Oct. 21, 1930. J. S. McMICHAEL 1,778,766

ENGINEER'S NOTE BOOK

Filed Nov. 25. 1927 3 Sheets-Sheet 1

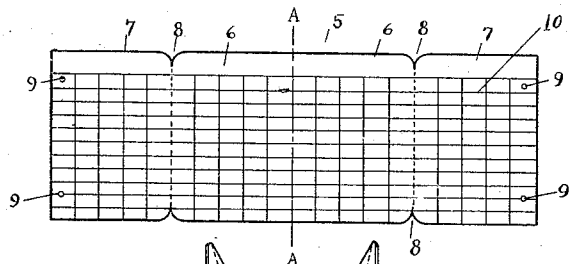


FIG. I

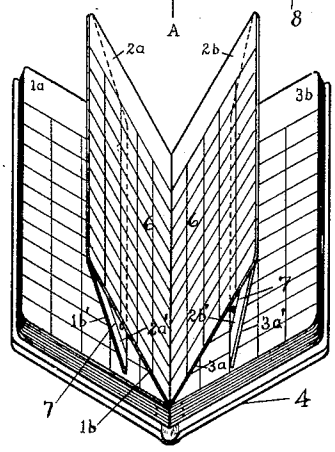


FIG. II

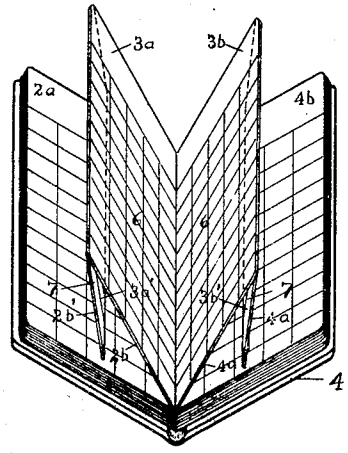


FIG. III

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Oct. 21, 1930. J. S. McMICHAEL 1,778,766

ENGINEER'S NOTE BOOK

Filed Nov. 25, 1927 3 Sheets-Sheet 2

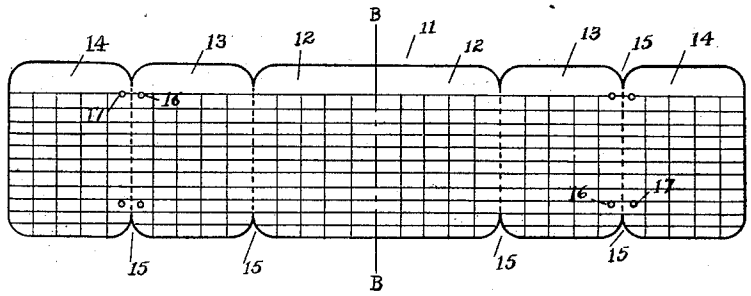


FIG. IV

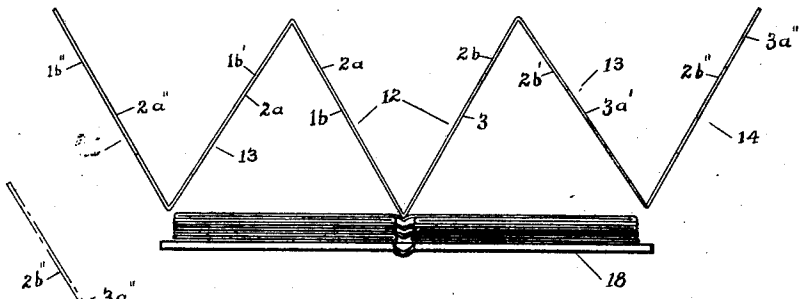


FIG. V

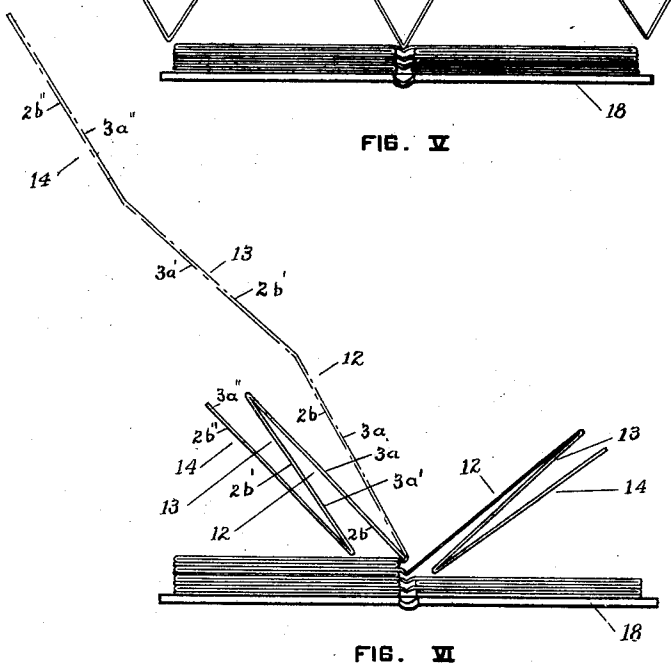


FIG. VI

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Oct. 21, 1930. J. S. McMICHAEL 1,778,766

