(No Model.) 2 Sheets—Sheet 1.

F. B. SHANNON.

GAME OF FRACTIONS.

No. 310,325. Patented Jan. 6, 1885.

Fig. 1.

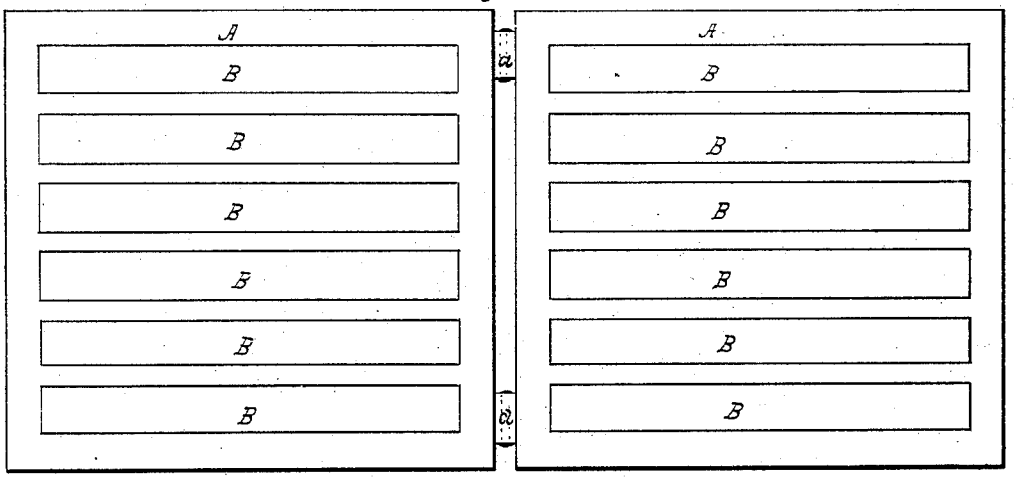


Fig. 2.

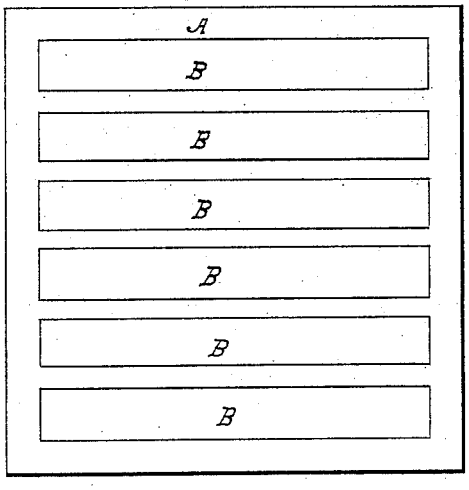


Fig. 3.

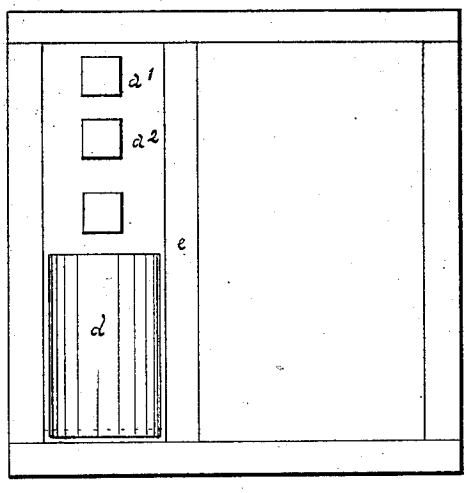


Fig. 4.

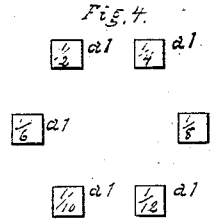
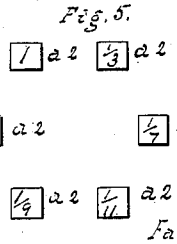


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

F. B. SHANNON.

GAME OF FRACTIONS.

No. 310,325. Patented Jan. 6, 1885.

Fig. 6.

