1 My invention relates to control boards, and more particularly to control boards of the visual control type, and constitutes a modification of the control board forming the subject matter of my co-pending application for Control Board, Serial No. 625,219, filed October 29, 1945. Among the objects of the present invention are:

1. To provide a novel and improved control board;
2. To provide a novel and improved control board adapted to the handling of certain types of control problems in a more direct and simplified manner;
3. To provide a novel and improved control board having increased flexibility of operation;
4. To provide a novel and improved chart assembly for a visual control board;
5. To provide a novel and improved control board chart assembly which lends itself to the handling of multiple control problems;
6. To provide a novel and improved panel unit assembly for use in a visual control board.

Additional objects of my invention will be brought out in the following description of a preferred embodiment of the same, taken in conjunction with the accompanying drawings whereinafter:

Figure 1 is a front elevational view of the control board of the present invention as set up for inventory or sales control.

Figure 2 is a view in section taken in the plane 2—2 of Figure 1;

Figure 3 is a view in section taken in the plane 3—3 of Figure 1;

Figure 4 is a fragmentary view of a detail in the construction of the control board of Figure 1, depicting the manner of mounting and supporting selectively sidable superposed tapes;

Figures 5 and 6 are fragmentary views depicting details in the control board set-up;

Figure 7 is a view depicting the application of the control board of Figure 1 to the control of orders.

Referring to the drawings for details of construction of the present invention, it involves a frame 4 and a panel unit assembly 3 for mounting therein.

The frame includes vertical end members 5 and 7 joined by upper and lower horizontal members 9 and 11, respectively. As to details, this frame may agree with the construction illustrated and described in my aforementioned pending application and, when so constructed, will include a masking wall 13 as a part of the left vertical end member of the frame, a masking wall 15 constituting a part of the right vertical end member, and along the upper horizontal member 9, the frame will carry a track 17 for sidably mounting a pendulum rod 19. Such details need not be further discussed at this time, inasmuch as the modifications and improvements which constitute the present invention are confined to the panel unit assembly 3.

Such panel unit assembly includes a panel unit board 21 of substantially rectangular outline and providing upper and lower horizontal edges 23 and 25 and left and right vertical edges 27 and 29. These latter edges may be flat, though I prefer to have each of them convex in contour to receive and firmly hold against lateral shifting, a hollow semi-cylindrical post 31 which in turn provides a similar convex surface for the application thereto of a similar hollow semi-cylindrical post 33, and in this fashion, any number of such hollow semi-cylindrical posts may be assembled against either one or both ends of the panel board, as desired.

These hollow semi-cylindrical posts are adapted to provide mountings for a plurality of sidable superposed tapes 37, 39, 41, etc., and for this purpose each post is formed with a plurality of tape grooves 45, each groove being spaced from the other by an arcuate rib 47. In assembling a group of superposed tapes, the corresponding grooves in the posts assembled at one end of the panel board, each carry an individual tape, which together form the group. Each of such tapes is of a length sufficient to substantially reach across the panel, and is maintained in position for sliding movement, by a wire 51 or the like passing around the corresponding post at the other end of the panel board and connected at each end to an end of its associated tape, preferably by riveting the same thereto under tension. An eyelet type rivet 53 is preferred, in that it results in a reinforced opening through the tape adjacent each end thereof, and this is quite useful in connection with the exposed end of the tape at the front of the board, for it permits of the use of a tape tool for sidably shifting the individual tapes as required in the operation of the board for a control problem, as well as providing an opening through which to mark a surface beneath a tape.

Guide grooves 55 are preferably formed in each of the posts to maintain each wire in its proper plane, and this will serve to keep the superposed tapes in proper alignment.

For purposes of standardization and economy
of manufacture, the posts will preferably each be provided with the tape grooves and the wire grooves and thus will be adaptable for use at either end of the panel. Means may be resorted to for holding the posts in position, though such will not ordinarily be necessary for the tapes and tensioning wires will fulfill this function.

When all the posts are constructed to the same diameter, the superposed tapes will lie closely adjacent one another, which makes for better appearance, and facilitates comparisons. Practically all of the resistance to movement of any tape occurs at its supporting post. Therefore, by reason of the fact that each of the tapes of a group is independently supported by its associated post, the operation of shifting one of the tapes will not disturb the position of any of the other tapes of a particular group.

Should it be desired to support the tapes in superposed spaced relationship to one another, this readily be accomplished by making successive posts of increasingly larger radius. In any event, those posts assembled against the edges of the panel board, should straddle these edges whereby the group of tapes will then be supported in spaced relationship to the surface of the panel board, and thus provide room for the placement of a control board chart assembly 57.

Such a control board chart assembly may preferably comprise a guide chart 59 over the face of which is disposed a backing sheet 61 of transparent plastic material for a plurality of pockets 63, each running substantially the whole length of the plastic backing sheet. 

