A device for checking blood pressure, comprising an inflatable hollow band adapted to encircle a limb and having pump means connected to said band for inflating said band. A first pressure relief valve is provided on the band and is adapted to relieve pressure at a first predetermined pressure, an on-off valve is associated with the first pressure relief valve for disabling said first pressure relief valve. A second pressure relief valve is associated with the hollow band and for relieving the pressure of the band at a higher setting than the first pressure relief valve such that, the blood pressure may be checked by actuating said pump means until the pulse of the person being checked is interrupted in said limb or until the first pressure relief valve operates to relieve the pressure, thereafter actuating the on-off valve if the first pressure relief valve has been actuated to disable the pressure relief valve and continuing the application of pressure until the pulse of the individual is interrupted or the second pressure relief valve is actuated indicating a more serious condition of blood pressure.

11 Claims, 5 Drawing Figures
DEVICE FOR CHECKING BLOOD PRESSURE

This invention relates to devices for checking blood pressure and particularly to a device which can be utilized by an individual for checking his own blood pressure.

BACKGROUND OF THE INVENTION

In checking blood pressure, it is common to utilize a device which comprises a band that is wrapped around the limb and has a pump and gauge associated therewith. The physician or nurse checking the blood pressure manipulates the pressure while simultaneously checking the pulse to determine the pressure at which the pulse is stopped. Such a device is complex and difficult to use. Accordingly, it is not practical for use by individuals for checking their own blood pressure.

Accordingly, among the objects of the invention are to provide a device which can be readily manipulated by an individual and which will indicate to the individual when he has a moderate or severe case of high blood pressure.

SUMMARY OF THE INVENTION

The device for checking blood pressure embodying the invention comprises an inflatable hollow band adapted to encircle a limb and pump means connected to said band for inflating said band. A first pressure relief valve is associated with the band and is adapted to relieve pressure at a first predetermined pressure, and an on-off valve is associated with the first pressure relief valve for disabling the first pressure relief valve. A second pressure relief valve is associated with the hollow band and set for relieving the pressure of the band at a higher setting than the first pressure relief valve such that, the blood pressure may be checked by actuating the pump means until the pulse of the person being checked is interrupted in said limb or until the first pressure relief valve operates to relieve the pressure, thereafter actuating the on-off valve if the first pressure relief valve has been actuated to disable said pressure relief valve and continuing the application of pressure until the pulse of the individual is interrupted or the second pressure relief valve is actuated indicating a more serious condition of blood pressure.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagrammatic view showing the device embodying the invention in use.

FIG. 2 is a partly schematic view of the device.

FIG. 3 is a longitudinal sectional view of the device.

FIG. 4 is a sectional view taken along the line 4—4 in FIG. 3.

FIG. 5 is a fragmentary sectional view taken along the line 5—5 in FIG. 3.

DESCRIPTION

Referring to the drawings, the invention comprises an inflatable hollow band 10 which is adapted to encircle the limb L of the user. The band 10 is preferably made of two rectangular sheets or layers of plastic joined along their peripheral edges to define a hollow space and having means such as a slide fastener along opposed edges 11 to encircle the limb.

A tube 12 extends to a manually operated pump 13 such as a squeeze bulb having a one-way inlet valve 13a. A one-way valve 14 is associated with the tube 12 so that air pumped into the tube will not escape back through the pump. A first pressure relief valve 15 set to relieve air in the tube 12 at a predetermined pressure, for example 150 lbs., is associated with the tube 12. In addition an on-off valve 16 is provided which will disable the pressure relief valve 15. A second pressure relief valve 17 is also associated with the tube and is set to relieve the pressure at a higher pressure than valve 15, on the order to 109 lbs.

A typical pressure relief valve 15 and disabling on-off valve 16 is shown in FIG. 5 and comprises a spring loaded ball 18 that is normally urged against a seat 18a. When the pressure exceeds the setting of the spring, the air in the tube 10 is relieved. The valve includes a cap 19 which can be screwed downwardly to engage the ball and disable the pressure relief valve.

For convenience of the user valves 15, 17 may have identifying indicia thereon such as different colors. In the event that it is desired to quickly dissipate the pressure in the band 10, a manually operated vent valve may be associated with the band either directly or on the tube 12, as is conventional with the usual devices for checking blood pressure.