ENGINEER'S NOTE BOOK

Filed Nov. 25, 1927 3 Sheets-Sheet 3

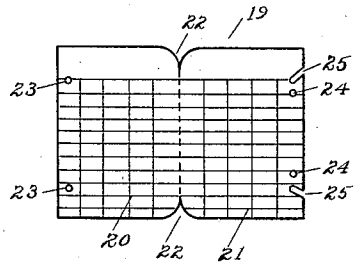


FIG. VII

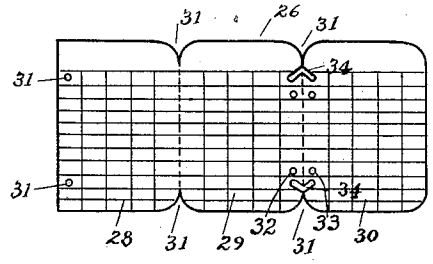


FIG. VIII

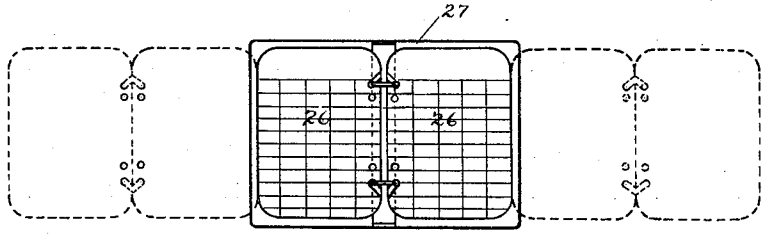


FIG. IX

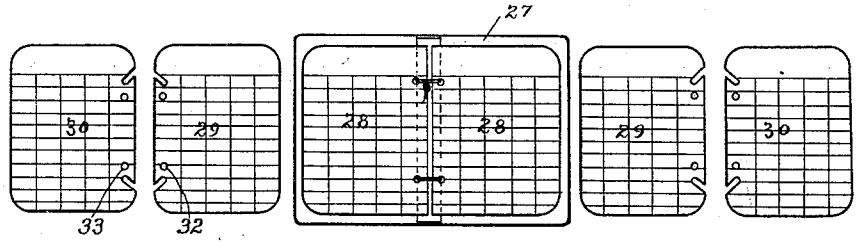


FIG. X

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Patented Oct. 21, 1930 1,778,766

UNITED STATES PATENT OFFICE

JAMES S. McMICHAEL, OF PITTSBURGH, PENNSYLVANIA

ENGINEER'S NOTEBOOK

Application filed November 25, 1927. Serial No. 235,423.

This invention relates to a copying note book which is particularly designed for use by civil engineers in the field, but which is adapted to use in any connection where duplicate notes of experiments and the like are to be copied.

Civil engineers in making field notes use the page on one side of their opened field book for written data and use the opposed page for recording sketches, diagrams, etc. For this reason it is desirable that the sheets of the note book be in perfect alignment both horizontally and vertically so that it will be at once obvious to which portion of a sketch or diagram the written notes refer. If ruled sheets be bound in a note book in the usual manner and carbon paper inserted between sheets, there is frequently a distortion in the relative position of the carbon copy because of inaccuracy in the assemblage of the sheets in binding. In such books, moreover, it is necessary to clip the sheet of carbon paper to one of the white sheets in some manner in order to hold it in position during the making of the notes.

One object of the invention is to provide a note book of the character indicated, in which mutually attached leaves are so folded as to provide a natural pocket for carbon paper in making notes.

Another object of the invention is to provide a note book arranged for the making of duplicate or multiple copies of notes, and in which both sides of each section or leaf of paper is utilized, and in which both sides of each section or leaf may have marked thereon an original or a carbon copy only; that is, the character of the notes on both sides of the same leaf are similar insofar as the distinction between the original and copy is concerned.

A further object of the invention is to provide outer detachable sections or leaves which are adapted for binding together to form an exact duplicate of the original note book from which the detachable sections are removed.

Another object of the invention is to provide a duplicating note book in which the pages are so organized that the page which bears a set of original notes is an integral part of the leaf which includes the page for the carbon copy of the notes.

