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(54) **NOVEL TOOTHBRUSH**

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(57) **ABSTRACT**

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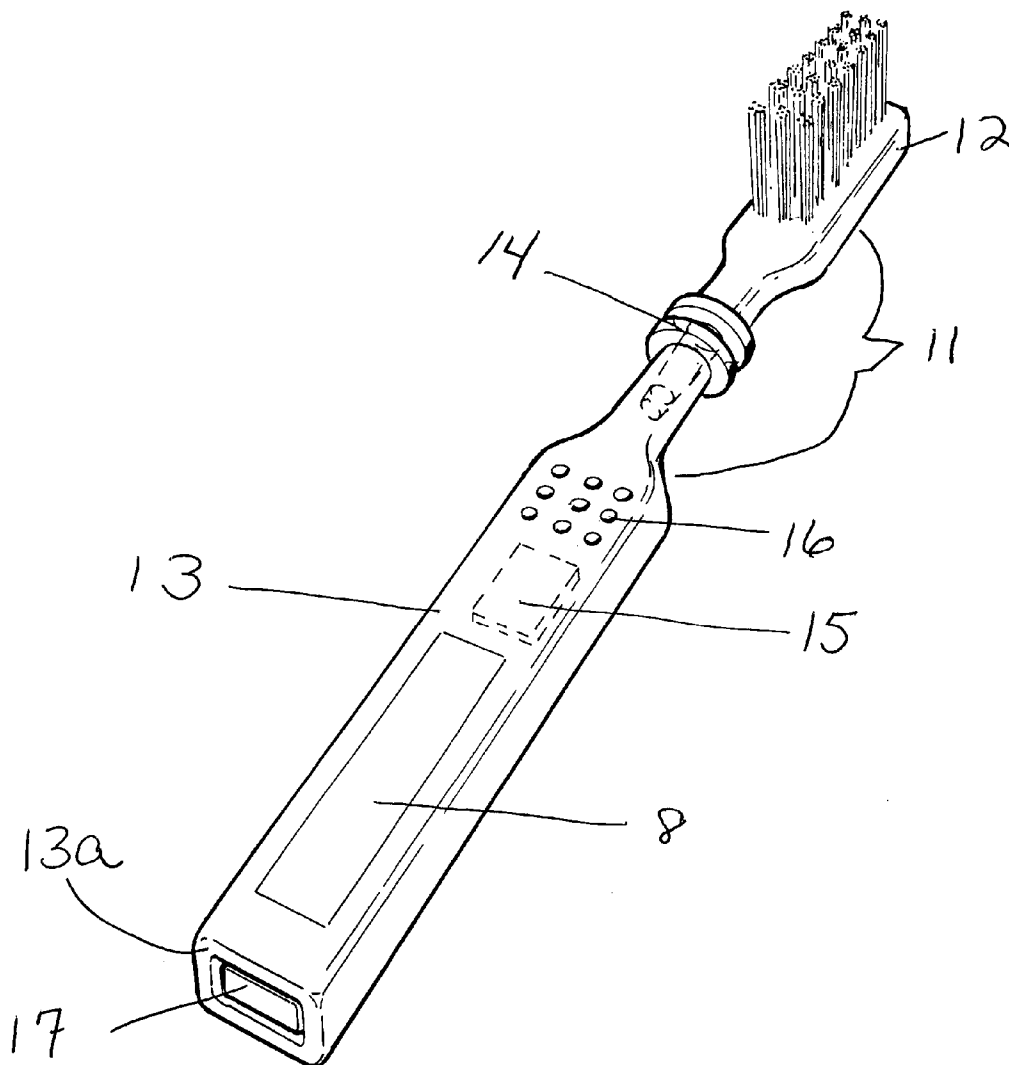
This invention contemplates a toothbrush construction which features a novel and unique assembly of parts comprising (1) an elongate handle end and (2) a disposable bristle containing end, said handle end serving as a reservoir storage place for music generating components; said disposable bristle containing end and handle end being constructed and arranged for end to end engagement and securement, said hollow handle serving as a reservoir/storage place for music generating components and having on its outer surface a solar panel for collecting energy suitable for powering the music generating components within, all to assist in the promotion of a healthy tooth brushing ritual.

