A. S. BOGGIO.

CALCULATOR.

APPLICATION FILED JUNE 17, 1918.

1,435,512. **Patented Nov. 14, 1922.**

Fig. 1.

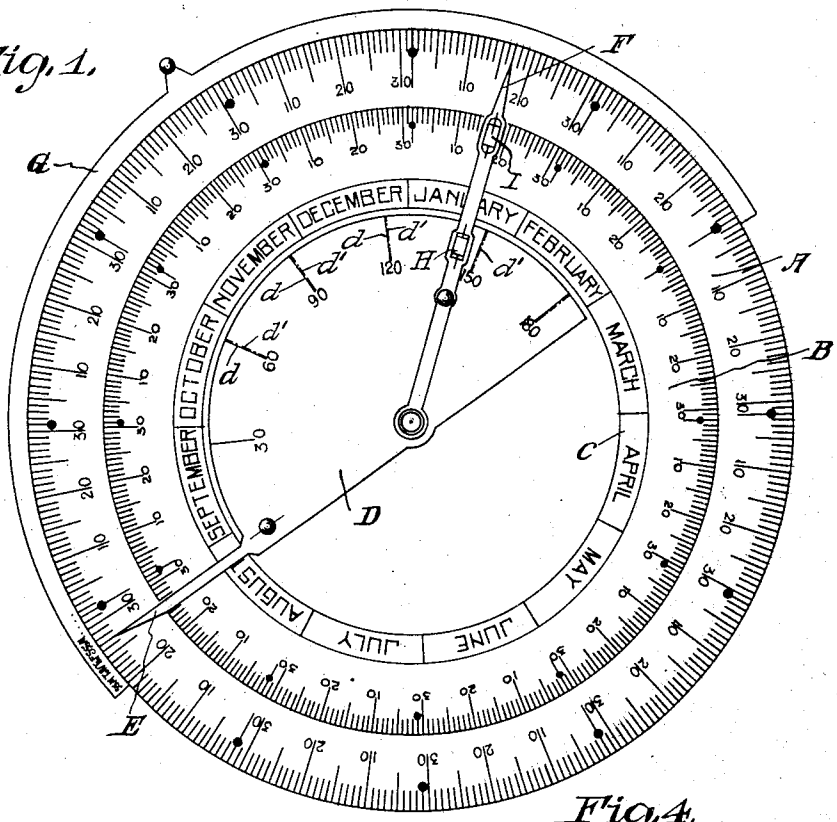


Fig. 4.

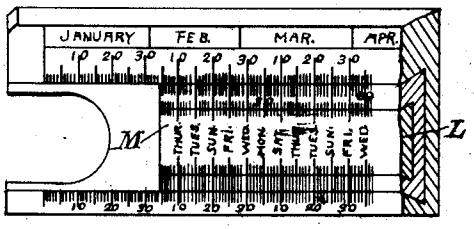
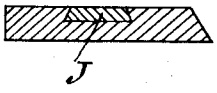


Fig. 3.



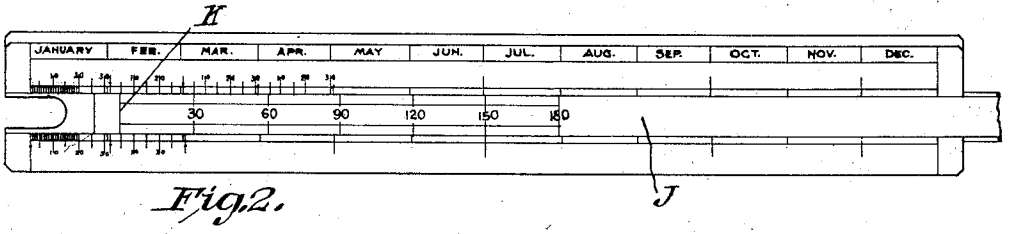


Fig. 2.

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UNITED STATES PATENT OFFICE.

ALFREDO SANTIAGO BOGGIO, OF BUENOS AIRES, ARGENTINA.

CALCULATOR.

Application filed June 17, 1918. Serial No. 240,357.

To all whom it may concern:

Be it known that I, ALFREDO SANTIAGO BOGGIO, a citizen of the Argentine Republic, residing at Buenos Aires, Argentine Republic, have invented an Improvement in Calculators, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The present invention relates to a novel device for ascertaining and indicating terms or periods of time, particularly adapted for use in banking establishments, commercial offices and the like, where frequently occurs the problem of exactly determining the month, day and date corresponding to the expiration of documents or bills issued at a fixed term within a range from 30 to 180 days.

As will be seen further on, the novel device substantially consists of several graduated spaces or scales, arranged either in a straight form or along a circle, said scales corresponding to the number of days of the normal and of the bissextile year, respectively, as well as to the number of months and terms ranging from 30 to 180 days, such as are generally used in connection with commercial transactions.

The combination of scales is such that whatever be the date of issue of the document or bill or in case it is simply desired to ascertain the date, day and month on which a given term or periods of time expires, this may exactly be performed, without any difficulty or loss of time.

In order that the invention may more readily be understood a plurality of embodiments have been shown in the accompanying drawings merely for the purposes of illustration wherein:

Figure 1 shows a front view of a time term indicating apparatus, of circular shape, constructed in accordance with this invention.

Figure 2 represents an apparatus designed for the same purpose as the former, but with the scales arranged in a straight form.

