Aug. 23, 1938. L. F. MURGUÍA 2,127,612

RECORD CALENDAR

Filed May 22, 1937 2 Sheets-Sheet 1

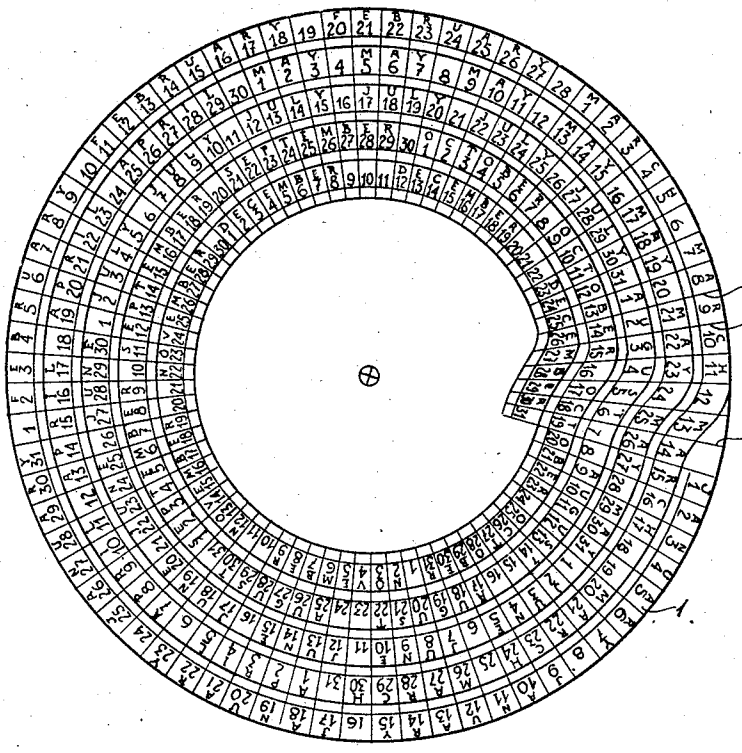


FIG. I



FIG. II

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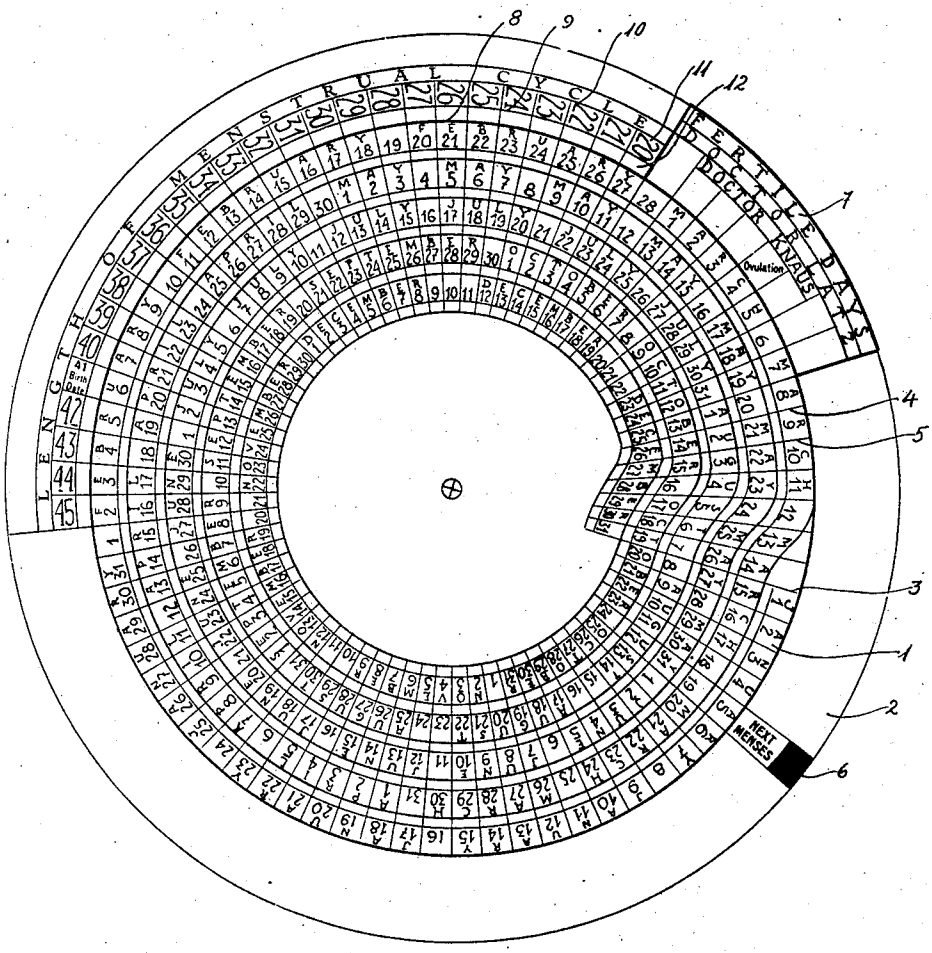


