Feb. 24, 1953 C. W. JOHNSON 2,629,184

CONTROL BOARD

Filed Oct. 29, 1945 3 Sheets-Sheet 1

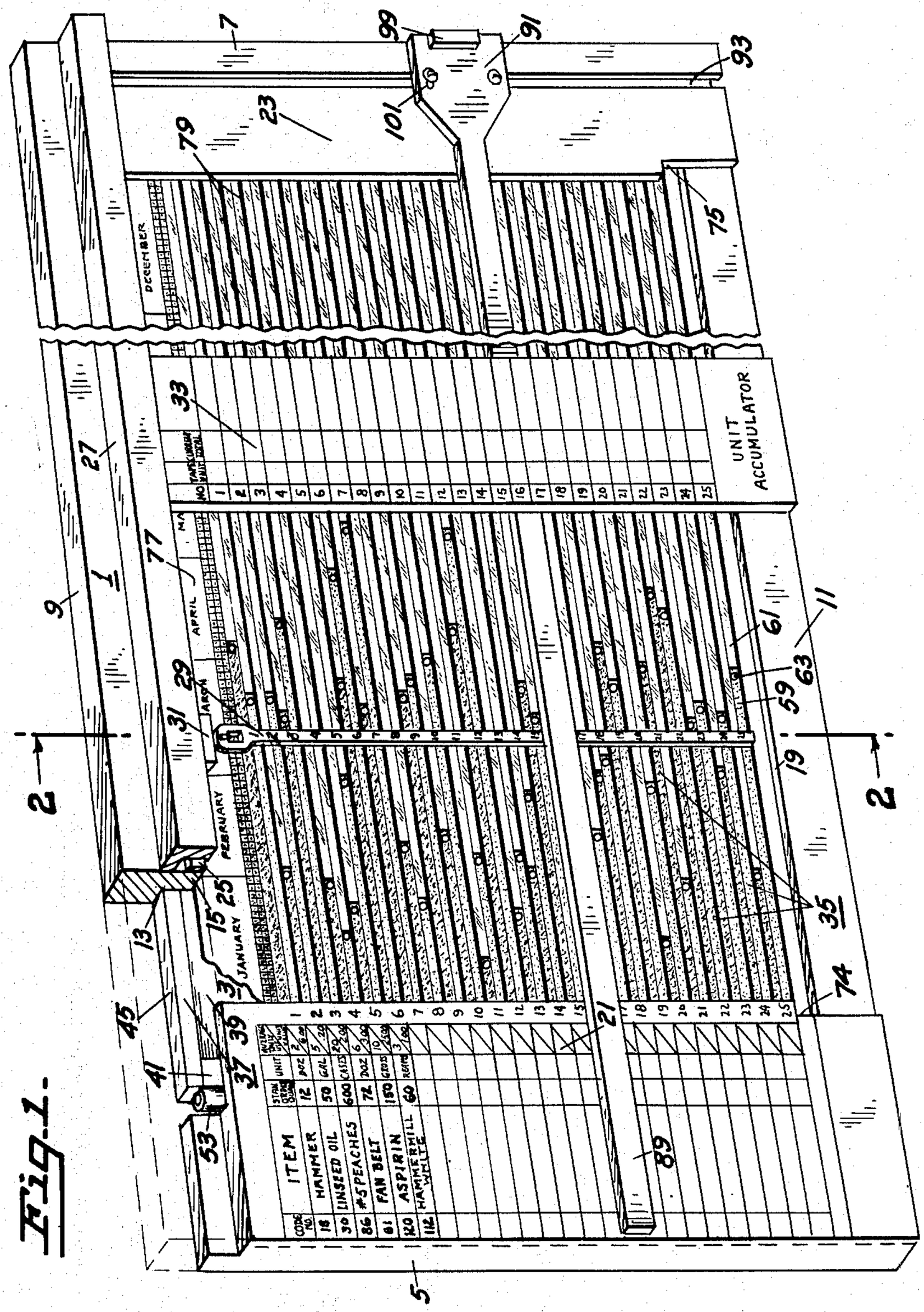

Fig. 1.

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3 Sheets-Sheet 2

Fig. 2.

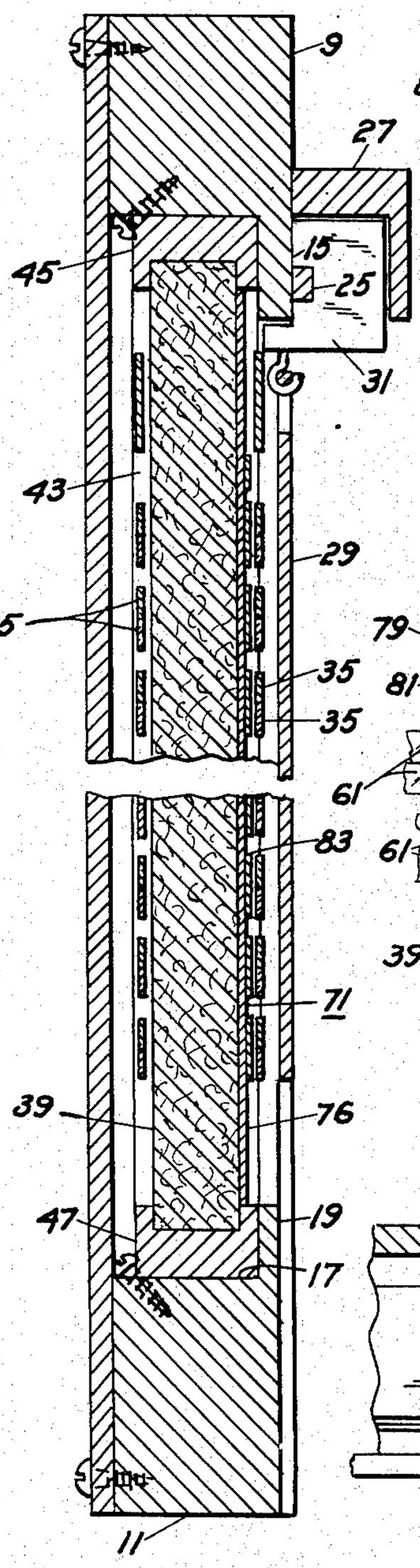


Fig. 7.

