April 18, 1961 F. J. PISARRA 2,980,325

DEVICE FOR INDICATING RHYTHMIC CYCLE

Filed June 18, 1956

2 Sheets-Sheet 1

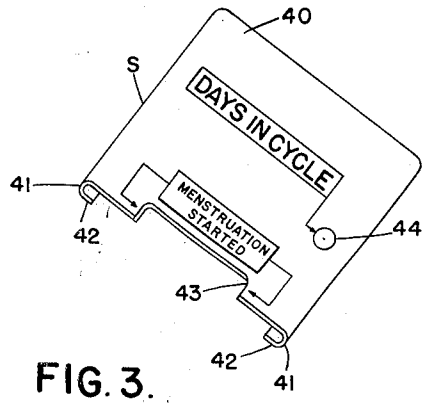


FIG. 3.

FIG. 1.

FIG. 2.

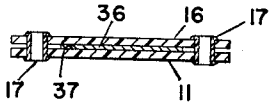


FIG. 4.

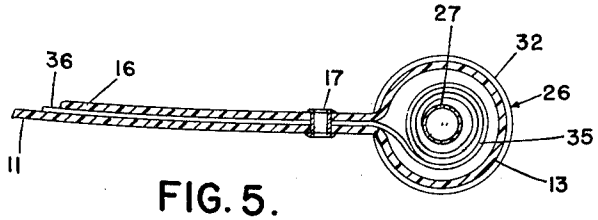


FIG. 5.

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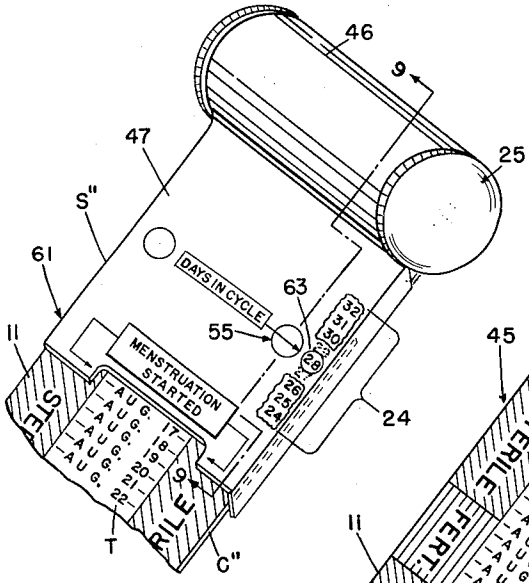


FIG. 8.

FIG. 6.

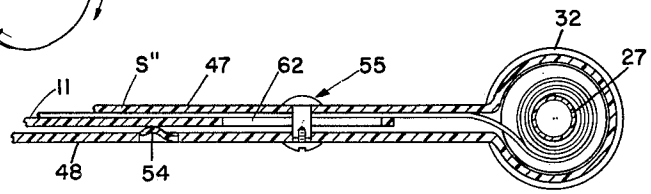


FIG. 9.

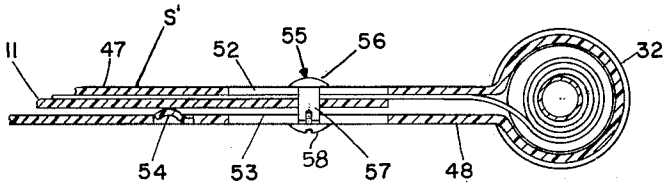


FIG. 7.

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2,980,325

DEVICE FOR INDICATING RHYTHMIC CYCLE

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15 Claims. (Cl. 235—86)

This invention relates to a rhythmic cycle indicating device and more particularly to a device, in the nature of a cyclic calendar for women, which is adapted to be readily set and indicate visually the period of probable fertility and periods of probable sterility during the ensuing menstrual cycle.

This application is a continuation-in-part of my copending patent application Serial No. 477,091, filed December 22, 1954, and entitled "Device for Indicating Rhythmic Cycle," now Patent No. 2,755,998.

