

A. TEGTMEYER AND L. SCHNEIDER,
 MATHEMATICAL GAME.
 APPLICATION FILED JULY 2, 1921.

1,402,807.

Patented Jan. 10, 1922.
 2 SHEETS—SHEET 1.

FIG. 1.

ADDITION											
GAME #1	$\begin{array}{r} 2 \\ + 1 \end{array}$	$\begin{array}{r} 2 \\ + 2 \end{array}$	$\begin{array}{r} 2 \\ + 3 \end{array}$	$\begin{array}{r} 2 \\ + 4 \end{array}$	$\begin{array}{r} 2 \\ + 5 \end{array}$	$\begin{array}{r} 2 \\ + 6 \end{array}$	$\begin{array}{r} 2 \\ + 7 \end{array}$	$\begin{array}{r} 2 \\ + 8 \end{array}$	$\begin{array}{r} 2 \\ + 9 \end{array}$	$\begin{array}{r} 2 \\ + 10 \end{array}$	$\begin{array}{r} 2 \\ + 11 \end{array}$
						<i>f</i>	<i>f</i>		<i>a</i>		<i>a</i>
GAME #2	$\begin{array}{r} 9 \\ + 1 \end{array}$	$\begin{array}{r} 9 \\ + 2 \end{array}$	$\begin{array}{r} 9 \\ + 3 \end{array}$	$\begin{array}{r} 9 \\ + 4 \end{array}$	$\begin{array}{r} 9 \\ + 5 \end{array}$	$\begin{array}{r} 9 \\ + 6 \end{array}$	$\begin{array}{r} 9 \\ + 7 \end{array}$	$\begin{array}{r} 9 \\ + 8 \end{array}$	$\begin{array}{r} 9 \\ + 9 \end{array}$	$\begin{array}{r} 9 \\ + 10 \end{array}$	$\begin{array}{r} 9 \\ + 11 \end{array}$

FIG. 2.

SUBTRACTION											
GAME #7	$\begin{array}{r} 8 \\ - 1 \end{array}$	$\begin{array}{r} 8 \\ - 2 \end{array}$	$\begin{array}{r} 8 \\ - 3 \end{array}$	$\begin{array}{r} 8 \\ - 4 \end{array}$	$\begin{array}{r} 8 \\ - 5 \end{array}$	$\begin{array}{r} 8 \\ - 6 \end{array}$	$\begin{array}{r} 8 \\ - 7 \end{array}$	$\begin{array}{r} 8 \\ - 8 \end{array}$	$\begin{array}{r} 8 \\ - 1 \end{array}$	$\begin{array}{r} 8 \\ - 2 \end{array}$	$\begin{array}{r} 8 \\ - 3 \end{array}$
GAME #8	$\begin{array}{r} 7 \\ - 1 \end{array}$	$\begin{array}{r} 7 \\ - 2 \end{array}$	$\begin{array}{r} 7 \\ - 3 \end{array}$	$\begin{array}{r} 7 \\ - 4 \end{array}$	$\begin{array}{r} 7 \\ - 5 \end{array}$	$\begin{array}{r} 7 \\ - 6 \end{array}$	$\begin{array}{r} 7 \\ - 7 \end{array}$	$\begin{array}{r} 7 \\ - 1 \end{array}$	$\begin{array}{r} 7 \\ - 2 \end{array}$	$\begin{array}{r} 7 \\ - 3 \end{array}$	$\begin{array}{r} 7 \\ - 4 \end{array}$

INVENTORS.

*Archie Tegtmeier &
 Louis Schneider*

Erwin Wheeler & Woodard,
 ATTORNEYS.

A. TEGTMEYER AND L. SCHNEIDER.
 MATHEMATICAL GAME.
 APPLICATION FILED JULY 2, 1921.

1,402,807.

Patented Jan. 10, 1922.
 2 SHEETS—SHEET 2.

FIG. 3.

MULTIPLICATION													a"
GAME #1	2 x 1	2 x 2	2 x 3	2 x 4	2 x 5	2 x 6	2 x 7	2 x 8	2 x 9	2 x 10	2 x 11	2 x 12	e"
													f"
GAME #2	8 x 1	8 x 2	8 x 3	8 x 4	8 x 5	8 x 6	8 x 7	8 x 8	8 x 9	8 x 10	8 x 11	8 x 12	g"
													h"

FIG. 4.

DIVISION				a"
GAME #3		GAME #4		j"
12 ÷ 1	f"	100 ÷ 10		g"
12 ÷ 2		90 ÷ 10		h"
12 ÷ 3		80 ÷ 10		
12 ÷ 4		70 ÷ 10		
12 ÷ 6		60 ÷ 10		
14 ÷ 1		50 ÷ 10		
14 ÷ 2		40 ÷ 10		
14 ÷ 7		30 ÷ 10		
15 ÷ 1		20 ÷ 10		
15 ÷ 3		10 ÷ 10		
15 ÷ 5		50 ÷ 10		
50 ÷ 2		50 ÷ 25		

FIG. 5.