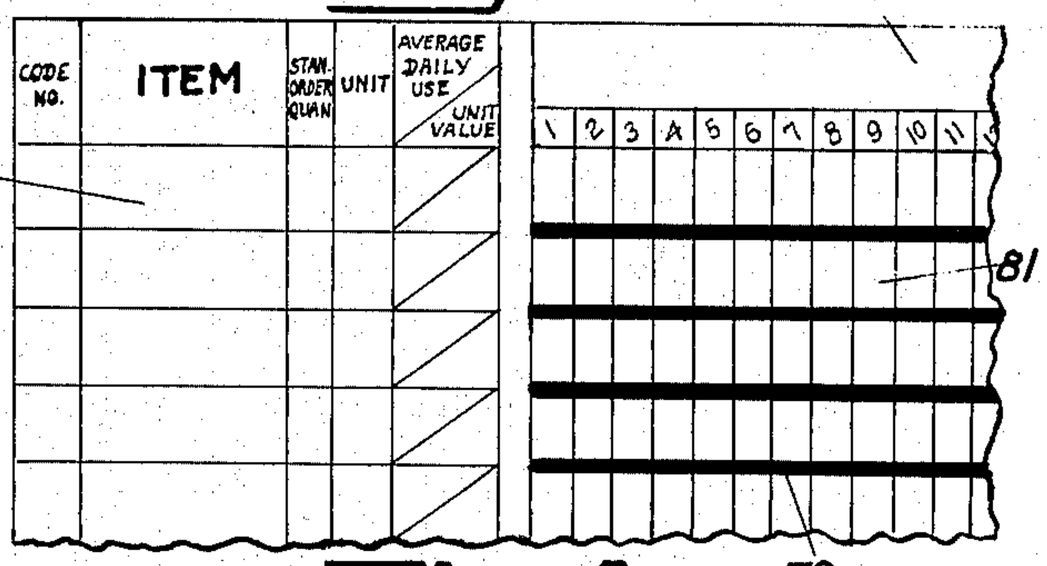


Fig. 8.

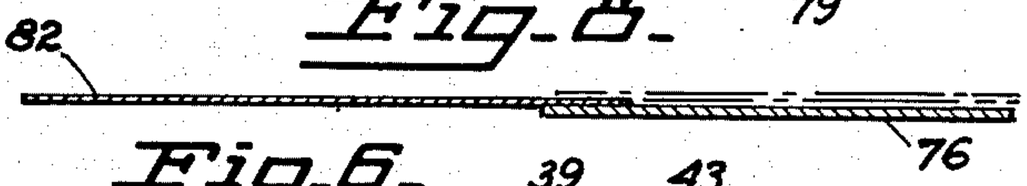


Fig. 6.

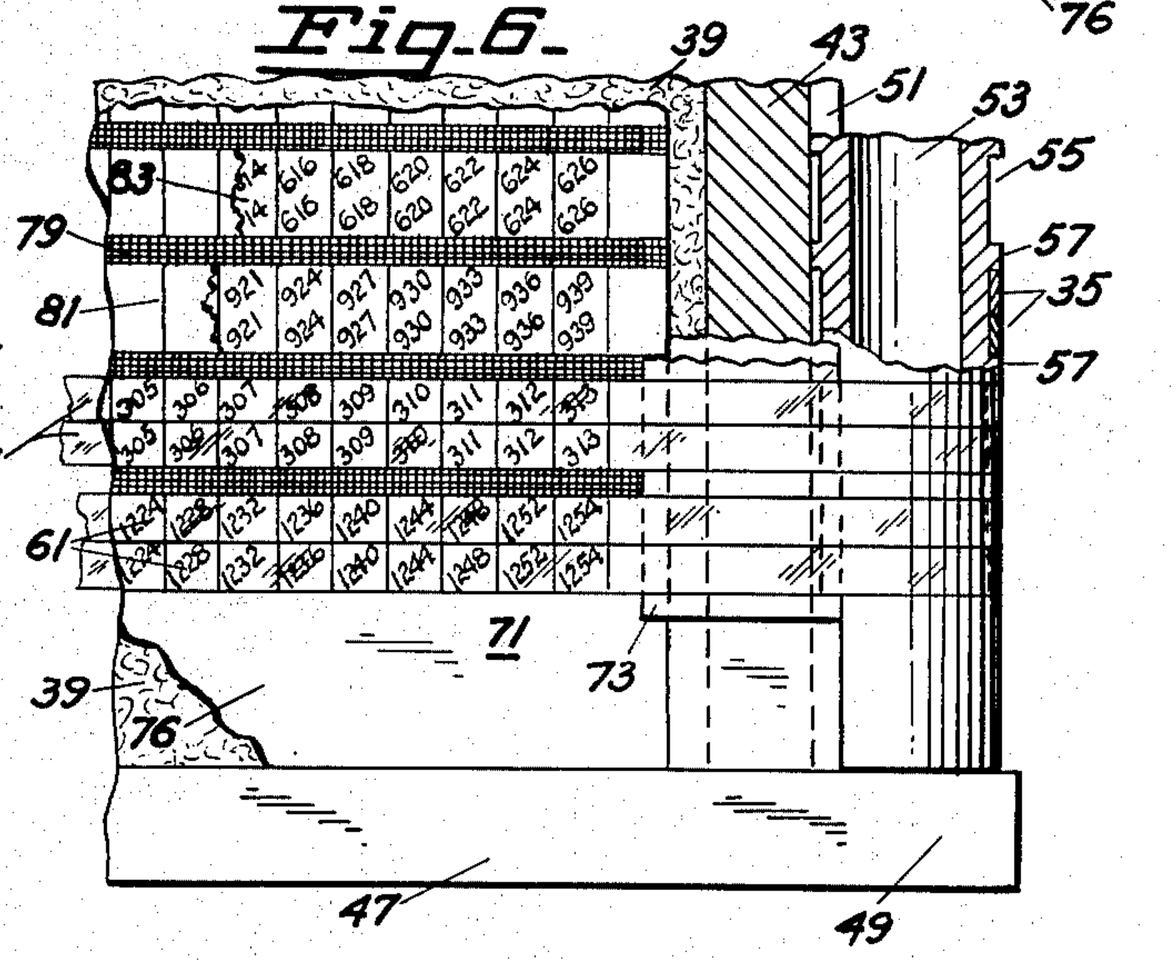


Fig. 5.

