Sept. 1, 1964 J. GAUDIER-PONS 3,146,942

PAINT CALCULATING SLIDE RULE

Filed Oct. 8, 1962 2 Sheets-Sheet 1

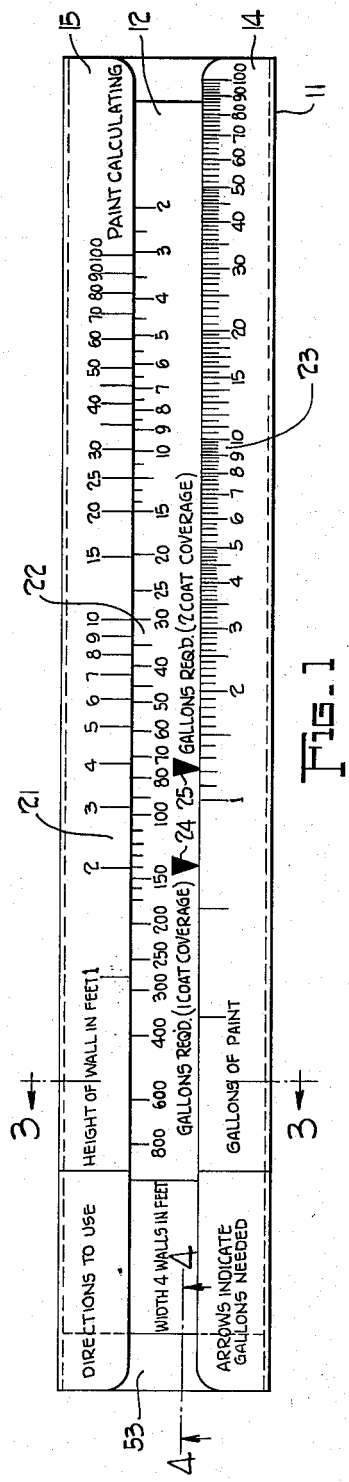

FIG. 1

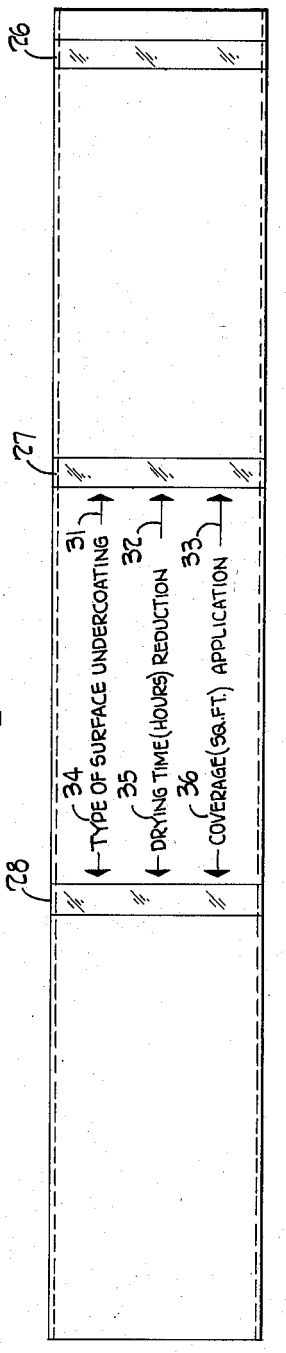

FIG. 2

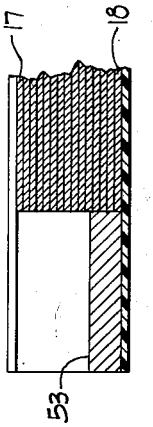

FIG. 4

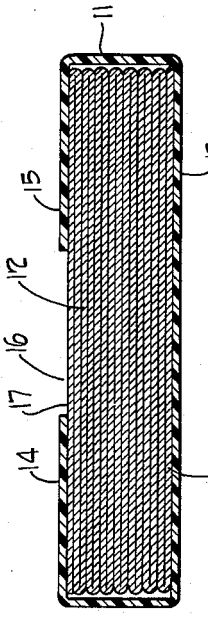

FIG. 3

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PAINT CALCULATING SLIDE RULE