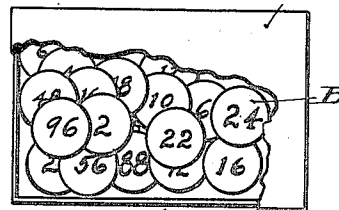


FIG. 6.



FIG. 7.

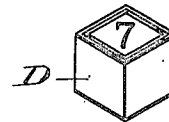


FIG. 8.



INVENTORS.

*Archie Tegtmeier &
 Louis Schneider*

Erwin, Wheeler & Woodard,
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARCHIE TEGTMEYER AND LOUIS SCHNEIDER, OF MILWAUKEE, WISCONSIN.

MATHEMATICAL GAME.

1,402,807.

Specification of Letters Patent. Patented Jan. 10, 1922.

Application filed July 2, 1921. Serial No. 482,058.

To all whom it may concern:

Be it known that we, ARCHIE TEGTMEYER and LOUIS SCHNEIDER, citizens of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Mathematical Games, of which the following is a specification.

This invention relates to improvements in games of that class in which puppets, disks, or cards selected by chance are placed upon a game board in accordance with rules requiring skill and care in order to win over an opponent similarly engaged.

The objects of this invention are to provide a game which is adapted to promote a study of the rudiments of arithmetic, to cultivate a habit of rapid mental calculation, to foster interest in mathematics, and to so combine requirements for mathematical skill with elements of chance as to equalize to a considerable extent, or render less apparent, differences in skill between contesting players, thereby avoiding the discouragement of the less skillful or proficient player and adding interest and zest to the game by introducing unexpected conditions and interesting situations.

A further object of this invention is to provide a highly interesting, innocent, competitive game for children, adapted to promote rapid but unconscious mental development, particularly along mathematical lines.

The drawings illustrate certain embodiments of the invention in simple form and particularly adapted for use by young children who are beginning to study arithmetic although the invention as embodied in the drawings is also capable of arousing great interest among persons of mature age.

Fig. 1 is an illustration of a game board embodying this invention as it is prepared for use in promoting efficiency in addition.

Fig. 2 is a similar view illustrating an embodiment of this invention as it is used for the purpose of exercise in subtraction.

Fig. 3 is a similar view of a multiplication game board.

Fig. 4 is a similar view of a divisional game board.

Fig. 5 is a plan view of a box containing a series of playing disks, cards, or puppets.

Figs. 6, 7 and 8 are illustrations of modified forms of puppets such as may be conveniently used by the players in connection

with the game boards illustrated in the first four views.

Various game boards are formed or constructed in multiple sets, a separate board being used by each player. Each board in a set contains a multiple series of problems, the nature of the problem being indicated upon the board in each instance. The acting player is, in each instance, required to select a puppet from the container or box without being permitted to see the same until he has removed it from the box. Each puppet contains a numeral which may or may not constitute an answer to any one of the problems on the game board. The player is required to inspect the puppet, ascertain the numerical value thereof, and then by inspecting the game board, he must ascertain whether such numeral constitutes an answer to any one of the problems on the board. If none of the answers are represented by the puppet which the player holds, he must discard it and wait until each of the other players has made his play before the first mentioned player can again act. When puppets are selected which do represent an answer to one of the problems upon the game board, the player, in order to obtain advantage of this fact, must place the puppet upon the game board in a position to indicate that it is the answer to such problem. Where a correct answer is thus placed, the player may be allowed by one set of rules to select another puppet and to continue as before until he fails to properly place an answer before allowing the next player to take his turn. By another set of rules, each player will be allowed to select only one puppet regardless of whether or not he succeeds in finding an answer to any problem. The nature of the rule, however, forms no essential part of the invention, the game being susceptible of being played under various rules, including a possible rule that an erroneous placing of one of the puppets upon the game board requires the player to either forfeit a turn or to remove a puppet previously placed, in addition to the one erroneously placed. Similar penalties may be provided for failure to play within a definite limit of time.

