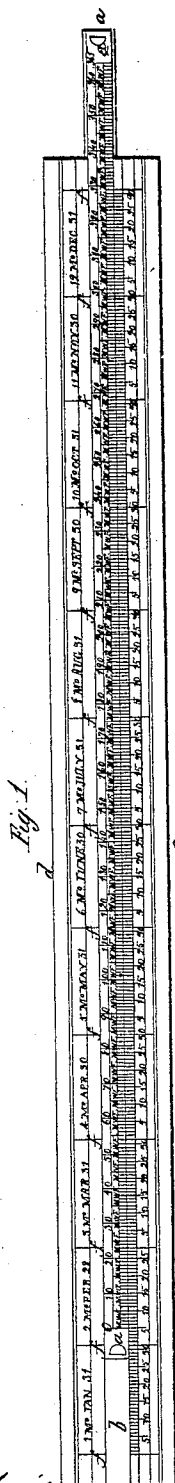
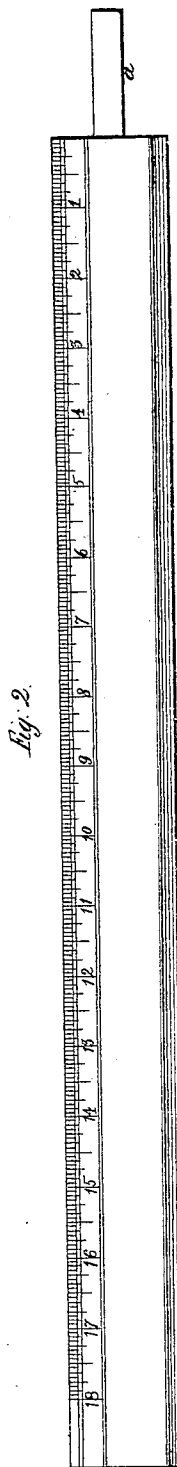


D. W. WRIGHT.
 RULE FOR CALCULATING TIME AND MEASURES.
 No. 67,151. Patented July 23, 1867.



Witnesses,
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John H. Eldridge,



Inventor,
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United States Patent Office.

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Letters Patent No. 67,151, dated July 23, 1867.

IMPROVEMENT IN RULES FOR CALCULATING TIME AND MEASURES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, DAVID W. WRIGHT, of the city, county, and State of New York, have invented certain new and useful Improvements in an Instrument and Means or Method for Calculating Time in Combination with a Ruling and Measuring Apparatus, and which I denominate a Time-Scale and Calculator. The following is a full, clear, and exact description thereof, reference being had to the annexed drawings making part of the same, in which—

Figure 1 represents that side of the scale upon which calculations of time are to be made, and also the sliding-bar or rod *a*, partially drawn out from its groove or channel, which is represented at *b*.

Figure 2 is the reverse side of the scale, representing divisions into inches, and also various subdivisions thereof, to be used for measuring distances.