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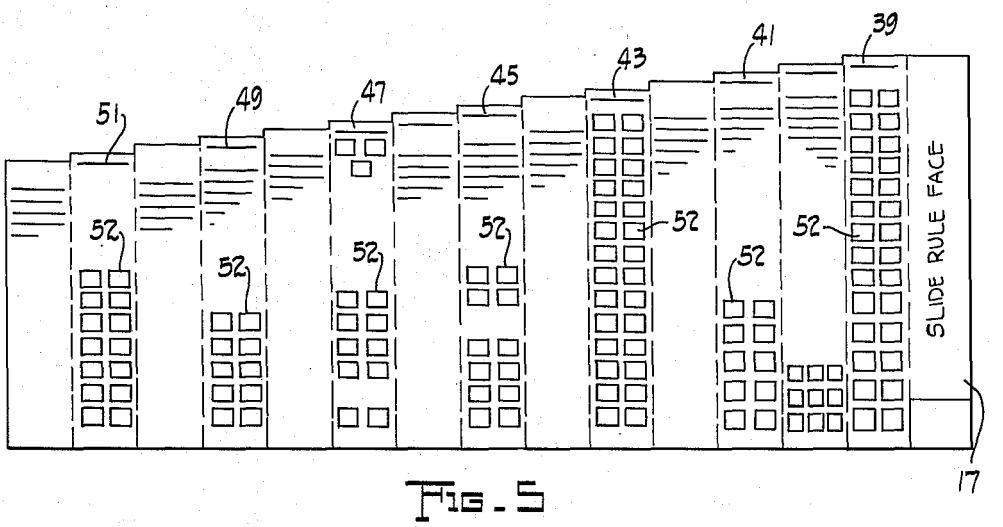

Fig. 5

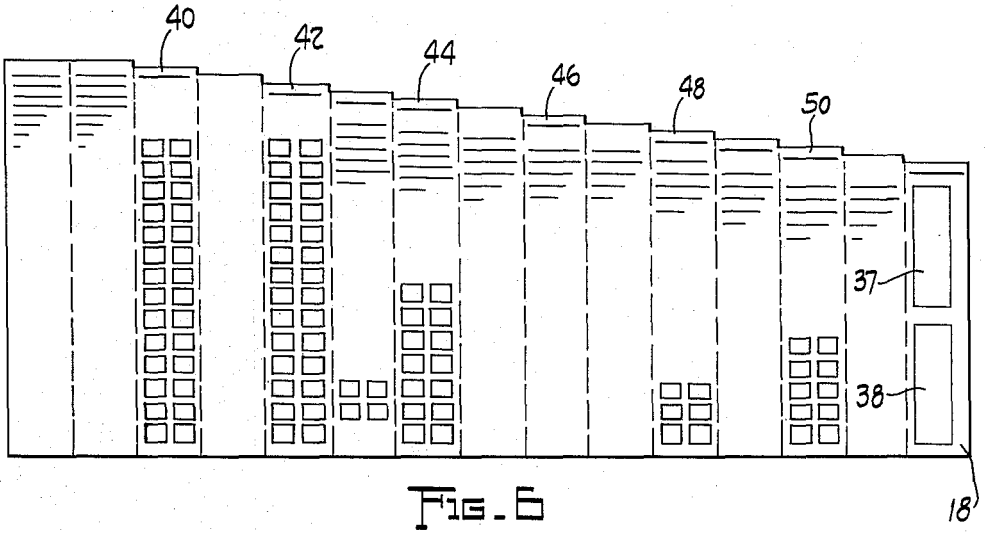

Fig. 6

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PAINT CALCULATING SLIDE RULE

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This invention relates to computers and calculating apparatus and concerns particularly combination devices of the slide rule type.