Each pocket is preferably formed by adhesively securing a strip 65 of transparent plastic material along its lower edge to the backing sheet, and when so constructed, the pocket is adapted to slidably hold a strip 67 of material carrying suitable information. Such information strip may be placed in the pocket and shifted from one position therein to another, if the particular control problem calls for such shifting movement.

It is desirable, though not absolutely necessary, that the pocket-forming strip 65 meet the backing sheet at a shallow angle so that any information strip placed in the pocket will be preferably held more securely against accidental movement in the pocket.

To facilitate the manual shifting of such information strip, I prefer to make the information strips of slightly greater width than the depth of the pocket, so that the upper edge of the information strip will lie exposed above the upper edge of the pocket in position to be grasped for movement.

The transparent characteristic of the pocket-forming strip will render visible such information as may appear on the information strip. To expand the utility of the pocket, I prefer that the material from which the pocket is formed, shall not only be transparent, but shall be possessed of a mat surface capable of taking pencil or crayon markings which are readily erasable. Such mat surface, while it does cut down the transparency of the material to a certain degree, the information on any information strip placed in the pocket will still be legible.

What information goes onto the guide chart 59 will depend somewhat on the nature of the control problems which the board is intended to be utilized for, but for a general all-around purpose, the chart will preferably be divided up by a plurality of similarly spaced vertical lines 69 crossed by a series of thick or heavy lines 71 preferably corresponding to the thickness and spacing of the ribs 47 on the end posts of the panel board. Thus the chart will carry a series of horizontal rows of blank areas, such rows corresponding in position with the tape grooves of the tape posts. For convenience of the operator of a board, the blank areas in a row, may be numbered, and the guide chart, and this will eliminate the necessity for thereafter counting the spaces in any one row, and will further tend to eliminate errors in referring from one row to another. When thus divided up into blank areas, the guide chart may be disregarded if its use is not contemplated in a particular control problem, or the blank areas may be assigned any values in accordance with the particular problem on hand.

In the majority of problems, such blank areas will represent equal time intervals, and as there are many utility of the control board, the time intervals will represent calendar days. To facilitate the identification thereof, when these areas are to represent calendar days, I provide at the head of the panel unit a calendar strip 73 bearing the days and months for the complete period over which control is to extend. Such calendar strip may be printed on an endless tape mounted about the upper end of the panel board, or in many cases it will be preferable to adhesively or otherwise secure a calendar strip to the upper portion of the control chart.

The control boards as described above is adaptable for many control problems, a representative few of which will be discussed as indicative of the flexibility of the control board to such problems.

For inventory control purposes, the superposed tapes may be three in number and of different colors, namely, a red tape, a green tape, and a blue tape, arranged preferably with the red tape closest to the chart, and the blue tape uppermost, thus leaving the green tape in between the two. In the pocket behind these superposed tapes there is placed an information strip bearing precalculated values based on an estimated daily average sales of the particular item to be controlled by these tapes, which item will be listed on an index mounted on the masking wall opposite the tapes which represent such item.

In connection with this inventory control problem, the red tape may be relied on to indicate stock on order, of the particular item under control, the green tape may designate the stock on hand, while the blue tape can indicate the volume of sales. At the start of the control period, there having been no sales as yet, the blue tape will start the control period at the zero indication on the precalculated information strip, while the green tape will be pulled out to the number designated in the connection on hand at that time. The red tape will extend beyond the green tape by an amount indicating the quantity of such item on order at the time. The actual number of such items on order will, of course, be determinable by the difference between the pocket-forming strip and the information strip by the red tape and the amount indicated by the green tape.

In inventory control, the object is to maintain a minimum safe margin of stock on hand to take care of current sales, whereby too heavy an investment in excess inventory or dead items will be avoided. In relying on the visual control...
board to accomplish this object, a portion of the green tape should be exposed at all times, and this will be insured by management having stock on hand at all times.

However, not only is it desired to have stock on hand at all times, but the maximum amount of such stock on hand at any time should not exceed a value necessary to take care of the estimated sales for a brief period of time as determined from the daily movements of the blue tape, and allowing for time to replenish the stock of such item. Thus when the blue tape shortens the exposed portion of the green tape to a point where the time required to replenish stock is just about equal to the number of days’ supplies on hand, then an order should be placed for such stock of the particular item in question, and this will be indicated by the exposed portion of the red tape. Such ordering point may be marked on the green tape for the guidance of management, while the quantity of such item to be ordered can be noted on the index chart opposite the item in question.

At any time the quantity of an item on hand may be determined by subtracting the number at the end of the blue tape from the number at the end of the green tape, and similarly, the quantity remaining may be obtained by subtracting the number at the end of the green tape from the number at the end of the red tape.

To facilitate the reading of such values, only alternate tape grooves on the end posts will be used for tapes as indicated in Figure 6, or the tapes in alternate grooves may be set at zero and not used. Then by utilizing in the pocket below a group of tapes, an information strip bearing a row of precalculated values based on the average daily sales of a particular item to be controlled, exposed readings will be available at all times.

As an alternative, the backing sheet may be provided with pockets of a depth sufficient to cover two rows, in which case the information strip may carry two rows of precalculated values.