The purposes and functions of devices constructed in accordance with this invention and the objects of this invention are essentially the same as those disclosed in my said copending patent application, to which reference may be had for details.

The present invention has for an additional object the provision of a device of the character indicated having its parts so constructed and arranged as to permit of its ready and convenient use and reuse over an extended time period.

With the above and other objects in view, the invention comprises the devices, combinations and arrangements of parts set forth in the following detailed description and illustrated in the annexed drawings of several forms of construction embodying the invention, from which the features of the invention, together with the advantages obtainable thereby will be readily understood by persons skilled in the art.

In the drawings:

Fig. 1 is an isometric view of a rhythmic cycle indicating device constructed in accordance with the invention, certain parts being broken away for better illustration of other parts;

Fig. 2 is a view in elevation of a reel that constitutes one of the elements of the device shown in Fig. 1;

Fig. 3 is an isometric view of the slide unit shown in Fig. 1;

Fig. 4 is a view taken along line 4—4 of Fig. 1;

Fig. 5 is a view in enlargement taken along staggered line 5—5 of Fig. 1;

Fig. 6 corresponds to Fig. 1 and illustrates a first modified form of the invention;

Fig. 7 is a view in enlargement taken along staggered line 7—7 of Fig. 6;

Fig. 8 corresponds to the upper portion of Fig. 6 and illustrates a second modified form of the invention; and

Fig. 9 is a view in enlargement taken along staggered line 9—9 of Fig. 8.

Referring now to the drawings, wherein like reference characters denote corresponding parts in the several views, and more particularly to Figs. 1 through 5, numeral **10** generally indicates one form of a complete indicating device according to the invention and consisting of three units, namely a carrier unit C, a tape unit T, and a slide unit S. Units C and S may be made of any suitable materials, such as appropriate flexible plastics, sheet metals and proper weights and grades of

paperboard, including cardboard, laminated paper and the like. Unit T is preferably made of paper but may, if desired, be made of any other suitable material.

Unit C is formed from an elongated generally rectangular strip that is bent and curved to obtain a base **11** and a pair of spaced housings **12** and **13**. Housing **12** terminates in an extension **14** that overlies and is joined to base **11** by a pair of eyelets **15** which extend through corresponding aligned openings that are provided in the extension and base. Housing **13** also terminates in an extension **16** that overlies the base and is joined thereto by eyelets **17**. Extension **16** is notched or recessed, as indicated at **18**. It will be appreciated that connector means other than eyelets may be used advantageously to connect the extensions and base. Among the connector means which may be employed in lieu of the eyelets are staples, rivets, bolts and snap fasteners.

Base **11** is provided with first indicia comprising transverse color bands **20**, **21** and **22** which are visible from its upper surface. Bands **20** and **22** are preferably of one color, such as green, as indicated in Fig. 1, while band **21** is of a constrasting color, such as red, as is also indicated in Fig. 1. Bands **20** and **22** denote periods of probable sterility and band **21** denotes a period of probable fertility, in a complete rhythmic cycle. To assist the user, bands **20** and **22** are imprinted with the word "Sterile" and band **21** is imprinted with the word "Fertile" or its abbreviation "Fert.," such imprintings being exposed when the device is assembled and in use. The base is also provided on its upper surface with a plurality of second indicia, generally indicated by numeral **24** and consisting of a series of numerals which correspond to the number of days in the usual range of rhythmic cycles.

Housings **12** and **13** rotatably support respective reels **25** and **26**. These reels are preferably identical and as best shown in Fig. 2, each reel comprises a shaft **27** having a longitudinal through slot **28**, a pair of spaced circular members **30** that define an annular recess **31** with the shaft, and a pair of end discs **32** that bear against corresponding ends of the reel housings to prevent axial movement of the reel relative to its housing. Each disc **32** is serrated about its periphery to permit gripping and turning of the reel relative to its housing. Each reel forms a snug fit with its housing whereby the peripheral surfaces of circular members **30** frictionally engage the inner surface of the housing. Such frictional engagement is sufficient to normally restrain the reel against rotational movement relative to the housing but may be readily overcome by manually turning the reel about its axis. Either or both reels may be of one-piece or multi-piece construction, as desired or required for purposes of assembling the complete device.

