Sept. 11, 1951 H. E. FOSTER ET AL 2,567,279

RECORD SHEET HOLDER

Filed Nov. 27, 1948 2 Sheets-Sheet 1

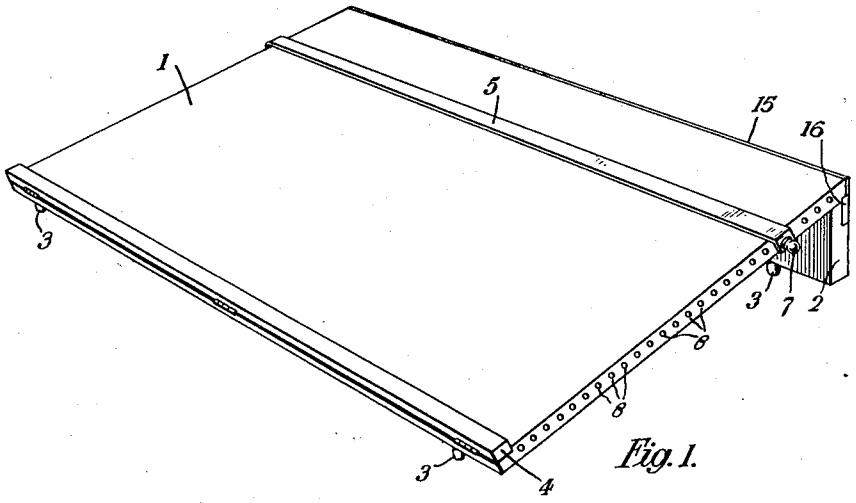


Fig. 1.

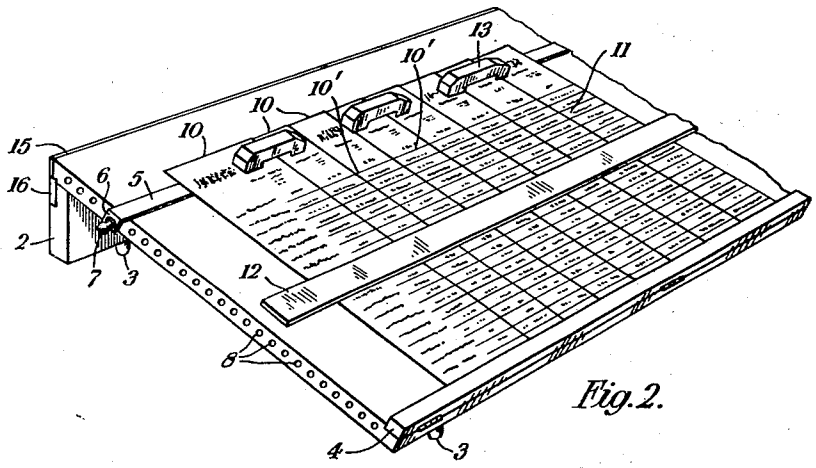


Fig. 2.

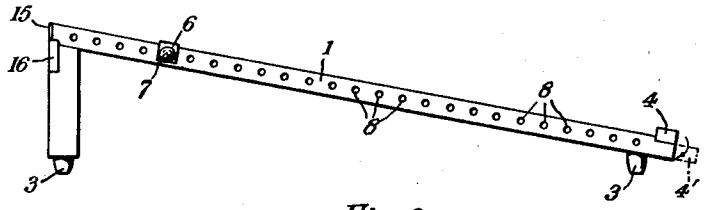


Fig. 3.

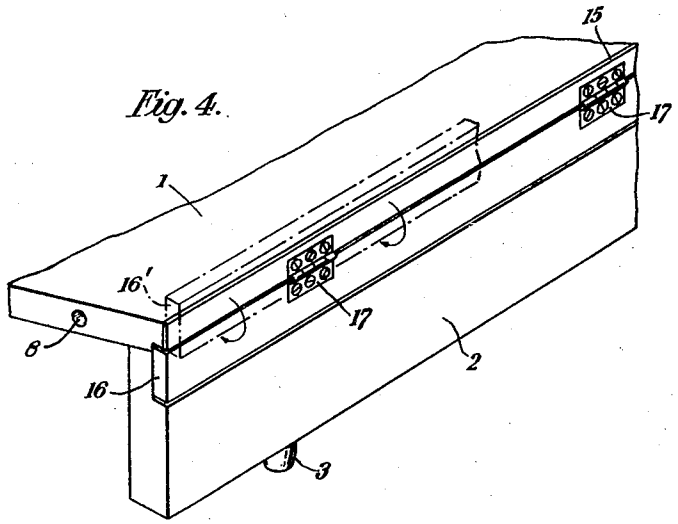
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Fig. 4.



