of each car or other part of the rolling-stock represented by the said blocks.

Similarly the precise number of blocks in each train is non-essential so long as there is only room on the turn-table for two of the blocks *g* at one time and only space between the turn-table and adjacent end of one of the trains for one block *g* and on the opposite side of the turn-table only space for two of said blocks *g* between the turn-table and the adjacent end of the other train.

As stated, various games may be played and various problems worked out with this apparatus; but to work out the particular problem hereinbefore referred to and to change the blocks from the position shown in Fig. 1 to those shown in Fig. 2 without removing any block from the groove *c e c* the operation is as follows, referring to the blocks *g g* simply by the numerals they bear: First, engines 1 and 4 are pushed on the turn-table *d* and latter turned half around. Next, push back 4 off table *d* and run back 1 to block 5 and draw same on table, which now holds 1 and 5, and turn the table half round. Next, push 5 off table and against 4, and then run 1 to 6 and draw both 1 and 6 on table and turn latter half round. Then push 6 off table and against 5 and run 1 back to 7 and draw both 1 and 7 on table and turn latter half round. Then engine 1 pulls 7, 6, and 5 across and past table to and within the just-emptied space in the groove on that end. Then engine 4 draws 2 on table, and the table holding 4 and 2 is turned half round. Next, run 4 down to 3 and pick up same and carry both to table, pushing 2 off table against 5 and leaving 4 and 3 on table and turning the table half round. Next, engine 4 pulls 3, 2, and 5 across table, leaving 2 and 5 on table, with 4 and 3 in the just-emptied space, and the table is turned half round. Then engine 4 pushes 2 off table and leaves 3 and 5 on the table, and the table is turned half round. Then engine 4 pushes back 5, 3, and 2 and picks up 6 and draws them forward, leaving 6 and 2 on table and 4, 5, and 3 in the lately-emptied groove-space and table is turned half round. Then engine 4 pushes 5 and 3 back and picks up 6 and pulls same off table, with 4, 5, 3, and 6 now in groove and 2 only on table. Now engine 1 backs 7 against 2 and pushes 7 and 2 forward, leaving 7 and 2 on table and 1 in groove-space on that side, and then table is turned half round. Then engine 1 pulls 2, 7, 6, and 3 in opposite direction, leaving 6 and 3 on table and 1, 2, and 7 in groove-space, and table is turned half round. Then engine 1 pushes 6 off table toward 5, leaving 7 and 3 on table and 1 and 2 in groove-space, and table is turned half round. Then engine 1 backs up 2 against 3 and draws 2 and 3 to the end of the groove-space, as shown at the right-hand end of Fig. 2, leaving 7 on table, and table is turned half round. Then engine 4 pushes 5 and 6 back, pushing 7 off table and putting 6 on table and leaving it there and drawing 5 off, with 4 and 5 in groove-space, and table is turned half round. Next engine 4 pushes 6 off table against 7 and leaving 5 and 4 on table, and table is turned half round. Then 5 is pushed off table in groove-space, leaving 4 on table, and the table is turned half round. Then engine 4 pulls 5 on table, so that 4 and 5 are on table, and table is turned half round. Then engine 4 moves off table into groove-space, leaving 5 on table, and table is turned half round. Then engine 4 backs 5 against 6, and then said engine 4 pulls 5, 6, and 7 forward across table to end of groove-space, leaving 4, 5, 6, and 7 just as shown at the left-hand end of Fig. 2, and the problem is solved. The blocks are restored to their original position by the reverse of this operation, when the device is made so that turn-table *d* cannot be lifted off its pivot *h*, or, if the board is made to permit such removal, then the turn-table is lifted off and the blocks pushed into the central space that said turn-table had occupied and replaced block by block in the original positions shown in Fig. 1.

It will be understood that while the front and rear ends of the blocks are herein to be distinguished by the way the numerals and names on same are marked they may be otherwise indicated, either by words or initials indicating front and rear or by arrows or other arbitrary marks which I have not deemed it necessary to show; but in the proper solution of the problem it is essential to distinguish these ends, so that the trains when the problem is solved will be made up with all the parts represented by the blocks heading in the same direction throughout a train.

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

A game apparatus, comprising a board having a longitudinal groove across the same, said groove being closed at each end, and the side walls of the groove being obliquely undercut, and said board having a central circular recess extending to a depth below the plane of said groove, in combination with a revoluble turn-table fitting in said central recess and formed with a transverse groove coinciding in width, depth, and side-wall inclination, to the longitudinal groove in said board, and series of wholly-disconnected sliding blocks formed with oblique side walls, said blocks having free longitudinal movement independently of each other within said grooves, but being incapable of removal therefrom, when the turn-table is in place, and the ends of the said longitudinal groove are closed, and one end of each block carrying a distinguishing-mark to indicate the direction in which said block must always point in the solution of the game or problem played

or worked out with said apparatus, the parts being so proportioned that only two of said blocks can occupy the turn-table at any one time, and so that no more than five blocks can ever occupy the longitudinal groove on either side of said turn-table.

In testimony that I claim the foregoing I have hereunto set my hand, at Waukesha, in the county of Waukesha and State of Wisconsin, in the presence of two witnesses.

ORRIL L. HUBBARD.

Witnesses:
T. C. MARTIN,
W. F. TOMPKINS.