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Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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REPORT-BOOK.

1,052,414.

Specification of Letters Patent.

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Application filed March 6, 1912. Serial No. 682,054.

To all whom it may concern:

Be it known that we, WILLIAM S. GILKEY and GEORGE H. OGDEN, citizens of the United States, residents of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Report-Books, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

Our invention relates to collections or or books of report blanks and particularly books of car-report blanks of the loose-leaf type.

It is the present practice to bind in permanent form a plurality of car-report blanks in which a plurality of sheets of equal size and comparatively heavy paper are bound together with a plurality of wider sheets of equal size and thin paper, the narrower sheets being ruled in two directions to form a plurality of parallel columns and a plurality of parallel spaces at right angles to said columns, the said spaces being subdivided to form in each an upper division, and provided with indicia in said upper divisions and in such columns, which designate the character of the matter to be reported upon. In the case of car reports, these indicia usually designate the initials, condition, points at which the car is taken and left, and the dates of such taking and leaving, as illustrated in Patent No. 832,451, as an example, issued to E. E. Betts. The wider sheets are similarly ruled and have columns on the extended portion for receiving additional data relating to such reported matter, the columns and spaces of the narrower and wider sheets registering with each other. As many of the two kinds of sheets are provided as may be required.

In the case of car-report books, the latter are supplied to the conductors or other railroad employees, to whom are assigned the duty of filling out the blanks and transmitting the reports so made out. When a conductor, for example, prepares to make out his report, he first places beneath each of the topmost narrower sheets, a carbon-paper, and a similar carbon paper beneath each of the succeeding wider sheets, excepting the last one of the latter. It will hence be seen

that the matter written upon the uppermost narrow sheet will be duplicated upon all of the other narrower sheets and upon all of the said wider sheets. The latter sheets are provided with indicia in the columns which register with the columns on the narrower sheets, which are identical with the indicia in the registering columns of the latter, as shown and described in said above-named patent. Each space, therefore, is arranged to contain the data relating to a single car. The conductor having now filled out the number of spaces on a sheet corresponding to the number of cars handled by his train in a given specified period of time, removes, by tearing, the carbon sheets and then removes that set, or those sets of narrow and wide sheets which contain the written data, suitable perforations being provided along one edge of the sheets for facilitating such removal. These sheets are transmitted to the car accountant. The heavier and narrower sheets are then severed on the division lines between adjacent spaces so as to form strips. These strips are then sorted or collated and placed upon filing spindles, a perforation being formed in each space for such filing, and from these sorted strips the car reports are made up. The wider and thinner sheets are filed away as permanent records. It will be noted first that the narrower sheets, in the course of their being removed from the book, cut into strips and filed, undergo a considerable amount of handling and in order to preserve their integrity until such time as the car report is complete they must necessarily be made of comparatively heavy and good quality of paper. The wider sheets, however, since they are subjected to comparatively little handling are not required to be of such heavy and durable grade. Furthermore, inasmuch as they are preserved it is necessary that they be of as light material as possible in order to save space. It is, therefore, as will be noted from the above, essential that the narrower sheets be made of heavy and the wider sheets be made of light paper. Furthermore the spaces for receiving the data, on account of the multiplicity of such data, must be made quite narrow in order to save space and reduce the size of the book to practical limits, and the spaces on the narrower sheets must register with

the spaces on the wider sheets, in order that the data written on the top-most narrow sheet may also fall in the proper spaces of the wider sheets. If this registration were not accurate, the data belonging to one strip might overlap into a space on the wider sheets, in which it did not belong and thus confuse the permanent record. This liability to overlap is of course enhanced by the necessary narrowness of the spaces, as will be understood. It has, however, been found that these limitations as to quality of material, width of spaces and registration, have made it exceedingly difficult to bind the sheets into the required book form and secure the desired result. This difficulty has arisen as a result of various attending circumstances. In the first place the two sets of sheets must, on account of the diversity of material, be ruled and marked in two separate and distinct printing operations and by means of separately set up forms. This necessity introduces an element which at once makes it difficult to reproduce, as to width of spaces and columns, the rulings of the narrower sheets, on the wider sheets. Secondly, the one quality of the paper acts differently under the printing operation than does the other, and a further variation in printing is therefore experienced. Thirdly, the one quality of paper shrinks in a different degree than does the other. All of these circumstances result in the departure from the required registration which is necessary, and often to such a degree as to render many of the sheets useless, which of course results in waste and loss.

The object of our invention is to permit of the use of heavier and lighter paper, printed in the usual manner, in book and loose-leaf form and obtain a degree of registration which will make it substantially certain that no confusion of records will result. The use of the loose-leaf form necessitates punching all of the sheets and placing them upon suitable spindles on a loose-leaf binder. This introduces a fourth element tending to disturb the registration of the spaces, inasmuch, as the perforations on the sheets become displaced by reason of shrinkage and other causes. Our invention is therefore designed to overcome this added element of difficulty and thus make it feasible to use the loose-leaf form of binding.

Our said invention consists of means hereinafter fully described and particularly claimed.