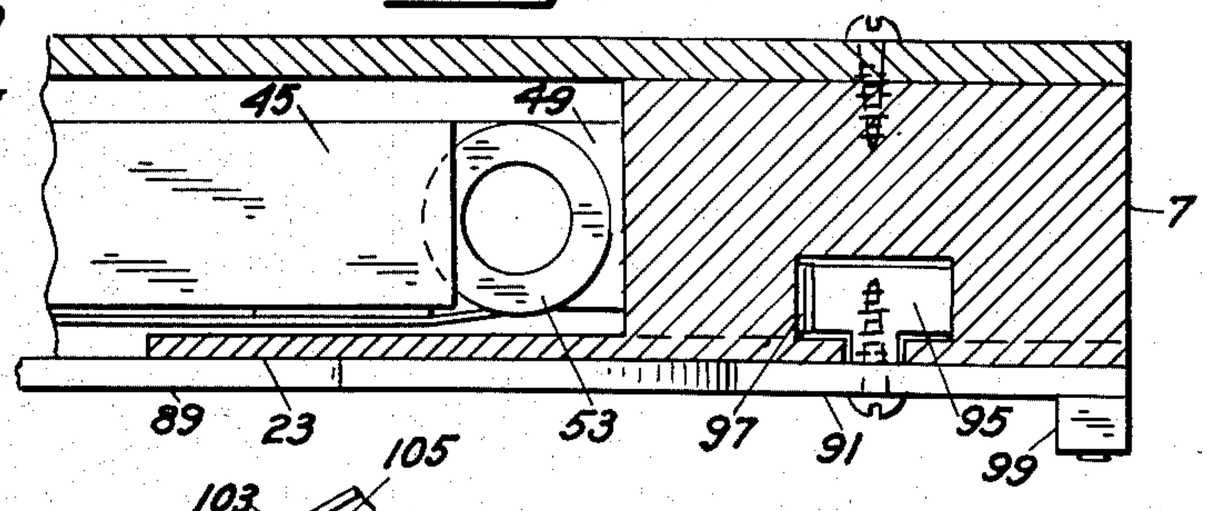
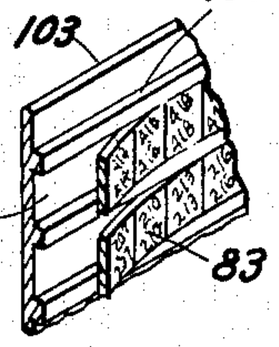


Fig. 9.



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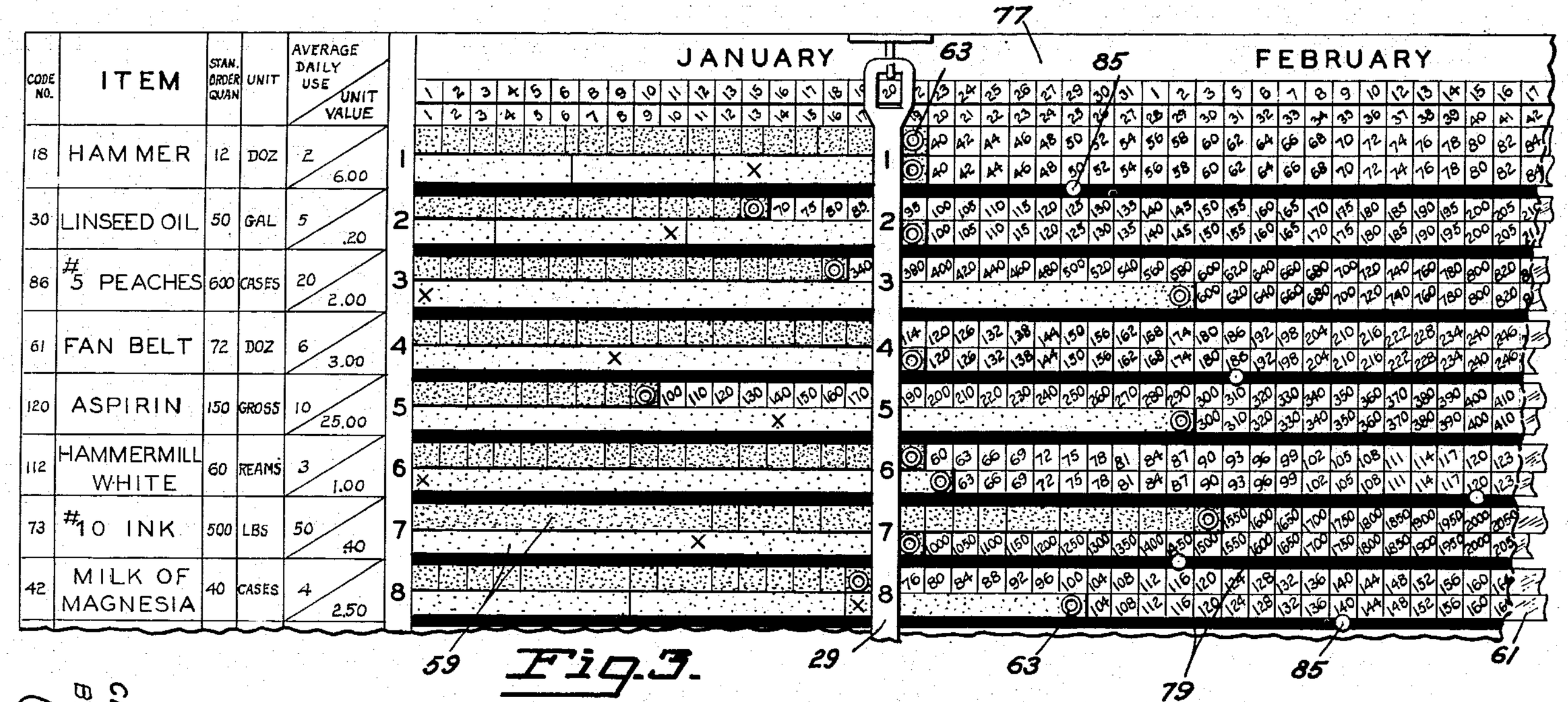
CONTROL BOARD