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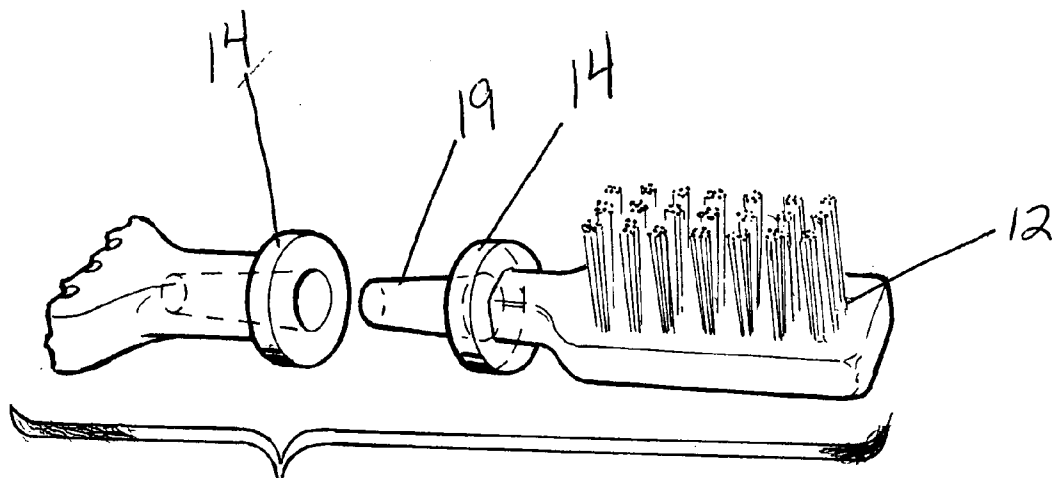