d, fig. 1, represents the upper edge of the scale, and *e* of the same figure represents the lower edge thereof. One or both of these edges should be made as true and even throughout the length thereof as convenient, for the purpose of ruling. The side of the stationary part of the scale represented in fig. 1 is divided into twelve parts or divisions, called monthly divisions, by lines *ffffffffff* drawn across it at right angles, or nearly so, with the edges of the scale, the spaces between them representing the twelve months in a year, commencing with January on the left, and going through the months of a year consecutively to and including December on the right. These spaces are not of uniform length, but vary slightly according to the number of days in any given month. Within each of these monthly divisions or spaces are contained the name and number of the month which that division or space is intended to represent, and also the number of days belonging to that month. The lines *ff*, &c., are placed at such convenient distances apart as to admit of subdivisions between them, representing each of the days in any given month, commencing on the left; the first line after any monthly division in any given month representing the first day of that month, and the next the second day thereof, and so on through that division to the last day of the month, which is represented by the line forming the monthly division for the next month. The lines or marks on the stationary part of the scale, representing the days of the month, called day-lines, are equidistant from each other throughout the whole length of the scale, and correspond in number with the days of the year. They are shown on the drawing, fig. 1, below the sliding-bar *a*, and its groove or channel *b*; and the fifth one in each month is slightly extended lower than the others, and the numbers 5, 10, 15, 20, 25, and 30, showing the numbers of days in any given month, represented by any extended line, are placed under or near said extended lines, to aid in more readily ascertaining the day of the month which any particular day line or mark in that division represents. The sliding-bar or rod *a* is accurately fitted to a groove or channel, *b*, the groove being open at each end of the scale, so that the bar may be conveniently moved to the right or left, as desired. An end view of the scale, showing this groove, with the sliding-bar slightly drawn back, may be seen in fig. 3 of the drawings. This bar or slide is also divided into three hundred and sixty-five equal parts or spaces by short lines or marks corresponding with the number of days in a year, each mark representing one day; the first line or mark on the left after the zero or cipher mark representing the first day, the next one on the right the second day, and so on to the right through the whole length of the scale, until every day in the year is represented by a mark or line, every fifth line or mark being somewhat extended or identified, in order to distinguish it from the rest, and every tenth line or mark thereof being numbered with a number corresponding with its number in the series of lines or marks on the slide from the left, the more readily to facilitate calculations of time by the use of said instrument, as hereinafter described. These day-lines or marks on the slide and the spaces between them must exactly coincide with the day lines or marks and the spaces between them on the stationary part of the scale before described, so that when the mark or line on the slide representing the three hundred and sixty-fifth day of the year is set to correspond with the mark or line on the stationary part of the scale representing that number, there will be a coincidence between the two sets of day-marks or lines and the spaces between them, on the slide and stationary part of the scale throughout the whole length thereof. The letters M, W, and F, it will be seen from the drawings, fig. 1, are also marked upon the slide over or near certain of the day-marks, commencing at the left hand, and being repeated at fixed intervals throughout the length of the slide. These letters represent the initials of the days

of the week, Monday, Wednesday, and Friday, and stand for those days respectively, M representing Monday, W Wednesday, and F Friday. The initial letters of the other days of the week are not marked on the drawings for want of room; but the day of the week can be readily ascertained by reckoning the day-lines from any given initial letter on the slide to the next succeeding initial letter, or the scale may be made of sufficient dimensions to admit of the initial letters for all the days of the week being marked on the slide. Instead of these initial letters being used, other marks or signs may be used representing the same days; or other days in the week may be represented instead of the ones named, by their respective initial letters, or other appropriate and known marks or signs. The use of these initial letters or signs is to aid in finding out what day of the week any given day of the month in any year will come on. For instance, if it be desired to find what day of the week the 20th day of April, 1866, will come on, you place the first line or mark on the slide from the left end thereof, representing the day of the week on which the year came in (which in that year was Monday) over the mark or line on the stationary part of the scale representing the 1st day of January, and then by inspecting the scale it will be found that the day-line representing the 20th of April on the stationary part of the scale exactly coincides with the day-line on the slide marked F, which is Friday, and this is the day of the week on which the 20th of April came in that year. And while the slide is thus set for that particular year, it can be readily ascertained in the same way, without moving the slide, what particular day of the week any given day in any month in that year will come on, and so on for any year desired, being careful to adjust the initial line or mark of New Year's day on the slide so as to exactly coincide with the day-line or mark on the stationary part of the scale representing the 1st day of January.