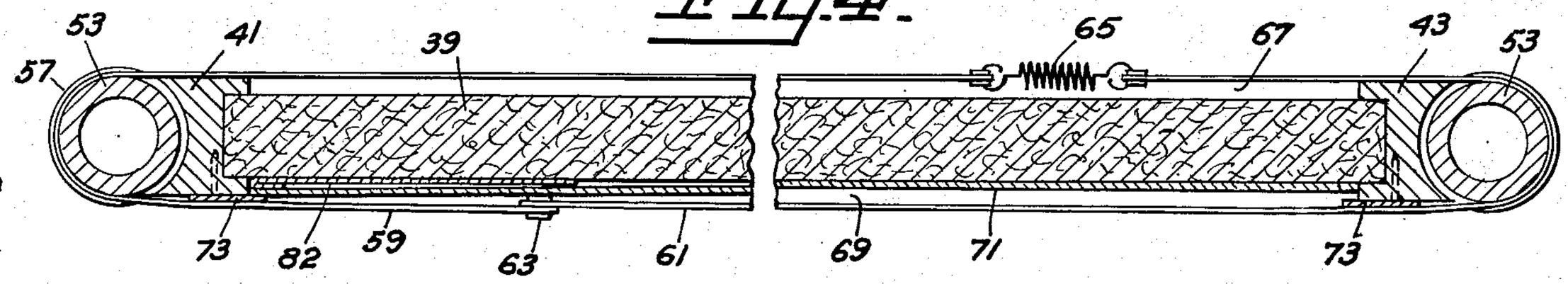
Filed Oct. 29, 1945 3 Sheets-Sheet 3



CODE NO.	ITEM	STAN. ORDER QUAN	UNIT	AVERAGE DAILY USE / UNIT VALUE
18	HAMMER	12	DOZ	2 / 6.00
30	LINSEED OIL	50	GAL	5 / .20
86	#5 PEACHES	600	CASES	20 / 2.00
61	FAN BELT	72	DOZ	6 / 3.00
120	ASPIRIN	150	GROSS	10 / 25.00
112	HAMMERMILL WHITE	60	REAMS	3 / 1.00
73	#10 INK	500	LBS	50 / 40
42	MILK OF MAGNESIA	40	CASES	4 / 2.50

Fig. 3.

Fig. 4.



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Patented Feb. 24, 1953 2,629,184

UNITED STATES PATENT OFFICE

2,629,184

CONTROL BOARD

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Application October 29, 1945, Serial No. 625,219

9 Claims. (Cl. 35—24)

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My invention relates to controls for business establishments, and more particularly to control boards for enabling management to maintain intimate contact with, and exercise control over, all phases of operations such as inventories, sales, materials, production, budgets, etc.

In considering the subject of business controls, it is essential to distinguish the same from a mechanical chart or graph which merely portrays a record of past events. A true control must introduce time factors in cooperation with one or more variables in the items to be controlled, and through such cooperation, portray trends in the activity of business, on which the proprietor may rely with maximum safety in the conduct of his business.

When such control takes the form of a control board as distinguished from a card index system, such control board may be so designed as to also embody the features of a mechanical chart or graph.

The control of inventory has been a very vital problem in this connection, as the success or failure of a business may depend largely on the extent to which the inventory is controlled. A poor control or no control at all may leave the propietor greatly overstocked with dead or slow-moving items representing an investment of thousands of dollars which could otherwise be utilized to good advantage; or the proprietor might find himself out of items, which condition could result in a material loss of potential business and good will.

My invention is particularly applicable among other things to the control of inventory and is so designed as to visually provide management with all the information involving time factors, considered vital to efficient control of inventory.

In this connection, management is vitally interested in knowing (1) when to re-stock on items under control, (2) the daily sales of such items, (3) the sales trend of items, (4) the rate of turnover of stock for given time periods, (5) what items require special consideration by management, and when they require such consideration, (6) a comparison of current sales against sales of a preceding comparative period, etc. A time factor, it is noted, finds its way into each of the aforementioned control factors, and without such time factors, control is not possible.

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My invention, in addition to furnishing management with a current record of such activities and trends, provides for the development of a permanent record of the same, which information is of particular use to management for analysis and future planning.

Among the objects of my invention are:

(1) To provide a novel and improved control board;

(2) To provide a novel and improved control board which will portray trends in the movement of items under control;

(3) To provide a novel and improved control board which maintains all information out in the open for visual inspection at all times;

(4) To provide a novel and improved control board enabling a visual comparison of all items under control;

(5) To provide a novel and improved control board which offers a permanent historical record of items under control without tedious postings to small file cards;

(6) To provide a novel and improved control board for inventory control;

(7) To provide a novel and improved control board enabling the maintenance of a balanced inventory at all times;

(8) To provide a novel and improved control board which introduces the factor of time in control;

(9) To provide a novel and improved control board of simple design and construction;

(10) To provide a novel and improved control board which lends itself to rapid servicing or conversion to different applications;

(11) To provide a novel and improved control board which does not necessitate reliance upon auxiliary computing or calculation equipment in the operation of the board;

(12) To provide a novel and improved control board which lends itself to being photographed with a minimum of shadows.