Unit T is a calendar tape that is made from an elongated, flexible paper strip which is substantially narrower than base **11** and slightly narrower than the spaces between connectors **15** and between connectors **17**. The tape has imprinted on one surface the days of at least one full calendar year. Such days are arranged consecutively and equidistantly along the tape and are identified by their month dates, as illustrated in Fig. 1. A first end portion (not shown) of the tape unit is wound about the shaft of reel **25** and a second end portion **35** is wound about the shaft of reel **26** (Fig. 5). The extremities of such end portions extend through slots **28** of corresponding reels and are suitably anchored to the shafts of such reels. Intermediate portion **36** of the tape overlies the upper surface of the base and extends through a passage **37** which is defined by base **11**, extension **16** and eyelets **17** and through a similar passage (unnumbered) which is defined by base **11**, extension **14** and eyelets **15**.

Slide unit S is preferably made from a flexible plastic

material that is formed to obtain a top member **40**, depending sides **41** and inwardly extending flanges **42**. Unit S is slideable along the base and has its parts so configured and arranged as to frictionally engage the side edges of the base and be maintained in selected position thereon. Top member **40** overlies part of the intermediate portion **36** of the tape unit and has an end recess or notch **43** and a window **44** for viewing any selected one of indicia **24**. The portion of top member **40** remote from notch **43** is disposed between and bears against extension **14** and the base, as indicated at Fig. 1.

For the purpose of outlining the operation of the device shown in Figs. 1 to 5, it is first assumed that carrier unit C, tape unit T and slide unit S are assembled, with the end portions of the tape unit wound about the corresponding reels and the intermediate portion of the tape unit overlying the base. It is also assumed, by way of example, that a particular woman's menstrual cycle is twenty-eight days and that menstruation started on August 17. The slide unit S is positioned along base **11** so that numeral "28" of indicia **24** appears in window **44**. The tape is advanced along the carrier unit by turning reel **25** in the direction indicated by the full arrow in Fig. 1 until the tape date marking "Aug. 17" is located in recess **43**, as shown in Fig. 1. The parts are are maintained in the illustrated position by the elements earlier described. The device now exposes a total of twenty-nine days consisting of twenty-eight days ("Aug. 17" through "Sept. 13"), which constitute the full menstrual cycle and an additional day ("Sept. 14"), which is the date on which the next menstrual cycle is expected to start.

It will be observed that bands **20** and **22**, in conjunction with the associated date markings on the strip, indicate visually the days in the woman's cycle during which she is probably sterile, while band **21** and its associated date markings indicate the days on which she is probably fertile. Thus, in the cyclic period under consideration, the woman would most likely be unable to conceive from August 17 through August 26 and from September 2 through September 13, but would be likely to conceive during the period August 27 to September 1. If the woman's menstrual cycle is other than twenty-eight days, the slide unit is relocated with respect to the base so that the proper numeral of indicia **24** appears in window **44**. The parts of the device and indicia **24** permit adjustment of the device for the usual range of menstrual cycles for normal women.

The tape unit may be readily advanced or moved backward along the carrier by manipulating the reels, as required. To advance the tape, the user need only manually turn reel **25** in the direction of its full line arrow. Such turning overcomes the friction between both reels and their housings and causes the tape to be correspondingly wound on reel **25** and unwound from reel **26**. To move the tape backward, when required in setting the device or rewinding the tape, the user manually turns reel **26** in the direction indicated by its full line arrow, thereby overcoming the friction between the reels and their housings and causing the tape to be wound on reel **26** and unwound from reel **25**.