FIG. 2

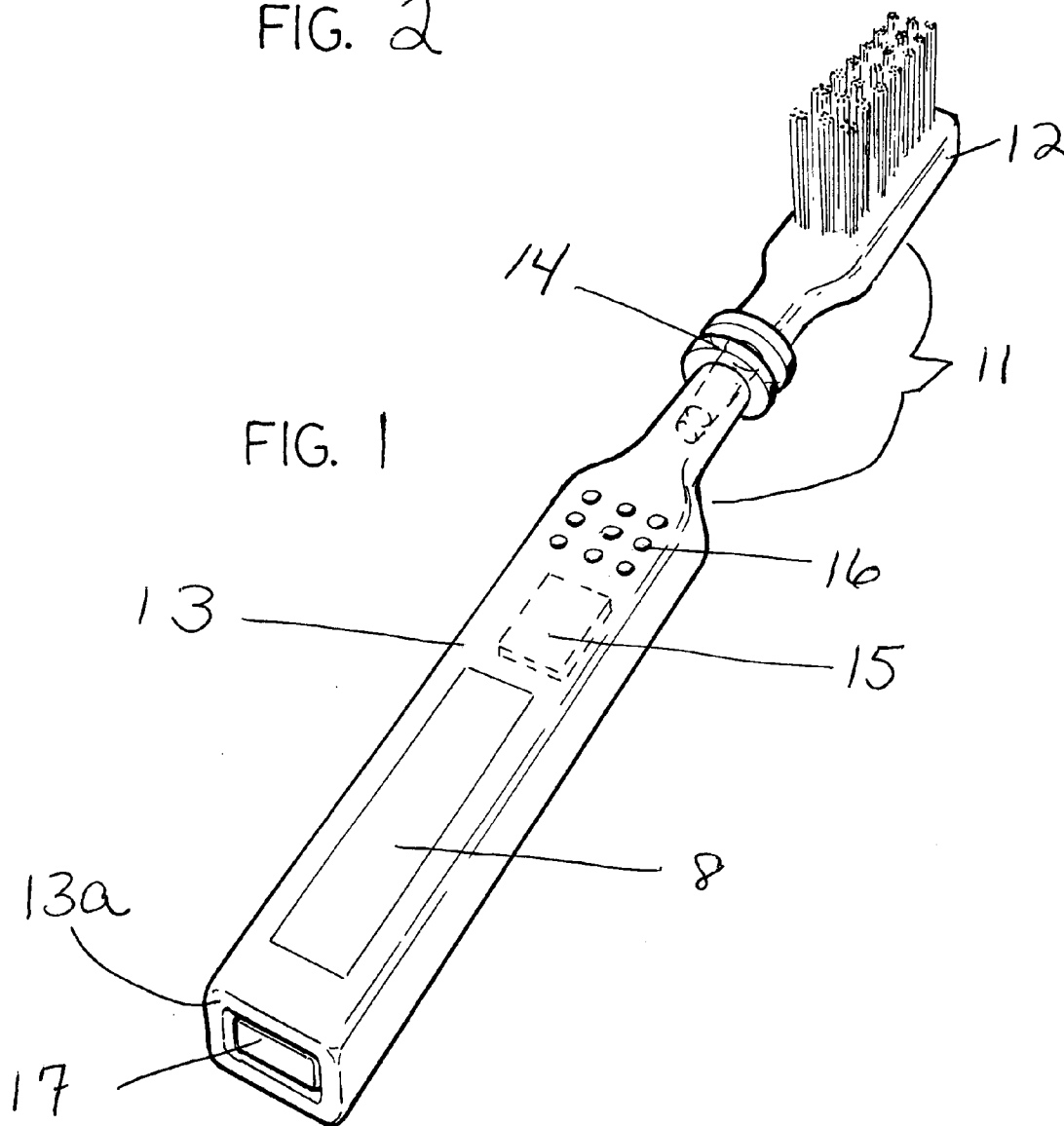


FIG. 1

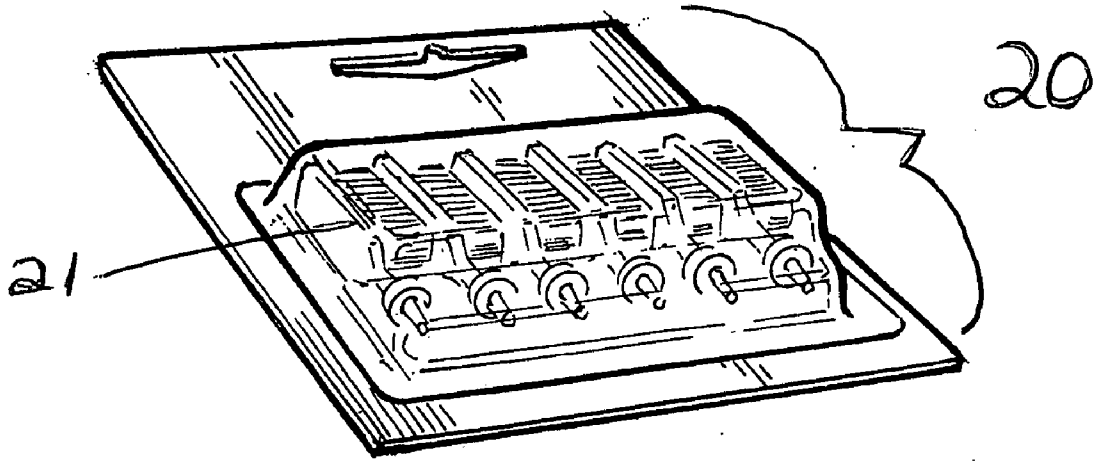


FIG. 3

### NOVEL TOOTHBRUSH

[0001] The present invention relates generally to the field of health care. More particularly the invention relates to personal health care. More particularly the present invention relates to the care of one's teeth and particularly children's teeth, which are usually neglected and accordingly most importantly it is a feature of the present invention to provide a child's toothbrush of unique construction, which differs from the prior art in being simple and safe.

[0002] Over all health care is certainly affected by the condition of ones teeth. Teeth that are neglected, that is not cleaned by frequent brushing, deteriorate rapidly. In children particularly where the development of cavities/Caries is well know to thrive despite the use of fluoridation which has become almost universal.

[0003] Fluoride treatment of water sources is of course a factor that deludes one into a complacent frame of mind whereby the person neglects the frequent brushing needed to rid the mouth area and the areas between the teeth of the harmful residual food which, if left alone, can ferment and damage the teeth and most particularly the roots. Children are most at risk here because of their love for sweet foods and candies. To encourage brushing by children resort has been made by a number of techniques; special flavor pastes; candy flavored pastes, etc. Whereby the person, particularly children see the brushing of their teeth as a chore therefore they neglect it and accordingly the rate of damage remains high particularly in children.

