June 22, 1948. T. YOUNG 2,443,943

PESSARY

Filed Aug. 28, 1945

Fig. 1.

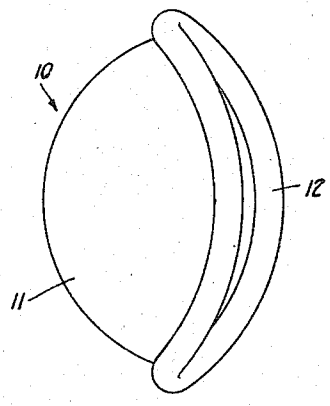


Fig. 2.

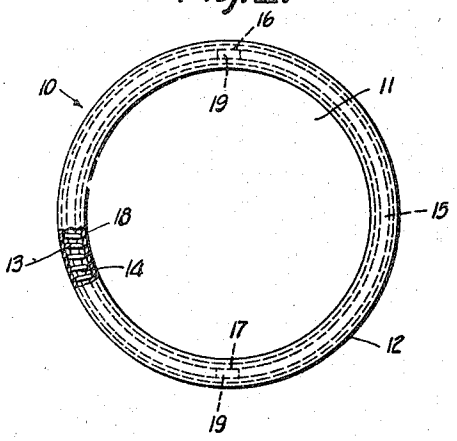


Fig. 3.

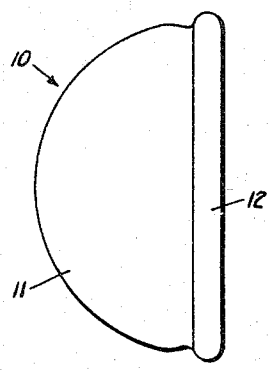


Fig. 4.

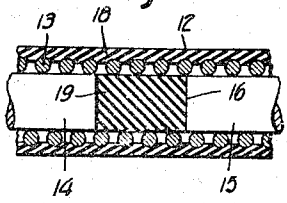


Fig. 5.

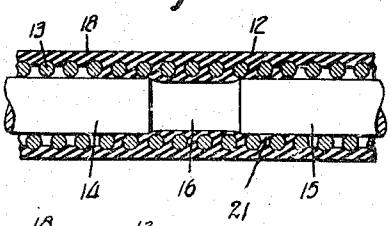


Fig. 6.

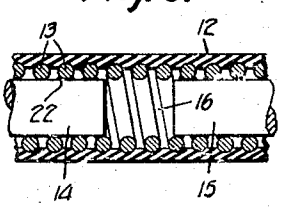
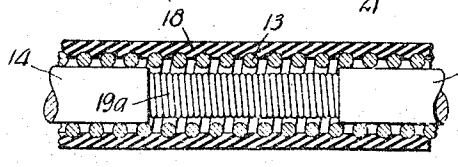


Fig. 7.



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PESSARY

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14 Claims. (Cl. 128—127)

1

This invention relates to occlusive vaginal diaphragms or pessaries and more particularly to the metal assembly within the vulcanized closed rim portion thereof and to the process involved therein.

In the patent to Hay 1,949,863, there is disclosed a type of pessary in which the metal assembly of the rim portion is formed by disposing two wire inserts within a closed coil spring ring and vulcanizing the rubber to the spring. With the ends of the inserts disconnected at opposite sides thereof, the rim of the pessary may be folded in half to facilitate its insertion into the vagina. In this Hay construction no special provision is made for insuring that the wire inserts maintain their distance apart during the manufacture of the finished article and in later use. They are free to work toward each other at one side of the rim so as to narrow or eliminate the spacing at that end and at the same time cause a wider space to be left between insert ends at the opposite side of the rim, leaving a relatively free flexible rim portion throughout a considerable distance on the rim at the latter side thereof. The inserts at one side of the rim may come into contact with one another, while at the other side of the rim they will be spaced widely apart.

It is accordingly the object of the present invention to provide a rim construction for pessaries of this type wherein the wire inserts will be maintained within the margin in a desired spaced relation to one another.

In one form of this invention, a piece of resilient material is disposed in the spaces between the ends of the wire inserts during the construction of the rim so that axial movement of the wire inserts through the spring is positively prevented. In other forms of the invention the wire inserts are rigidly secured to the spring at points close to the ends of the inserts, as by welding, soldering, adhesives, rubber or similar cements, or by forcing rubber or other suitable material under the coils of the spring during the molding of the material to the springs so that the material will be in place to adhere to the insert.