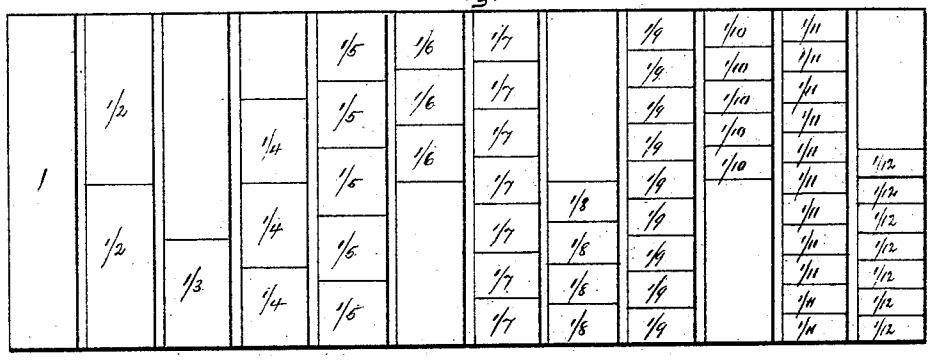
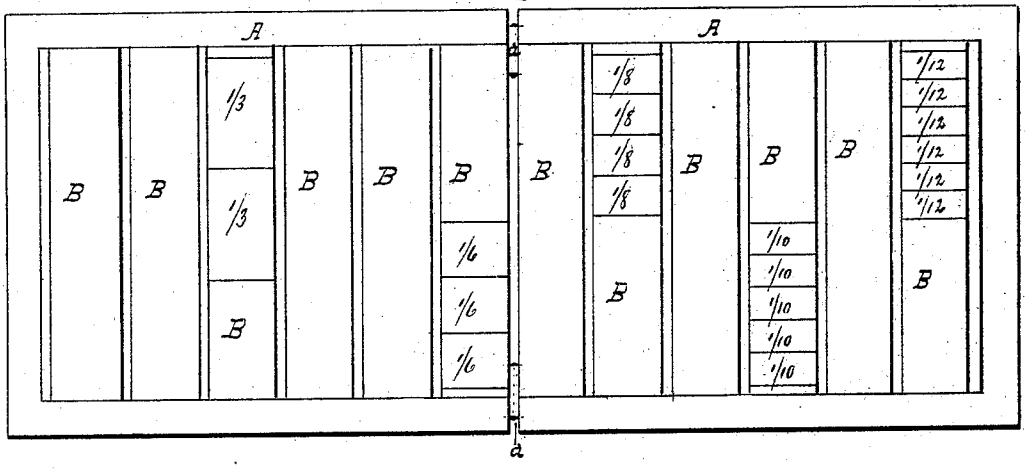


Fig. 7.



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UNITED STATES PATENT OFFICE.

FANNY B. SHANNON, OF DENVER, COLORADO.

GAME OF FRACTIONS.

SPECIFICATION forming part of Letters Patent No. 310,325, dated January 6, 1885.

Application filed April 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, FANNY B. SHANNON, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Game of Fractions, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in game apparatus in which a system of blocks representing integral units and fractional units are combined with numeral cube blocks or dice and a game-board; and the objects of my invention are to provide a means by which amusement is combined with instructions in the relative size of integral units with fractional units, and to familiarize the minds of pupils with different colors. These objects I attain by means of the device illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of the game-board A; Fig. 2, an outside view of the one-half of the case; Fig. 3, an inside view of case, showing dice-box and receptacle for the numeral cube blocks and the integral and fractional unit-blocks. Figs. 4 and 5 are the numeral cube blocks or dice; Fig. 6, a detail view of the integral unit block 1, and the fractional unit blocks $\frac{1}{2}$ to $\frac{1}{12}$; Fig. 7, a representation of the game-board A, having a portion of the fractional unit blocks arranged thereon.

Similar letters and figures refer to similar parts throughout the several views.

A in the drawings refers to a box or case made in two equal parts, and hinged together at *a*, forming a suitable receptacle for a dice-box and the numeral cube blocks and the integral unit and fractional unit blocks used in the game. The two outside surfaces of the case, when opened, as shown in Figs. 1 and 7, form a game-board upon which to arrange the integral unit and fractional unit blocks. Upon the surface of the board A is marked off unit-spaces B, as shown in Figs. 1, 2, and 7, which are of the same width and length of the unit-block 1. (Shown in Fig. 6.) The unit-block 1 constitutes the base of measurement or value, which, for convenience, I prefer to make in length about five times that of its thickness, and should be colored or painted, and have the figure 1 expressed on the several sides thereof, and when placed upon one of the unit-spaces B covers the same entire. Two fractional unit blocks equal in width and breadth that of the unit-blocks 1, and being each one-half its length, represent halves, which should be a different color from that of the unit-block 1, and should have $\frac{1}{2}$ expressed on the different sides thereof. The same placed upon one of the unit-spaces B, end to end, covers the same entire, and is equal in proportion and value that of the unit-block 1. Three fractional unit blocks equal in width and breadth to that of the unit-block 1, and being each one-third the length of the same, represent thirds, which should be a different color from that of the unit-block 1 and of the halves, and should have $\frac{1}{3}$ expressed upon the different sides thereof. The same placed end to end upon one of the unit-spaces B cover the same entire, and is equal in proportion and value that of the unit-block 1. Four fractional unit blocks equal in width and breadth that of the unit-blocks 1, and, being each one-fourth the length of the same, represent fourths, which should be different in color from the units, the halves, and the thirds, and should have $\frac{1}{4}$ expressed on the different sides thereof. The same placed end to end upon one of the unit-spaces B cover the same entire, and is equal in proportion and value that of the unit-block 1. Five blocks, of a different color from the preceding ones, having $\frac{1}{5}$ expressed on the different sides thereof, each represents one-fifth, the five of which represents a unit, and cover one of the unit-spaces, and is the equivalent of the unit-block 1. Six blocks, of a different color from the preceding mentioned blocks, having $\frac{1}{6}$ expressed on the several sides thereof, each represent one-sixth of the unit, six of which cover one of the unit-spaces B, and is equal in size and value that of the unit-block 1. In like manner the one-seventh, the one-eighth, the one-ninth, the one-tenth, the one-eleventh, and the one-twelfth, respectively, are equal to the unit-block, and cover one of the unit-spaces, their respective fractional values being expressed thereon, as well as being distinguished by each being made a different color, the entire number of blocks represented being seventy-seven fractional and one integral unit. The one integral and the