### BACKGROUND/PRIOR ART

[0004] The prior art discloses toothbrushes of various features and constructions such as flashing lights, a sound generator; as by integrated circuits, a speaker unit and a source of power; usually a battery which are alleged to provide an audible musical tune for a predetermined time period. This pleasing sound encourages the child to brush and to overcome the natural resistance thereto.

[0005] The prior art is exemplified by the following listed patents, which are deemed to illustrate the status of the prior art at the present time in relation to Applicant's invention herein relating to a feature-packed safe and self-contained toothbrush.

[0006] A detailed search of the available sources of toothbrushes revealed nothing valuable to me. A search of the art maintained by the United States Patent & Trademark Office revealed a number of seemingly relevant patents including the following.

[0007] The "Rosen" U.S. Pat. No. 6,389,633 (dated May 21, 2002); of recent date, discloses a motion sensing means electrically connected in combination with a logic means, digital output means, display means. Rosen's seems typical of the complicated devices discussed hereinafter.

[0008] Examination of the "Scheiner" U.S. Pat. No. 5,572,762 (dated Nov. 12, 1996); discloses a toothbrush having an opening for a sound generator and a speaker etc. covered with a flat closure and later on suggests a small power source such as a single cell three-volt lithium battery.

[0009] The "Khodadadi" U.S. Pat. No. 6,202,245 (dated Mar. 20, 2001); discloses a musical toothbrush including a

handle that is similar to that disclosed in the previous patent of "Scheiner" and requiring a battery to operate the sound generator.

[0010] The "Moore" U.S. Pat. No. 5,673,451 (dated Oct. 7, 1997); exemplifies the complexity of most of the prior art patents, which tend to defeat the simply purpose as intended to be accomplished. This Patent also uses a battery as a power source and the complexity is demonstrated by the use of reed switches and several magnet subassemblies.

[0011] The "Lyman" U.S. Pat. No. 5,339,479 (dated Aug. 23, 1994); is likewise extremely complicated including lights and sounds. This patent employs an electronic package powered by a battery.

[0012] The "Wang" U.S. Pat. No. 4,744,124 (issued May 17, 1988) discloses the broad notion of a musical toothbrush which employs conventional batteries as the power source. The device shown in this patent is complicated and unreliable employing a double switch structure as disclosed at column two, line 43 through 49 and, lines 55 through 64. The construction of the Wang invention is impractical and unsuitable for use by a child in the brushing of his or her teeth.

[0013] The brush disclosed in the "Brown" U.S. Pat. No. 5,044,037 (dated Sep. 3, 1991) is also extremely complicated as can be determined by looking at the Patents own disclosure, beginning at column two lines 42 for a discussion of FIG. 7; whereas Applicant's structure is extremely simple and of course, has features not disclosed in the Brown patent.

[0014] The Fong U.S. Pat. No. 5,259,086 (dated Nov. 9, 1993); discloses a musical toothbrush which features a cumbersome music box (23) at the handle end of the brush (11). It is perceived as failing to disclose in its drawing, the button to initiate the operation of the device.

[0015] The "Li" U.S. Pat. No. 6,154,912 (dated Dec. 5, 2000) is very similar to the constructions shown in the prior art patents above. Interestingly, the inventor of this patent brings up the importance of being waterproof, however, it is perceived that the structure is not waterproof.

[0016] The "Kreit" U.S. Pat. No. 4,866,807 (dated Sep. 19, 1999) entitled "toothbrush" discloses a toothbrush featuring an elongated brush end with the brush being secured at the opposite end and a threading connection to the so-called head end containing a loud speaker, a digital sound generator and battery (19). In fact, several batteries are disclosed which compounds one of the problem of using conventional batteries near several sources of water; sink, bathtub, shower, etc.

[0017] The prior art patents include a common denominator, the use of a dry cell battery, which do not work well in a moist or wet environment due to the problem of shorting out and also the connection terminals become corroded and useless.

