Aug. 29, 1939. C. E. SMITH ET AL 2,171,376

HEAD TREATING DEVICE

Filed April 20, 1937

Fig. 1

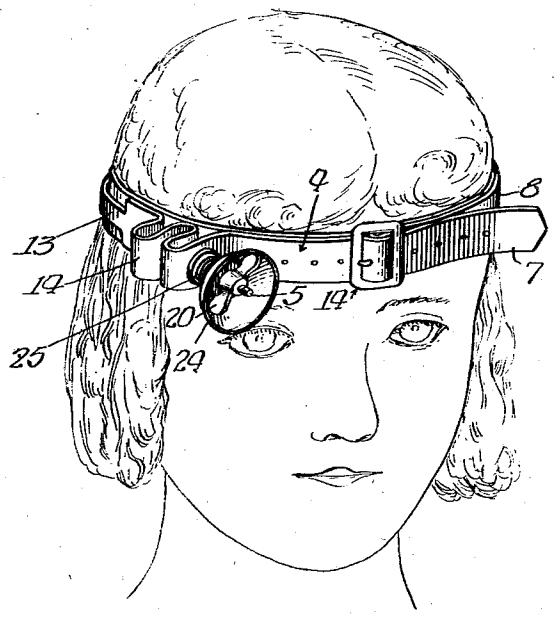


Fig. 2

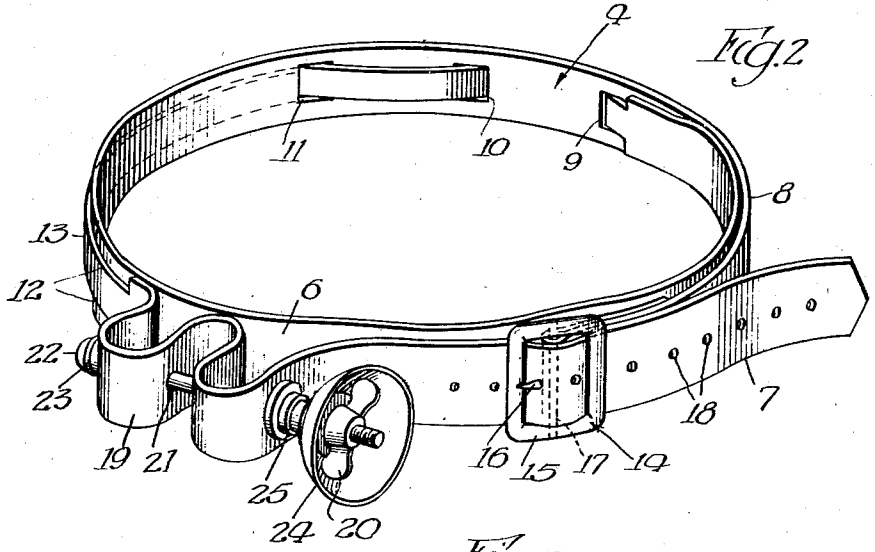
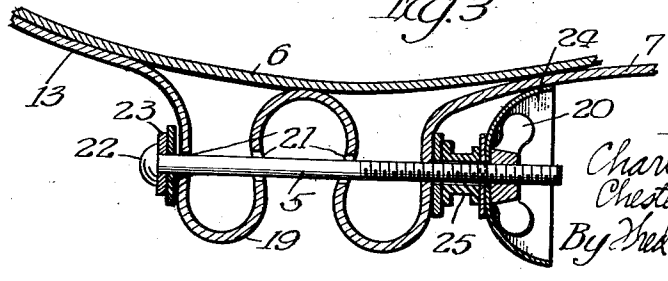


Fig. 3



Inventors
Charles Enion Smith
Chester H. Bruns
By Fred Gerlach their Atty.

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HEAD TREATING DEVICE

Charles Enion Smith and Chester H. Bruns,
Chicago, Ill.

