No. 719,365. PATENTED JAN. 27, 1903.

C. F. PIDGIN.

METHOD OF COMPILING STATISTICS.

APPLICATION FILED JUNE 23, 1899.

NO MODEL. 5 SHEETS—SHEET 1.

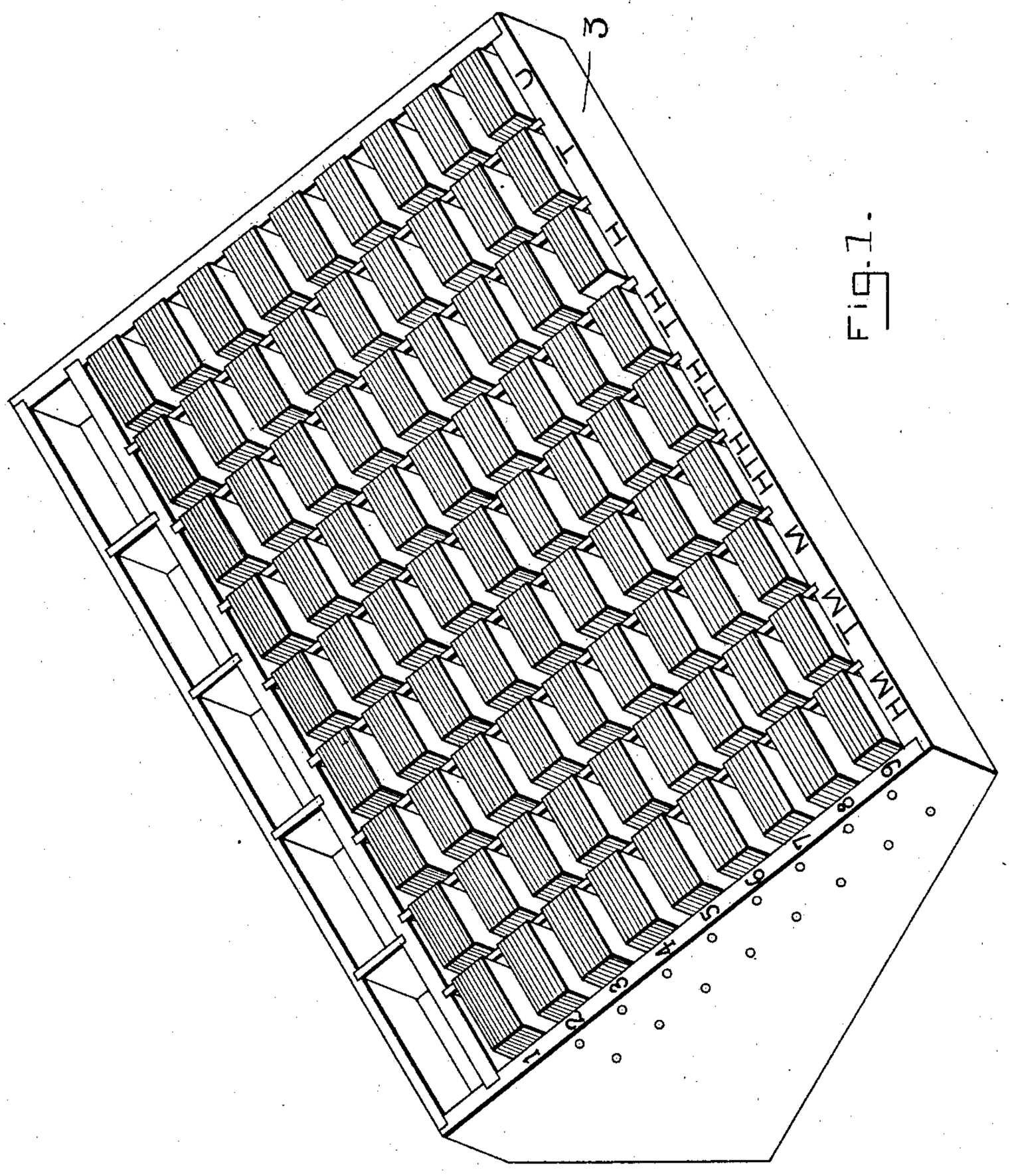

Fig. 1.