An object of the invention is to provide a combination slide rule and catalogue for both providing information as to the properties of commodities and computing the quantities required.

A further object of the invention is to provide apparatus for calculating quantities dependent upon surface area, such as the quantities of surface covering material required to cover a surface having given dimensions.

A more specific object is to provide a calculator for determining the quantity of a commodity required to cover walls of a given height and length.

A more specific object of the invention is to provide a paint calculator for computing the number of gallons of paint required for covering the walls of a room for one or two coat application of the paint.

Still another object of the invention is to provide a device which not only computes gallonage of paint, but provides information as to the mode of application, drying time, type of surface which may be covered and other information with regard to various kinds of paint, colorant and surface coating material.

Still another object of the invention is to provide a relatively light, inexpensive, easily manufactured and reproduced surface calculating slide rule.

Other and further objects, features and advantages of the invention will become apparent as the description proceeds.

In carrying out the invention in accordance with a preferred form thereof, a casing of suitable material such as sheet plastic is molded into a box or channel form. A gap is left between the edges of the material on one side to form a slotted wall or a wall with a longitudinal window therein extending along the wall opposite a parallel wall which is solid. The solid wall is provided with transverse, transparent portions to form transverse windows therein.

A slider is provided which is receiveable slideably in the casing and comprises accordion folded sheet material with inner folds between first and second outer sheets. The inner folds are adapted to receive alternate printed information and color samples for describing and illustrating various brands and types of surface coating material, colorants and paints. The inner folds are also of progressively shorter lengths to expose end portions of each fold. The exposed portions have successively different surface-coating, material-characteristic-indicating captions thereon.

The first wall of the casing has a first scale thereon along a longitudinal window graduated in a first surface dimension, such as a wall height, and a second scale thereon along the window on the opposite side thereof graduated in gallons of paint. The first outer sheet of the slide has a scale thereon registering with the first scale graduated in a second surface dimension transverse to the first, such as width of the walls, and has index means thereon registering with the second scale for indicating thereon gallonage of paint required according to the setting of the slider scale upon the first scale.

The second outer sheet of the accordion folded slider has two sets of captions thereon spaced to cause corresponding captions of each set to register simultaneously

within a pair of transverse windows of the solid wall of the channel shaped member, and corresponding end captions to register with still another window.

A better understanding of the invention will be afforded by the following detailed description considered in conjunction with the accompanying drawing, in which:

FIG. 1 is a plan view of a paint calculating slide rule catalogue in accordance with the invention;

FIG. 2 is a view of the under surface of the device of FIG. 1;

FIG. 3 is a view of a cross-section of the device of FIG. 1, represented as cut by a plane 3—3;

FIG. 4 is a fragmentary longitudinal section of the device of FIG. 1, represented as cut by a plane 4—4, indicated in FIG. 1;

FIG. 5 is a developed view or an unfolded view of the slider employed in the device of FIG. 1; and

FIG. 6 is a view of the lower surface of the sheet forming the unfolded slider illustrated in FIG. 5.

Like reference characters are utilized throughout the drawing to designate like parts.

As shown in the drawings, a calculator is provided in the form of a slide rule having a casing 11 and a slider 12. The casing 11 comprises suitable material such as sheet plastic bent into the form of a channel or molded in the form of a channel having a wall 13 which may be a solid wall opposite a parallel wall divided into two parts 14 and 15, separated by a window 16. It will be understood that the invention is not limited to the use of an open window 16, as shown, and does not exclude the use of a top wall for the casing 11, having a longitudinal transparent center strip to form the window 16.

The slider 12 comprises a plurality of folds of sheet material such as heavy printing paper including first and second outer folds 17 and 18 which are the upper and lower folds of the slider 12, as seen in FIG. 3.