To use said scale in ascertaining the month and day of the month in the same year on which any given number of days will expire, move the slide until the zero or cipher mark on it exactly coincides with the day-line or mark on the stationary part of the scale representing the day from which the calculation is to be made; then, from an inspection of the numbers on the slide to the right, and the day-marks or lines and their figures to the right on the stationary part of the scale with which they respectively coincide, any number of days in that year from the given date may be readily ascertained. For instance, if it be desired to find out the month, day of the month, and number of the month ninety days from the 5th day of February will expire, move the slide until the zero or cipher mark on it exactly coincides with the day-mark for the fifth of February on the stationary part of the scale. It will then be seen that the 90-day mark on the slide exactly coincides with the day-mark for the 6th of May on the stationary part of the scale; from which it will be seen that ninety days from the 5th of February falls on the 6th day of May, and as this month is numbered 5 on the scale, it is readily seen to be the fifth month of the year, and that it has thirty-one days; and while the slide is thus adjusted any number of days from the same date in that year, together with the month and day, and number of the month on which they respectively occur, may be readily ascertained in the same way. To illustrate: If a note were made payable ninety days from the 5th of February, the time when it becomes payable may be readily ascertained by moving the slide so that the zero or cipher-mark on it exactly coincides with the day-mark for the 5th of February on the stationary part of the scale. The 90-day mark on the slide then exactly coincides with the day-mark on the stationary part of the scale for the 6th of May, which is ninety days from the 5th of February, and, allowing three days' grace, the note would become payable on the 9th of May; and the same process on the scale will enable a person to find out the month, day and number of the month in the same year on which a given number of days from any given date therein will expire. When the time required from any given date runs into the next year, adjust the slide by drawing it to the left until the last division on it, representing the three hundred and sixty-fifth day, exactly coincides with the day-mark on the stationary part of the scale, representing the date from which the calculation is to be made, and the number of days on the slide to the left will be found to exactly coincide with the day-mark on the stationary part of the scale representing the day of the month on which the time required will expire. For instance, if it be desired to find from the scale when a note payable in ninety days from the 5th of November will become due, move the slide until the last division on it representing the three hundred and sixty-fifth day of the year exactly coincides with the day-mark on the stationary part of the scale, representing the 5th day of November, and at the left on the slide the day-mark for ninety will exactly coincide with the day-mark on the stationary part of the scale representing the 3d day of February, which is the time required; or the three days' grace may be allowed, making the 6th of February the day when the note becomes payable. When the time to be computed from any given date consists of a certain number of months extending into the next year, the numbering of the months on the scale will be found convenient, and materially facilitate the calculation; and this numbering will also be found convenient when the number of the month is used to designate it instead of its name, which is not unfrequent in various sections of the country, especially among the religious sect known as Friends. Should it be desired to find out from the scale when a note is due bearing date October 10, payable in nine months from its date, it will be seen from the scale that October is the tenth month of the year, and that there are two more months left in that year, which two months being subtracted from the number of months the note has to run will leave seven months, or bring the time of its maturity to the seventh month of the next year, which, from an inspection of the scale, it will be readily seen is the month of July, and of course the 10th day of that month. Now, if it is desired to ascertain the number of days between the date of this note and the time of its maturity, all that is necessary to be done is to move the slide as before described, so that the 365th-day mark on it shall exactly coincide with the day-mark on the stationary part of the scale representing the 10th day of October, the date of the note; then observing the number of the day-mark on the slide which coincides with the 10th day of July, the maturity of the note, it will be found that the note had two hundred and seventy-three days to run from its date to maturity, or two hundred and seventy-six if the three days' grace are added.

In the use of the above-described instrument, it must be understood that one day is to be added, in making

calculations of time, to the twenty-eight days in February, every leap year, making that month for that year to consist of twenty-nine days instead of twenty-eight, as shown on the drawing.

It is believed that accountants, book-keepers, and others will derive much assistance and find their calculations of time much facilitated by the use of my time-scale and calculator, and that they will be very materially aided in computing time for interest, equation of payments, &c.

The same instrument may also be used as a rule or measure, when desired, without in any way impairing its utility as a time-scale and calculator, as before described. It is obvious that the slide, instead of being fitted and moved from right to left and from left to right in a groove or channel, as above described, might be otherwise attached to the stationary part of the scale, and moved to the right or left as desired, having upon it the initial letters, numbers, and marks above specified, without materially changing the relation between said initial letters, marks, and numbers on the slide with the marks, numbers, and months on the stationary part of the scale, the slide and stationary part of the scale, however, maintaining substantially the same relation to each other.

I do not claim separately as my invention a time-scale or calendar having a slide with marks, spaces, and numbers upon it, in combination with the stationary part of the scale, divided into day and monthly divisions; but what I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of the above-described slide *a*, having upon it initial day-letters, and otherwise marked and numbered substantially as above specified, with the stationary part of said scale constructed, marked, and divided substantially as above described.

DAVID W. WRIGHT.

Witnesses:

MILES B. ANDRUS,
SETH M. ELDREDGE.