At such time as the tape has been substantially completely wound on reel **25**, which condition preferably occurs at the end of a calendar year, it may be rewound unto reel **26**, as will be evident from an examination of Fig. 1. The tape may be provided with suitable indicia to signal when it is approaching extreme "wind" and "rewind" positions relative to the base.

Reference is now had to Figs. 6 and 7 for an understanding of the construction of the modification of the invention illustrated therein. In this modification, only one of the reel supporting housings is fixedly secured to the carrier base. The other housing is secured to and constitutes part of the slide unit. The complete device of this modification is generally indicated by numeral **45** and consists of a carrier unit C', a tape unit T and a slide unit S'.

Carrier unit C', as in the case of carrier unit C, comprises a base **11**, a housing **13** integral with the base and an extension **16**, all constructed, arranged and marked in the same manner as the corresponding parts of carrier unit C.

Slide unit S' is mounted on and slideable along the end portion of the base remote from housing **13**. The slide unit includes a housing **46**, corresponding to housing **12** and a reel **25** rotatably supported by housing **46** in the same manner as in the earlier described form of the invention. Integral with housing **46** are parallel upper and lower extensions **47** and **48**, respectively. Upper extension **47** is provided with earlier described second indicia **24** and has a pair of depending side flanges **50** that extend along the side edges of the base. Upper extension **47** also has a notch or recess **51** which corresponds to notch **43** of Fig. 3. The upper extension has a pair of parallel slots **52** while the lower extension has a pair of parallel slots **53** (Fig. 7). Each slot **52** is in alignment with a slot **53**. The lower extension is provided with one or more curved resilient tongues **54** that are struck therefrom and project upwardly and into engagement with base **11**. Second indicia **24** are provided on the upper surface of extension **47** and are disposed along slots **52**.

Slide unit S' is joined to carrier base **11** by a pair of removable connectors **55** which permit of sliding movement of unit S' relative to unit C' to the extent allowed by the slots. Each connector **55** includes a head **56** and an internally threaded tubular shank **57** that extends through the base and registers with aligned slots **52** and **53**. Shank **57** is preferably non-circular to prevent rotation thereof during use. A screw **58** engages the threads in shank **57**. Head **56** has an arrow **60** or other marking for indicating the selected numeral of indicia **24**.

It will be appreciated that the device shown in Figs. 6 and 7 operates in a manner similar to the device shown in Fig. 1. Any slack occurring in the tape unit during adjustment may be readily taken up by turning either or both reels **25** and **26**, as required. Tongues **54** frictionally maintain slide unit S' in selected adjusted position with respect to base **11**. Connectors **55** may be tightened or loosened to thereby correspondingly increase or decrease the friction developed between the slide unit and the base, as will be apparent from an examination of Fig. 7.

Figs. 8 and 9 illustrate a second modification of the invention. This modification is closely related in construction and operation to the modification shown in Figs. 6 and 7. The complete device illustrated in Figs. 8 and 9 is generally identified by numeral **61** and consists of a carrier unit C'', a tape unit T and a slide unit S''.

Carrier unit C'' differs over carrier unit C' only in that it is provided with a pair of parallel slots **62** (Fig. 9) and is imprinted with second indicia **24**, as indicated in Fig. 8.

Slide unit S'' is similar to slide unit S' but does not include slots of the character identified by numerals **52** and **53** of Figs. 6 and 7. Unit S'' has a window **63** for viewing any selected one of second indicia **24**.

The removable connectors **55** of Figs. 8 and 9 extend through openings in extensions **47** and **48** and register with slots **62** to permit sliding movement of unit S'' along the base to the extent allowed by base slots **62**.

From the foregoing, it is believed that the construction, operation and advantages of my present invention will be readily comprehended by persons skilled in the art. It is to be clearly understood, however, that various changes in the devices described above may be made without departing from the scope of the invention, it being intended that all matter contained in the description or shown in the drawings shall be interpreted as illustrative only and not in a limiting sense.