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 wherein—

Figure 1 is a view in perspective, partly broken away, of a preferred embodiment of my control board as set up for inventory control;

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

Figure 3 is a fragmentary view in elevation, of the control board of Figure 1;

Figure 4 is a longitudinal view in section through the tape supporting panel occupying the central portion of the control board of Figure 1;

Figure 5 is a fragmentary view in section showing a detail of construction of the control board of Figure 1 and the relationship of the panel to associated structure therein;

Figure 6 is a fragmentary view, partly in section, showing a detail of construction of the panel of Figure 4;

Figure 7 is a fragmentary view of a master chart employed in the operation of the control board of Figure 1;

Figure 8 is an edge view of the master chart of Figure 7;

Figure 9 is a fragmentary view in perspective of a modified master chart.

Referring to the drawings, the control board in its assembled form comprises an outer frame 1 for receiving and holding a central tape supporting panel 3 therein.

The outer frame includes vertical end members 5 and 7 joined by upper and lower horizontal members 9 and 11, respectively. The upper horizontal member is formed with a rabbet 13 along the inner edge, leaving a depending rim 15 along the upper edge of the frame opening, while the lower horizontal member is similarly formed with a rabbet 17 to provide an upstanding rim 19 along the lower edge of the frame opening.

The left vertical end member 5 may be either of singular or composite construction, and includes as a part thereof, a laterally extending masking wall 21.

The masking wall, it is noted, lies in a forward plane relative to the common plane of the inner surfaces of the upper and lower rims 15 and 19. In the particular embodiment illustrated, the masking wall 21 is preferably spaced from such plane by the thickness of the lower rim 19.

The right vertical end member 7 of the outer frame, like the left member 5, also includes a laterally extending masking wall 23, such masking wall lying in the plane of the masking wall 21.

Along the upper horizontal member 9 of the outer frame, I provide a track on which to hang or slide certain auxiliary equipment for use as part of my control board. This track includes a rail 25 and a channel 27 of L-shaped section affixed along one of its edges to the upper member in a position to overhang the rail and protect the auxiliary equipment from leaving the rail.

Such auxiliary equipment may vary with the use to which the board is put. For inventory control, such equipment calls for a pendulum rod 29 pivotally supported from a block 31 which rides on the rail 25; and a narrow blackboard unit or panel 33 which also slidably hangs from the rail. The utility of these elements and the manner in which they are utilized in the control of inventory, will be described subsequently in connection with the operation of the control board.

The panel 3 constitutes an intermediate section of the control board and is designed to support a plurality of endless tapes 35 to form a panel unit. It is made up of a panel frame 37 of wood or other suitable material enclosing a

fixed sheet or board 39 preferably of relatively soft fibrous material such as "Cellotex" or the like, capable of receiving and holding map tacks, pins, etc.

This frame is composed of end vertical members 41 and 43 joined by horizontal upper and lower members 45 and 47, respectively, all of greater thickness than the board 39, and inwardly grooved to receive the board and rigidly hold the same in the frame.

The lower horizontal member 47 at each end has an integral extension 49 (Figure 6) reaching beyond the vertical members 41 and 43, each of which vertical members in turn having an arcuate groove 51 on its outer edge running for its entire length. Such arcuate grooves, together with the adjacent aforementioned extensions 49, form a cradle at each end of the panel frame, adapted to receive a column, preferably in the form of a spindle 53, the length of which is sufficient to reach to the upper member 45 of such frame.

Vertical movement of the spindle is accordingly prohibited by such arrangement, in that the forming of the arcuate groove in each vertical end member, leaves the upper frame member 45 partially overhanging the upper ends of the spindles, as is clearly depicted in Figures 1 and 5 of the drawings.

The spindles 53 provide mountings for the endless tapes 35 which encircle the panel and constitute the sole means for maintaining such spindles against displacement in the plane of the board 39 from their proper operating position. Likewise, such tapes preclude rotation of the spindles, during adjustment of any tape. The spindles are formed of a smooth or close-grained machinable material, preferably a plastic such as "Bakelite," which will offer a minimum of friction to movement of the tapes. Spindles of such material can readily be machined to provide grooves 55 for the reception of such tapes, in order to assure proper disposition and spacing of the tapes across the face of the panel. In this respect they constitute guide means for the tapes.

The spacing of the grooves in the spindles will, of course, depend upon the application to which the board is to be put. For inventory purposes, I prefer to dispose the types in spaced pairs, with the tapes of each pair preferably in edge-to-edge contact. Accordingly, each groove on the spindle will be of double tape width, whereby each pair of tapes will be spaced from adjacent pairs by the ribs 57 on the spindles which define the grooves.

Each of the endless tapes is preferably of plastic or similarly usable material and formed of two sections. One section 59 is of opaque material, preferably colored, and has a dull exposed finish or other type of surface capable of receiving erasable markings, such as pencil notations. The other section 61 is preferably of transparent plastic material to permit observation of background or such information as may be mounted on the panel behind the tape.

The two tape sections are joined at the front of the panel preferably by first cementing the adjacent ends in overlapping contact, and then applying an eyelet 63 through the overlapped ends. Behind the panel, the ends of the tape sections are connected by a stretched coil spring 65 with sufficient tension on the tape to preclude sagging thereof at any time.

In this connection, the greater thickness of

the panel frame **37** as compared to the board **39** enclosed thereby, provides clearance **67** for free travel of the springs **65** with movement of the tapes; and with respect to the front of the panel, sufficient space **69** exists to permit of the accommodation of a master chart **71** behind the tapes.

A guide strip **73** (Figure 6) affixed to each vertical end member of the panel frame, overhangs the inner edge of such member to form a guide channel for the reception of such master chart. Each of these strips preferably terminates short of the bottom of the frame (Figure 6), to allow room for the insertion and withdrawal of such master chart from the bottom of the panel, while the masking walls **21** and **23** have a lower recessed corner **74** and **75** to provide such accessibility. In its assembled position, the master chart is permitted to rest on the lower frame member **47**.

The utilization of an eyelet in joining the ends of the tape at the front of the panel is of considerable significance in the operation of my control board.