WITNESSES

A. D. Harrison

H. L. Robbins.

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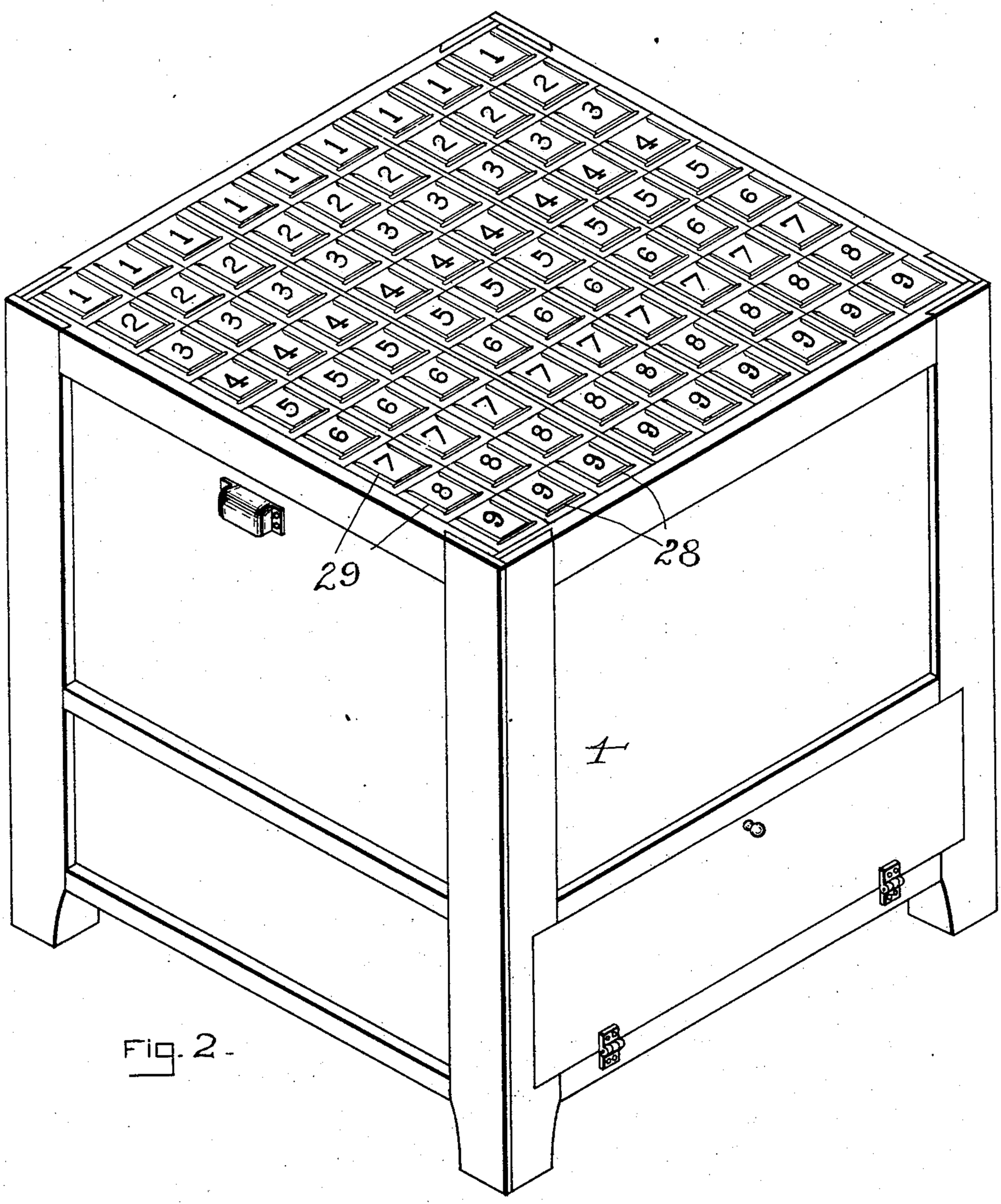

Fig. 2.

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NO MODEL. 5 SHEETS—SHEET 3.