For other objects and a better understanding of the invention, reference may be had to the following detailed description, taken in connection with the accompanying drawing in which

Fig. 1 is a perspective view of the pessary in its folded state and embodying features of the present invention;

Fig. 2 is a front face view of the pessary with a portion broken away to show in full lines the spring and one of the wire inserts;

2

Fig. 3 is a side elevational view of the pessary;

Fig. 4 is an enlarged fragmentary view, in section, of that portion of the pessary ring adjacent to the ends of the wire inserts and illustrating one form of the invention;

Fig. 5 is a similar fragmentary and sectional view as shown in Fig. 4 illustrating another form of the invention;

Fig. 6 is also a similar view as shown in Fig. 4 illustrating still another form of the invention; and

Fig. 7 is also a similar view as shown in Fig. 4 illustrating still another form of the invention.

Referring now particularly to Figs. 1, 2 and 3, there is shown a pessary 10 including a membrane 11 of rubber or other suitable flexible impermeable substance and a marginal rim portion 12. This rim portion 12 may be of any desired shape such as that of a circle or that of an ellipse. This rim portion 12 includes a spring ring 13 and a pair of wire inserts 14 and 15 spaced apart at their ends, as shown at 16 and 17 so that the same may be folded in half and assume a shape such as shown in Fig. 1 so that the patient may easily apply the same. The spring and wire inserts are covered with a flexible impermeable facing 18 provided by a vulcanizing or molding operation.

According to the form of the invention shown in Figs. 2 and 4 there is provided in each of the spaces 16 and 17, a flexible block 19, metal spring, or other resilient or flexible means so that any slippage of the wire inserts 14 and 15 within the spring ring 13 at the time of manufacture or at a later time is prevented.

The parts in the spring thus consist of a wire insert, a piece of flexible material, another wire insert and another piece of flexible material, all substantially in contact within one another. These inserts and pieces are put in the spring in alternate order before the ends of the spring have been joined. Thereafter the spring ends are joined by any of the well known procedures. It will be noted that the resilient or flexible means provided to prevent slippage of the wire inserts 14 and 15 within the spring ring 13 are shown positioned at any two points within the spring ring away from the point at which the ends are joined together. The joining of the ends will affect the flexibility of the spring 13 and if the resilient or flexible means is not positioned away from the joined ends, the two portions of the spring ring at which bending is localized will be of unequal flexibilities. The pessary may be finally formed by rolling the spring into a piece of sheet rubber, and then vulcanizing the same, all in the manner

described in the Hay Patent 2,101,255 or in any other suitable manner.

Referring now to Fig. 5 there is shown a construction for preventing axial movement of the wire inserts within the spring in which instead of providing pieces of resilient material between the ends, the wire inserts are secured to the spring through the action of the flexible material which will be molded about the spring and between the inserts and the spring in such a manner that it will connect the wire inserts with the spring, as indicated at 21. This is done by providing rubber, for example between the spring and the wire inserts prior to the vulcanizing operation. The wire inserts will thus be fixed to the spring particularly adjacent their ends and will be prevented from sliding axially in the spring and closing up the spaces 16 and 17 between adjacent ends.

Referring now particularly to Fig. 6 there is shown a construction in which several wire spring coils adjacent the ends of the wire inserts are welded, soldered or cemented as indicated at 22 to the wire inserts leaving spaces 16 and 17. This will positively prevent slippage of the wire inserts within the spring.

Referring now particularly to Fig. 7, there is shown my preferred form of the invention which operates like the construction shown in Fig. 4 but where a small coil spring 19*a* is used instead of the rubber block 19. The convolutions of the spring 19*a* will be compressed when the ends of the wire inserts 14, 15 approach each other. As the small spring finally becomes solid, movement of the wire inserts is positively prevented. The arrangement is assembled in the same manner as is the arrangement of Fig. 4. Inserts and spring 19*a* are put into the spring ring 13 in alternate order and then the ends of the spring ring are fastened together.

It should now be apparent that there has been provided a pessary construction wherein slippage of the wire inserts to close the spaces between the ends of the wire inserts is positively prevented.

I have described what I believe to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. An occlusive vaginal diaphragm comprising a flexible impermeable membrane and a flexible impermeable rim for the membrane, said rim having a spring ring, wire inserts in the ring with their ends spaced from each other at the opposite sides of the spring ring, and a pair of spacing members of resilient material disposed in the spring ring and independent thereof between the spaced ends of the inserts whereby the spacing between the insert ends is maintained and their axial displacement within the spring is prevented.