Co-operating pairs of scales are provided on the surfaces of the upper wall 14 and 15 and the upper fold 17 of the slider. In the specific embodiment illustrated, there is a linear dimension scale 21 on the upper wall portion 15 and a second linear dimension scale 22 on the upper fold 17 of the slider 12 in alignment with the scale 21 and juxtaposed against it so that one scale may be set opposite the other for performing a calculation depending upon the product of two linear dimensions such as the surface area of the walls of a room to be covered with paint. For example, in the specific embodiment illustrated, the scale 21 is calibrated in height of wall in feet and the scale 22 is calculated in width of the four walls of a room in feet so that a quantity proportional to the surface area of the walls of a room, such as gallons of paint required, may be read from a scale 23 provided in the portion 14 of the upper wall of the casing 11.

For indicating the point on the scale 23 which is to be read, an index 24 is provided on the top fold 17 of a slider in alignment with the scale 23. It will be understood that the scales 21, 22 and 23 are logarithmic in character so that the addition of linear distances along the scales represents a multiplication. Consequently, additional indices appropriately spaced on the slider 12 may be employed to represent varying multiplication factors. For example, as illustrated, there is a second index 25 which is to be read for the gallons required for two-coat coverage, whereas the index 24 is intended for indicating gallons required for one coat coverage.

Although the indices 24 and 25 have been shown upon the slider 12 and the gallonage scale has been shown upon the casing wall 14, it will be understood that the invention is not limited to the relationship described and if preferred the indices may be placed upon the wall portion 14 and the scale 23 upon the slider 12 in which case the scale 23 would be folded or arranged with values

increasing toward the left instead of toward the right. It will be observed that the values of the scale **22** increase in the opposite direction from the values in the scale **21**. Consequently, in using these two scales the two wall dimensions are placed opposite each other. It will be understood, however, that if the scales were arranged to run in the same direction, then the indices **24** and **25** or points corresponding thereto would be marked upon the scale **12** and the readings upon the scale **23** would then be taken opposite the value of wall width on scale **22** instead of opposite the index **24** or **25**.

Window means are provided also in the lower wall **13** of the casing **11**. However, the windows in the wall **11** are transverse instead of longitudinal. As shown in FIG. 2, these comprise transparent transverse strips **26**, **27** and **28**. Groups of arrows or indices for various types of information are provided opposite the second and third windows **27** and **28** to co-operate with legends upon a second outer fold **18** of the slider **12**.

As shown, there are three arrows **31**, **32** and **33** against the window **27** for the legends "undercoating," "reduction," and "application," respectively. Likewise, three arrows **34**, **35** and **36** against the window **28** for "type of surface," "drying time," and "coverage," respectively. Two caption areas **37** and **38** are provided on the under surface of the outer fold **18** of the slider **12**, as shown in FIG. 6 with pairs of groups of captions therein spaced apart at the same distance as the transparent windows **27** and **28**. In order to provide an indication of the type or kind of surface covering, colorant or paint to which these captions apply, the names or identifications of various paints, colorants and surface coatings are marked at the top edge of the surfaces visible on the lower side of the slider **12** when it is folded in the form shown in FIG. 3.

When the slider **12** is unfolded, as shown in FIGS. 5 and 6, these surface coating identifying markings appear at alternate steps in the top edge on opposite sides of the sheet forming the slider **12** at positions **39**, **40**, **41**, **42**, **43**, **44**, **45**, **46**, **47**, **48**, **49**, **50**, **51**. For example, when the marking **39** for a latex emulsion type of colorant is present under the window **26** the captions under the window **27** opposite arrows **31**, **32** and **33** will be respectively "none," "none" and "brush roller" to indicate that this type of colorant requires no undercoating and there is no reduction and the colorant may be applied by brush or roller. Likewise, the captions under the window **28** opposite the arrows **34**, **35** and **36**, respectively, will be "wall woodwork," "1," and "300 to 450" indicating that for this type of colorant the surface coated may be walls or woodwork, that the drying time is one hour and that the coverage is from 300 to 450 square feet.