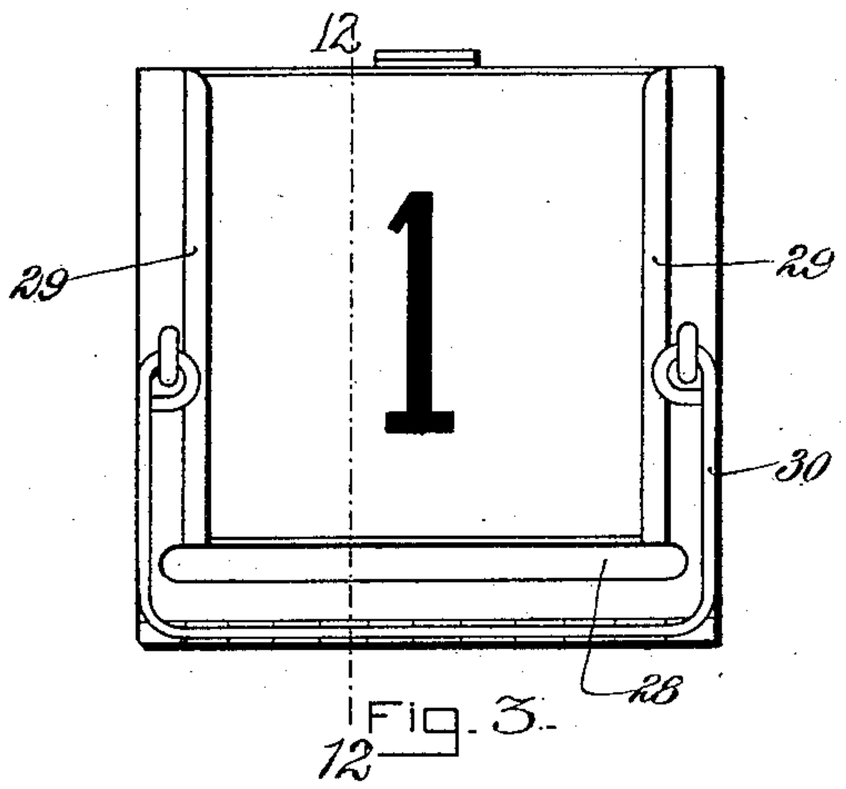

Fig. 3.

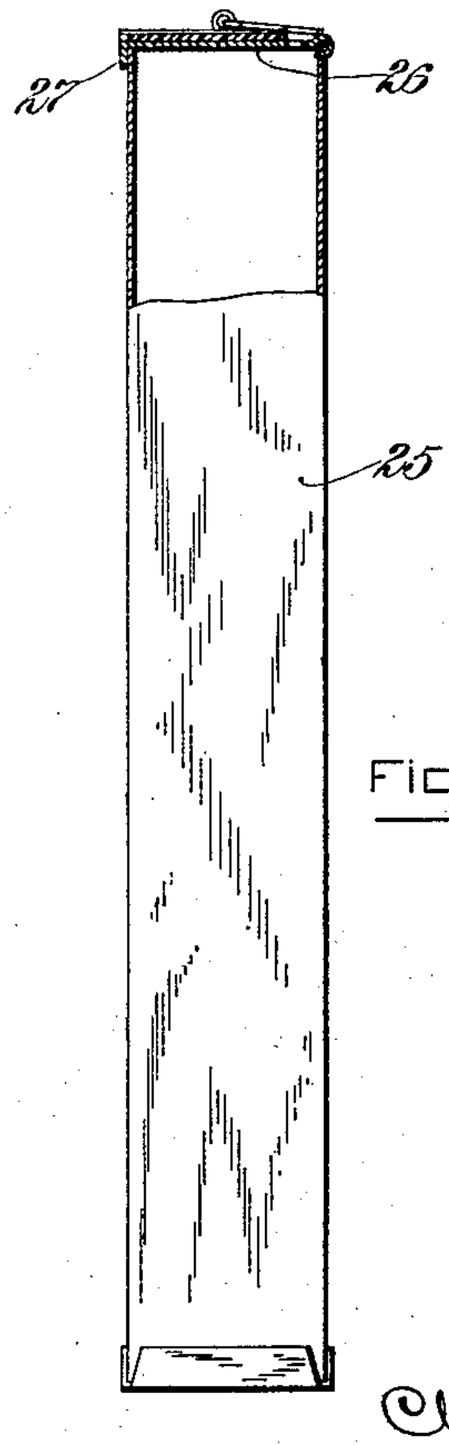

Fig. 4.