For one thing, it permits of the reception of a dull pointed tool for manipulation of the individual tapes. It likewise is adapted to receive the point of a marking tool such as a pencil, whereby markings through the tapes and onto the master chart may be made for each adjusted position of such tapes. This latter use enables one to build up a permanent record on the master chart, to be interpreted in conjunction with information which may appear thereon in the form of printed matter or the like.

The length of the lower panel frame member **47** with its integral extensions **49**, is such as to provide a snug or accurate fit in the outer frame, and when the panel is thus snugly assembled in the outer frame, the masking walls **21** and **23** cover up the ends of the panel, leaving exposed to view from the front, only the usable portion of the tapes extending across the front of the panel.

For inventory control, which application I have chosen for the purpose of illustration, the front surface of the left vertical member **5** of the outer frame provides a foundation for the application thereto of an index. Such index includes a list of items to be controlled, and in adjacent associated columns, space is provided for applying information usable in determining movement and positioning of the appropriate tapes, and interpreting the same.

Thus in one column, is noted the standard ordering quantity for each item, that is, the amount of such item to be ordered when the stock available for sale reaches a predetermined minimum. In another column may be noted the control unit for such item, namely whether it be in terms of dozens, gross, gallons, cases, etc. The estimated daily sales or use of such item is also designated, such value being preferably based on past sales records for the item, if such information be on hand. Added to this, is the money value of such item in terms of its control unit.

Along the right-hand edge of the index as viewed in Figure 1, each item should preferably be numbered in sequence. If the various items of a particular business be identifiable by a code number, a suitable column may also be added for this purpose.

Disposition of the items listed on the index should be so correlated with respect to the spacing of tapes on the panel, that when this panel

and outer frame are assembled, each item on the index will be brought into registry with a pair of the tapes on the panel.

The sequential item numbers appearing along the right-hand edge of the index, should also preferably appear on the shiftable pendulum rod **29**. This enables one to readily identify tapes within that general area of the board to which attention must be directed when interpreting such tapes, and the likelihood of error from this source is therefore virtually eliminated.

The master chart **71** as shown in Figures 6 and 7 is a composite arrangement including a master guide chart **76** having provision for the application thereto of information pertinent to the control of the items under consideration. Such chart is of a size to extend above the uppermost pair of tapes, and this portion of the chart may receive a gummed strip **77**, marked off into elements of the control period, e. g. the months and days of the year, where the control period constitutes a year. Sundays are preferably excluded as not constituting business days.

In lieu of the gummed strip, the same information may be applied to an endless ribbon encircling the panel, in which case, two control periods will appear around the endless ribbon. This would then enable the ribbon to be so adjusted as to start a full control period at any time in the year.

Below this control period listing and adjacent the uppermost tape, may appear the business days, consecutively numbered. These may be applied by means of a gummed strip, or may be printed directly on the master guide chart, as this information will not vary so long as the control period remains one year.

The remainder of the master guide chart is preferably divided longitudinally by heavy lines **79** into spaces **81** of double tape width, adapted to coincide with the pairs of tapes on the panel when the completed master chart is assembled to the board.

Along the left-hand edge of the master chart, I prefer to attach an index **82** corresponding to that previously described and bearing the identical information. This attached index is folded under when the master chart is assembled to the board and becomes a part of the permanent record developed on the master chart during the control period.

The spaces **81** on the master guide chart are adapted to receive gummed strips **83** (Figures 6 and 9), and these, when applied along with previously indicated information, constitute the master chart. Such gummed strips carry two identical series of precalculated values based on the estimated daily sale or daily use of a particular item with which it is to be associated on the board.

The board, as thus far explained, embodies the essential features for control of inventory, and a discussion of its operation may be in order at this time. In this connection, it is assumed that the index has been prepared and applied to the surface of the left-hand member of the outer frame as illustrated. It is further assumed that the control period will run for a period of a year and will start with the first of January, and that the master chart has been prepared, with a duplicate index and with precalculated value strips properly conforming to the items listed.

The upper tape of each pair represents sales commitments, while the lower tape represents stock available for sale. To readily distinguish

between the two, the opaque portions of these endless tapes are preferably of different colors. Red and green provides a pleasing combination for this purpose though any combination of colors will do.

In setting up the board at the beginning of the control period, all the sales tapes are moved as far as possible to the left, which will bring the edge of the opaque portion to the left of the first of the precalculated values. Each of the lower tapes, on the other hand, is pulled out a distance which represents the stock available for sale at that time.

At a point on each of the opaque portions of the lower or stock tapes, spaced back from the eyelet by a distance representing the standard ordering quantity of the item it represents, a mark, such as an X, is placed upon the tape, and this becomes known as the ordering point for such item.

With the tapes set up on this basis, the board is ready for use. One of the first operations is to record on the chart, the positions of the various stock tapes by marking through the eyelets of these tapes. These marks constitute the beginning of a permanent record of movements of all the various tapes during the control period, which, if desired, may be graphed for future reference and study.

Corresponding marks are made upon the tapes themselves for current use, by drawing a line across all the tapes, utilizing the edge of the masking wall 21 as a straight-edge.

With the board in this condition, management has a birdseye view of the condition of his business at the very beginning of the control period.

During each day as the sales commitments become known, they are totalled, and at the end of each day, the sales tape for each item is moved accordingly. The adjusted position of each sales tape is then noted on the chart by marking through the eyelet of such tape, and a corresponding mark is added to the tape along the edge of the masking wall 21.

As a sales tape approaches and finally reaches the order point on its associated stock tape, such relationship informs the operator of the necessity of placing an order for the item represented by such pair of tapes, and the amount of such order will be indicated by the standard ordering quantity for such item as noted on the index.

Immediately upon placing such order, a map tack 85 will be placed on the panel along the lower edge of the transparent portion of the stock tape, alongside a precalculated value on the gummed strip, preferably just preceding the one to which the stock tape will be moved when such ordered quantity is received. The tack, in fact, indicates the next position to be occupied by the eyelet, and therefore should be interpreted in terms of the next higher value on the number strip.

