June 27, 1950 A. R. BOUTWELL 2,512,915

FERTILITY AND STERILITY INDICATOR

Filed March 21, 1949 2 Sheets-Sheet 1

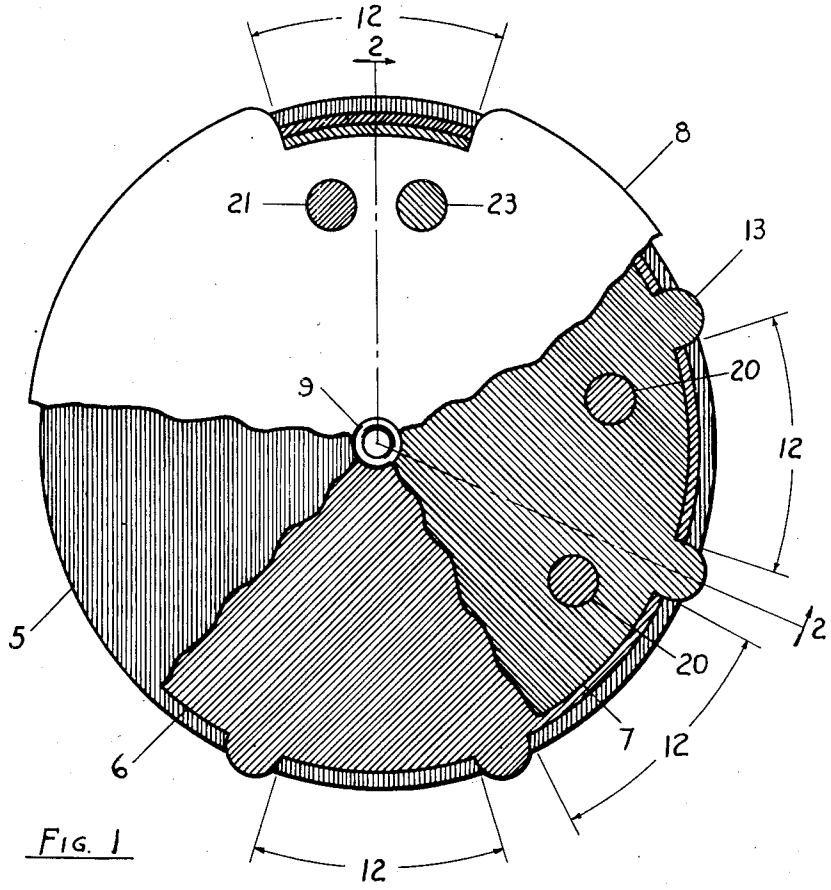


FIG. 1



FIG. 2

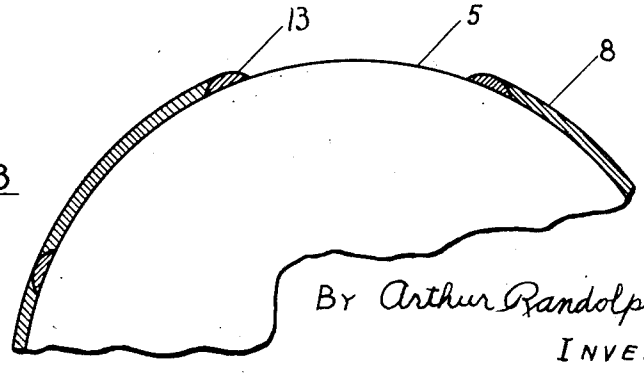


FIG. 3

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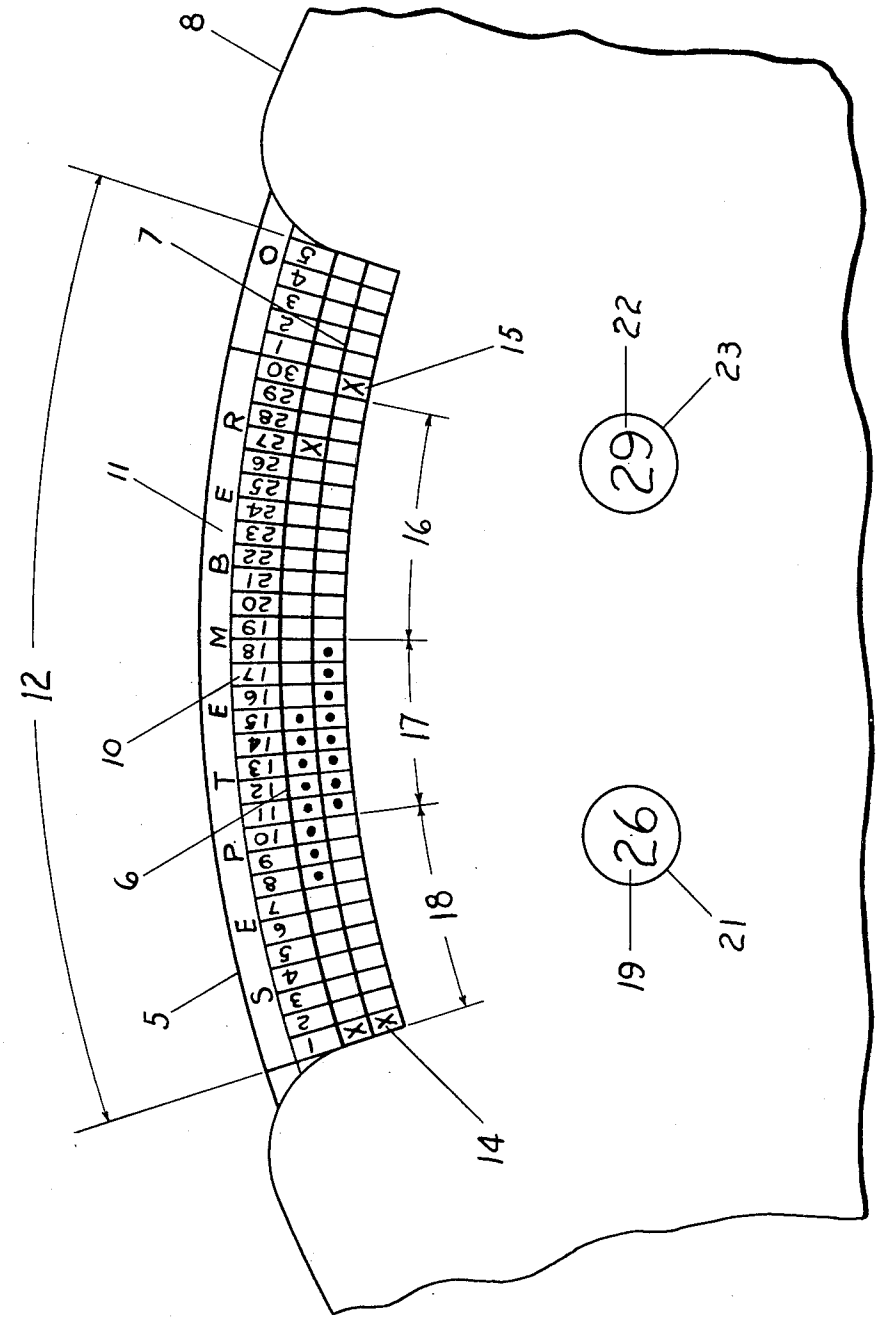


FIG. 4

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FERTILITY AND STERILITY INDICATOR

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2 Claims. (Cl. 235—88)

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My invention relates to mechanical indicating devices and more particularly to devices for indicating the fertile and sterile periods of the menstrual cycle in normal, healthy women.

The object of my invention is to provide a mechanical indicating device which will reduce all the complicated and confusing calculations relative to determining the fertile and sterile days within a menstrual cycle to a simple, mechanical operation which can be readily performed and easily understood by all normal women, and especially by those women who find the necessary calculations, or use of devices of similar nature to my invention, too complicated to understand and use with any degree of confidence.

The principal object of my invention is to provide a simplified device which normal, healthy women, who for physiological, religious, or economic reasons need to know the fertile and sterile days of their menstrual periods, can use for this purpose with ease, accuracy and confidence.

The following essential facts, which are well established by medical science and are common knowledge to-day, are included here as the fundamentals upon which my invention is based.