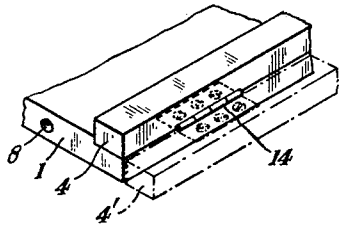


Fig. 5.

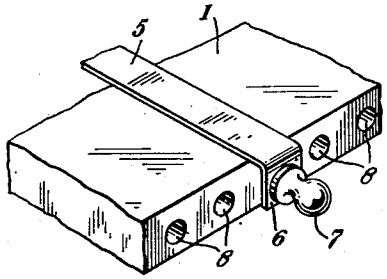


Fig. 6.

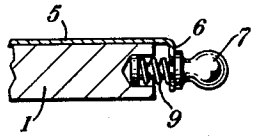


Fig. 7.

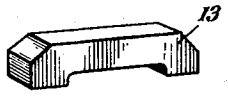


Fig. 8.

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UNITED STATES PATENT OFFICE

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RECORD SHEET HOLDER

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5 Claims. (Cl. 281—44)

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The present invention relates to record sheet holders.

A system for the computation of like items or data arranged in, usually, vertical columns, each column being arranged down one side of a separate record sheet, is in use, of the kind in which the sheets are laid in an overlapping relationship on a backing support with the columns of data visible. In use, a horizontal line guide is placed across the sheets, and the result of the computation of all the items from the several sheets along the horizontal line is entered on a blank sheet placed at the end of the assembly of sheets.

For assembling the sheets in the above described manner, there has been proposed what is usually referred to as a "peg-board," that is, a backing support for the sheets provided along its upper edge with a number of pegs at regular intervals. The sheets for use with such a board are punched with holes spaced to correspond with the spacing of the pegs on the board. The spacing of the pegs is such that each sheet fits over at least two pegs to hold it securely. The pegs may be fixed to the backing support itself or to a separate member adapted to be fixed to the backing support.

A disadvantage of such arrangements lies in the fact that only sheets with the properly positioned punchings can be used with a given board, so that specially prepared sheets are necessary. A further disadvantage is that the possible variations in width of the visible columns are limited to increments equal to the spacing of the pegs, thus limiting the freedom of design of the rulings on the sheets.

It is an object of the present invention to provide an improved and simplified device for use with a system of computation, such as is described above, in which sheets of paper containing significant data are required to be laid in a predetermined relationship, which does not require specially punched sheets and which is simpler in operation than known arrangements for this purpose.

According to the invention a record sheet holder for use in a system of computation of the kind described comprises a backing supporting of non-magnetic material, a strip of ferro-magnetic material carried by said support, a packing edge on said backing support spaced apart from and parallel to said strip, and a plurality of magnets, whereby the sheets carrying the data to be computed may be held between said strip and said magnets by the magnetic attraction therebetween.

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In assembling the sheets on the holder, two or three sheets are placed in position towards the right hand side of the backing support, the first sheet usually being a blank for entering the result of the computation, and the succeeding sheets, added to the left of the first sheet, each overlapping the preceding one to leave only the column of data exposed. The bottom edges of the sheets are packed against the packing edge, and the position of the strip of ferro-magnetic material is such that it lies underneath the upper parts of the sheets, where no figures to be computed are written. When two or three sheets have been arranged, a bar magnet is placed on them to hold them in position. Two or three more sheets are laid in position, working to the left, and a further magnet placed to hold them, and so on until the whole set of sheets is assembled, or the board is filled up. The sheets are now ready for the computing operation. For example the result of the computation of each horizontal line of data is entered on the right hand sheet.

Preferably the bar magnets used should be short, so that one magnet is used for every two or three sheets. Simple rectangular-section bar magnets are found to be effective, but a preferred shape for the magnet to take is that of a low bridge.

As the above described system of computation is usually only carried out in cases where a considerable number of sheets is involved (in the case where a few sheets only are required to be computed at a time, a record sheet holder is not usually necessary) at least three, and usually four or more magnets will be provided for each board. The holder may be provided, for example at the top end edge, with a second strip for ferro-magnetic material for holding the magnets when the latter are not being used for securing sheets.