The placing of such tack informs management that the required order has been placed, though not yet received. Upon receipt of such order and adjustment of the stock tape to its new position, the tack will, of course, be removed.

In the meantime, the day by day sales of the item continue on, and each time the sales tape approaches the order point on the stock tape, another order is placed, and when filled, is recorded on the stock tape for current use, and onto the master chart as part of the permanent record.

If the actual daily sales or sales commitments of all items run true to the estimated values as set up in the index, all sales tapes will move at a

uniform rate across the board. However, in the normal course of events, all items do not run uniformly, for sales of different items will vary. Some will lag and some will exceed the estimated average daily sales of the items which they represent.

If the estimated daily sales values are based on averages for a previous control period, such, for example as that of the previous year, the pendulum bar can be used in conveying to management a visual picture as to which items are lagging the sales of the previous year, which are in step, and which may be leading. This information is arrived at by positioning the pendulum bar at the current date. All sales tapes terminating to the left of the pendulum bar represent lagging sales, while those extending beyond the bar, indicate sales exceeding those of the previous year.

The extent to which such tapes terminate from the pendulum bar, as measured by the values on the numbered strips behind them, provide management with information as to the quantity by which the sale of an item might be lagging or leading the sale of such item for a corresponding portion of the preceding year. By multiplying such amount by the unit value on the index, the amount of business gained or lost in any item may readily be determined.

By the same simple procedure, management may readily determine the amount of money tied up in a slow-moving or inactive item. Such figure will obviously be equal to the amount of such item in stock available for sale, multiplied by the unit value of such item. Such information is readily obtainable from the board, for the stock available for sale will be equal to that indicated by the stock tape, less that represented by the sales tape, while the unit value of the item will be found in the index.

In Figure 3, there have been set up representative conditions which may occur during the normal course of a business. An analysis of these will serve to illustrate how, through reliance upon the control board, management is enabled to keep a close check on the movement of items and maintain a perpetual balanced inventory.

The pendulum bar indicates the current date to be January 20th or the 18th business day of the year.

Item #1, for the purpose of illustration, relates to hammers. The sales tape, it will be noted, terminates close to the pendulum bar, indicating that the sale of this item for the first 18 days of the control period approximates that of the previous control period. The markings on the sales tape show the daily sales to be substantially uniform.

The sales tape has passed the order mark on the stock tape. The presence of the tack at the number 50, informs management that the standard order quantity of 12 dozen hammers has been placed, though not yet filled. When received, the tack will be removed and the tape advanced to the 52 dozen indication.

In the meantime, the board further indicates to management, that the 12 dozen hammers which were available for sale when the sales tape reached the ordering mark, have been sold. Therefore, inasmuch as the receipt of the ordered quantity would leave the sales tape at the order mark, the operator is on notice to immediately increase the order to 24 dozen and move the tack to number 60 on the number strip, so

that when the order is filled, the inventory balance will be reestablished.

The board informs management, among other things, that the stock of item #1 has been turned over three times by the 20th of January, for the markings on the stock tape indicate that the stock has been ordered twice since the initial inventory, and the position of the sales tape shows that all stock has been sold.

The sales tape representing item #2, linseed oil, lags the sales of the preceding year by 20 gallons, which to management would probably not represent a very serious matter, but might be something that management would want to keep an eye on.

The order mark has been passed, but no tack appears after the stock tape, thereby placing management on notice to check as to why an order has not been placed to replenish the diminishing inventory on this item.

The stock of linseed oil has been turned over twice, and is in the process of being turned over for the third time. An available stock of 30 gallons is on hand, representing but a small investment of $6.00, and therefore not a matter of concern to management.

The sale of item #3, peaches, compares favorably with that of the preceding control period, being behind by only 20 cases out of 360. The daily sales as indicated by the markings on the sales tape are running rather uniformly. Thus the board informs management that this item does not demand its time and attention at this time.

Relative to item #5, "Aspirin," the sale of this item lags quite far behind the sales for the corresponding period of last year. This indicates a condition demanding investigation by management. The seriousness of the situation is carried home by the fact that only 100 gross out of an available supply of 300 gross, have been sold. This leaves 200 gross on hand, and at a unit value of $25.00, represents $5000.00 tied up in such item, a very serious situation which should be rectified.

Item #6, "Hammermill" white, is moving satisfactorily compared to sales of the previous year. This item, however, should be watched for early receipt of the material on order, to prevent overselling the stock on hand. In fact, the situation is reaching a point where an additional order should be placed for a standard order quantity.

On item #7, sales have run ahead of expectancy, and a glance at the movement record as depicted by the markings on the sales tape, shows a large jump in sales for a short period. This could constitute a temporary condition or it might be the beginning of a long period of increased daily sales of the item. Rather than permit such latter possibility to stampede one into purchasing on the basis of continuing increased sales, the board would control buying on the basis of the standard order quantity plus the amount of sales beyond the order mark, to bring inventory back into balance, and this procedure would be adhered to until subsequent sales established the true nature of the trend. In this manner, excessive inventories are avoided, and a balanced inventory maintained, without risking increased investment.

Thus, the various situations depicted by the board, present to management a visual picture of movements and trends, and forcibly bring to its notice those situations demanding his attention, thus conserving executive time, permitting

inventories to be maintained in balance, holding investments down to a safe minimum, and yet maintaining sufficient material on hand to provide best service to customers.

In some businesses, maintenance of inventory down to the closest full unit of an item may be adequate. In some instances, however, accuracy to the fractional part of a unit may be called for. This is made possible through the use of the narrow blackboard unit or panel 33.

The blackboard unit is marked off in accordance with the number of items provided for on the index, and columnar provisions made for indicating opposite each index item, the item unit and current total of excess elements of such unit. When such current total reaches one or more full units, the sales tapes are adjusted accordingly, and in this manner, inventory control to the individual element may be maintained. The blackboard unit or panel 33, when employed in this matter, may be designated a unit accumulator.