In the annexed drawing: Figure 1, is a plan of one of those sheets of report book embodying our invention which are designed to be preserved for permanent record. Fig. 2 is a plan of a loose-leaf book embodying our invention.

In the illustrated embodiment of our invention which represents a loose-leaf car-

report book and preferred form thereof, a back A is provided consisting preferably of wood of suitable dimensions, which is provided with a suitable loose-leaf binding device of any desired or well-known structure. We prefer, however, to employ the binding device illustrated, which is shown, described and claimed in our pending application for U. S. Letters Patent, filed November 19th, 1911, and bearing Serial Number 666,766. This binding device includes two posts *a a* which are caused to project through suitable perforations in the loose leaves. These posts, coöperating with the spring clips serve to removably secure the said leaves in place upon the support A, as will be readily understood.

The leaves of the book are of two kinds, leaves B and leaves C. Leaves B are made of a comparatively heavy and good quality of paper, are all rules alike, and, in the illustrated device, are provided with indicia designating the initials, condition, etc., of cars handled by a train, in a manner similar to that shown and described in said aforementioned Betts patent. As also shown in said patent, parallel columns *b* and parallel space *b'* at right angles to said columns *b* are formed by the rulings, and the spaces are each provided with an additional ruling *b²* forming in each an upper divisional space *b³* in which the indicia are placed. Each space *b'* is also provided with a perforation *b⁴* as in the said Betts patent, whereby the severed strips may be separately filed, as will be understood. The sheets C are made of thin paper and each is ruled as shown in Fig. 1, to form parallel columns *c* and parallel spaces *c'* at right angles thereto, the said columns and spaces corresponding in number and dimension with columns *b* and *b'* respectively of sheets B. Said sheets C, as in the Betts patent, are wider than the sheets B and the extended portion of each is provided with columns, spaces and indicia for receiving additional data to form part of the permanent record. Each sheet C is furthermore provided with two perforations *c² c²* whose centers are separated from each other a distance equal to that which separates two of the perforations *b⁴*, preferably the most widely separated two, as shown in the drawing. The distance between the posts *a a* is of course made equal to the distance between the perforations *b⁴*, as will be understood. Instead, however, of locating the perforations *c² c²* in the spaces so as to occupy the same relative positions therein as are occupied by the corresponding perforations *b⁴*, I so place them that the rulings *c³* which form spaces *c'* will fall immediately below a line drawn and falling entirely within the divisional spaces *b³*, as shown in dotted lines in Fig. 2, when the sheets are assembled on the back A, to form

the book. It is preferable, as shown, that said drawn line be made as nearly as possible, to fall midway between the divisional space rulings and parallel therewith. By such arrangement it will be seen that each space b' is as a whole displaced with respect to a space c' , and the sheets B may therefore be moved in either direction, transverse with relation to the spaces c' , some little distance without causing the lower divisions of spaces b' to be moved beyond the upper or lower limit of spaces c' . This latitude of movement therefore, will compensate for the displacement of the sheets B with relation to sheets C, which takes place as a result of the previously described difference in material, inaccuracy of printing, shrinking of paper and inaccuracy of punching. Matter written in such lower division will, hence, with practically unvarying regularity always fall within the proper spaces c' on sheets C. These sheets B and C are distributed in loose form to the employees who are to use them, and by such employees gathered and arranged upon the backs A as occasion may require and according to the instructions which may have been given. Such arrangement, however, always requires the wide and narrow sheets to alternate, and narrow sheets to be uppermost, and suitable carbon sheets are used to make the required duplications. Each book, therefore, includes successive combinations of wide and narrow sheets, the number of such sheets in each combination varying as occasion may demand. One whole combination is used and removed for each narrow sheet filled out and removed, and transmitted to the car accountant's office.

The drawing shows for the purposes of the illustration only, sheets each arranged to receive the records of but eight cars, but in practice they are much longer, being arranged to receive three or four times that number.

Having fully described our invention,

what we claim and desire to secure by Letters Patent is:

1. A group of sheets comprising in combination an upper sheet provided with rulings forming parallel columns and parallel spaces at right angles to said columns, each such space being provided with rulings forming an upper and a lower division, and having in the upper division and in the various columns, indicia for designating the characteristics of the matter to be reported; with a subjacent sheet provided with rulings forming spaces parallel with the spaces of the upper sheet and of substantially the same width as such latter spaces; the rulings of the spaces of the lower sheet registering with a line in the upper sheet which falls between the space rulings forming the upper division of the spaces of said upper sheet.

2. A group of sheets comprising in combination a sheet provided with rulings forming parallel spaces for receiving data, each space being provided near one edge with a perforation; with a sheet of less thickness than said first-named sheet and provided with rulings forming similar spaces, together with two perforations separated from each other by a distance equal to that separating two of the perforations of said first-named sheet; the perforations of said second-named sheet occupying a different position with reference to the rulings thereon than do the perforations of the first-named sheet with reference to its rulings; whereby the spaces of the latter sheet are displaced with reference to the spaces of said second-named sheet.

Signed by us, this 26th day of February 1912.

W. S. GILKEY.
GEO. H. OGDEN.

Attested by—

WM. ROTHENBERG,
A. E. MERKEL.