No. 860,906. PATENTED JULY 23, 1907.

F. DITTMAR.

STETHOSCOPE.

APPLICATION FILED MAR. 14, 1907.

Fig. 1.

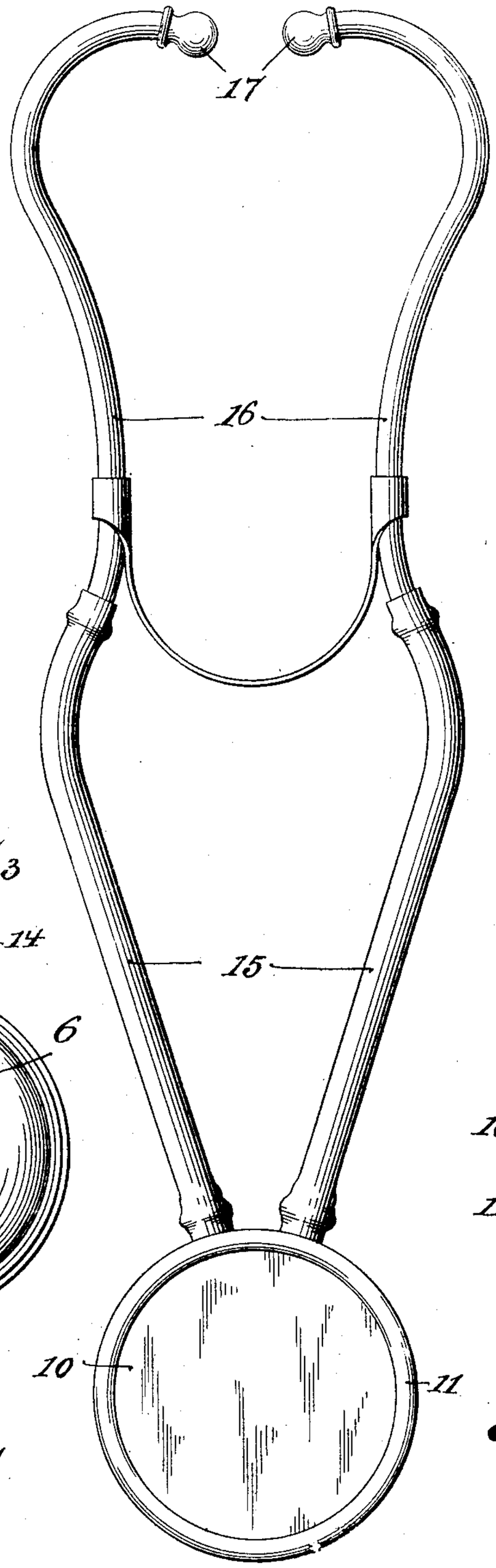


Fig. 2.

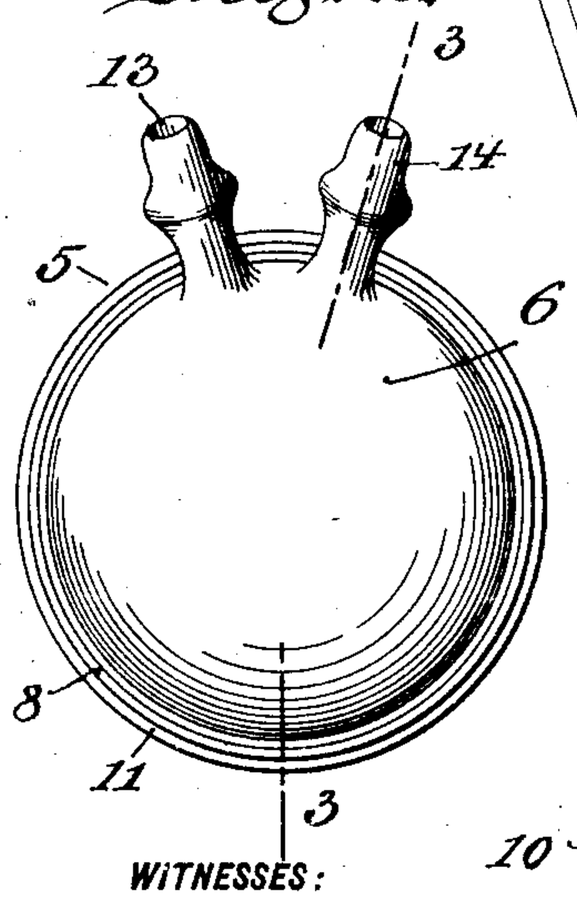
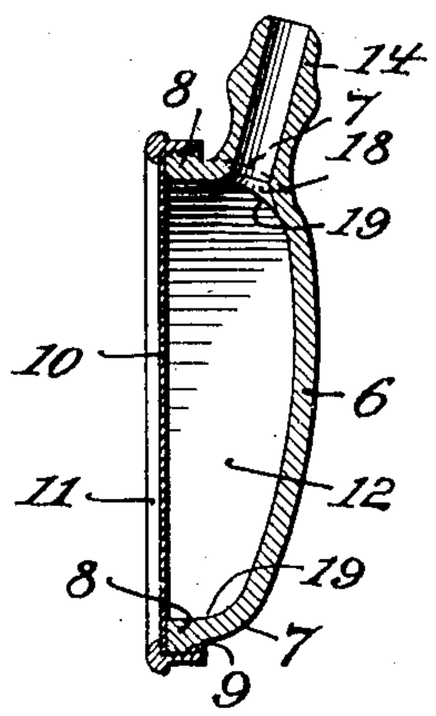