As another example, when the marking **46**, for aluminum paint is under the window **26**, the legends under the window **27** opposite the arrows **31**, **32** and **33** will be as follows: "none," "bush-none," "spray 20%," and "brush spray," and under the window **28** opposite the arrows **34**, **35** and **36** will be "heaters, water tanks, pipes," "24" and "1000," respectively, to indicate that aluminum paint requires no undercoating, there is no reduction when the paint is applied by brush and 20% reaction when applied by spray, it may be applied by brush or spray, the surfaces for which adapted are heaters, water tanks and pipes, the drying time in hours is 24, and the coverage is 1000 square feet. Similarly, the same information is given for other types of colorants in different areas or strips across the legend blocks **37** and **38** of the outer fold **18**.

As shown in FIGS. 5 and 6, the folded slider **12** is so constructed that it may be unfolded and the normally covered surfaces are exposed to expose catalogue information material with the characteristics and properties of different paints, colorants and surface coatings described in greater detail on successive pages in the areas below the identification markings **39** to **51**. For the various types of colorant described, color swatches **52** are also provided. If desired, a limit stop **53** may be provided for limiting the motion of the slider **12** toward the left as viewed in FIG. 1 to the position at which the outermost or end caption or marking **39** is visible under the window **26**.

When it is desired to compute a quantity proportional to a surface area of a known length and width, one known dimension is observed on scale **21**, the second known dimension is observed on scale **22**, the scale **22** is moved to the point at which the scale value for the second dimension is in alignment with the first dimension scale value on scale **21**, then the position of the index **24** on scale **23** is observed, and the reading is read from this point which gives the desired numerical value.

For example, if it is desired to determine the number of gallons of paint required for a room 8 feet high with four walls totalling 60 feet in width, the value 8 feet is located on scale **21**, then the scale **12** on the slider is moved by locating the slider to bring the scale division for 60 feet on the slider under the scale division for 8 feet on the scale **21**. Then the indicator **24** on scale **23** indicates that 1¼ gallons are needed for applying one coat to the walls, and the indicator **25** opposite the value 2 on the scale **23** indicates that 2 gallons are required for applying two coat coverage.

As will be seen from the drawings (FIG. No. 1), the scales there depicted as based on a coverage of 450 square feet per gallon as previously indicated, information is contained on the reverse side of sliding element **12**, indicating coverage obtained from a gallon of particular coating composition appearing in window **26**, thus, it is a simple calculation to convert the apparent reading on the scale **23** to an actual volume of paint required from the information appearing in window **28** for the particular coating composition desired.

If it is desired to determine the characteristics of a general purpose paint, so identified by the marking **41** on one of the inner folds at the end caption of slider **12**, the caption **41** is brought in a position under the window **26** (referring to FIGS. 5 and 2). Then from window **27** opposite the arrow **31** one reads the types of undercoating required for metal, wood, and masonry. Opposite the arrow **32** one reads that no reduction takes place; opposite the arrow **33** one reads that the paint is to be applied by brush; and under the window **28** opposite the arrow **34**, one reads that the type of surface which may be painted may be buildings, walls, or fences; opposite the arrow **35** one reads that the drying time in hours is 48; and opposite the arrow **36** one reads that the coverage in square feet is 500.

If more detailed information about the general purpose paint or any of the other colorants or surface coatings described in the catalogue are desired, the slider **12** is pulled out from the casing **11** and unfolded. Referring to FIG. 5 on the page under the caption **41** one observes the color swatches **52** which enables the user of the catalogue to determine what colors are available and the names or manufacturer's numbers applied to the colors as shown for ordering purposes. On the page to the left of the page bearing the caption **41** one reads additional information (not reproduced in the patent drawing). For example, there may be information as to the fact that this paint is an oil paint, its advantages and uses in greater detail, sizes of containers in which it may be bought, type of surface preparation required, more detailed information as to the characteristics of the undercoaters used for various surfaces, information as to handling finishing coats, information as to use in areas where the paint may be subjected to fumes such as sulphur fumes from factories or refineries and coal furnaces, and other data concerning the surface coatings in question which may be useful to the customer depending upon which surface coating is referred to by the user of the computer-catalogue.