Where the precalculated values associated with each item are based on the average daily sales of such item during the previous year, then by shifting the pendulum rod to the current day of the existing control period, it will then indicate quite closely the total sales for each item for the same day of the previous control period, and thus management, by noting the position of the blue tapes with reference to the position of the pendulum rod, will then become aware of sales trends of such items as compared to last year’s sales.

From such information, he may then determine his course of action with respect to these various items.

In utilizing the board set-up as described, for sales control, the red tape may be made to represent a salesman’s quota, and the green tape the volume of sales made against such quota. An information strip carrying precalculated values terminating in a value exceeding somewhat, the estimated quota for a particular salesman for the control period, will be inserted in the pocket alongside his name which will appear on the index. In selecting a precalculated strip in which the terminating value somewhat exceeds the estimated quota for a salesman, allowance is being made for the possibility that the salesman may exceed his quota. In the absence of such precaution, the green tape would “run off the board” and both tapes would have to be reset to a different precalculated strip based on a higher daily sales average.

In operation, the red tape will be pulled out to the quota indication on the precalculated strip. The green strip will then be moved daily in accordance with the actual daily changes in sales which that salesman may make, and thus a running visual record of his activities and progress for the control period will always appear before his management.

Each salesman will thus have a precalculated strip based on his quota for the same period, which in turn is equal to his estimated average daily quota multiplied by the number of days in the control period. Different salesmen will have different quotas depending upon their ability, experience and territory assigned to them.

If all the precalculated strips are selected on the above basis, all the red tapes will be pulled out about the same distance, and the rates of movement of the green tapes should be substantially the same, if all the salesmen fulfill their estimated daily averages. There should be no lag and others exceed their estimated daily averages, the board will visually present this picture to management.

For production control purposes, the information strips will preferably be given space as in the left end for the name of the customer, the order number and the promised delivery date as indicated in Figure 7. The remainder of the strip will preferably be divided off into a row of blank areas corresponding to those on the guide chart. The strip will be inserted in a pocket with the first blank area under the calendar day on which the order was received. The blank area under the promised delivery date will then be marked with a suitable symbol such as a “D” and the strip preferably folded under at that point. The day on which it is estimated that production must start in order to complete the work by the delivery date, should be marked with a suitable symbol such as a “P,” and the date on which materials were received against such order, may be marked with an “M.” Should the estimated production time be actually shortened in making delivery, a “D’” may be inserted in the blank area as of the date on which delivery was actually made, or if the actual production time exceeded that which was estimated, the strip may be unfolded to the area representing the actual delivery date, and the “D” inserted at that point. The particular strip on which these designations appear may be preserved for future reference in estimating orders of a similar nature.

If it is not desired to preserve such records, the symbols may more conveniently be marked at the appropriate points directly on the pockets and thereafter erased when the order has been filled.

Aside from the consideration of any specific order, the entire control board provides a visual picture of existing orders on hand, and this overall picture may be visually enhanced by associating one of each group of tapes with an order, to indicate the current status of such order from day to day. Thus the position of such tape with respect to its associated order indicates whether that order is progressing according to schedule, and if behind schedule, management may then give the attention to it which it requires.

As an added indication of the adaptability of the control board of the present invention, each of the pockets 63 may serve as a mounting for
tabs which may be either placed in the pocket, or slidably mounted on the pocket forming strip which then functions as a rail for the purpose.

In the latter case, the tabs may be hooked over the upper edge of the pocket strip, leaving the tabs to move in a path along the face of the pocket or they may be clipped to the upper edge for movement along the face of the pocket immediately above. In any event, the tabs are shiftable manually from one position to another and may be utilized in conjunction with either the guide chart, precalculated strips, or tapes, or various combinations thereof to solve many problems of control. This arrangement lends itself very nicely to the control of such problems as machine loading, and the maintenance of ship, bus and plane schedules.

The above are only a few of the problems for which the board is adapted, and while I have disclosed the control board of the present invention in considerable detail, the same is subject to modification and alteration without departing from the underlying principles involved. Thus the tapes may be of opaque or transparent plastic and preferably provided with a mat surface for receiving erasable markings, and such tapes may be applied to all or selected ones of the tape grooves, depending on the problems to be handled. I, accordingly, do not desire to be limited in my protection to such details, except as may be necessitated by the appended claims.

I claim:
1. A control board panel unit comprising a panel including a board and means for slidably supporting a plurality of tapes relative to one another in superposed relationship on such board, said means including a plurality of end posts, one against the other, adjacent an end of said board, each of said end posts having a plurality of grooves for receiving tapes at spaced positions therealong, with the grooves of each corresponding with the grooves in the others.

2. A control board panel unit assembly comprising a panel including a board and means for slidably supporting a plurality of tapes relative to one another in superposed relationship on such board, said means including a plurality of end posts, one against the other, adjacent an end or said board, each of said end posts having grooves for receiving tapes at spaced positions therealong with the grooves of each corresponding with the grooves in the others.

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