Fig. 3.



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STETHOSCOPE.

No. 860,906. Specification of Letters Patent. Patented July 23, 1907.

Application filed March 14, 1907. Serial No. 362,314.

To all whom it may concern:

Be it known that I, FREDRICK DITTMAR, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Stethoscopes, of which the following is a specification.

My invention has relation to stethoscopes; and in such connection it relates to the particular constructive arrangement of the instrument, whereby without raising the patient or removing the bed clothing the stethoscope can be employed; and further without exposing the person, in the application of the same to the patient, for the intended purpose.

The principal object of my invention is to provide a stethoscope so constructed and arranged as that the sound waves in transmission are in no way diminished and, further, in which no obstructions are present by the arrangement of the instrument calculated to interfere with the free application of the instrument to the body of the clothed person.

The nature and scope of my present invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which

Figure 1 is a side elevational view of a stethoscope, embodying main features of my said invention. Fig: 2 is a detail view illustrating in rear elevation the base of the sound-transmitter provided with peripheral tubular extensions located adjacent to the rim of the base, and Fig: 3 is a sectional view of the sound-transmitter on the line 3—3 of Fig: 2.

Referring to the drawings 5, represents a deep dish-shaped base, preferably inclined in cross-section, the outer portion or back 6, is slightly curved and terminates in a rounded portion 7, connecting the back 6 with a flange or rim 8, which is threaded at 9. The inner face of the base 5, is similarly shaped, but is minus the threaded portion 9, so as to present no obstructions to the sound waves emanating from a diaphragm 10, which is removably held in position on the flange or rim 8, of the base 5, by a threaded ring 11, engaging the threaded portion 9, of the rim 8. By the outline of the base 5, a comparatively large inner space or sound receiving chamber 12, is formed, which by the rounded inner portions 19, of the back 6, reflects the sound against the diaphragm. Sounds are thus greatly amplified, that is, the faintest sound made by any organ of the human body is rendered plainly audible. The inclined back 6, of the base 5, aids in the transmission of the sound in that the same forms an outlet for the sound, which back gradually increases in diameter towards the tubular extensions 13 and 14, which are arranged in a plane inclined with respect to the diaphragm 10, and in conjunction with the flexible tubes 15, rigid ear tubes 16, and ear pieces 17, form the conductors of sound to the human ears, and as the same do not differ from the conductors of sound used for this purpose in stethoscopes they form no part of the present invention. This arrangement of the tubular extensions 13 and 14, in the rim 8, of the base 5, instead as heretofore in the deepest portion of and substantially centrally to the back 6 thereof, has besides the feature of better sound transmission, the advantage of providing no obstructions to the sound transmitter formed by the base 5, and diaphragm 10, when applied to that portion of the human body, normally covered by bed-clothing or wearing apparel. Thus the transmitter having the inclined smooth back 6, can be readily slipped below the covering and conducted to that portion of the human body which is to be examined, without necessitating an exposure of the person in so doing. The covering will thus aid in holding the sound transmitter in position on the body. The entrances 18, to the tubular extensions 13 and 14, are inclined so as to facilitate the transmission of sound waves from the sound receiving chamber 12, into said extensions.

Having thus described the nature and object of my invention what I claim as new and desire to secure by Letters Patent is:—

1. A stethoscope having a convex imperforate back provided with tubular extensions for attaching ear-pieces thereto and projecting from the back but not extending above the highest portion of the same and a diaphragm connected with the front of the back, substantially as and for the purposes described.

2. A stethoscope having a convex imperforate back inclining upwardly and diametrically from one portion to the other, tubular extensions for attaching ear-pieces thereto projecting from but not extending above the highest portion of said back and the interior of the back arranged to form an amplifying sound receiving chamber inclining upwardly toward said extensions and a diaphragm connected with the front of the back, substantially as and for the purposes described.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

FREDRICK DITTMAR.

Witnesses:
WILHELM VOGT,
THOS. M. SMITH.