The packing edge may be hinged or otherwise moveable so that after the sheets have been arranged against it and secured by the magnets, it may be moved to give free movement to a line guide, or to enable the bottom of the sheets to be more easily accessible for writing on.

The strip ferro-magnetic material may be permanently fixed to the backing support, the distance between the backing edge and the strip being such that when the bottom of the sheets to be used with the device are arranged against this edge, the top of the sheets just overlay the strip. Alternatively, the strip may be adjustable in its position in the vertical direction, so that the device can be used with sheets of a range of sizes.

These and various other possible modifications will be described in detail with reference to the accompanying drawings, in which—

Fig. 1 is a perspective view of a record sheet holder unloaded,

Fig. 2 shows a perspective view of a record sheet holder in use,

Fig. 3 shows an end view of Figs. 1 or 2,

Figs. 4, 5 and 6 are perspective views of parts of Figs. 1 to 3,

Fig. 7 is a section of part of Figs. 1 to 3, and

Fig. 8 is a perspective view of a preferred shape of magnet.

Referring now to the drawings, a backing support 1 in the form of a wooden board is raised at one end on a batten 2, so that it is at a convenient slope for use, the whole being mounted on rubber feet 3. Along the lower edge of the board is a packing edge 4 consisting of a raised ledge, for example of wood or metal, against which the sheets can be packed or aligned in the manner to be described later. A strip 5 of ferro-magnetic material such as iron or steel, that is a material capable of being attracted by a magnet, though preferably not itself magnetised, lies across the length of the board 1. This strip may be permanently fixed to the board, but in the embodiment shown it is adjustable. For this purpose the ends 6 of the strip 5 are bent over the edge of the board and each end is provided with a withdrawable stud or button 7 (Figs. 6 and 7) which fits into a suitable hole 8 of a series of such holes formed in the side of the board 1. The stud 7 is spring loaded by a spring 9 to retain it in the holes 8. To adjust the position of the strip the studs are withdrawn from the holes 8 (preferably they are prevented from being completely withdrawn from the end 6 by having their inner ends broadened) and the strip 5 is moved up or down the board to the new position.

Fig. 2 shows how the board is used in practice. The sheets 10 are laid in an overlapping relationship so that on each sheet only the column 10' carrying the data to be computed is exposed.

When the sheets 10 have been laid in the desired overlapping position, with their lower edges against the packing ledge 4, they are held in position by means of small permanent bar magnets 13 which by magnetic attraction to the strip 5 hold the sheets 10 securely in position. The position of the strip 5 is adjusted so that it will lie underneath the upper part of the sheets 10 where no figures to be computed are written, so that the superposition of the magnets 13 does not obscure any significant written matter on the sheet.

As has already been mentioned, preferably the bar magnets used should be short, so that one magnet is used for every two or three sheets as illustrated in Fig. 2. Simple rectangular-section bar magnets are found to be effective, but a preferred shape for the magnet to take is that of a low bridge as illustrated in Fig. 8.

To guide the operator in working across the columns, a straight edge 12 may be laid across the sheets. This straight edge may be a separate piece as shown or may be fixed adjustably to the board in any suitable manner.

As an aid to performing the computation of the lower few horizontal lines of the sheets, the ledge 4, which in the position shown in Fig. 2 would arrest the dowwnard movement of the straight edge 12, may be hinged, so that after packing the sheets, it may be moved into position 4' shown in dotted lines in Figs. 3 and 5. A hinge 14 for this purpose is shown in Fig. 5. The folding

back of the packing edge 4 also facilitates writing on the bottom of the sheets by making the bottom of the sheet easily accessible to the pen and by acting as a support for the hand.

When the computation is finished, the straight edge 12 is removed, and the bar magnets 13 are detached from the strip 5. The papers may then be pushed together into one pile and removed. The board is now clear for a further set of sheets to be laid out for computation.

In order that the magnets 13 may not be mislaid, and to provide a place where they may be conveniently deposited while the board is being cleared after a computation so that they are ready to hand when required, there may be provided another strip 15, also of iron or steel or similar material to that constituting the strip 5, secured to the top end edge of the board 1. The magnets 13 when removed from the sheets 10 may be placed against this strip 15 which holds them ready to hand when required for the next set of sheets.