FIG. III

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UNITED STATES PATENT OFFICE

2,127,612

RECORD CALENDAR

Luis Felipe Murguía, Mexico, D. F., Mexico

Application May 22, 1937, Serial No. 144,190
In Mexico August 28, 1936

1 Claim. (Cl. 40—113)

The invention refers to a record-calendar to determine the menstrual cycle of women; the days in which they are fecund and the date of birth.

The principal object of the invention is to provide for an apparatus or device which serves to figure, without any mental effort and without fear of committing errors, the fecund days marked by Drs. Knaus, Ogino and Smulders.

Also to provide for a contrivance that besides used as stated above, may serve at the same time as a record, in which the possibility of making mistakes in ascertaining the dates, or in estimating the duration of cycles, has been excluded, which errors constitute the only obstacle of the Knaus method.

In order that a woman may be fecundated, it is absolutely indispensable that she have a ripe ovum or mother cell capable of being pierced by a father cell or spermatozoon deposited within the female organs. When the ovum lacks, fecundation is not possible. Logically it may be deduced that women must have periods of complete sterility, and it is easily understood that these periods must follow some physiological laws and therefore occur with certain regularity. It also follows perfectly clear that fecundation must be intimately connected with ovulation and, since the latter is produced only once in every monthly cycle, it stands to reason that the number of days during which a woman is fecund, must be much less than the number of days during which she is sterile.

There are then, comparatively long periods of sterility in every woman; the question is to find out precisely which days are sterile and which days are fecund. For many years it has been endeavored to determine these days, but investigations were based upon incomplete statistics, not founded upon scientific principles or methodical experiments, and did not take into consideration the duration of menstrual cycles, which is not of uniform recurrence, even in the same individual. The conclusions thus obtained were empirical, entirely unsimilar and very far from reliable truth.

In 1923 Prof. Dr. K. Ogino, launched upon new investigations, without taking into account the past menstruation but the pending one. Since the date of the future menstruation is unknown and variable, it may be determined only approximately, taking into account the duration of the menstrual cycle, a datum which had not been taken into consideration before Ogino, a fact which explains the cause of previous failure, since an essential datum had been omitted.

It is easily understood that the most propitious days for fecundation must be those closest to ovulation: the first step therefore was to determine the date of ovulation, and this was done by Drs. Knaus, Ogino and Smulders.

We shall not endeavor to explain in detail the experiments made by the aforementioned gynecologists, in order to arrive at their conclusions, since in many articles in medical reviews and in works written on this subject it has already been done; moreover, it would be useless to reproduce here such scientific details.

According to Dr. Knaus:

1.—Ovulation takes place exactly a fortnight before each menstruation and is always spontaneous.

2.—The ovum cannot be fecundated later than six hours after it has been detached from the ovarium.

3.—The male germs totally lose their fecundating powers within 36 hours after being deposited within the female organs.

It may be quite logically concluded that cohabitation can only be fecund during ovulation and during the 36 preceding hours and the six following hours. Outside of this period intercourses are completely sterile.

Since it is not possible to know beforehand the precise moment when ovulation is going to occur, as it is a biological phenomenon, which does not follow mathematical laws, but obeys physiological rules, Dr. Knaus extends the period established and practically assures that fecundation is only possible when the union takes place a fortnight before the following menstruation is expected and during the three days preceding ovulation and the following day; in other words, that in each menstrual cycle a woman can be fecundated only during five days and is sterile all the rest of the cycle.