I claim:

1. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced supports secured to the base, a reel carried by and rotatable with respect to each support, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on corresponding reels and an intermediate portion that extends between the end portions and overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and the intermediate portion of the tape.

2. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced supports secured to the base, the base and each support defining a passage, a reel carried by and rotatable with respect to each support, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on corresponding reels and an intermediate portion that extends between the end portions and through the passages and that overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and the intermediate portion of the tape.

3. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced housings carried by the base, a reel supported by and rotatable with respect to each housing, each reel having a pair of axially spaced surfaces that frictionally engage the inner surface of its housing to restrain the reel against rotational movement relative to its housing, each reel also having an annular recess intermediate its spaced surfaces, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on and at least partly disposed in the annular recesses of corresponding reels and an intermediate portion that extends between the end portions and overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and the intermediate portion of the tape.

4. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced housings carried by the base, the base and each housing defining a passage, a reel supported by and rotatable with respect to each housing, each reel having a pair of axially spaced surfaces that frictionally engage the inner surface of its housing to restrain the reel against rotational movement relative to its housing, each reel also having an annular recess intermediate its spaced surfaces, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on and at least partly disposed in the annular recesses of corresponding reels and an intermediate portion that extends between the end portions and through the passages and that overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and the intermediate portion of the tape.

5. A device according to claim 4 including means preventing axial movement of each reel relative to its housing.

6. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced housings affixed to opposite ends of the base, a reel carried by and rotatable with respect to each housing, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on corresponding reels and an intermediate portion that extends between the end portions and overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and toward or away from either housing.

7. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a pair of spaced housings affixed to opposite ends of the base, the base and each housing defining a passage, a reel carried by and rotatable with respect to each housing, a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on corresponding reels and an intermediate portion that extends between the end portions and through the passages and that overlies the upper surface of the base, and a slide mounted on the base and including a member overlying and covering part of the intermediate portion of the tape, said slide being movable along the base and toward or away from either housing.

8. A device according to claim 7 including means preventing axial movement of each reel relative to its housing.

9. A device according to claim 7 wherein each reel has a pair of axially spaced surfaces that frictionally engage the inner surface of its housing to restrain the reel against rotational movement relative to its housing, wherein each reel also has an annular recess intermediate its spaced surfaces, and wherein each end portion of the tape is at least partly disposed in the annular recess of the corresponding reel.

10. A device according to claim 7 wherein the base bears a plurality of second indicia denoting the number of days in corresponding rhythmic cycles and said member includes means for identifying any selected one of the second indicia.

11. In a rhythmic cycle indicating device, a base bearing indicia denoting a period of probable fertility and periods of probable sterility, said indicia being visible from the upper surface of the base, a first housing secured to the base, a second housing carried by the base, said second housing being spaced from the first housing and slideable along the base toward and away from the first housing, a reel carried by and rotatable with respect to each housing, and a tape of flexible material narrower than the base and having markings denoting days of a calendar year arranged consecutively and equidistantly therealong, said tape comprising end portions that are wound on corresponding reels and an intermediate portion that extends between the end portions and overlies the upper surface of the base, said second housing including a member that overlies and covers part of the intermediate portion of the tape.

12. A device according to claim 11 including means connecting the second housing to the base and limiting

sliding movement of the second housing relative to the base.

13. A device according to claim 11 wherein each reel has a pair of axially spaced surfaces that frictionally engage the inner surface of its housing to restrain the reel against rotational movement relative to its housing, wherein each reel also has an annular recess intermediate its spaced surfaces, and wherein each end portion of the tape is at least partly disposed in the annular recess of the corresponding reel.

14. A device according to claim 11 wherein the member bears a plurality of indicia denoting the number of days in corresponding rhythmic cycles, and means carried by the base for identifying any selected one of said last-mentioned indicia.

15. A device according to claim 11 wherein the base bears a plurality of second indicia denoting the number of days in corresponding rhythmic cycles and said member includes means for identifying any selected one of the second indicia.

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