Referring particularly to Fig. 1, it will be observed that the game board is divided by horizontal and vertical lines into rectangular spaces, the marginal space *a* constitut-

ing the title space. This space preferably contains the word "Addition." Between this space and the central line *b*, the intervening portion of the board is divided by a longitudinal line *c* and a series of cross lines or so-called vertical lines *d* into a longitudinally extending series of rectangular spaces *e* below which there is another longitudinal series of spaces *f* which are preferably square, or substantially so. Each of the spaces *e* contains a problem in addition and in Fig. 1 this problem is exceedingly simple and intended to be exceedingly elementary, the upper number 2 being the same in each instance and the lower numbers being in numerical order when read from left to right with the value increasing by one in each successive space. Between the two numbers a plus sign is placed to familiarize the mind of the child with this sign as indicating that the lower number in each space is to be added to the one above. The child selects puppets from the container A, shown in Fig. 5, and then ascertains by inspection whether the selected puppet contains a number which represents the sum of the numbers in any given space *e*. If it does, he places the puppet in the square *f* immediately below such space. The puppets may comprise circular cards or disks B as illustrated in Fig. 5, square blocks C as shown in Fig. 6, cubes D as shown in Fig. 7, or truncated pyramids E as shown in Fig. 8, the different views being illustrative of the fact that a great variety of forms may be adopted when constructing the puppets.

In Fig. 1, the space below the center line *b* is similarly divided into rectangular spaces *g* containing problems similar to those contained in the spaces *e* and below these spaces *g* there are answer squares *h* to receive the appropriate puppets representing the answers to the problems immediately above. The game board shown in Fig. 1, therefore, contains two games as indicated in the spaces *i* and *j* along the left hand margin of the board. These games, however, may be played as a single game if desired.

The game board shown in Fig. 2 is laid out in the same manner as that shown in Fig. 1 and the corresponding spaces are indicated by the same numerals with prime marks added. It will be observed, however, that the sign of subtraction or minus sign, is interposed between the upper and lower numerals in each of the rectangles *e'* and *g'* and the lower numerals are in each instance of less or equal value to those above them in the same problem space. The space *a'* preferably contains the word "Subtraction" to additionally indicate that the problems contained on this game board are wholly composed of problems in subtraction.

The game board shown in Fig. 3 contains the word "Multiplication" in the space *a''*

and the multiplication sign is substituted for the plus sign of Fig. 1 in the problem spaces *e''* and *g''*. The answer spaces *f''* and *h''* are the same in location, arrangement and function as in Figs. 1 and 2.

Referring to Fig. 4, it will be observed that the subdivision of the card in the spaces *a'''*, *e'''*, *f'''*, *g'''*, *h'''*, *i'''*, and *j'''* are similar to those in Figs. 1, 2 and 3, but one end of the game board is regarded as the top and is provided with the marginal space *a'''*. Underneath this, the game spaces *i'''* and *j'''* are located. The successive problems are displayed in the problem spaces *a'''* and *g'''* with the dividend at the left and the divisor at the right in each instance, the division sign being interposed. The answer squares *f'''* and *h'''* are at the right of the associated problem in each instance.

The above noted difference in the arrangement of the problems on the division game board is not essential, but it is desirable in that it more clearly presents the problems in division, whereas if the numbers were arranged as in Figs. 1, 2 and 3, it would be more desirable to present them as fractions and more advanced.

The drawings are in no sense intended to illustrate any but the simpler forms in which this invention may be embodied, there being almost no limit to the possible variations in which mathematical problems may be presented without departing from the principle involved in the game as above described. By requiring rapidity of action on the part of the players, great proficiency will be speedily acquired by those who become interested in the game, and as each player becomes proficient in playing any one of the games, a similar game board containing more complex problems may be substituted.

It will be understood that while any one of the games may be played by requiring the players to act in succession as above described, yet this is not essential since the several players each have individual game boards and in developing speed in calculation it will, particularly for the more advanced players, be desirable to allow each player to fill his answer spaces with the correct answers as rapidly as he can, the winner being the one who first fills all the answer spaces pertaining to the game with the correct answer.

We claim:

1. A mathematical instructional game comprising a game board having printed thereon a series of mathematical problems and subdivided by ruled lines which separate the problems from each other and provide associated answer spaces, the combination with a container and a series of puppets therein each provided with a numeral, some of said puppets having numerals each constituting the answer to one of the prob-

lems and others having numerals which do not constitute answers to any of the problems upon the board, whereby the player is required by mental calculation to determine whether the puppet in his possession constitutes an answer to any one of the problems and then place it in the appropriate answer receiving space.

2. The combination of a game board subdivided by ruled lines in problem spaces and answer spaces and having problems printed in the problem spaces together with signs indicating the character of the problem to be performed and a series of playing members, some of which have printed thereon answers to the problems on the board, each playing member being adapted to be received in one of said answer receiving spaces whereby the player who first suc-

ceeds in filling all of the answer spaces with proper answers may be regarded as the winner of the game.

3. The combination of a set of like game boards each subdivided by ruled lines into problem spaces and answer spaces, and a series of portable members bearing numerals, some of said members having numerals which represent answers to the problems and others having numerals which do not represent such answers whereby each player may be furnished with one of said game boards and required to select the answer bearing members at random and then determine whether or not they can be utilized to fill any of the answer spaces on the game board.

ARCHIE TEGTMEYER.
LOUIS SCHNEIDER.