D. McDONALD.

COMBINED COUNTING, INTEGRATING, AND TALLY DEVICE.

APPLICATION FILED NOV. 30, 1908.

962,162. Patented June 21, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

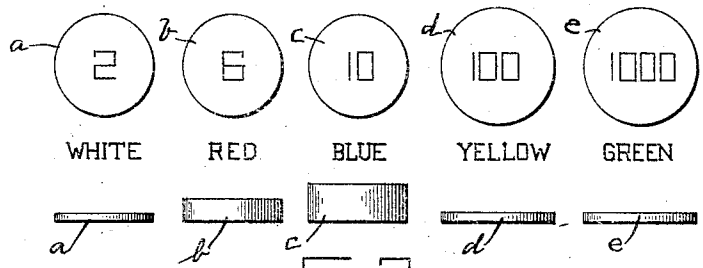

Fig. 2.

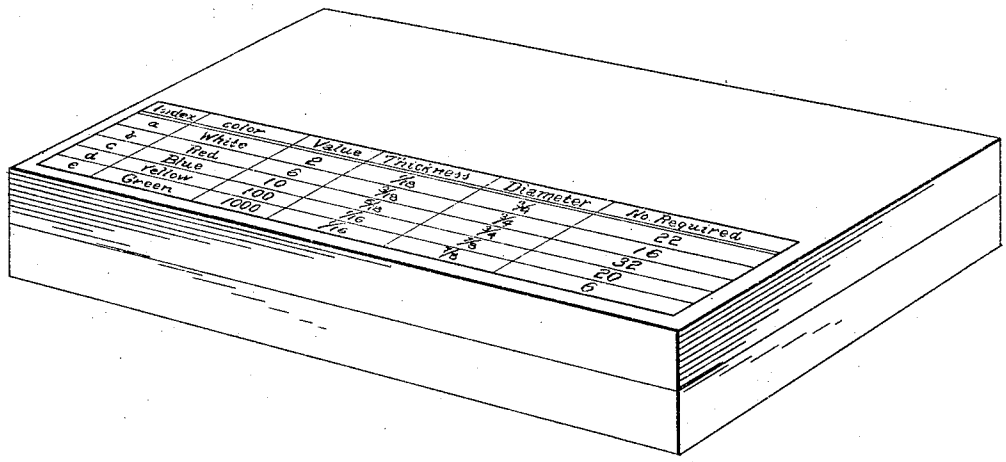

Fig. 3.

Witnesses
C. K. Reichenbach
Wilbur H. Knight

Inventor
Donald McDonald
By Knight Bros
Attorneys

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

D. McDONALD.

COMBINED COUNTING, INTEGRATING, AND TALLY DEVICE.

APPLICATION FILED NOV. 30, 1908.

962,162. Patented June 21, 1910.

2 SHEETS—SHEET 2.

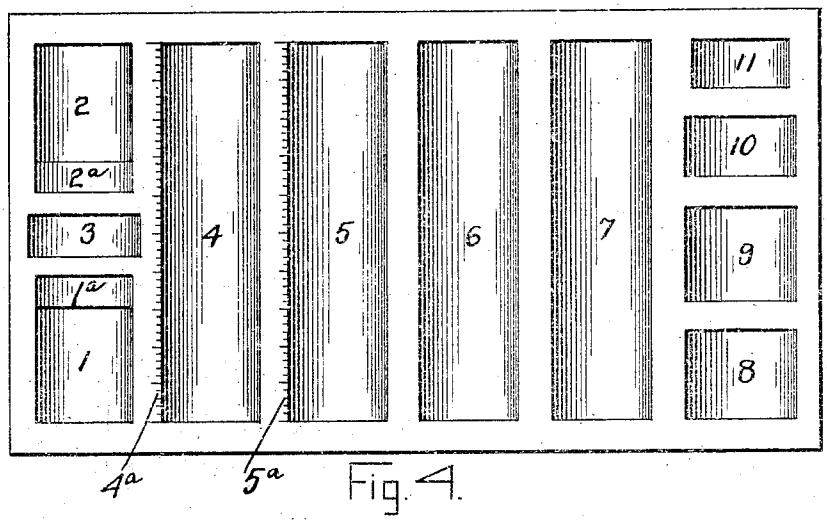

Fig. 4.