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3 Claims. (Cl. 128—97)

The present invention relates generally to devices for controlling the flow of blood to the head in order to relieve headaches or treat other forms of head ailments. More particularly the invention relates to that type of device which is adapted to be applied to the head for a short or predetermined period, operates to restrict or curtail the flow of blood to the nerve tissue constituting the brain, and comprises a head encircling band and means for adjusting or varying the circumference of the band in order to produce clamping pressure.

One object of the invention is to provide a device of this type which not only is an improvement upon previously designed devices for the same purpose but also is more efficient and has greater capabilities of use.

Another object of the invention is to provide a device of the type under consideration in which the band is adapted when the device is in its operative or proper position on the wearer's head completely to encircle the forehead and back portion of the head and the adjusting means is of such design that it is capable of tightening or reducing the circumference of the band to such an extent or degree as to cause the band to compress the skull to the point where the skull sutures are so effected that flow of blood to the brain forming nerve tissue is effectively checked and the nerves are thus able to readjust themselves or become properly active again upon release of clamping pressure in response to removal of the device from the wearer's head.

Another object of the invention is to provide a device of the aforementioned type and character in which the central portion of the band forms an inner head encircling convolution and the ends of the band form an outer convolution and are secured together by means of a buckle which is spaced from the wearer's head by the inner convolution and by adjustment thereof permits the device to be applied readily to heads of different sizes and shapes.

A further object of the invention is to provide a device of the last mentioned character in which one end of the band embodies a loop formation and the adjusting or band tightening means is in the form of a bolt which extends through this formation and has a wing nut whereby the formation may be compressed for band tightening purposes or expanded for pressure releasing purposes.

A still further object of the invention is to provide a device of the type and character last mentioned in which the bolt constituting the adjusting or band tightening means embodies a cup-shaped member which surrounds the wing nut and serves to space the latter from the contiguous end of the band.

Other objects of the invention and the various advantages and characteristics of the present head treating device will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective showing a head treating device embodying the invention in its operative or head clamping position;

Figure 2 is an enlarged perspective view illustrating in detail the design and arrangement of the band and the manner in which the buckle serves to hold the ends of the band in connected relation; and

Figure 3 is an enlarged sectional view showing the loop formation of the band and also the construction of the bolt and wing nut which constitute the adjusting or band tightening means and the manner in which the bolt extends through the loop formation.

The device which is shown in the drawing constitutes the preferred embodiment of the invention. It is designed, as hereinafter described, to relieve headaches and also to treat other forms or types of head ailments and comprises as the main parts or elements thereof a band **4** and a bolt **5** for adjusting or varying the circumference of the band in connection with use of the device.

The band **4** is designed to encircle the forehead and the side and back portions of the head of the user of the device and embodies an inner convolution **6** and ends **7** and **8**. As shown in Figure 2, said ends, form an outer convolution around the inner convolution **6**. The central portion of the band forms the inner convolution **6** and has three equidistantly spaced substantially square apertures **9**, **10** and **11** in one part thereof. The band is of uniform width throughout with the exception of the inner portion of the end **7** which embodies longitudinally extending marginal cutouts **12** so that it forms a reduced part **13**. This part, as shown in Figure 2, is threaded through the substantially square apertures in the central portion of the band in such manner that it ex-