Thus, it will be observed that the device described not only facilitates quick calculation of the amount of colorant or surface coating required, but also in a single unitary device provides information as to the method of use or applying the colorant, the applications for which each different colorant or surface coating may be employed and other pertinent information as well as providing a wealth of catalogue data for selecting surface coatings and colorants.

While the invention has been described as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that the invention is not limited thereto, since various modifications will suggest themselves to those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A paint calculating slide-rule catalogue comprising in combination a casing having first and second opposite walls, the first wall having a longitudinal window therein extending along said wall, the second wall having first, second and third transverse windows therein coacting with and a slider receivable slideably in said casing and comprising accordion-folded sheet material with inner folds between first and second outer sheets, the inner folds being adapted to receive alternate printed information and color samples, and being of progressively shorter lengths, to expose end portions of each fold, said exposed portions having successively different surface-coating, material-characteristic-indicating captions thereon, including the actual coverage in square feet per gallon for each said surface coating, said second outer sheet having two sets of captions thereon spaced to cause corresponding captions of each set to register simultaneously within the second and third transverse windows and corresponding end captions to register with the first window, the first wall having a first scale thereon along a longitudinal window graduated in a first surface dimension, and a second scale thereon along said window on the opposite side thereof graduated in gallons of paint and the first outer sheet of the slide having a scale thereon registering with the first scale graduated in a second surface dimension transverse to the first, and having index means thereon registering with the second scale for indicating thereon an uncorrected gallonage of paint required according to the setting of the slider scale, said scales and index being related by an average, predetermined number of square feet per gallon of paint upon the first scale, said casing having a limit stop limiting the slider to the position at which the outermost caption of the inner folds registers with the first transverse window.

2. A paint calculation, slide rule catalogue comprising in combination a casing having first and second opposite walls, the first wall having a longitudinal window therein extending along said wall, the second wall having transverse window means therein and coacting with a slider

slideably receivable in said casing and comprising accordion folded sheet material with inner folds between first and second outer sheets, the inner folds being adapted to receive printed information and carrying color samples, and being of progressively shorter lengths to expose end portions of each fold, said exposed portions having successively different surface coating material characteristic indicating captions thereon, including the actual coverage in square feet per gallon for each said surface coating, said second outer sheet having a set of captions thereon spaced to conform to the spacing of the end fold captions to cause corresponding captions to register simultaneously within the transverse window means, the first wall having a first scale thereon along the longitudinal window graduated in a first surface dimension, and a second scale thereon along said window on the opposite side thereof graduated in gallons of paint, and the first outer sheet of the slide having a scale thereon registering with the first scale, graduated in a second surface dimension transverse to the first, and having index means thereon registering with the second scale for indicating thereon an uncorrected gallonage of paint required according to the setting of the slider scale upon the first scale, said scales and index being related by an average, predetermined number of square feet per gallon of paint.

3. A slider for a paint volume calculating slide rule having opposite faces with a longitudinal window in one face and having a pair of confronting scales along the responsive longitudinal marginal edges thereof, and transverse window means in the other face, said slider comprising accordion folded sheet material with folds between first and second outer sheets, the first outer sheet carrying a longitudinal scale for cooperation with one of said confronting scales adjacent said longitudinal window and adapted to locate said slider at a paint area related position in said rule, and said first outer sheet also carrying at least one indicator adapted to coact in a predetermined mathematical relationship with said second confronting scale to indicate apparent gallons of paint required for said area at a predetermined rate of coverage and the second outer sheet carrying transversely extending longitudinally spaced indicia of paint coverage rates for a plurality of paints for cooperating with the transverse window means of the slide rule to provide a conversion value for said apparent gallons of paint to enable determination of the actual volume required.

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