Medical science has established the fact that there is a definite relation between ovulation and the onset of the next menstruation in women, and has further established that ovulation occurs on the fourteenth, fifteenth or sixteenth day before the onset of the next menstruation, i. e. from the last day of the menstrual period since the length of a menstrual period is determined by counting the number of days starting with the first day of menstruation up to but excluding the day menstruation starts again. For specific reasons relative to ovulation and the life of the sperm and ovum, the period of probable fertility in normal, healthy women has been established as the twelfth to the nineteenth days inclusive before the onset of the next menstruation, i. e. counting backward from the last day of the menstrual period. As can readily be seen the fertile days of a menstrual period vary in relation to the first day of menstrual periods of different lengths but are constant in relation to the last day of a menstrual period of any length. Since it is not natural for physiological functions to perform with machine-like regularity, the percentage of women who have a menstrual period of exactly the same length every time is very small. However, from accurately kept records, the length of menstrual

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periods of healthy women was found to fall within a variation of one to eight days in over ninety percent of the cases on record. Since a women must reckon her fertile days from the last day of her menstrual period, and since this day may fall on any one of several days depending on her individual variation, she must, to find her period of possible conception, take into consideration the fertile days within the possible variation of length of her menstrual period, which days are the twelfth to nineteenth days inclusive reckoned from the last day of both her longest and shortest menstrual periods at the same time. In actual practice this is confusing, troublesome, has a great possibility or error, and is even beyond the comprehension of a great number of women.

I believe that my device is a distinct improvement over previous devices of similar nature, in the elimination of error and confusion, especially as related to the fertile days within the longest and shortest menstrual period combined; in the indication of the several days within the user's individual variation when menstruation will recur; and in the total absence of all indicia irrelevant to any individual user. In its simplicity of operation and elimination of mental confusion due to vagaries of the device itself I believe my invention will be successful in fulfilling the still present need for such a device where others have failed to achieve the widespread use for which they were intended.

These improvements will become readily apparent in the following description of my simplified fertility and sterility indicator.

Basically my device consists of four flat dials superimposed and pivotally mounted together at their common centers. The lower dial has radial, peripheral divisions, and indicia marked or printed thereon to form a circular calendar of the twelve months and the days of the months of a year. The lower intermediate dial has a plurality of identical, arcuate cutouts, symmetrically spaced around its periphery with tabs for rotating the dial projecting between the cutouts. The said dial at the arcuate portion of the cutouts is divided into spaces radially equal to and read in cooperation with the divisions on the lower calendar dial. The said sectors at the cutouts also have indicia thereon to indicate the fertile and sterile days of a menstrual period of length selected for that sector and each sector indicating a menstrual period of a different length than the others. The upper intermediate dial is essentially the same

as the lower intermediate dial and is read in cooperation with the same and with the lower calendar dial. By selecting a setting of the two intermediate dials corresponding to the user's shortest and longest menstrual period (which she finds by keeping an accurate record over a period of several months) and setting the lower calendar dial to the date of the first day of menstruation of her current period, the user can read accurately and easily the dates of the days of probable fertility correct for both her shortest and longest menstrual periods combined and also the dates of the several days within her individual variation when menstruation can be expected to recur. The upper or cover dial serves to limit the visible indicia to that pertinent to any one user and to cover all nonpertinent indicia, and also furnishes an aligning cutout for setting the lower three dials, as well as space for directions and instructions.

My invention may be more fully comprehended by reference to the more detailed description which follows and to the drawings which accompany and form a part of this application in which:

Fig. 1 is a cutaway view of the complete assembly showing all four dials in their relation to each other.

Fig. 2 is a sectional view taken along the line 2—2 in Fig. 1.

Fig. 3 is a partial back view of the complete device.

Fig. 4 is an enlarged view of the useable portion of the device showing the manner of indicia used and a typical setting.