tends outwardly through the aperture 9, then around the part of the central portion of the band between the apertures 9 and 10, then inwards through the aperture 10, and then along the inner face of the central portion of the band between the apertures 10 and 11 and finally outwards through the aperture 11. By so threading the reduced part 13, the band end 7 is exteriorly disposed with respect to the central portion of the band which defines the inner convolution 6. The reduced part 13 is preferably of smaller width than the apertures so that it slides readily through the latter. By reason of the fact that the reduced part 13 is threaded back and forth through a plurality of apertures instead of being threaded through a single aperture the reduced part together with the band end 7 is held in alignment with the central portion of the band which defines the inner convolution 6. The end 8 of the band joins the central portion at the aperture 9 and is connected to the end 7 by a buckle 14 which consists of a rectangular frame 15 and a tongue 16. The frame is associated with the end 8 of the band and has a centrally disposed cross-piece 17 on which the tongue 16 is pivotally mounted. The outer extremity of the end 8 of the band extends around the cross-piece and is doubled back and secured in place so as to secure the frame 15 of the buckle to the band end 8. The end 7 of the band embodies a longitudinal series of tongue receiving holes 18 and is adapted to extend through the frame 15 and around the cross-piece 17 and to be secured in place by the tongue 16, as shown in Figure 2. By adjusting the buckle with respect to the band end 7 the circumference of the band may be increased or decreased in order to adapt the device for use on heads which vary in size or shape. If the buckle is tightened, that is, shifted inwards with respect to the band end 7, the ends of the band are drawn together and effect or cause a reduction in the circumference of the inner convolution 6 of the band. If, on the other hand, the buckle is loosened, that is, shifted outwards in the direction of the extremity of the band end 7, the effective or operative length of the end 7 is increased with the result that there is a corresponding increase in the circumference of the inner convolution 6 of the band. During tightening or loosening of the buckle the reduced part 13 which constitutes the inner portion of the band end 7 slides through the apertures 9, 10 and 11. The buckle 14, as shown in Figure 2, is disposed substantially diametrically opposite the aperture 11 and is exteriorly disposed with respect to the central portion of the band, that is, the portion of the band which defines the inner convolution 6. Because of this, the buckle does not engage the head of the wearer of the device and hence does not cause any discomfort. The buckle 14 contitutes or exemplifies means for adjustably securing the ends of the band together in order that the circumference of the inner convolution of the band may be increased or decreased at will so as to adapt the device for heads of different sizes and shapes.

The bolt 5 extends through a loop formation 19 in the end part 7 of the band 4 and has a wing nut 20. The formation 19 is formed by bending the portion of the end part 7 which is between the outer end of the reduced part 13 and the innermost hole 18 back and forth so that it is of M-shaped design, that is, includes two outer loops and a reversed or inwardly extending intermediate loop. It is located at one side of the buckle 14 and embodies aligned holes 21 in the loops thereof through which the bolt 5 extends. The rear end of the bolt, that is, the end which is adjacent to the reduced part 13 embodies a head 22, and a pair of leather washers 23. The front or other end of the bolt is threaded and carries the wing nut 20. The latter is disposed in a cup-shaped member 24 and is adapted when tightened to compress the loop formation 19 and thus constrict or reduce the circumference of the inner convolution 6 and cause the latter to exert clamping pressure on the head of the wearer of the device. The member 24 is slidably mounted on the bolt and serves to space the wing nut from the end 7 of the band in order that it is always free for turning purposes. Washers 25 are mounted on the bolt between the central portion of the cup-shaped member 24 and the adjacent or front outer loop of the formation 19. When the device is in its operative position on the wearer's head and the wing nut 20 is tightened, the loop formation 19 due to movement of the nut towards the head 22, compresses and as previously pointed out tightens the band and causes the latter to exert clamping pressure. When the wing nut is loosened, that is, reversely rotated, the loop formation 19 is permitted to expand with the result that the band increases in diameter and releases the wearer of the device from clamping pressure. The holes 21 are preferably centrally positioned with respect to the loops 19 with the result that the bolt is spaced from the inner convolution 6 and hence does not bear directly against the head of the wearer of the device. The bolt and wing nut constitute means for adjusting or varying the circumference of the band when the device is in place.