[0018] In contrast, Applicant's device will be described as being properly protected from the water but at the same time with the only connection being between the solar panel and the integrated circuit which produces the sound digitally for emanation to the speaker as shown.

[0019] The prior art is also seen as deficient in teaching Applicant's invention by reason of the inclusion of a number

of unnecessarily complicated parts and features such as time delay and other mechanisms, which are subject to damage in movement or dropping of the device in the water, ordinarily in the bathroom, on the hard surface of the bathroom floor and certainly the prior art is not as simple as Applicant's, which relates to cost, which can be an important feature of course.

[0020] In summary, it is urged that none of the patents representing the prior art either taken alone or together disclose the combination of components as claimed by Applicant.

#### OBJECTS OF THE INVENTION

[0021] A principal object of the present invention is to provide a novel and feature-packed toothbrush consisting of an assembly of components, which is capable of issuing a sound, usually music, so as to overcome the resistance of children to perform the manual brushing of their teeth.

[0022] A further object of the present invention is to provide a child's toothbrush which is of such construction as to overcome the defects and shortcomings of the toothbrush construction shown in the prior art.

[0023] Another object of the present invention is to provide a child's toothbrush which features a construction which includes a disposable bristle containing end portion.

[0024] It is another object of the present invention to provide a musical toothbrush which is extremely simple in its construction as compared to the prior art by reason of the short bristle containing end and a separate longer handle end which is hollow for purpose of nesting components therein.

[0025] It is a further object of the present invention to provide a toothbrush featuring a handle end and a bristle containing end which have matching engageable and unengageable ends surrounded individually by an integral flange portion which when engaged provides extreme stability by reason of the abutment of their facing surfaces surrounding each of their ends as shown in the drawings.

[0026] It is an additional object of the present invention to provide a musical toothbrush of utility and attractiveness to a child, which features a solar panel carried securely on the exterior face of the handle end, and providing a flush surface common with the remainder of the handle surface; the underside of the solar panel has connection means, which extend through the wall of handle end to the interior for suitable connection by appropriate wiring to other components.

[0027] Another object of the present invention to provide such a device as described hereinabove which includes in part an amorphous silica gel capable of drawing energy from light sources other than the sun.

[0028] The foregoing objects, and as well other obvious objects of the present invention will become apparent to those skilled in the art from the following detailed description taken into conjunction with the annexed sheets of drawings in which there is presented several preferred embodiments of the present invention.

#### IN THE DRAWINGS

[0029] FIG. 1 is a three quarter perspective view of the toothbrush of the present invention illustrating the toothbrush in fully assembled condition with the bristles facing upward.

[0030] FIG. 2 is likewise a perspective view from a different angle showing the parts in spaced axial relationship in order to better show the support embodiment provided by the annular flanges as represents a preferred embodiment of the present invention.

[0031] FIG. 3 is a perspective view of a type of blister package envisioned by Applicants as a preferred form of marketing of the disposable bristle containing ends which can be herein stated that this embodiment provides a life for the toothbrush in general and permits a replacement of the bristle containing end without throwing away the whole toothbrush.

[0032] Viewed most simply the musical toothbrush of the present invention is a two piece construction wherein considerable economy is achieved having one end disposable. The bristle containing end is the best candidate for being replaceable as replaceable brush ends are very easily made and marketed in the usual sources of products in a blister pack as shown in FIG. 3. This is still the simplest construction. Desirably the construction includes a circular flange portion providing ample surface abutment of the mutually facing surfaces, serving to provide additional support needed considering the engagable and disengagable ends of the bristle containing ends and the hollow elongated handle end.

[0033] A detailed description of the invention to follow will provide a better understanding of Applicant's invention and, in such detail as to enable anyone skilled in the art to make the two piece musical emanating toothbrush of the present invention.

[0034] Thus, in FIG. 1 there is seen the fully assembled toothbrush (11) comprising the handle end (13) and the stubby bristle containing end (12) securely embedded in the stubby bristle containing end (12) in the usual fashion. The handle end (13) has mounted on one side, or both, a solar panel (18). The hollow elongate handle end also serves as a reservoir for the micro chip (15), a speaker (not shown) but located beneath the apertures (16). It will be understood that on the other side of the apertures or on the inside of the handle (13) the apertures are covered with an adhesive applied film.