The model herein described is made of cardboard, although Celluloid or any suitable material could be used. The numeral 5 indicates the lower or calendar dial, 6 the lower intermediate dial, 7 the upper intermediate dial, and 8 the upper or cover dial. The numeral 9 indicates the fastener about which the dials are free to rotate in relation to each other. The peripheral portion of the lower dial 5 has indicia marked or printed thereon in the form of two peripheral, annular, concentric scales, the inner scale 10 being radially divided into three hundred and sixty-five equal spaces and the outer scale 11 being radially divided into twelve divisions with angle of arc subtending consecutively thirty-one, twenty-eight, thirty-one, thirty, thirty-one, thirty, thirty-one, thirty-one, thirty, thirty-one, thirty, and thirty-one divisions of the inner scale 10, each division of the outer scale 11 indicating a month of the year in the proper order and the divisions of the inner scale 10 numbered for the days of the months according to the outer scale 11 forming a circular calendar of the days and months of a year. The lower intermediate dial 6 has eight identical, peripheral, symmetrically located, arcuate cutouts with angle of arc indicated by sector 12 subtending thirty-five radial divisions of the inner scale 10 on the lower dial 5. The number of divisions selected for this model was thirty-five but could be more or less being limited to a minimum of one space more than the number of days in the longest menstrual period to be represented on dial 6 and dial 7 as the latter is essentially the same as dial 6 and is described later. The portions 13 of dials 6 and 7 extending between the said peripheral cutouts serve as tabs for rotating said dials and as a convenient means for bringing said dials into coincidence for any rotatable setting. Sectors of the scales 10 and 11 on dial 5 are exposed to view through the angular openings 12 of dial 6. The sectors of dial 6 at each angular opening 12 are divided into spaces radially equal to the divisions of scale 10 dial 5 and are read in cooperation with same. Since the days of probable fertility in a menstrual period are constant in relation to the onset of the next menstruation a pattern is set for representing the fertile and sterile days of a menstrual period of any length at any angular opening 12. This pattern applies equally well to both the lower intermediate dial 6 and the upper intermediate dial 7 and is explained in connection with the description of the latter which follows. The upper intermediate dial 7 is essentially the same as dial 6 but the coinciding angular openings 12 of dial 7 expose the useable sectors of both dial 6 and dial 5. The sectors of dial 7 at each angular opening 12 are likewise divided into spaces radially equal to the divisions of scale 10 dial 5 and are read in cooperation with dials 6 and 5. Referring to Fig. 4 which shows a calendar dial 5 with scales 10 and 11 read in a clockwise direction, the pattern for indicating the fertile and sterile days of a menstrual period of any length is as follows. The first space 14 on the left side of the sector 12 is marked with a characteristic mark or color to indicate the first day of menstruation. The space on the right 15 which is one more than the number of days in the menstrual period to be indicated is marked as the day menstruation will start again. Counting the spaces backward from the last day of the menstrual period which is the space next adjacent the last said space 15 eleven spaces sector 16 represent sterile days the number being constant for any length of menstrual period. Continuing leftward the eight spaces from the twelfth to the nineteenth inclusive sector 17 are marked or colored to indicate fertile days according to the aforesaid essential facts and are likewise constant for any length of menstrual period. Still counting leftward the remaining spaces sector 18 represent sterile days and the number varies with menstrual periods of different length. In Fig. 4 it is readily apparent how the above pattern was applied to indicate the said physiological data for a menstrual period of twenty-six days at sector 12 shown on dial 6, and a menstrual period of twenty-nine days at sector 12 shown on dial 7. On this model I chose to make eight arcuate cutouts on each intermediate dial to represent menstrual periods of eight different lengths, viz. twenty-four to thirty-one days inclusive on each intermediate dial, and obviously the reason for two intermediate dials is to permit the user to read the physiological data of both her longest and shortest menstrual periods against the calendar dial at the same time. The number of cutouts and lengths of menstrual periods shown are not limitative but represent my selection as the combination useful to the greatest number of women. The cover dial 8 has one peripheral, arcuate cutout with angle of arc 12 identical to the angle of arc of cutouts of dials 6 and 7 and exposing the useable portion of dials 5, 6 and 7. This cover dial serves to limit the visible indicia to that relevant to any individual user while covering all nonessential indicia and also furnishes the aligning point for setting the lower dials. Indicia 19 is marked or printed on dial 6 angularly and radially, symmetrically located in each sector 12 indicating the length of menstrual period represented by that sector. Dial 7 has holes 20 similarly located in each sector 12, and dial 8 has one hole 21 similarly located to expose

the said indicia 19 for that sector of dial 6 being used at any one time. Likewise dial 7 has indicia 22 marked or printed thereon in similar manner to show the length of menstrual period represented by each sector 12 on said dial 7 and a corresponding hole 23 in cover 8 to expose this indicia also for that sector of dial 7 being used at any one time.