As an added feature of the control board, I provide an adjustable line guide in the form of a rod 89 terminating in a broad base 91 slidably supported in a groove 93 formed vertically in the vertical member 7 of the outer frame. The groove is preferably undercut to receive a complementary shaped rod-anchoring element 95 to which the rod is affixed by a pair of vertically spaced screws. A leaf spring 97 attached to an edge of the anchoring element serves to normally maintain sufficient frictional pressure to hold the rod in any adjusted position.

By slightly tilting the rod upward to relieve such pressure, lowering of the rod is facilitated. A knob 99 on the base 91 of the rod can be used for this purpose.

Extending as it does across the board, the rod serves to line up an item on the index with its associated tapes and related spaces on the blackboard unit, thus facilitating the study and analysis of a situation requiring the concentrated attention of management. In this connection, proper alignment of these factors can be obtained by a simple adjustment of the rod, made possible by providing an arcuate slot 101 in the anchored end of the rod for the upper screw.

Aside from the application of the board for control of inventory and other business activities, the simplicity of its structure permits of the board to be conveniently and economically serviced, and inasmuch as the spindles are merely cradled in the panel, and maintained in operating position solely by the tapes, they are readily interchangeable for others, to provide for a different tape grouping, thereby expanding the field of usefulness of the invention.

The pendulum bar possesses the feature of swinging action, whereby it permits adjustment of tapes beyond the position of the bar without the necessity of withdrawing the tape adjusting tool.

By providing a master guide chart and applying the information thereto by means of prepared strips, the character of the installation offers no limitations. The board can be set up to meet the particular problem it is to solve and is not tied down to some specific application in a limited field.

Thus the board becomes very flexible in its applications, and such flexibility as to use is enhanced by the fact that in employing such number strips, bearing precalculated values, the

necessity of resorting to the use of a slide rule, calculating machine or interpolation charts in determining the values represented by tape positions, is entirely eliminated. The values are always visually presented, and because of the continuous movability of the tapes and pendulum bar, there are no physical limitations as to the positions to which these elements may be adjusted.

The elements of the board which cooperate in furnishing the information for control, lie in close parallel planes, and this in conjunction with the color contrasts existing between such elements, permit the board to be photographed in sharp detail and with a minimum of shadow. This gives a clear-cut pictorial representation of the board, usable in lieu of customary voluminous reports, for consideration and study by management at remote points.

Structurally, the board is subject to modification and alteration, without departing from the underlying principles thereof.

As one example, the master guide chart may constitute a sheet **103** of ground cork or other suitable composition, preformed or molded with spaced parallel ribs **105**, defining channels **107** into which the number strips may be pressed, thereby avoiding the labor and inconvenience of pasting such strips. Other changes will occur to those skilled in the art.

Also, the spindles **53** may take the form of other types of columns, even to the extent of fabricating such columns by assembling a plurality of rollers and spacing washers of greater diameter onto a core or shaft.

I, therefore, do not desire to be limited in my protection to the specific details illustrated and described, except as may be necessitated by the appended claims.

I claim:

1. A control board comprising a central portion, a plurality of movable tapes disposed along said portion in parallel relationship to one another, a pendulum rod disposed transverse to said tapes, means pivotally supporting said pendulum rod for swinging movement in a plane parallel to the plane of said tapes, and means for moving said pendulum rod at will along said tapes.

2. For use in a control board comprising a plurality of movable endless tapes disposed across a portion thereof in parallel relationship to one another, and having an index transverse to the ends of said tapes to carry items to which movement of said tapes relates; a master chart disposable behind said tapes on which movements of said tapes may be recorded to provide a permanent record of the information currently conveyed by said tapes, when said chart is positioned on said board, and a duplicate index hingedly secured to said master chart in the same relationship to said tapes as said first mentioned index bears to such tapes.

3. A control board comprising a plurality of individually movable endless tapes disposed across a portion thereof, each of said endless tapes having an opaque section and a transparent section joined end to end, said opaque section of each tape having a dull exposed surface adapted to take erasable markings, and a series of indicia behind each tape adapted to represent values, with only that portion of said series behind said transparent section exposed to view.

4. A control board having a plurality of endless individually movable tapes disposed across at least a portion thereof, each of said endless tapes comprising a pair of sections of comparable width connected end to end, one of said sections being opaque with a dull exposed surface adapted to take erasable markings and the other of said sections being transparent.

5. A control board having a plurality of endless individually movable tapes disposed across at least a portion thereof, each of said endless tapes comprising a pair of sections of comparable width connected end to end at the front of said board by an eyelet, permitting of the introduction therethrough of a marking tool, one of said sections being opaque with a dull exposed surface adapted to take erasable markings and the other of said sections being transparent.

6. A control board comprising a central portion, a plurality of movable endless tapes disposed across said central portion in parallel relationship to one another, a pendulum rod disposed transverse to said tapes, and means for moving said pendulum rod at will along said tapes, said means including a block, a pivot connection extending outwardly from said block for swingably supporting said pendulum rod in a plane parallel to the plane of said tapes, and a track adjacent the upper end of said control board on which said block may slide.

7. In combination with a frame including vertical and horizontal members, a shiftable line guide comprising a rod extending substantially across said frame and terminating in a broad base, a tongue and groove slidable connection between said base and one of said frame members and involving a spring between such tongue and a wall of such groove, and means for adjusting the perpendicularity of said rod to said frame member said means involving a pair of screws for affixing said base to said tongue with one of such screws passing through a slot-opening in said base.

8. In a control board having a plurality of individually movable tapes and an index for items to be controlled thereby, a backing sheet disposed behind the paths of movement of said tapes, said backing sheet having a plurality of spaced ribs extending therealong between the paths of movement of such tapes to define channels along such paths of movement for the reception of strips, strips in such channels, said strips bearing information thereon usable in conjunction with said tapes to interpret movements of said tapes in relationship to such indexed items.

9. A control board comprising a backing sheet having a plurality of parallel spaced ribs extending therealong to define channels, a plurality of information bearing strips in said channels, a plurality of substantially opaque tape sections, and means for slidably supporting said opaque tape sections along said channels to progressively block out said strips.

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