Thus the success to be obtained when using Dr. Knaus method depends essentially on the precision with which the date when the next menstruation will occur, is determined. Consequently, the first step to be taken in order to proceed with assurance, is to find out between what limits the duration of the menstrual cycle of the interested person fluctuates. But this determination, which at first glance appears very simple, requires a precise, constant and prolonged observation as well as the regular practice of written notes as to the exact date of menstruations.

On the other hand, it must be taken into account that even women whose cycle is perfectly

normal and practically constant, may suffer sudden changes when their conditions of living are subject to alterations, such as travel, disease, child birth, nursing, surgical operations, strong emotions, etc. When these conditions occur, one will have to wait for the return of normalcy in order to know with precision the course of the new cycle.

Once the date of the next menstruation has been ascertained with reasonable approximation, it may be determined which are the fecund days and which the sterile ones. It will be sufficient to make a series of additions and subtractions to the date of last menstruation, but these arithmetical operations are bothersome and subject to frequent errors when due attention is not given to them. Errors and needless mental work, is avoided with this record-calendar which may be used at the same time to record the dates of menstruation, those of the fecund days, the duration of the cycles, the frequency with which the cycles occur, the date when the next menstruation may be expected and if it does not come, the approximate date when birth will occur.

The characteristic features of my invention are clearly shown and illustrated in the accompanying drawings, forming part of my application, in which:

Fig. I is a front view of the rotary disc.

Fig. II is a cross sectional view taken at center of Figure III, and

Fig. III is a front view of the device itself.

The device consists in a circular disc 1 of cardboard or other appropriate material (Fig. 1), which rotates concentrically and superimposed on another similar disc 2 of larger diameter as shown in Fig. 3 where both discs 1 and 2 are shown superimposed.

The disc 1 (Fig. 1) has a series of double circular bands, which are concentric, some wider than the others and each double band joins the adjacent upon the same radius 3 in order to obtain a continuous band formed by all the different bands of the series. For convenience in the sample drawings, there are five bands, but their number may be varied.

The circular band occupied on the disc No. 1 by the series of smaller bands is divided into seventy-three equal spaces by means of the radial lines 4, 5, etc., in order to obtain on the continuous band, a succession of three hundred and sixty-five double fields, this number corresponding to the days of the natural year. Each field has on the larger band a number corresponding to each of the successive days of the year, leaving blank the space corresponding to the narrower band. On the numerals of each band an inscription shows the corresponding months.

Disc No. 2, upon which is superimposed concentrically disc No. 1, and which as above mentioned is larger than the latter, has a band which protrudes, and a sector 6 with the inscription "Next menses", with an angular measurement equal to those of the sectors of the smaller disc; to the left of this one, or in other words, contrary to the direction of the numeration and beginning from the 12th sectorial division of disc No. 1, commencing from sector No. 6, there is another multiple sector 7 which covers an angular measurement equal to eight sectors of the smaller disc. This sector 7 is divided into eight equal sectors by radial lines. These sectorial divisions represent in combination with the interior disc, the days of each menstrual cycle during which a woman is fecund, in accordance with the theories of Drs. Latz and Knaus, as indicated on the drawings, and one of these sectorial divisions, the fifteenth towards the left from sector 6 has the inscription "Ovulation" which represents the date of ovulation in accordance with the doctors mentioned.

To the left of sector 7, that is in contrary direction to that of the numeration of days on the smaller disc, and beginning from the extreme of said sector 7, there is a series of sectors formed by radial lines, of an angular measurement equal to that on the smaller disc, with circumferential lines 8, 9 and 10, forming a series of double fields, having each in one of their composing parts, (11 for example), a progressive number beginning from 20 up to 45, the other part 12 is left blank.

This numeration from 20 to 45 represents with each figure the duration of the menstrual cycle which obviously cannot be longer than 45 days nor shorter than 20 days since it never attains even these figures except in truly abnormal cases.

Sector 13 corresponds to period 41 and has moreover the inscription "Birth date".

The use of this record-calendar is as follows:

I. Determination of the menstrual cycle

1. To determine the menstrual cycle, mark with red pencil the exact date when the last six or eight menstruations have commenced. (For instance: January 12th, February 9th, March 10th, April 7th, May 8th, June 5th.)

2. Move the disc to the date when the second menstruation (Feb. 9th) began and make it coincide with the red spot which reads "Next menses", above the date when the first menstruation began (January 12th) you will find in the sector marked "length of menstrual cycle" the red number 28, which should be also underlined in red, and which indicates how many days this first cycle lasted. (It lasted 28 days.)