In the sample setting of my simplified fertility and sterility indicator shown Fig. 4 the user's longest menstrual period is twenty-nine days shown on dial 7, her shortest period is twenty-six days shown on dial 6, and she has set the calendar dial 5 indicating September first as the first day of mentruation of her current period. Then without mental confusion due to irrelevant indicia and vagaries of the device itself she confidently reads that her period of probable fertility is September eighth to September eighteenth inclusive and that menstruation will recur on any one of the days September twenty-seventh to September thirtieth inclusive.

With my invention thus described I believe I have achieved a simplified device which any normal, healthy woman can use with ease and confidence to learn the fertile and sterile days of her menstrual periods.

What I claim is:

1. A fertility and sterility indicator comprising in combination four dials, superimposed, pivotally fastened together, and free to rotate in relation to each other about their common centers; the lower dial having two peripheral, annular, concentric scales, one scale radially divided into three hundred and sixty-five equal divisions, the other scale divided into twelve radial divisions with angle of arc subtending consecutively thirty-one, twenty-eight, thirty-one, thirty, thirty-one, thirty, thirty-one, thirty, thirty-one, thirty, and thirty-one divisions of the first said scale, said scales having indicia thereon to indicate the days and months of a year; the lower intermediate dial having a plurality of equal and identical, peripheral, arcuate cutouts, each exposing a sector of the day scale of the lower dial and subtending a minimum of one space more on the said scale than the number of days in the longest menstrual period represented on the said lower intermediate dial, having portions of said dial extending between said cutouts to serve as tabs for rotating said dial, the sectors at the said cutouts having their arcuate portion divided into spaces radially equal to the divisions of the day scale of the lower dial and having indicia thereon indicating the first day of menstruation, the day menstruation will recur, and the fertile and sterile days within the period, a menstrual period of one length only indicated complete on each sector and each sector indicating a menstrual period of different length than the others; the upper intermediate dial having cutouts and tabs which radially coincide with the cutouts and tabs of the lower intermediate dial, exposing the indicia thereon and those sectors of the lower dial exposed through the lower intermediate dial, the sectors at the said cutouts on the said upper intermediate dial also divided into spaces radially equal to the divisions of the day scale of the lower dial and having indicia thereon indicating the physiological data of the menstrual period essentially the same as the lower intermediate dial; the upper dial having one peripheral, arcuate cutout with angle of arc identical to and coinciding with any one cutout of each of the two intermediate dials, through which the physiological data relative to the user's longest and shortest menstrual period can be read in cooperation with the lower dial while all indicia irrelevant to any one user is covered.

2. A fertility and sterility indicator comprising in combination four dials superimposed and pivotally mounted together, the lower dial having two annular, concentric scales, one scale radially divided into three hundred and sixty-five equal divisions with indicia thereon indicating the days of the months of a year, the other scale indicating the months of a year according to the first said scale; the lower intermediate dial having a plurality of identical, peripheral, arcuate cutouts having the sectors at their arcuate portion divided into spaces radially equal to the divisions of the day scale of the lower dial and having indicia thereon to indicate the physiological data of the menstrual period, one length menstrual period only indicated complete at each sector, the said indicia read in cooperation with the day scale of the lower dial; the upper intermediate dial being essentially the same as the lower intermediate dial with matching cutouts exposing the essential data of the lower intermediate dial and the lower dial and read in cooperation with the same; the upper dial having one matching arcuate, peripheral cutout exposing the essential data of the two intermediate dials for the longest and shortest menstrual period selected and that portion of the lower dial relative thereto at any one time, while covering all nonessential data, the said indicator thus furnishing physiological data relative to the user's longest and shortest menstrual period combined with a minimum of effort and without mental confusion.

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No references cited.