

Nov. 17, 1931.

C. J. PILLING

1,832,422

STETHOSCOPE

Filed June 20, 1931

Fig. 1.

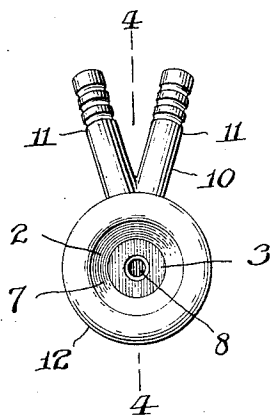


Fig. 2.

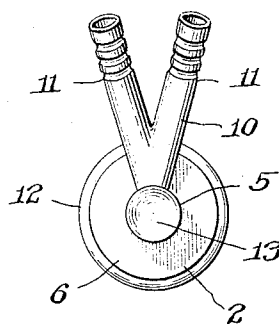


Fig. 3.

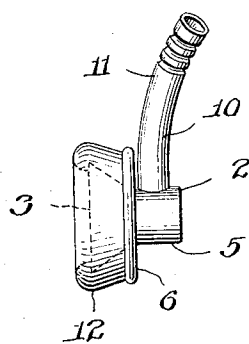


Fig. 4.

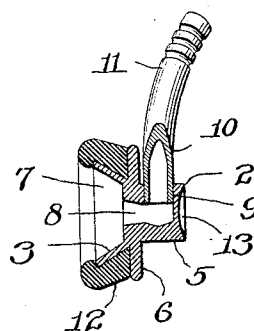
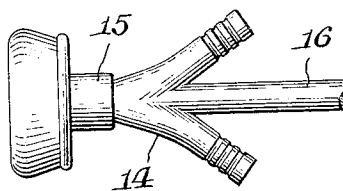


Fig. 5.



Inventor.

Charles J. Pilling

A. V. Grouse
Attorney

UNITED STATES PATENT OFFICE

CHARLES J. PILLING, OF LANSDOWNE, PENNSYLVANIA, ASSIGNOR TO THE GEORGE P. PILLING & SON COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

STETHOSCOPE

Application filed June 20, 1931. Serial No. 545,695.

The object of this invention is to provide a stethoscope of novel, simple and efficient construction having provision, first, whereby the objectionable hair noises caused by the
5 body hairs of the patient may be reduced in number or entirely eliminated; second, whereby the sound collecting chamber may be effectually closed for the elimination of other extraneous sounds when the body piece
10 thereof is applied to the body of a patient; and, third, whereby the device may be readily held in position against the body of the patient with ease and comfort for both the patient and the physician.

15 The invention consists in the novel construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings, illustrating the invention,

20 Figure 1 is a front view of a stethoscope embodying my invention.

Figure 2 is a rear view thereof.

Figure 3 is a side view thereof.

25 Figure 4 is a section of the device, on line 4—4 of Fig. 1.

Figure 5 is a view similar to Fig. 4, showing a modification of the instrument.

Referring to Figs. 1, 2, 3 and 4 of the drawings, the body piece 2 of the stethoscope is
30 formed of a single piece of suitable metal and it comprises a forward portion 3, a rearward portion 5 and an intermediate annular flange 6 which extends outwardly therefrom and which is spaced from the forward and
35 rearward ends thereof, the portions 3 and 5 and flange 6 being in axial alinement with one another.

40 The forward portion 3 is flared outwardly from the flange 6 and it is made hollow and surrounds a sound collecting chamber 7.

45 The body piece 2 is provided with a central bore 8 which extends rearwardly from the inner end of the chamber 7 and forms a sound passage which leads from the chamber and terminates in advance of the body piece.

50 The rearward portion 5 of the body piece is provided with a lateral bore 9 whose inner end communicates with the central bore 8, and secured within the bore 9 is one end

portion of a Y-fitting 10 whose diverging, tubular arms 11 form sound passages which are in communication with the sound collecting chamber 7 through the fitting 10 and the central bore 8.

55 The diverging arms 11 of the fitting 10 are constructed to be connected in the usual manner to the rubber tubes which carry the usual auralis as and for purposes well known in this art.

60 Surrounding the forward portion 3 of the body piece is an annulus 12 of soft, resilient rubber or other suitable material. The forward and rearward end portions of the annulus 12 are made thicker than the intervening portion thereof and the interior diameter of annulus is normally somewhat less than the exterior diameter of the flared forward portion 3 of the body piece, so that
65 when the annulus is applied to the body piece the annulus will be stretched by the flared portion 3 of the body piece and will be thereby caused to hug the body piece in close contact with the flared portion thereof to retain
70 the annulus in place thereon.