2. An occlusive vaginal diaphragm as defined in claim 1 in which said spacing members of resilient material comprise separate independent coil springs.

3. An occlusive vaginal diaphragm comprising a flexible impermeable membrane and a flexible impermeable rim for the membrane, said rim having a spring ring, wire inserts in the ring with their ends spaced from each other at the opposite sides of the spring ring and means fixedly securing each of the wire inserts to the spring coils whereby axial displacement of the wire inserts within the spring ring is prevented and the spacing between their ends is preserved.

4. An occlusive vaginal diaphragm as defined in claim 3 in which the securing means comprises flexible impermeable material molded or vulcanized to and between the wire inserts and the spring ring.

5. An occlusive vaginal diaphragm as defined in claim 3 in which the securing means comprises welding or soldering material connecting the wire inserts and coils of the spring ring.

6. A pessary comprising a plurality of reinforcing wires, said wires being curved and positioned substantially end to end to form a ring, a spring wire helix surrounding said wires having its ends joined together to constitute therewith a ring structure adapted to be manually folded between the ends of adjacent wires and separate positioning means disposed at a distance from said joined ends cooperating with said wires and said helix adapted to maintain the ends of said wires in spaced relationship and adjacent to substantially equally resilient portions of said helix.

7. A pessary comprising a plurality of reinforcing wires rigid in construction but adapted to be bent manually into any desired shape, said wires being curved and positioned substantially end to end to form a ring, a spring wire helix surrounding said wires having its ends joined together to constitute therewith a ring structure adapted to be manually folded between the ends of adjacent wires and separate positioning means disposed at a distance from said joined ends cooperating with said wires and said helix adapted to maintain the ends of said wires in spaced relationship and adjacent to substantially equally resilient portions of said helix.

8. In a pessary, a plurality of cores, an endless helical spring forming a ring in which said cores are located, spaces being maintained between the ends of adjacent cores in said spring adapted to localize separate resilient folding regions for the pessary, resilient means situated within the helical spring independently thereof intermediate the adjacent ends of said cores adapted to maintain the spacing between said ends, and a flexible impermeable coating surrounding said ring.

9. In a pessary, a plurality of rigid manually pliable cores, an endless helical spring forming a ring in which said cores are located, spaces being maintained between the ends of adjacent cores in said spring adapted to localize resilient folding regions for the pessary, independent resilient means situated within the helical spring intermediate the adjacent ends of the said cores, adapted to maintain the spacing between said ends, and a flexible impermeable coating surrounding said ring.

10. In a pessary, a plurality of cores, an endless helical spring forming a ring in which said cores are located, flexible spacing means intermediate the ends of adjacent cores in said spring adapted to localize resilient folding regions for the pessary, a flexible impermeable coating surrounding said ring and a web portion also of flexible impermeable material extending over the interior area of the ring.

11. In a pessary, a plurality of rigid manually pliable cores, an endless helical spring forming a ring in which said cores are located, flexible spacing means intermediate the ends of adjacent cores in said spring adapted to localize resilient folding regions for the pessary, a flexible impermeable coating surrounding said ring and a web

portion also of flexible impermeable material extending over the interior area of the ring.

12. A pessary comprising a pair of core segments, helical spring means for resiliently connecting said core segments to provide bending zones between the ends of said cores whereby said pessary is adapted to be folded for easy insertion and means rigidly securing a point on each core to an adjacent point on said spring means for maintaining the spacing between the ends of said cores.

13. A pessary comprising a pair of core segments, each core segment being of rigid but manually pliable material so that said pessary is adapted to be manually shaped and will hold its shape, helical spring means for resiliently connecting said cores to provide bending zones between the ends of said cores whereby said pessary is adapted to be folded for easy insertion and means rigidly securing a point on each core to an adjacent point on said spring means for maintaining the spacing between the ends of said cores.

14. A pessary comprising a plurality of reinforcing wires said wires being positioned substantially end to end to form a ring, a spring wire helix surrounding said wires to constitute therewith a ring structure adapted to be manually folded between the ends of adjacent wires, means for maintaining the spacing between said ends, a flexible impermeable coating for said ring and a flexible impermeable web portion extending over the interior area of the ring.

THOMAS YOUNG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 21,342	Clark	Feb. 6, 1940
1,949,863	Hay	Mar. 6, 1934
2,101,255	Hay	Dec. 7, 1937
2,123,148	Findley	July 5, 1938

FOREIGN PATENTS

Number	Country	Date
549,150	Australia	Nov. 9, 1942