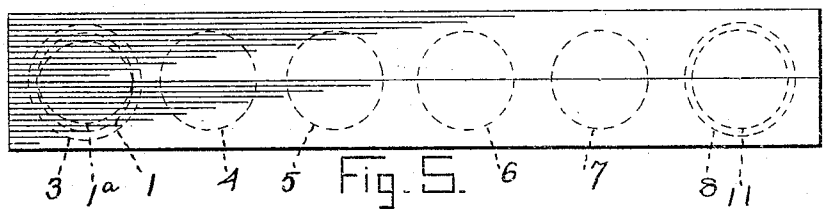

Fig. 5.

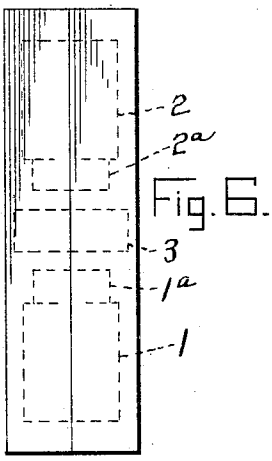

Fig. 6.

Inventor

Donald McDonald

Witnesses

E. K. Reichenbach

Wilbon H. Knight

By Knight Bros

Attorneys

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DONALD McDONALD, OF LOUISVILLE, KENTUCKY.

COMBINED COUNTING, INTEGRATING, AND TALLY DEVICE.

962,162. Specification of Letters Patent. Patented June 21, 1910.

Application filed November 30, 1908. Serial No. 465,231.

To all whom it may concern:

Be it known that I, DONALD McDONALD, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Combined Counting, Integrating, and Tally Device, of which the following is a specification.

The object of my invention is to provide a convenient system of counters, such system comprising a primary group by which the accumulating units in a count, *e. g.*, the points in a game, or the quantity of goods or number of articles produced, or delivered, may be recorded as the count progresses; and another group by which the values of the first group may be integrated; and a device for conveniently storing the counters in bulk, receiving, classifying and totaling them as the count progresses, exchanging one denomination for another in integrating, and keeping tally of the several counts as they develop.

In carrying out my invention, I facilitate the division of the counters into groups and the identification of the group to which a counter belongs, by differentiating them in one dimension, preferably diameter, and I subdivide each group into different denominations by differentiating the members of a group either as to their other dimension or as to color, or both dimension and color, the group having one diameter (the integrating and tally counters) being preferably of uniform thickness and subdivided by color alone, and the group having the other diameter—the primary group—being subdivided into different denominations, mainly by differences in thickness, but also for convenience in distinguishing by color as well. Again, the thicknesses of members of the primary group bear a definite relation, in that they are all multiples of a common unit of measurement, and they are assigned relative values in the count having the same ratio as their dimensions; hence, not only is the value of a larger denomination equal to that of certain of the smaller denominations, but any group of such counters properly stacked may be expressed at once in terms of the selected unit of measurement, and is synonymous with points in the count. The value arbitrarily assigned to a counter of larger diameter and distinguishing color, is a predetermined multiple of the unit of counting; hence such larger counter may be used to integrate and record the value of a group of primary counters, and thus release the latter for re-use in building up a new total. In like manner, to a differently colored integrating counter is assigned a value that is a multiple of the lower value of integrating counter, so as to reduce the number of integrating counters required and facilitate final count, or indication of the progress of the count.

The storing, counting and tally device comprises receptacles in position to hold the counters in bulk when they are not in position to signify any element in the count and to receive said counters as the count progresses and permit them to accumulate in position which indicates the units or points in the count and which one of several counts is being made, as well as to receive the result of several successive counts in position to indicate the total thereof and also to receive the integrating counters as they are exchanged for the primary counters. The receptacles, preferably in the form of pockets, correspond in dimension to the counters which they are to receive so as to prevent the introduction of integrating counters into the pockets of the primary counters. Moreover, the length of the pockets bears a special relation to the thickness of the counters which they are to receive, and thus the pockets become measures of the counters which are to be placed within them, some of the longer pockets being provided with scales so that the number of points represented by the counters stacked therein can be read off at any time. In making up the tally or individual counts, as for a single game, pockets are used whose length in units of measurement corresponds to the number of points in the game, so that when such a pocket is filled, a game is shown to have been ended, and the contents thereof may be transferred to the gross earnings pocket. These pockets are so positioned that one or another may be selected to receive the counters as the count is made and thus be the means of indicating which one of a series of counts or games is being made at the time, thereby keeping a tally of games or counts as well as points. These restricted pockets are preferably provided with additional receiving space at the end, for the purpose of receiving excess of counters over the number necessary to com-

plete the count, these additional spaces being stepped or offset from the main pocket for convenience in counting.

