

E. L. NEWSOME.
 ASTRONOMICAL GAME.
 APPLICATION FILED JULY 16, 1909.

944,631.

Patented Dec. 28, 1909.

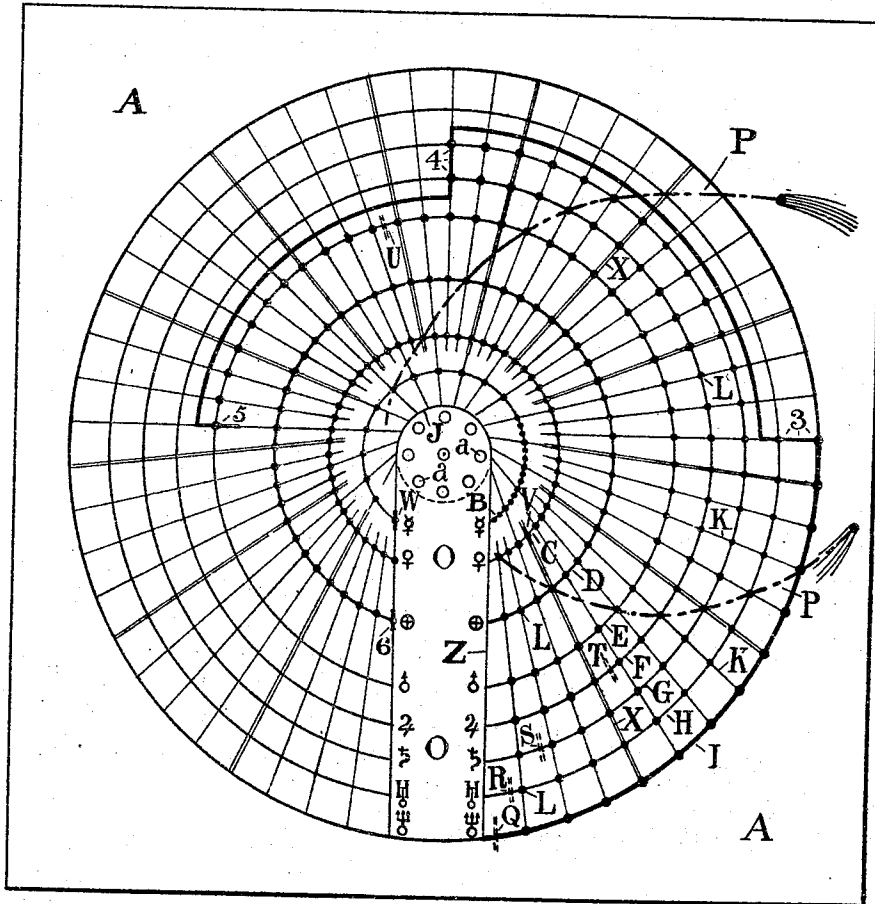


Fig. 1.

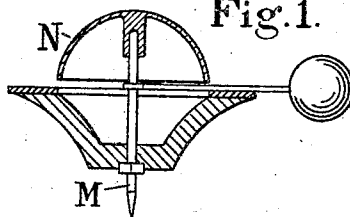


Fig. 3.



Fig. 2.

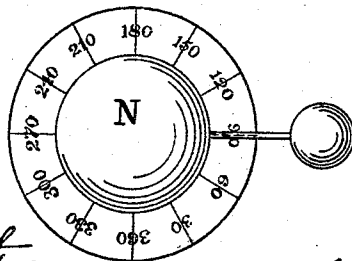


Fig. 4.

WITNESSES.

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ASTRONOMICAL GAME.

944,631.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed July 16, 1909. Serial No. 507,980.

To all whom it may concern:

Be it known that I, ERNEST LODGE NEWSOME, a British subject, residing at Fairhaven, Lytham, county of Lancaster, England, have invented a certain new and useful Improved Astronomical Game, of which the following is a specification.

This invention has for its object a game and game apparatus in which the various appliances in use in the game, are as far as possible counterparts of the planetary bodies of the solar system, the idea being to cause to be reenacted more or less closely, by means of a board or playing surface, and several pieces or men, the peculiar movements of the dependent bodies that revolve about the sun, such as planets, comets, meteorites, asteroids and satellites, and thus not only provide an interesting game with the excitement and animation desired, but also introduce an educational factor.

Astronomical games are known but in none yet proposed was there any attempt to reenact the peculiar movements of the heavenly bodies that revolve around the sun, and such games were misleading rather than educational.

This invention provides a game, and game apparatus which demonstrate more or less closely the true movements of the dependent bodies that revolve around the sun, and is therefore specially fitted to instruct the young, besides being interesting and entertaining.

Referring to the drawings:—Figure 1 is a plan view of the table, board or playing surface on which the game is played. Fig. 2 is a view of one of the pieces or men to be used in the game. Fig. 3 is a vertical section of another of the pieces used in the game. Fig. 4 is a plan of same.