The invention can be more readily understood by reference to the diagrammatic showing in FIG. 2. A person deciding to check his blood pressure applies the band 10 to a limb such as an arm and begins the application of pressure by manipulating the pump 13. Simultaneously, the person keeps checking his pulse. If the pulse stops before the pressure relief valve 15 relieves the pressure, his blood pressure is normal. If however the pressure relief valve 15 relieves the pressure before the pulse is stopped, then the person knows that his blood pressure is higher than normal. The person then manipulates the disabling device 16 thereby cutting off the pressure relief valve 15 and continues the pumping. As the pressure increases, he continues to monitor his pulse and if the pulse stops then he knows that his pressure is somewhat over the setting of the valve 15 but less than that of the valve 17. However, if the pulse continues until the pressure relief valve 17 is actuated to relieve the pressure, then the person knows that his blood pressure is quite high and should seek medical assistance immediately.

It can thus be seen that there has been provided a device for checking blood pressure which can be manipulated by an individual simply without excessive skill and which will indicate to the individual whether he has a moderate or severe case of blood pressure.

I claim:

1. In a device for checking blood pressure, the combination comprising
   an inflatable hollow band adapted to encircle a limb, pump means connected to said band for inflating said band,
   a first pressure relief valve on said band and set to relieve pressure at a first predetermined pressure, on-off valve means associated with said first pressure relief valve for disabling said first pressure relief valve,
   a second pressure relief valve associated with said hollow band and set for relieving the pressure of said band at a higher setting than said first pressure relief valve such that, the blood pressure may be checked by actuating said pump means until the pulse of the person being checked is interrupted in said limb or until the first pressure relief valve operates to relieve the pressure, thereafter actuat-
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3. said on-off valve means if said first pressure relief valve has been actuated to disable said first pressure relief valve and continuing the application of pressure until the pulse of the individual is interrupted or the second pressure relief valve is actuated indicating a more serious condition of blood pressure.

2. The combination set forth in claim 1 wherein said device includes a one-way valve associated with said pump means.

3. The combination set forth in claim 1 wherein said pump means is manually operable.

4. The combination set forth in claim 1 wherein said first pressure relief valve is set for relief at 150 lbs. pressure and said second pressure relief valve is set for relief at 190 lbs. pressure.

5. The combination set forth in claim 1 wherein said on-off valve means comprises an on-off valve associated with said first pressure relief valve.

6. The combination set forth in claim 1 including indicia means associated with each said pressure relief valve to distinguish said pressure relief valves.

7. The combination set forth in claim 6 wherein said indicia means comprises first and second colors.

8. The combination set forth in claim 1 wherein said band comprises a generally rectangular band comprising spaced layers defining a hollow space therebetween, opposed edges on said band having means thereon for joining said edges to provide the hollow band encircling the limb.

9. In a device for checking blood pressure, the combination comprising an inflatable hollow band adapted to encircle a limb, manually operable pump means connected to said band for inflating said band, a one-way valve associated with said pump means, a first pressure relief valve on said band and set to relieve pressure at a first predetermined pressure, on-off valve means associated with said first pressure relief valve for disabling said first pressure relief valve,
a second pressure valve associated with said hollow band and set for relieving the pressure of said band at a higher setting than said first pressure relief valve such that, the blood pressure may be checked by actuating said pump means until the pulse of the person being checked is interrupted in said limb or until the first pressure relief valve operates to relieve the pressure, thereafter actuating said on-off valve means if said first pressure relief valve has been actuated to disable said first pressure relief valve and continuing the application of pressure until the pulse of the individual is interrupted or the second pressure relief valve is actuated indicating a more serious condition of blood pressure.

10. The combination set forth in claim 9 wherein said first pressure relief valve is set for relief at 150 lbs. pressure and said second pressure relief valve is set for relief at 190 lbs. pressure.

11. In a method of checking blood pressure by utilizing an inflatable hollow band adapted to encircle a limb, pump means connected to said band for inflating said band, a first pressure relief valve on said band and set to relieve pressure at a first predetermined pressure, on-off valve means associated with said first pressure relief valve, for disabling said first pressure relief valve, a second pressure relief valve associated with said hollow band and set for relieving the pressure of said band at a higher setting than said first pressure relief valve such that the steps comprise encircling a person's limb with said hollow band, actuating said pump means until the pulse of the person being checked is interrupted in said limb or until the first pressure relief valve operates to relieve the pressure, thereafter actuating said on-off valve means if said first pressure relief valve has been actuated to disable said first pressure relief valve and continuing the application of pressure until the pulse of the individual is interrupted or the second pressure relief valve is actuated indicating a more serious condition of blood pressure.

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