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NO MODEL. 5 SHEETS—SHEET 4.

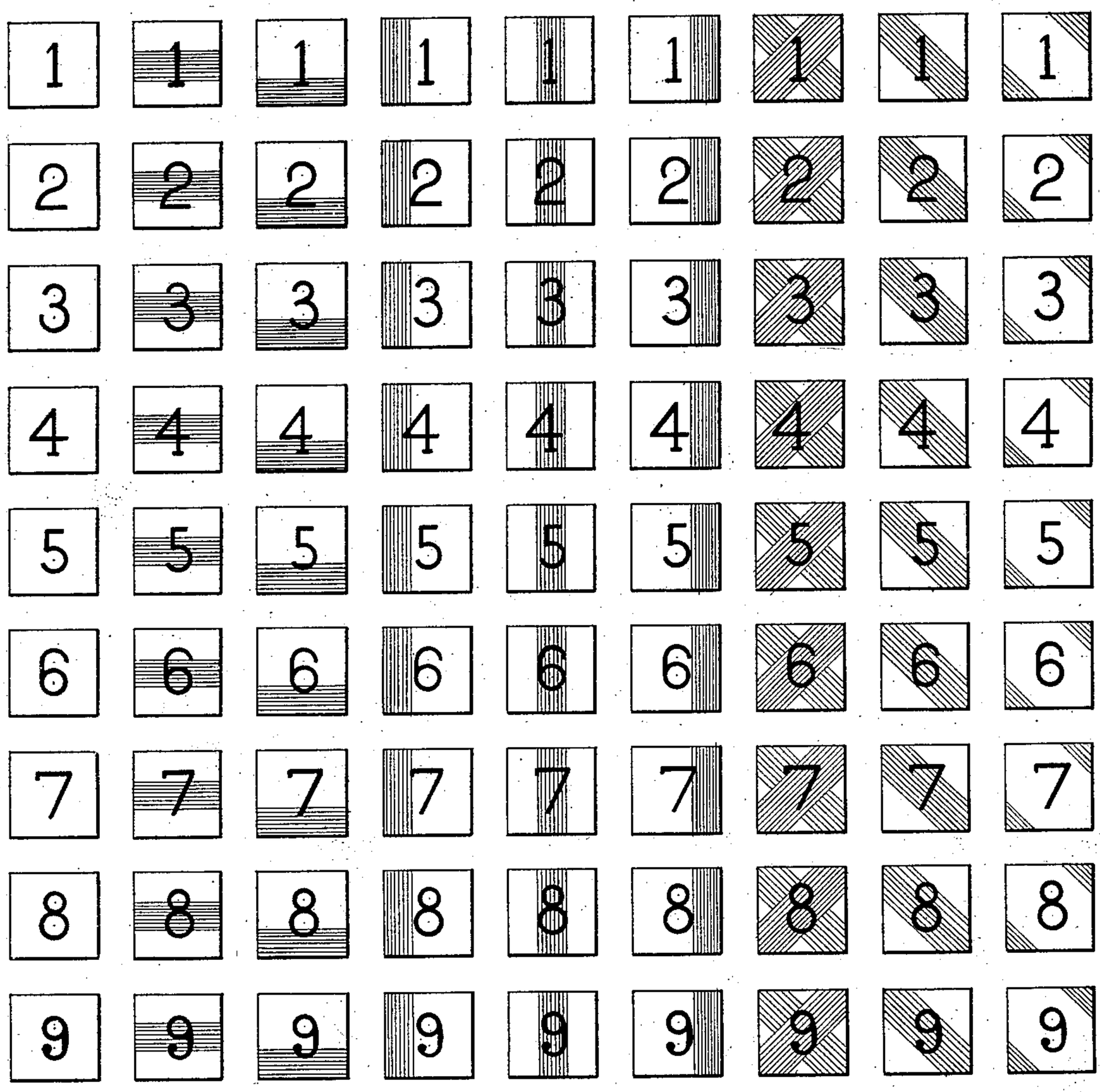

Fig. 5.