seventy-seven fractional unit blocks are equal to twelve integral unit blocks. The different denominations or values of the fractional and the unit-blocks are distinguished from each other by the difference in the sizes, by the figures marked or expressed thereon, and by having the unit-block 1 painted one color, the halves painted a different color, and the thirds to the twelfths each a different color. By this arrangement the pupil becomes simultaneously familiar with different colors, with the different values and sizes of fractional units relative to a unit, and to the different characters or figures used to represent the size or value of fractional parts. The unit and fractional unit blocks used in conjunction with the board A, the numeral cube blocks a' and a^2, and the dice-box d form an interesting and instructive game. The numeral cube block a' has the fractional numbers $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, and $\frac{1}{12}$ expressed on the six plain surfaces thereof. The numeral cube block a^2 has the fractional numbers $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{7}$, $\frac{1}{9}$, and $\frac{1}{11}$, and the unit number 1 expressed on the six plain surfaces thereof, as will be seen by reference to the drawings. The figures expressed on the different squares of the cube blocks a' and a^2 correspond with those expressed on the unit-block 1 and the fractional unit blocks $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$, $\frac{1}{11}$, and $\frac{1}{12}$.

The game may consist of casting the cube blocks a' and a^2 in the same manner as is customary in casting dice from a box, and at each throw of the cubes or dice place the unit or fractional blocks on the spaces B of the board A, continuing the same until the spaces are all covered with the blocks, after which the blocks may be removed from the board as the cubes or dice are cast. Two persons may play, to determine the number of times the cubes or dice have to be cast in order to play the entire number of blocks onto or off the board, the person casting the cubes or dice the least number of times to be the winner of the game.

In the manufacture of the blocks wood or other suitable material may be used. The unit-block 1 is the standard of size or value, may be painted any desirable color, and should have the figure 1 painted, printed, or engraved on the several sides thereof. The fractional unit blocks should be made of like material of that from which the unit-block 1 is made, and each denomination colored different from each other and from the unit-block, and have their corresponding values expressed on the several sides thereof, as before described. The cube blocks or dice a' and a^2 should be made of ivory, bone, wood, or other suitable substance, and should have the figure 1 engraved on one of the squares of a^2, and the fractional numbers $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{7}$, $\frac{1}{9}$, and $\frac{1}{11}$ on the remaining five squares thereof. The cube block a' should have the fractional numbers $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, and $\frac{1}{12}$ engraved on the six squares thereof.

The box or case should be made in two equal parts, and hinged together in such a manner as to form a game-board of the outside surfaces when opened. The inside of the box should be provided with a partition, e, a sufficient distance from one end thereof to admit of the dice-box and the numeral cubes or dice being contained therein. The box should be a sufficient depth to admit of the unit-block 1 and the numeral cube-blocks being placed therein.

I being aware of the general use of dice-boxes do not claim it as new; but the particular form of the box or case being made of a suitable size, and being suitably divided to form separate receptacles for the unit and fractional unit blocks and for the dice-box and numeral cube blocks a' and a^2, and having the outside surface painted, inlaid, or suitably marked to form unit-spaces B thereon. The arrangement of the unit and fractional blocks of the different proportional sizes, each size being of a different color, and having expressed on each block its relative value to the unit-block, with the numeral cubes or dice having corresponding values engraved or stamped on the several squares, forming a game of amusement, and at the same time familiarizing the minds of the players with relative sizes of fractions to a unit, to different colors, and with the various figures or characters used to express fractions, is what constitutes my improvements.

Having thus fully described the construction of the parts constituting the game, and the manner of playing the same, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination hereinbefore described, consisting, substantially, of numeral blocks or dice having fractional numbers marked thereon, a game-board having spaces designated thereon, as set forth, and blocks representing units and fractional parts of a unit, all operating together as described, and for the purpose set forth.

2. The combination, with a game-board having spaces marked thereon, as described, of blocks of wood or equivalent material representing units and fractional parts of units, the blocks or dice having fractional numbers designated thereon by figures, and the dice-box, all operating together, as set forth, whereby a game may be played in which the players may become familiar with relative sizes and fractional numbers, as described, and by the means set forth.

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

FANNY B. SHANNON.

Witnesses:
A. J. O'BRIEN,
J. L. METCALFE.