A is a sheet, table, board, or other playing surface. On this sheet or board are printed, painted or indented a number of circles, B, C, D, E, F, G, H, and I, which represent the orbits of each planet from Mercury to

Neptune, while the center circle J is supposed to represent the sun.

The circle B	represents the orbit	of Mercury.	♿				
		217,000,000 miles.		50			
"	"	C	"	"	of Venus.	♀	
					403,000,000 miles.		
"	"	D	"	"	of the earth.	⊕	
					558,000,000 miles.		
"	"	E	"	"	of Mars.	♂	
					849,000,000 miles.		
"	"	F	"	"	of Jupiter.	♃	55
					2,883,000,000 miles.		
"	"	G	"	"	of Saturn.	♄	
					5,289,000,000 miles.		
"	"	H	"	"	of Uranus.	♅	
					10,629,000,000 miles.		
"	"	I	"	"	of Neptune.	♆	
					16,653,000,000 miles.		60

The length of each circle indicates the supposed distance the planet travels in its orbit around the sun. The orbit of each planet is designated or identified by its corresponding symbol as shown in Fig. 1. A number of lines K and X radiate from the center and intersect the circles, B, C et cetera which separate the orbits of the planets. The lines K represent weeks, and the lines X lunar months of the earth's revolution around the sun. At the point of intersection of the circular and radial lines holes L are made to hold the players' pieces or men. In addition to the radial lines L which cross the circular lines or orbits I add eccentric lines P which cross the other lines at their intersections. These eccentric lines P represent the paths of comets toward or from the sun or center. The orbits B to I may be represented as complete circles or they may be omitted at one place where a smooth ball race O is interposed in which dice may be thrown or balls be free to roll. As shown in Fig. 1 the race O extends half-way across the board, and is terminated by the circle J representing the sun within which are a number of numbered holes. Small balls are driven by a cue or otherwise into the holes a which indicate the score or number of points the player is entitled to. Or dice may be thrown for the same purpose. Instead of balls, counters might be used, and instead of cues light

springers could be employed, so that by pressing with one of the latter upon the rim of the former, it may be sent in the required direction, or instead of the ball race O, a roulette 5 could be provided at the center space J, namely a rotating disk in which a ball is rolled until it drops into one of the numbered spaces of the disk, or a dice box and dice might be used.

Pieces or "men" are provided each distinctively shaped and with the proper sign 10 to represent a different planet which is to traverse the orbit designed for it. One piece is shown in Fig. 2 to represent that which traverses the orbit of Neptune, I, it is provided with a peg M to enter any of the holes 15 L. A piece is shown in Figs. 3 and 4 to represent the earth. A hemisphere N surmounts a peg M and upon the former may be displayed the lines of latitude and longitude, 20 and also the outlines of land and oceans. On the peg is a horizontal revolving arm extending beyond the hemisphere with a spherical ball at the end, to represent the earth's moon. This arm is free to turn around the hemisphere 25 to illustrate the different positions of the moon as it revolves around the earth. An annular plate is placed around the hemisphere to bear numbers to represent degrees. It is to be understood that the pegs M and 30 holes L are not absolutely essential as the pieces representing the planets may be made to stand on a flat plate at any of the points where the lines intersect. Each piece representing a different planet starts from the 35 zero line Z and traverses the orbit designed for it, and the aim of each player is to arrive at the respective goals or winning points first, and the player who first reaches his goal wins the game. The ideal way of playing the 40 game would be for each piece to travel in its orbit, and in such approximately relative degrees, as actually takes place in nature. Taking the earth as the unit, the piece representing the earth would have to be the first 45 to make one complete circle on its orbit to win the game. The other planets, whose sidereal periods of revolution around the sun are greater or less than the earth, would require to make less or more than one complete circle 50 to finish the game. Here the educational factor comes in. Neptune takes 60127 days to revolve around the sun and the position thereof which it would occupy when the earth had made one revolution around the sun would be 55 on the line Q. Uranus takes 30687 days to revolve around the sun, and the position which it would occupy when the earth had made one revolution around the sun would be the line R. Saturn, which takes 10759 days, 60 would occupy the position indicated by the line S. Jupiter which takes 4333 days, would occupy the position shown by the line T, Mars, which takes 687 days, would occupy

the position shown by the line U. Venus 65 which takes 225 days in revolving around the sun would have to make one complete circuit and part of another revolution finishing at V, while Mercury which only takes 88 days 70 to travel around the sun would make three revolutions and finish at the line W. In practice, however, this mode of playing the game would be impossible because the piece 75 representing Neptune starting the game at Z would finish at Q, Uranus at R and so on, the small distance they would have to travel making the game impracticable and impossible. I therefore arrange that the winning 80 points of both Neptune and Uranus shall be at 3, that of Saturn and Jupiter at 4, that of Mars at 5, that of the earth at 6, that of Venus (which would have to make one complete circuit and part of another) at V, and that of Mercury (which would have 85 to make three circuits) at W. This for a game, is accurate enough to show the approximate periods compared with the earth, that it takes for each planet to revolve around the sun, and provides space enough for the 90 travel of the pieces. To further check the advantage that some of the planets that have not so far to travel might obtain over the others, part of the score can be deducted from 95 such planets before making their moves, as will presently be described.