In using the device to relieve a headache the band by manipulation of the buckle 14 is adjusted so that it may be readily slipped over the wearer's head. In applying the device the band is preferably arranged so that the buckle is in front and the wing nut and cup-shaped member are located in a forwardly extending position over one eye (see Figure 1). After the band has been placed on the wearer's head so that it extends around the forehead and the side and back portions of the head the wing nut 20 is tightened. During tightening of the nut the loop formation 19 is compressed with the result that the band decreases in circumference and applies clamping pressure to the head. Preferably the nut is tightened slowly so that the clamping pressure about the head is gradual. In order to effect proper results the wing nut is tightened until the band contracts the skull to the point where the skull sutures are affected and the flow of blood into the nerve tissue constituting the brain is checked or restricted. After the wearer has been subjected to the clamping pressure of the band for a period ranging between 5 and 10 minutes or for a shorter or longer period depending upon the type of headache, the wing nut 20 is loosened so as to permit the band to increase in circumference and release the head of the wearer of the device from clamping pressure. Thereafter the band is completely removed. During the time the band is in use the nerves of the brain, due to the curtailment or restriction of the flow of blood, readjust themselves for normal action with the result that when the clamping pressure is released by loosening of the wing nut they are hence able to take care of the normal flow of blood to the head and the user hence becomes rid of any headache which he or she may have.

By reason of the fact that the band embodies the inner convolution **6** which completely encircles the wearer's head the clamping pressure resulting from tightening of the wing nut **20** is applied to all portions of the band engaged portion of the head as contradistinguished from localized portions. In some instances it is desirable to loosen the wing nut gradually so that the clamping pressure about the wearer's head is also released gradually and the inflow of blood to the nerve tissue is correspondingly gradual. When the device is applied, as shown in Figure 1, the cup-shaped member **24** not only serves to space the wing nut **20** from the contiguous portion of the end part **7** of the band and hence permit of ready turning of the nut but also serves as a guide for directing the fingers of the user of the device toward the nut and thus eliminates the necessity of the user applying the device with the aid of a mirror or other reflecting surface. The bolt **5** is of such length that when the band **4** is adjusted for proper application to the head the nut may by turning be shifted a sufficient distance to cause the band to contract or decrease in circumference to a point where the skull sutures are properly affected.

The herein described head treating device may be used for the treatment of all types of head ailments which result from exhaustion of the nerves of the brain or from over-supply of blood to the nerve tissues as well as to relieve headaches. It is extremely simple as far as construction is concerned and may be produced at a low and reasonable cost. The band **4** is preferably formed of leather or like material which has a limited amount of give or stretch and will not injure or hurt the wearer's head.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent is:

1. As a new article of manufacture, a device adapted for treating head ailments and comprising a band having the central portion thereof shaped to engage and encircle the head and having one end thereof extending around one side of the central portion and its other end extending slidably through an aperture in said central portion and around the other side of the latter, means for adjustably securing the ends of the band together, and bolt means associated with one end of the band and wholly independent of said securing means and so manipulable while the band is in place on the head as to effect shortening of the last mentioned one end of the band and resultant contraction of the central portion of the band for head clamping purposes.

2. As a new article of manufacture, a device adapted for treating head ailments and comprising a soft, pliable non-metallic band having the central portion thereof shaped to encircle completely and engage the head and one end thereof extending around one side of the central portion and its other end extending slidably through an aperture in said central portion and around the other side of the latter, and provided in one of its ends with an M-shaped loop formation, means for adjustably securing the end extremities of the band together, and a nut equipped bolt extending through the loops of the formation and operative in response to tightening of the nut to compress said loop formation and cause the central portion of the band as the result of shortening of the band end embodying the formation to contract and exert clamping pressure on the head.

3. As a new article of manufacture, a device adapted for treating head ailments and comprising a soft, pliable non-metallic band having the central portion thereof shaped to encircle completely and engage the head and one end thereof extending around one side of the central portion and its other end extending slidably through an aperture in said portion and around the other side of the latter, and provided in one of its ends with a loop formation, means for adjustably securing the ends of the band together, a nut equipped bolt extending through the loop formation and operative in response to tightening of the nut to compress the loop formation and cause the central portion of the band as the result of shortening of the band end embodying the formation to contract and exert clamping pressure on the head, and a cup-shaped member slidably mounted on the bolt and extending around the nut so that it serves to space the latter from the end of the band with said loop formation.

CHARLES ENION SMITH.
CHESTER H. BRUNS.