In the accompanying drawings Figure I is a plan view of a sheet used in making up a note book; Figure II is an isometric view, showing the note book open and with one of such sheets extended to illustrate its use in the making of notes; Figure III is a similar view, showing an adjacent sheet extended to illustrate the progressive use of the note book; Figure IV is a plan view of a sheet for use in such note book, but showing a modification for the production of copies in triplicate; Figure V is an end elevation of the note book showing a single sheet in extended position; Figure VI is an end elevation of the note book shown in Figure V illustrating the progressive use of the note book; Figure VII is a plan view of a sheet with duplicate leaves adapted for use in a loose leaf binder instead of a permanent binding; Figure VIII is a plan view of a triplicating sheet for loose leaf binding; Figure IX is a plan view of a loose leaf note book, showing in full lines two triplicate sheets folded and showing in dotted lines the two same sheets spread out; and Figure X is a plan view, showing the leaves bearing the originals in position in the loose leaf binder, and the copying portions or leaves detached for separate binding.

In the drawings reference numeral 5 designates as a whole the duplicating sheet shown in Figure I. On both sides of the dividing line A—A, which shows the line along which the sheet is bound, lie portions or leaves 6. Beyond the portions or leaves 6 are other portions or leaves 7. At the division line between 6 and 7 are notches 8 having curved sides to form a double bevel. Adjacent their outer edges each of the leaves 7 is provided with a pair of perforations 9 for use in mounting these sheets in a loose leaf binder. The leaf 5, as a whole, is provided with ruled lines 10 of which the horizontal elements extend continuously across all the various leaves of the sheet.

When the sheet is bound in a note book 4, the leaves 7 may be initially folded in opposite directions to underlie the sheets 6, in the manner shown in Figure II. In this posi-

tion the faces 2^a and 2^b of the sheets 6 are simultaneously presented for the making of notes. One of these faces, for example the face 2^a, may be used for the written notes, and the face 2^b for a sketch or sketches. With the sheets so disposed it will be found that the horizontal rulings on these two faces are continuations of each other, so that perfect alignment between material on the opposed sheets is obtained.

Before making such notes sheets of carbon paper are inserted between the leaves 6 and 7, with the effective faces of the carbon paper in contact with the surfaces $2^{a'}$ and $2^{b'}$ of the sheets 7. When the notes are then made, duplicates, in perfect alignment with each other, will be formed on these surfaces of the leaves 7, as the leaves 6 and 7 match perfectly when in position for note making. Both the ruled horizontal and vertical lines of leaves 6 will overlie those of leaves 7 to give an identical positioning of the written matter of the original and of the copy. The surfaces 2^a and 2^b of the leaves 6 thus carry notes in the original pen or pencil writing or drawings, while the faces $2^{a'}$ and $2^{b'}$ of the sheets 7 carry the carbon copies of the same.

In progressive use of the note book, the next mutually attached pair of leaves 6 and 7 is raised and brought into position, the pair shown at the left in Figure II being folded down, and the pair shown at the right in Figure II being brought into position at the left of the note book, all as shown in Figure III of the drawings. In this position, moreover, the leaf 7, now appearing at the left, is reversed in its position with respect to the leaf 6 to which it is attached, so that its face $3^{a'}$ is in opposition to the face 2^b, which already bears original notes. The face 3^a, which has as yet not been used, is thus presented for original notes in alignment with the face 3^b on the leaf 6 of the newly presented pair of pages. In making these further notes carbon paper is again inserted between the leaves 6 and 7 with the effective surfaces of the paper in contact with the faces $3^{a'}$ and $3^{b'}$.

When these further notes have been made the outer leaf 7 having the faces $2^{b'}$ and $3^{a'}$ is detached from its associated leaf 6. This leaf will have on one of its faces a copy of the matter appearing on the original page 2^b, and on its other face a copy of the matter appearing on the original page 3^a.

As both faces of successive outer leaves 7 are covered they are detached from their associated leaves 6, and may be bound in a loose leaf binder by means of the perforations 9. As the use of the note book progresses, a complete book having the original notations in pen or pencil remains, while an exact duplicate is made by means of the outer leaves which have received the carbon copies of the notes. If these leaves are bound in proper order as they are detached, the exact relative position of the original notes is maintained throughout this duplicate volume.

Figure IV shows a sheet 11 having central leaves 12, adjacent leaves 13, and outer leaves 14, the line B—B indicating the line along which the sheet is to be bound. At the division line between the sheets 12 and 13 and between the sheets 13 and 14 are notches 15 similar to the notches 8. The leaves 13 are provided with mounting perforations 16 adjacent their outer edges, while the leaves 14 are provided with mounting perforations 17 adjacent their inner edges.

In Figure V one of these sheets is shown bound in a note book 18. As the leaves 12 and 13, disregarding the leaves 14, are identical with the leaves 6 and 7 previously described, their various faces have been given reference numerals similar to those of the sheet shown in Figures I to III inclusive. In making a triplicate copy of notes, a sheet of carbon paper is inserted between the faces 1^b and $2^{a'}$ with its effective surface in contact with the face $2^{a'}$, and another sheet is placed between the faces $1^{b'}$ and $2^{a''}$, with its effective surface in contact with the face $2^{a''}$. When the original notes are then made on the face 2^a, carbon copies are also made on the faces $2^{a'}$ and $2^{a''}$. Similarly a sheet of carbon paper is inserted with its effective surface in contact with the face $2^{b'}$, and another sheet with its effective surface in contact with the face $2^{b''}$.