3. Determine in the same way how many days the following cycle lasted and underline, also with red, the red numbers resulting, (in the case of the example) the date on which the third menstruation began, March 10th will be placed under the red spot, and above the date on which the second menstruation began. February 9th the number 29 will appear, which will be underlined in red and which means that this second cycle lasted 29 days. The third cycle between March 10th and April 7th, lasted 28 days. The fourth cycle, between April 7th and May 8th, lasted 31 days, wherefore the number 31 must also be underlined. The fifth cycle, from May 8th to June 5th lasted 28 days. In the five cycles of the example there are three of 28 days, one of 29 days and one of 31 days.

4. On a record of frequency of cycles, you will note down the number of times that each cycle appears. In the cases of the example three times the cycle of 28 days, one time that of 29 days and one time that of 31 days.

In this way, when there are sufficient observations, it is easy to know which are the normal cycles and which are the unusual ones.

5. The highest red number 31 and the lowest 28 of those underlines determine the variation of the menstrual cycle, and it is indispensable to known them with precision, in order to find out the dates in which ovulation is possible and, consequently, fecundation. If the duration of the cycles is very irregular one must observe them throughout additional several months, until they become perfectly well known.

6. Naturally if later on there appears a new cycle, which falls outside of the extreme recorded numbers, it will have to be taken down and used from then on, discarding the one which had ceased to be extreme.

II. Determination of the fecund days

7. Knowing with exactness the extreme limits of duration of the menstrual cycle, (28 and 31 in the example), move the disc in such a way that the lesser number 28 coincides with the date when the last menstruation commenced, (June 5th), and underline with blue the days following to this date, which fall under the blue spaces marked "Fertile days" (June 14th to June 21st). Place this same date on which the last menstruation commenced (June 5th) under the higher number of the menstrual cycle 31 and prolong the blue underline to all those dates which now fall under the blue spaces (17 to 24th of June).

8. The dates which have been underlined in blue (in the example those from June 14th to 24th inclusive), are the only days in which the woman can be fecundated, since all the other days she will be absolutely sterile, as scientifically demonstrated by Knaus and Ogino. (In the example the "sterile" days would be from the 5th to the 13th of June inclusive and from the 25th of June until the appearance of the new menstruation which ought to occur between July 3rd and 6th).

9. Underneath the blue space marked "Ovulation" you will find the date when this will occur (in the example it would be the 18th of June for the cycle of 28 and the 21st for the cycle of 31). The probabilities of fecundation are much larger on these days and the immediate ones.

III. Determination of the date of birth

10. Known the maxima variations of the duration of the menstrual cycle and the date of the last menstruation before pregnancy, place this last date (for example June 5th) under the lowest number of the cycle 28 and under the space marked "Birth date" you will find a date of the 9th month (March 11th). Repeat this operation with the largest cycle 31 and you will find another date (March 14th). Between these two dates birth will occur, under normal conditions, unless there are later causes which accelerate or retard it. (In the example it will occur between the 11th and 14th of March.)

What I claim is:

A record-calendar of the type described, comprising a circular disc of card-board or other appropriate material, with a series of double circular bands traced on it, said bands joining each other successively on the same radius in order to form a continuous band, these series of bands being divided by radial lines into sectors of equal angular measurement, said sectors being numbered each, beginning from the original sector, with number corresponding to the successive days of the year, having moreover an indication of the corresponding month, leaving blank the part of the double band adjacent to that of the numbered band; in combination with this circular disc another, similar disc, upon which the former rotates concentrically, this second disc showing sectors formed by radial lines of equal angular measurements to that of the smaller disc, one of them showing the inscription "Next menses"; a second sector, multiple with the inscription "Fertile days" of equal angular measurements to eight sectors on the smaller disc, divided into eight sectorial parts of equal angular measurement, located on the 12th sectorial division towards the left from the first exterior sector, the sector of these eight which are in fifteenth place counting from the same point of origin, carrying the inscription "Ovulation" and in continuation of these eight sectors another series of sectors also of the same angular measurements as those of the smaller disc, numbered with figures from 20 on the sector corresponding to number 41 having the inscription "Birth date" or another conventional indication.

LUIS FELIPE MURGUÍA.