In order that my invention may be more fully understood, I will proceed to describe the same in connection with an illustrative use to which it may be put, namely, counting the game of bridge whist.

In the accompanying drawings, Figures 1 and 2 are face and edge views, respectively, of the five different counters used in the illustrative application of the invention; Fig. 3 is a perspective view of a container for the counters, having imprinted thereon an inventory of the different counters employed, the number of each and their several characteristics as to color, value and dimensions; Figs. 4 and 5 are, respectively, a front edge and an end view of the same; and Fig. 6 is a plan of one of the two similar members of the container, which is used in keeping the count and tally of the game.

The counters employed are represented by the disks *a*, *b*, *c*, *d*, and *e*, each of which is preferably of a distinctive color and arbitrarily established value, and furnished in such number as may be necessary to conveniently carry out the purpose for which they are intended. These counters are further differentiated by their dimensions and they are divided into two groups, identified by the dimensions of the disks, all disks in a single group having either the same dimensions or one dimension in common, and the other dimension bearing a definite ratio to the corresponding dimension of the other disks in the same group. The several kinds of disks are given different valuations. Those in the primary group have progressively increasing valuations bearing the same ratio as the increase in their differing dimensions.

Upon referring to the inventory in Fig. 3, it will be seen that the disks *a*, *b* and *c*, have the value of 2, 6 and 10, respectively, while they are constructed with a common diameter of 3/4 (inch or other unit of measurement) and a thickness of 1/18, 3/18 and 5/18, respectively. The disks *d* and *e* are given the valuation of 100 and 1,000, respectively, and they have common dimensions both in diameter and thickness; the diameter, however, is greater than that of the primary counters, so that they are classed in a group to themselves. They are distinguished one from the other by their colors, disks *d* being, for instance, yellow, while those *e* are green. The numbers of the several disks found to be convenient are 22 *a* disks, 16 *b* disks, 32 *c* disks, 20 *d* disks, and 6 *e* disks.

Upon referring to Fig. 6, it will be seen that the container is constructed with 11 pockets, numbered from 1 to 11, inclusive, of which the pockets 3, 8, 9 and 10 are of such diameter as to be adapted to receive the disks *d* and *e*, while the other pockets, 1, 2, 4, 5, 6, 7 and 11, are of such transverse dimension as to be adapted to receive the disks *a*, *b* and *c*. Again, the pockets 4, 5, 6 and 7 are relatively long and adapted to store a considerable number of the primary counting disks, while the pockets adapted to receive the integrating disks are relatively short. Aside from being so proportioned as to be identified in dimensions with the particular size of disk intended to be placed therein, the length of the pockets is a multiple of the thickness of the disks which it is intended to contain; hence, when a pocket is filled with disks, it may be taken to indicate the attainment of a particular point in the count, such for instance as the end of a game or the end of a set, or the like. In addition to being thus constituted a measuring receptacle, the pockets such as 4 and 5 are preferably provided with scales 4^a and 5^a, so that the total value of any number of the primary disks stacked in either of said pockets may be read off at any time. Thus the said pockets are of such length that they will hold 100 points in the count, whether these points be made up of 100 *a* disks, or of a less number of disks, some of which are one unit in thickness, some three units and some five. Each of the pockets 1 and 2 has a stepped offset 1^a or 2^a beyond the main depth of the pocket, so that if, in playing the game, there are points to be counted beyond the number sufficient to end the game, room for such points is at hand and the number of said points over and above the game is at once observable.

The method of using the game device and disks is as follows. To recapitulate, the spaces 1 and 2 hold exactly 30 of the *a* disks or their equivalent in *b* and *c* disks; space 3 holds exactly 5 of the *d* disks; spaces 4, 5, 6 and 7 hold exactly 100 in *a* disks or their equivalent in *b* and *c* disks; spaces 8 and 9 hold 10 each of the *d* disks; space 10 holds 5 of the *d* or *e* disks; and space 11 holds 14 of the *a* disks. Each player starts the game with spaces 6, 7 and 8 filled with disks, 6 and 7 containing 130 points in *c* disks, 48 points in *b* disks, and 22 points in *a* disks or 22 *a* disks, as each *a* disk is equal to one point; these being the numbers which experience shows are about the most convenient to count with in the game of bridge whist. As soon as either player makes a point, the other player gives him *a*, *b*, *c* or *d* disks to the value of the point made which the winner puts in pocket 1. He also receives *a*, *b*, or *c* disks to the value of the honors (or special points in the count) made, which he puts in pocket 4. As soon as pocket 1 is filled by either player, a game is counted and the other player must empty the corresponding pocket, if he has any disks in it. The winner of the first game then begins to