In progressive use of the book the leaves 12, 13, and 14, to the left in Figure V, are folded down, and those to the right in Figure V moved over into position at the left of the book in the manner illustrated in Figure VI. As shown in dotted lines in Figure VI, the associated leaves 12, 13, and 14 (which were on the right in Figure V) are straightened out along the lines upon which they were first folded, and then the leaves are reversely folded, as indicated in full lines in the left-hand side of the book in Figure VI. With the leaves thus reversed, the face $3^{a'}$ of the leaf 13 is brought into contact with the face 2^b of the leaf 12, and the face $3^{a''}$ of the leaf 14 is brought into contact with the face $2^{b'}$ of the leaf 13. Slips of carbon paper may then be inserted between the leaves, with their effective surfaces in contact with the faces $3^{a'}$ and $3^{a''}$. Notes thus made on the face 3^a are duplicated on the faces $3^{a'}$ and $3^{a''}$.

By detaching the leaves 13 and 14, and binding each set separately in sequence as they are removed from the note book, two additional books of carbon copies may be provided, which correspond both in subject matter and in arrangement with the original note book which is ultimately composed only of the leaves 12 bearing matter in the original pen or pencil markings.

The sheet 19, shown in Figure VII of the drawings, comprises leaves 20 and 21 which

have notches 22 with curved sides at their line of folding. In this form, leaf 20, which is the one on which the originals of the notes are to be made, is provided with perforations 23 for attachment of the sheet in a loose leaf binder. The leaf 21, which is the leaf to carry carbon copies, is provided with perforations 24 for mounting in a binder after detachment from the leaf 20, and also has in its outer edge angularly disposed slots 25 corresponding in their horizontal alignment with the perforations 23 in leaf 20. When the sheet is mounted in a loose leaf binder for the taking of notes, and the leaf 21 is folded either under or over the sheet 20 in the manner and for the purpose previously described in connection with Figures I to III of the drawings, the slots 25 may be made to embrace the rings or posts of the loose leaf binder to permit the sheet 21 to lie in flat position for making a carbon copy. Because of the angularity of the slots 25, it is necessary that the leaf 21 be distorted in bringing it into or removing it from copying position. This form of the slot insures a perfect alignment of the leaves, irrespective of any slight turning movement of the leaf 20 in the binder.

Figures VIII, IX, and X show a sheet 26, and indicate how the leaf is used in a loose leaf binder 27. This sheet comprises leaves 28, 29 and 30 having the bevel notches 31 disposed along their lines of mutual folding. Leaf 28 has the perforations 41 for attachment in a loose leaf binder, while leaves 29 and 30 have respectively perforations 32 and 33 for their mounting in a binder after detachment. Each of the leaves 29 and 30 is provided with a pair of angular slots which meet the similar slots of the other leaf to provide a substantially V-shaped slot 34 having its vertex along the line of folding of the leaves. When the leaves are folded, this V-shaped slot forms a single angular slot to embrace a binding ring or post, as shown in full lines in the Figure IX of the drawings. When mounted in a loose leaf binder this sheet 26 is used in a manner exactly similar to sheet 11 previously described.

What I claim is:

1. A sheet for use in a copying note book comprising two leaves one of which is perforated for attachment in a split ring binding, said leaves being formed by folding the sheet along such line as to produce leaves of substantially equal areas, and the other leaf being provided with angularly disposed slots at its outer edge.

2. A note book comprising a plurality of sheets attached in a binding, each sheet including a plurality of interconnected leaves, initial markings on the faces of the sheet, whereby by appropriately folding a sheet on the right-hand side of the binding the several leaves are arranged one beneath the other, said markings on the faces of said sheet being adapted when the sheet is so folded to provide markings on the one face of one leaf which coincide with the markings on the one face of another leaf of the sheet, and, whereby by reversely folding the sheet on the left-hand side of the binding the several leaves are again arranged one beneath the other, said markings on the faces of the sheet so reversely folded being adapted to provide coinciding markings on the other faces of the leaves of the sheet, as described.

3. A sheet for use in a copying note book comprising two leaves, one of which leaves is perforated for attachment in a split-ring binding, said leaves being formed by folding the sheet along such line as to produce leaves of substantially equal areas, and the other of said leaves being provided with angularly disposed slots in alignment with the perforations of the first-mentioned leaf.

In witness whereof, I hereunto set my hand.

JAMES S. McMICHAEL.