[0035] The end of the handle (13) includes a switch (17) mounted recessedly in the end; the switch may be a common toggle switch or a push in and out switch. Again, provisions are being made for appropriate coating of the switch to ensure water does not enter the portion of the handle end (13).

[0036] In a preferred embodiment, the switch is mounted in an end cap pivotally secured to the handle; it is secured by a latch member not shown. The bristle containing end (12) and the handle end (13) are secured together as at (14); these being the annular flanges shown in both FIGS. 1 and 2. For purpose of ease of illustration, a rather generic form of engagement is shown using the tapered end portion of the bristle end (12) and the matching tapering aperture in the handle end (13). With this generic type of construction it is logical and important to have these parts dimensioned so that the surfaces reach full abutment of the tapered portions as the annular surfaces of the flanges reach a firm surface abutment and may be sealed with an appropriate adhesive. There are many ways in which these two parts can be joined

together featuring the annular flanges. One would be with a bayonet type of fastening wherein the flanges are independent rather than interracially a part of the adjacent parts to which they are mounted. They are separated from the interior by appropriate gasketed material or an issued material or cement.

[0037] The sound chip can be any (IC) integrated circuit micro chip containing prerecorded music.

[0038] In FIG. 2 the brush end (12) of Applicant's invention is shown with a bayonet type (19) protruding end which connects to the handle end (13) in a secure fashion by way of a congruent flange portion (14), which when connected provides support and strength to the overall construction.

[0039] In FIG. 3 of Applicant's invention is shown a blister pack (20) which contains a plurality of brush ends (21) suitable for engagement by the handle end (13) of Applicant's unique device.

BRIEF DESCRIPTION

[0040] In its simplest form the present invention envisions a musical toothbrush specially adapted for children; said toothbrush comprises a two piece construction, (1) an end containing brushes or bristles extending normally there from and at the other end a first engagement means; 2) a handle end, which is hollow, having second engagement means formed for engagement with the first engagement means on the first ends. Each of said engagement ends being surrounded by a annular flange having facing surfaces which are congruent to and are in surface abutment upon engagement being completed; said handle end further including a recess in its outer surface for location of a solar panel therein or a solar panel located on the outer surface of the handle end in recessed relationship and providing a suitable surface compatible with the surface of said handle end and switch means formed in the end of the handle and circuitry means connecting a switch to the solar panel and other electronic means located in the hollow end.

[0041] It can be seen from the foregoing that a very novel and unique invention has been made by our cooperative efforts in designing a musical toothbrush providing several features of novelty. In the first place, our devise is more

economical in view of its two piece construction as discussed above. Furthermore it is inclusive of the flange portions to reinforce the engageable and unengageable end portions. Lastly, the additional power source of either the sun, in the case of the solar panel, and, other lights as florescent lights, in the case of the amorphous silicon gel.

[0042] Accordingly, it is our intention to have the claims herein construed broadly since many of the embodiments will seem apparent to one skilled in the art and certainly such modifications and improvements as are suggested to those skilled in the art are intended to be included within the scope of this present invention unless to do so would do violence to the appended claims.

We claim:

1. A music emitting child's toothbrush comprising a hollow elongate handle end and a shorter bristle-end said ends being constructed and arranged to provide reversible engagement and axial relationship as to the handle end and bristle containing end, the hollow elongate handle end being adapted to serve as a reservoir or storage place for music generating components and having on its outer surface a solar panel for collecting energy suitable for powering the music generating components within.

2. The invention as claimed in claim 1 wherein each engagement means includes an integral annular flange surrounding such engagement means on said parts and being located to assume flush surface abutment when fully engaged.

3. The invention as claimed in claim 2 wherein the handle end includes a recessed end switch in the end of the handle opposite the engagement means.

4. The invention as claimed in claim 3 wherein the switch containing end is removable to allow access to the hollow portion of said handle end for storing sound generating means within and a battery connected to said solar panel and to said sound generating components, and means connecting the foregoing whereby light of any sort impinging on the solar panel causes the switch being in the proper circuit position causes sound generating component to issue sound.

5. The invention as claimed in claim 4 wherein said sound generating component uses an integrated circuit (IC).

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