The mode of playing the game is as follows:—Assuming there are eight planets or 100 playing pieces, and eight balls, one for each planet, each ball colored the same as the planet it represents. Then assuming that four people are playing the game, each player will have two balls representing the 105 two planets of which he has charge. His effort is to so strike the balls as to cause them to fall into the numbered holes of the ball race, that counts most. If he scores 9 for Neptune and 6 for Uranus, he deducts 3 from each score, and moves the Neptune 110 piece to the sixth hole, and the Uranus piece to the third hole in their orbits. The player next in turn, say Saturn and Jupiter, does the same, but he deducts 2 from his scores, 115 while the player that holds Mars and the earth who plays next, deducts 1 from the Mars score and nothing from the earth's score. The player who holds Venus and Mercury plays last. If any of the planets 120 or playing pieces get on any of the radial lines K on which a planet already stands, then the last arriving planet will advance 1, and the one overtaken on the same line is set back 1. Also if a planet or playing piece arrives on a point which a comet line intersects, or within a certain distance thereof, the piece has to go or be set back a given 125 distance. It will therefore be seen that there are many hazards for the pieces to pass

through, before they arrive at the winning point, and considerable skill is required so as to make the score required as will avoid these hazards. The piece which arrives at its winning post first wins the game, the winning points being as already explained, 3, 4, 5, 6, V and W. The lines X are what I describe as safety lines, because on these lines alone, the pieces can lie without hazard, that is, without being set back by a subsequent piece overtaking them. The peculiar arrangement of the piece representing the earth, is for introducing another educational factor into the game, and no other purpose. It is obvious however that I do not confine myself to the exact method of playing the game, as there are numerous ways in which the rules can be varied, and yet the general idea of a game in which the movements of the planets are imitated, is maintained.

The game can be played on a table or out of doors, or a recreation ground can be laid out to form the playing surface, and the players compete with balls, and sticks, or bowl around the circles, and be intercepted by holes, hazards and cross tracks.

Eight people may play in sets of two each, with one planet, each making 4 sets, or 2 sets, or 2 sets may play, each set having 4 planets. The nine holes in the center of the playing surface are used, and there being a hole at each of the points where the radial lines cross the orbits. The players will proceed as follows:—Assuming that 2 players form a set; and one of them takes Neptune and Uranus; and the other Saturn and Jupiter, each have 2 balls, one for each planet. The first player sends his first ball and tries to get it into the hole with the highest number; the second tries to get his ball into the highest available hole for counting, after which the first player tries his second ball, and again the second player tries for the highest count with his remaining ball. Each continues in turn until every ball is in, and then they bowl each ball around their own circle or orbit, negotiating the holes on every fourth radial line with as few trials or turns as possible. When they have got around the circle to the ball race they then negotiate the highest holes in the center of the surface until one of the players has secured a number agreed upon, say 50 or 100 points, the first, or with the fewest turns has won. Each number obtained in the holes counts in points and each hole negotiated in the circles counts one also.

The game may be played by means of bowling or with sticks. If one planet or ball overtakes on the same radial line, the opponent's ball, the one overtaken must set back one hole and the other advance

one hole. If any ball should happen to fall into a hole where the orbit line of a comet crosses, it must set back one hole.

The out of door playing surface may be formed of various materials, concrete, asphalt, or any other suitable adhesive substance which would form or make a smooth surface or grass lawn of any required dimensions. I assume a grass lawn is being laid out for playing this game as follows:—A center part to represent the sun with nine holes with a ball race extending from the sun to the outer circle. Holes for receiving the ball are made on each circle where every fourth radial line crosses the circle. The radial lines, the circles, the comet orbits, and the outlines to the ball race, will be formed in the grass, by grass, weeds or herbs or some other growth of a darker or lighter color than the grass, planted or laid so as to show the same.

What I claim as my invention and desire to protect by Letters Patent is:—

1. In game apparatus, consisting of a playing surface, the center of which represents the sun, concentric lines representing the orbits of the planets substantially radial lines K X intersecting the orbits, one set of which represents weeks of the earth's revolution around the sun and another set the lunar months, lines P crossing some of the points where the radial lines and orbits intersect to represent the paths of comets, forming hazards, goal points on the respective orbits to illustrate the approximate periods, compared with the earth, that it takes for each planet to revolve around the sun, and a number of playing pieces having distinctive forms to designate the respective planets equal in number to the said orbits to stand at any of the places where the lines intersect, substantially as described.

2. A game apparatus consisting of a playing surface having a designated center representing the sun and circular concentric lines representing orbits of the planets, and substantially radial lines intersecting the concentric lines representing the path of comets, a scoring device comprising a ball race extending half way across the said surface, and terminating in a circle, said circle being provided with a plurality of numbered holes into which objects are projected to determine the score, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ERNEST L. NEWSOME.

Witnesses:

I. OWDEN O'BRIEN,
HARRY BARNFATHER.