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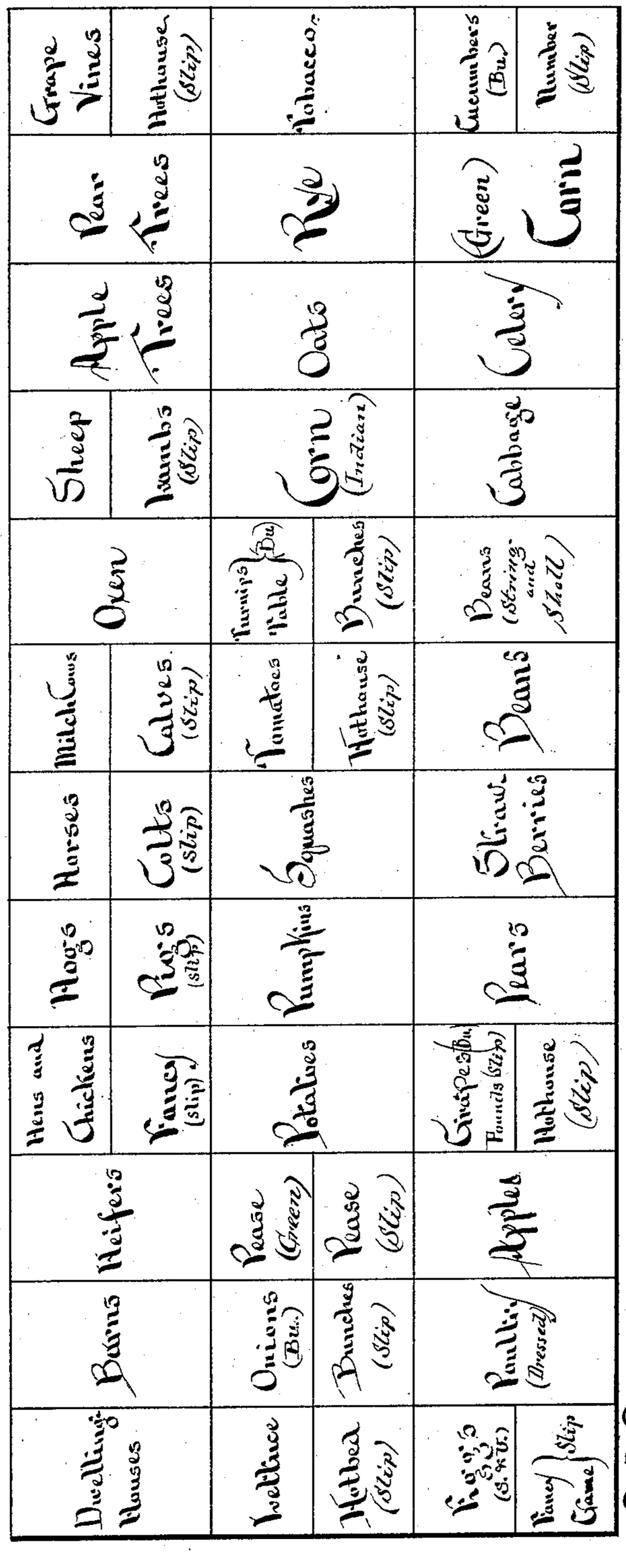
NO MODEL. 5 SHEETS—SHEET 5.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHARLES F. PIDGIN, OF BOSTON, MASSACHUSETTS.

METHOD OF COMPILING STATISTICS.

SPECIFICATION forming part of Letters Patent No. 719,365, dated January 27, 1903.

Application filed June 23, 1899. Serial No. 721,651. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIDGIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Methods for the Compilation of Statistics, of which the following is a specification.

The object of this invention is to provide a method of classifying, counting, and tabulating items or quantities or values.

In my copending application, Serial No. 720,995, filed June 17, 1899, I have described a method and apparatus for compiling statistics relating to population or other sociological information, and the present invention is designed not so much for such work as for aggregating statistics of agriculture, comprehending items of agricultural products or other property and the values thereof. It will be apparent, however, that the invention is also applicable for adding numerical values independently of their classification, so that the sum of a column of figures may be quickly ascertained.

According to my present method I employ a plurality of series of small cards or counters, which I denominate, for lack of a better word, "chips," having distinguishable characteristics. One series represents units or one order of value, the next tens or a higher order, and so on, and the chips of each series are divided into nine packs, representing the numbers "1" to "9" in sequence. For convenience the chips of the several series are colored differently, those which are red representing units; cream, tens; blue, hundreds; pink, thousands; yellow, tens of thousands; green, hundreds of thousands; slate, millions; white, tens of millions, and melon hundreds of millions, and they all bear on their faces the numerals which they represent.