75 The thickened forward end portion of the annulus 12 extends forwardly at the forward end of the body piece 2 and it is turned inwardly and into contact with the forward end of the flared portion 3 which surrounds
80 and forms the sound inlet for the chamber 7. The forward end of the annulus is adapted to make contact with the body of the patient having the stethoscope applied thereto for a cardiac examination; and when the stetho-
85 scope is thus applied, the soft and yielding annulus 12 makes a close contact of the device with the patient entirely around the inlet to the sound collecting chamber 7 for the elimination of extraneous sounds, and it
90 also adapts itself to any body hairs which may be present and in contact therewith and thereby reduces or eliminates the objectionable hair noises usually occasioned by the
95 presence of such hairs.

100 The annulus 12 is shaped in section, as shown in Fig. 4. Its rearward end abuts against the flange 6 and its intumed forward end portion abuts against the forward end of the metal wall of the forward portion 3

of the body piece when the stethoscope is pressed against the body of the patient by the physician. The diameter of the flange 6 is at least substantially equal to the diameter of the forward end of the forward portion 3 of the metal body piece, and it is preferably somewhat in excess thereof to cause the flange to form a backing or abutment which will take the opposing pressure of the annulus in parallel lines when it is pressed against the body of a patient. Also the relation of the intumed forward end portion of the annulus to the forward end of the metal body piece causes such portion to be compressed between the body of the patient and the metal body piece of the stethoscope and thus assist the rubber annulus in properly performing its function.

The rearward end of the metal body piece is made in concave form to provide a depression 13 for the reception of a finger of the physician using the instrument to enable the physician to press the instrument against the body of a patient and to prevent the finger from accidentally discharging itself from the device.

In Fig. 5, I have shown a modification of the instrument in which a Y-fitting 14 extends rearwardly from the body piece 15 in axial alinement therewith for conveying the sounds from a chamber therein, and in which a solid rod 16 extends centrally from the Y-fitting to be connected to a suitable head piece for applying pressure to the instrument.

I claim as my invention:

1. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly therefrom between and spaced from the forward and rearward ends thereof, and having a sound collecting chamber formed in the forward end portion thereof, and having a sound passage extending from the chamber, and said chamber having a sound inlet at the forward end thereof, and an annulus of soft, resilient material surrounding the forward portion of the body piece and having its rearward end abutting against said flange and having its forward portion projecting forwardly from the body piece to make contact with the body of a patient.

2. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly therefrom between and spaced from the forward and rearward ends thereof and having a finger receiving depression formed in the rearward end thereof and a sound collecting chamber formed in the forward end portion thereof having a sound inlet at its forward end, said body piece having a sound passage extending from the inner end of the chamber on the axis thereof and then laterally from such axis, and an annulus of soft, resilient

material surrounding the forward portion of the body piece and having its rearward end abutting against said flange and having its forward portion projecting forwardly from the body piece to make contact with the body of a patient.

3. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly therefrom between and spaced from the forward and rearward ends thereof, and having a sound collecting chamber formed in the forward end portion thereof, and having a sound passage extending from the chamber, and said chamber having a sound inlet at the forward end thereof, and an annulus of soft, resilient material surrounding the forward portion of the body piece and having its rearward end abutting against said flange and having its forward portion projecting forwardly from the body piece to make contact with the body of a patient, the diameter of said flange being at least substantially equal to the diameter of the forward end of the body piece.

4. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly therefrom between and spaced from the forward and rearward ends thereof, and having a sound collecting chamber formed in the forward end portion thereof, and having a sound passage extending from the chamber, and said chamber having a sound inlet at its forward end thereof, and an annulus of soft, resilient material surrounding the forward portion of the body piece and having the rearward end abutting against said flange and having its forward portion projecting forwardly from and turned inwardly into contact with the forward end of the body piece to make contact with the body of a patient.

5. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly therefrom between and spaced from the forward and rearward end thereof, and having a sound collecting chamber formed in the forward end portion thereof, and having a sound passage extending from the chamber, and said chamber having a sound inlet at the forward end thereof, and an annulus of soft, resilient material surrounding the forward portion of the body piece and having its rearward end abutting against said flange and having its forward portion projecting forwardly from and turned inwardly into contact with the forward end of the body piece to make contact with the body of a patient, the diameter of said flange being at least substantially equal to the diameter of the forward end of the body piece.

6. A stethoscope comprising a body piece formed of stiff and rigid material having an annular flange extending outwardly there-

from between and spaced from the forward and rearward ends thereof, and having its forward end portion flared outwardly and enclosing a sound collecting chamber having
5 a sound inlet at its forward end, and an annulus of soft, resilient material surrounding the flared portion of the body piece and having its forward and rearward end portions thicker than the intervening portion
10 thereof and having its forward end portion projecting forwardly from and turned inwardly into contact with the forward end of the body piece to make contact with the body of a patient.

- 15 7. A stethoscope comprising a body piece formed of a single piece of metal and having a sound collecting chamber formed in one end portion thereof and a finger receiving depression formed in the other end portion
20 thereof in axial alinement with the chamber and having a sound passage extending from the inner end of the chamber on the axis thereof and then laterally from such axis.

In testimony whereof I affix my signature.

25 CHARLES J. PILLING.

30

35

40

45

50

55

60

65