Due to the movability of the strip 5, the record sheet holder as described is capable of accommodating sheets of a range of sizes. Should, however, it be necessary to work with sheets which are longer than the height of the board (that is the dimension measured from the ledge p. 4 to the strip 15), the board may be provided with a second packing edge 16 which is contained in a recess in the batten 2, and is hinged at 17 (Fig. 4) so that it can take up the position 16' shown in dotted lines in Fig. 4. This upper packing edge 16 is used in the following way. Sheets which are longer than the height of the board are first assembled in the manner already described against the lower packing edge 4 and held in place by the magnets against the strip 5 which is placed near the top of the board. As much of the data on the sheets as is accessible is now computed. The magnets are then removed and the sheets are reassembled with their upper edges against the upper packing edge 16 which is turned into the position 16' for this purpose; the strip 5 remains in the same position as before, and the magnets lie over the heading of the sheets. The packing ledge 4 is turned down into the position 4'. The remainder of the data on the sheet can now be computed.

The above described arrangements are given by way of example only, and many modifications within the scope of the invention will readly be apparent.

We claim:

1. A record sheet holder for use in a system of computation in which sheets of paper having data inscribed thereon are required to be placed in an overlapping relationship with the data visible for computation, said holder comprising a backing support of non-magnetic material, a strip of ferro-magnetic material movable relative to said support, cooperating guide elements on said strip and said support to position said strip relative to said support, a packing edge member at one edge of said support, cooperating means on said strip and said support to fix said strip relative to said support and retain said strip parallel with said packing edge member, a plurality of magnets to hold said sheets in the desired overlapping relationship between said strip and said magnets by the magnetic attraction therebetween.

2. A record sheet holder for use in a system of computation in which sheets of paper having data inscribed thereon are required to be placed

in an overlapping relationship with the data visible for computation, said holder comprising a backing support of non-magnetic material, a strip of ferro-magnetic material carried by said support and movable relative thereto, cooperating means on said strip and said support for guiding said strip during movement relative to said support, cooperating elements on said strip and said support to fix said strip against movement relative to said support, a packing edge member spaced apart from and parallel to said strip and movably attached to said backing support in such a manner as to allow free access to said sheets when they have been arranged, and a plurality of magnets to hold said sheets in the desired overlapping relationship between said strip and said magnets by the magnetic attraction therebetween.

3. A record sheet holder for use in a system of computation in which sheets of paper having data inscribed thereon are required to be placed in an overlapping relationship with the data visible for computation, said holder comprising a backing support of non-magnetic material, a strip of ferro-magnetic material carried by and movable relative to said support, guide elements on said strip engaging said support to position said strip relative to said support, cooperating means on said strip and said support to fix said strip relative to said support, a first packing edge mounted on one edge of said backing support and spaced apart from and parallel to said strip, a second packing edge mounted on an opposite and parallel edge of said backing support, said packing edges being hingedly mounted in such a manner that, when one packing edge is in use the other may be moved clear, and a plurality of magnets, whereby sheets longer than the height of said support may be assembled first with one end against one packing edge and then with the other end against the other packing edge, and may, at each assembly, be held in the desired overlapping relationship by magnetic attraction between said strip and said magnets.

4. A support for retaining a plurality of record sheets of paper having data thereon in overlapping relation with the data visible for computation comprising a backing support of non-magnetic material to receive said record sheets, a packing edge at one edge of said support, a strip of ferro-magnetic material overlying said support and adjustable toward and away from said packing edge, means at opposite ends of said strip engageable with said support for retaining said strip in adjusted position relative to said packing edge, said strip underlying the record sheets, and at least one magnet to overlie said record sheets and said strip to retain said sheets on said support by attraction between said magnet and said strip.

5. A support for retaining a plurality of record sheets in overlapping relation with data thereon visible for computation, comprising a flat, substantially rectangular, non-magnetic supporting member to receive record sheets in overlapping relation, a packing edge at one edge of said support to engage the corresponding edges of said record sheets, a strip of ferro-magnetic material overlying said support beneath said sheets and being adjustable toward and away from said packing edge, said strip having end portions engaging opposite ends of said support, means in said opposite edges and said end portions for releasably locking said strip in adjusted position on said support and at least one magnet to overlie said record sheets and said strip to retain said sheets on said support by attraction between said magnet and said strip.

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