In tabulating certain items of quantity or value which are, for instance, in the form of numerals arranged in columns upon a schedule with certain other items or information the chips representing the items are placed in a suitable receptacle and are then classified and counted in any suitable way, so that the aggregate is ascertained quickly and without producing mental exhaustion on the part of the operator. If a single item to be transferred from the schedule is fifteen thousand six hundred and eight dollars, this value is expressed by the following chips, to wit: a yellow "1," a pink "5," a blue "6," and a red "8," zero being unrepresented.

The chips are placed in suitable compartments in a frame or case, not unlike a compositor's case, and are drawn from it as required. Where the various items being added or aggregated refer to different objects or products, the receptacle for the chips is provided with a number of compartments each adapted for chips representing the value of a predetermined product or thing, and for the purpose of tallying or counting the number of producers or owners of the products or things whose values are aggregated by the chips each of the compartments is provided with a tallying device which may be actuated each time one or more chips is thrown into the compartment, and hence when the results are being ascertained at the end of a tabulation the total value of an agricultural or other product is made known, together with the total number of producers thereof.

Besides aggregating the values of the products I am by my method able to ascertain the summation of the quantities thereof, and to this end I change the order of value of the yellow chips to units of quantity, green to tens, slate to hundreds, white to thousands, and melon to tens of thousands, the value of the other chips remaining the same. Now then it will be seen that into a compartment may be thrown chips representing the quantity of a product raised by an individual and the value thereof.

As an example, let it be supposed that a farmer raises six thousand four hundred and sixty-five bushels of a certain agricultural product valued at twelve hundred and ninety-three dollars. The following chips would be placed in the compartment in the receptacle devoted to that product—namely, a white "6," a slate "4," a green "6," and a yellow "5" to represent the quantity, and a pink "1," a blue "2," a cream "9," and a red "3" to represent value.

In subsequently counting the quantities or values the chips are sorted according to their colors and then as to their numerical value and are added by a suitable counting-machine, as described in either of my copending

applications, Serial No. 720,995, filed June 17, 1899, or Serial No. 727,532, filed August 17, 1899.

After the chips have been counted they are dropped into separate receptacles, from which they may be withdrawn as required.

Referring to the drawings, Figure 1 represents an isometric view of the chip-case. Fig. 2 represents a similar view of the receptacle for the counted chips. Figs. 3 and 4 represent one of the boxers or receivers detached. Fig. 5 represents the different series of chips. Fig. 6 represents a diagrammatic view of the compartments in the casing.

The small cards or chips which I employ in the practice of my invention are shown in Fig. 5. As it is impossible to show upon the drawing the various colors of the chips, I have distinguished them by shaded lines drawn in various directions, though it will be understood that in place of coloring the cards differently I may distinguish them in various other ways.

It will be seen that the chips are divided into nine series and each series is divided into nine packs, bearing on their faces the numerals "1" to "9," inclusive. Although all of the series may be employed for representing quantity or representing value, I have divided them so that the first four series represent values and the next five represent quantity. The first series, which is colored red, represents units; the second, which is cream, represents tens; the third, which is blue, represents hundreds, and the fourth, which is pink, represents thousands, all of these series representing value in money. Of the five series units is designated by yellow, tens by green, hundreds by slate, thousands by white, and tens of thousands by melon, this series representing quantity in bushels, barrels, or according to any other standard.

In practice in order to prevent mistakes by reason of the color-blindness of the operator the digits upon the red, cream, and blue cards are printed in red. Those on the pink, yellow, and green cards or chips are printed in blue, while those upon the slate, white, and melon cards are printed in black. It is evident, therefore, that if the operator could not tell whether a card were red or pink—in other words, could not distinguish units from thousands—the red digit upon the unit would indicate its order of value, while the blue upon the pink would indicate thousands. These chips are arranged according to their respective packs in a case 3. This case is formed with suitable front, rear, and end walls, as shown in Fig. 1, and is provided with partitions, by which it is divided into eighty-one compartments in which the packs of chips may be placed. The case is so inclined that the chips may be easily withdrawn from it as desired. At the top of the box are extra compartments to hold slips for memoranda and other forms of chips that may be required in the work.