fill pocket No. 2, while the loser of the game begins once more to fill pocket No. 1. As soon as either player wins two games, or if each player has won a single game, as soon as either wins the third game, the loser gives such winner one of the *d* disks which he puts in pocket No. 9. All the winnings of the current rubber are kept in pockets 1, 2, 3 and 4, and as soon as a rubber is over, these pockets are cleared out completely, their contents being placed in pocket 5. If either player should lose disks to the value of more than 100 points, the other player will have the pocket 5 filled and he may exchange them for a *d* disk, which has the value of 100 points. In making this exchange, it will not be necessary to count the disks as the thickness of the stack filling the pocket will insure that it be exactly 100 points. If either of the players lose all of his *d* disks, he can buy 10 more by exchanging an *e* disk.

Pocket 11 is provided for the purpose of storing the *a* disks which are thin and hard to pick up when they are mixed with the thicker disks, and it is more convenient to keep them in a pocket to themselves. The *b* and *c* disks can also be kept separate, if a player prefers.

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

1. A game device comprising a receptacle for counters, and counters representing different denominations of value, there being a plurality of counters of each denomination; all of said counters having a dimension adapting them to fit the receptacle in one direction, and having another dimension varying according to the denomination of value which the counter represents; said varying dimensions being multiples of a common unit representing the unit of value in the computation to be made; and said receptacle having a dimension that is also a multiple of said unit of measurement, whereby it is adapted to integrate the total value representation of counters filling its said dimension.

2. A game device comprising a receptacle for counters, and counters representing different denominations of value, there being a plurality of counters of each denomination; all of said counters having a dimension adapting them to fit the receptacle in one direction, and having another dimension varying according to the denomination of value which the counter represents; said varying dimensions being multiples of a common unit representing the unit of value in the computation to be made; and said receptacle having a dimension that is also a multiple of said unit of measurement, whereby it is adapted to integrate the total value representation of counters filling its said dimension; said receptacle being provided with a scale divided into said units of measurement, whereby the total value of counters partially filling said receptacle may be read.

3. A game device, comprising a receptacle having a plurality of pockets and a plurality of groups of counters, the counters in one group being made to represent different denominations of value and having a common diameter with thicknesses varying in the same ratio as their denominations of value, and the counters in the second group representing an increased denomination of value in definite relation to the counters of the group first-named; one of the pockets of the receptacle having a transverse dimension adapted to fit the counters of the group first-named, and a longitudinal dimension that is a multiple of the unit of measurement of the thickness of the counters, and the other pocket of the receptacle having a transverse dimension corresponding to the diameter of the second group of counters.

4. In a game device, the combination of a receptacle having a pocket, and a series of counters adapted to fit in said pocket; the counters representing definite values in the count to be made and having dimensions bearing a definite ratio to their values, and the pocket having a transverse dimension adapted to fit the counters and a longitudinal dimension adapted to measure said counters up to the number of points constituting the count to be attained; said pocket being provided with an offset receiving space that is also adapted to receive said counters and hold them in a distinguishing position relatively to those in the main portion of the pocket.

5. A game device, comprising a series of counters representing different denominations of value and having dimensions corresponding to the denominations of value which they represent, and a receptacle having a series of pockets constructed to receive and hold said counters and to aggregate the value thereof by measuring their combined dimensions; said pockets being of different length to indicate different aggregated values and being located in different positions to indicate different stages in the count.

6. A game device, comprising a series of counters representing different denominations of value and having dimensions corresponding to the denominations of value which they represent, and a receptacle having a series of pockets constructed to receive and hold said counters and to aggregate the value thereof by measuring their combined dimensions; said pockets being of different length to indicate different aggregated values and being located in different

positions to indicate different stages in the count; said counters being also divided into groups by having different diameters and said pockets being adapted to separate the counters of the respective groups by being constructed with dimensions suited to the different diameters of counters.

The foregoing specification signed at Louisville, Ky., this ninth day of October, 1908.

DONALD McDONALD.

In presence of—
FANNY S. McDONALD,
THOS. W. KENNEDY.