Figure 3 is a sectional view of the same.

Figure 4 is a fragmentary view of a modified form of indicating apparatus.

The device shown in Figure 1, comprises the circular concentric scales A, B, C, D. The first scale, A, is divided into as many parts as there are days in the normal year, that is: 365, while the scale B represents the bissextile year and in consequence contains 366 graduations. The scale C formed at the same plane as the former and in combination therewith, represents the names of the months. The semicircle D is mounted to rotate on a central pin and is provided, besides the indicating extension or pointer E, with a series of graduations *d* which when radially extended by means of the index F, into the scales A and B, represented in progression of 30 the several commercial terms till reaching the maximum thereof which normally is of 180 days. The semi-circle G, by means of the index F, can be made to turn about the graduations. In said semicircle a series of letters are indicated which refer successively to the days of the week. In Figure 1 of the drawing only a few of said letters have been indicated, but in practice said letters or corresponding divisions may be repeated throughout the extent of the semi-circle. The movable member D, the index member T and the semi-circle G are each provided with means herein consisting of thumb pieces *a* for creating relative movements between the several scales and the index and pointer so that the desired expiration date may be calculated or ascertained.

The device works in the following manner:

For instance, on September 21st is to be issued a bill the term of which is to expire after 120 days. Now, the month and day are to be ascertained on which said fixed term will expire.

Whichever be the position assumed by the semi-circle D, the same is made to rotate till the pointer E indicates the month of issue, viz: September, on the scale C, and the number 21 on the scale A. Hereupon, the index F is moved till the line of the opening H coincides with the line marking 120, which is the term fixed, on the semicircle D. It will now be seen that the said pointer passes across the month of January on the scale C and that it extends so as to mark or indicate with its pointed end the number 20 on the scale A. It follows, therefore, that the term fixed will expire on January 20th.

In connection with bissextile years, the operation is performed in a similar manner, but the result is read off through the opening I on the scale B and for the terms the dotted lines *d'* of the semicircular scale D are to be considered.

In order to ascertain the name of the day of expiration, at the outer part or at any other suitable place is arranged a complete circle or as herein shown a semi-circle G on which are successively marked the days of the week. By this means, when indicating the day of issue, said succession is moved to the day corresponding to said date and in consequence when ascertaining the limit of the term, the name of the day will also be read. For instance, if the 21st of September fall on Tuesday, it will be seen that January 20th of the next year will fall on Sunday.

The adoption of this apparatus will prove most convenient as it allows of operating at a great speed and with absolute exactness.

In the device illustrated in Figure 2, the scales have been arranged at one side for the normal year, and at the other, for the bissextile year. The central slider or rule J bears the scale of the terms such as the days of the year. By causing the said slide to move so that zero line K will mark the date of issue and reading the corresponding scale according to the term fixed, the date of expiration will be determined on the scale at one or the other side, according to whether the year is normal or bissextile.

By arranging at the centre of the slider as shown in Fig. 4 or at any other suitable point and so that it may only be moved within the space comprised by 8 graduations, a second slider L marked with the succession of days or by divisions representing said days as shown at M in said Figure 4, the name of the day of expiration may also be ascertained.

Both of the devices as above described, merely have been illustrated by way of example and it will be understood that the arrangement of the scales may be varied and the movable means may be operated by various instrumentalities, for allowing of a more convenient handling and improving the appearance of the device.

Having now particularly described and set forth the nature of my said invention and in which manner the same is to be utilized, I declare that what I claim, is:

1. A calculator having, in combination, a scale provided with divisions representing months, scales cooperating with said monthly divisions and indicating respectively the number of days of normal and bissextile years, a relatively movable scale provided with two series of divisions having a common starting point including a pointer adapted respectively to cooperate with the divisions of said normal and bissextile years and of the months, and an index member having means respectively to cooperate with the series of divisions representing the normal and bissextile years and the months to calculate the expiration date of a given period of time in any year.

2. A calculator having, in combination, a scale provided with divisons representing months, scales cooperating with said monthly divisions and indicating respectively the number of days of normal and bissextile years in progression from thirty days, a relatively movable scale provided with two series of divisions having a common starting point including a pointer adapted respectively to cooperate with the divisions for said normal and bissextile years and said months, and an index member to cooperate with said three series of divisions to calculate the expiration date of a given period of time in any year.

3. A calculator having, in combination, a scale provided with divisions representing months, scales cooperating with said monthly divisions and indicating respectively the days of normal and bissextile years, a relatively movable scale provided with two series of divisions having a common starting point including the straight edge of a pointer adapted respectively to cooperate with the divisions of said normal and bissextile years, and an index member to cooperate with said series of divisions to calculate the length of time intervening between a date indicated by said pointer and the date determined by said index member.

4. A calculator having, in combination, a scale provided with divisions representing months, a second scale arranged in fixed relation to and cooperating with said monthly scale to indicate in monthly progression the days of a bissextile year, a relatively movable member having a pointer to cooperate with divisions of said scales, said movable member also having a series of divisions representing days in regular progression, and means including an index to effect cooperation between said several series of divisions to indicate the number of days intervening between given dates, and to indicate the date upon which a given period of time will terminate.

In testimony whereof, I have signed my name to this specification.

ALFREDO SANTIAGO BOGGIO.

Witnesses:

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