Assuming that the census returns show that one individual has one dwelling-house valued at one thousand dollars, a barn valued at five hundred dollars, four cows valued at one hundred and twenty-five dollars, four hundred and fifteen bushels of potatoes valued at eighty-three dollars, &c., the operator will proceed as follows: A yellow card bearing the numeral "1" is inserted in the compartment devoted to dwelling-houses, together with a pink card bearing a similar numeral, these two representing one dwelling-house and one thousand dollars, the value thereof, and at the same time the operater keeps tally in any suitable manner. Then in the compartment devoted to barns is thrown a yellow "1" and a blue "5." In the compartment devoted to milch-cows there is thrown a yellow "4," a blue "1," a cream "2," and a red "5," and for showing the quantity and value of potatoes raised a slate "4," a green "1," a yellow "5," together with a cream "8" and a red "3" would be placed in the compartment devoted to potatoes. As the chips are thrown in each compartment a single tally is made on the tallying device employed in connection with the respective compartment. Consequently after all the items on the schedule have been tabulated the tallying-machines show the number of individuals who are possessed of certain things or who raise certain products together with the quantity of said products and their monetary value. After the chips are taken from the boxes they are counted and the results are noted upon a result-slip or else they are counted by suitable counting or adding machines.

In case a farmer possesses colts in addition to horses the several chips which I have described are not used for the colts; but on small cards the number of colts raised and their value is written in pencil or ink by the operator and placed in the compartment. Thus wherever two products or things are noted upon one slip those which are to be indicated by separate cards are indicated by the word "slip" written thereunder, as clearly shown in Fig. 6.

The sorting-box to receive the chips after they have been counted is shown in Fig. 2. This consists of a square box having suitable front, rear, and side walls and adapted to receive eighty-one small receptacles or boxes 25, formed of tin, as shown in Figs. 3 and 4. Each of these small receptacles 25 is square in plan view and is provided with a hinged upper lid 26 with a spring-catch 27 and a removable bottom 31. The top is formed with a slot 28, adequate to receive one of the chips, and it is also formed with ribs or guides 29 29 to receive a single chip, which indicates the numerical value and the color of the chips to be placed therein. To the said top is also hinged a bail 30, by means of which the box may be lifted out for the purpose of taking out the chips contained therein.

The counting of the chips may be done by

a separate clerk while the separating them into the various compartments is being carried on by another one, so that there is always a sufficient number of chips.

I claim—

1. A method of compiling statistics which consists in indicating quantity or value by means of a plurality of series of members or pieces, each series being physically distinguishable from the others, whereby when thrown into a common receptacle, they may be separated according to their distinguishing characteristics, and the members or pieces of each series being permanently distinguishable to represent digits from "1" to "9."

2. A method of compiling statistics consisting in indicating both quantity and monetary value by selecting from two separate sets of cards or chips, each set being divided into distinguished series representing different orders or standards of value, and the cards of each series representing numerals from "1" to "9," those cards or chips which represent the numerically-expressed quantity and monetary value, and then counting or aggregating said selected cards or chips.

3. A method of compiling statistics consisting in selecting from a plurality of series of distinguishable chips representing different standards or orders of value, the chips of each series representing values from "1" to "9," those chips which represent the quantity or value of certain units, and placing them in separate compartments devoted to said units, and expressing numerically the aggregate value of the chips in each compartment.

4. A method of compiling statistics consisting in selecting from a plurality of series of distinguishable chips representing different standards or orders of value, the chips of each series representing values from "1" to "9," those chips which represent the quantity or value of certain units and placing them in separate compartments devoted to said units, tallying or registering each deposit of chips representing a quantity or value, and expressing numerically the aggregate value of the chips in each compartment.

5. A method of compiling statistics consisting in selecting from a plurality of series of cards which are divided into permanently-distinguished orders of value, the cards of each series respectively bearing numerals in sequence from "1" to "9," those cards which represent the numerically-expressed quantity, and indicating upon a suitable tabulating device each selection of a card, or group of cards.

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

CHARLES F. PIDGIN.

Witnesses:
A. W. HARRISON,
CHARLES THOMPSON.