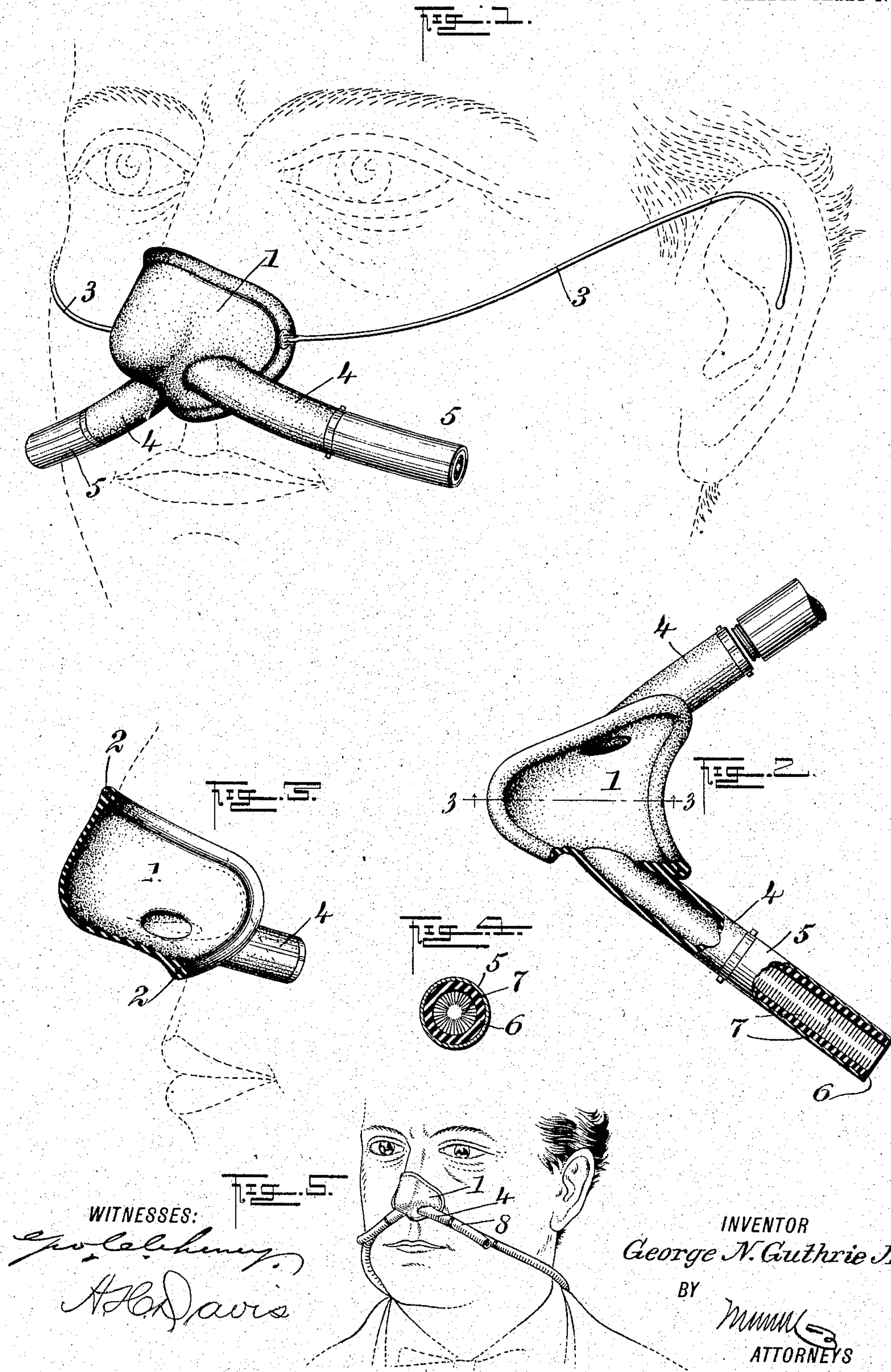


No. 781,516.

PATENTED JAN. 31, 1905.

G. N. GUTHRIE, JR.  
RESPIRATOR AND INHALER.  
APPLICATION FILED FEB. 3, 1904.

2 SHEETS—SHEET 1.



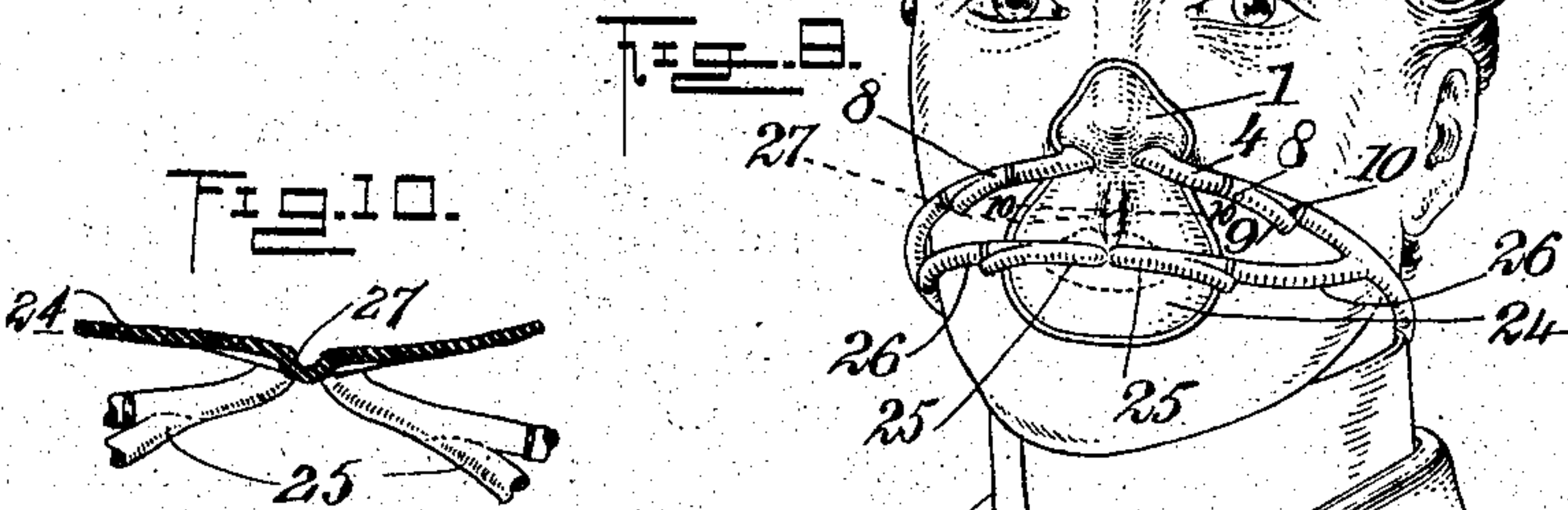
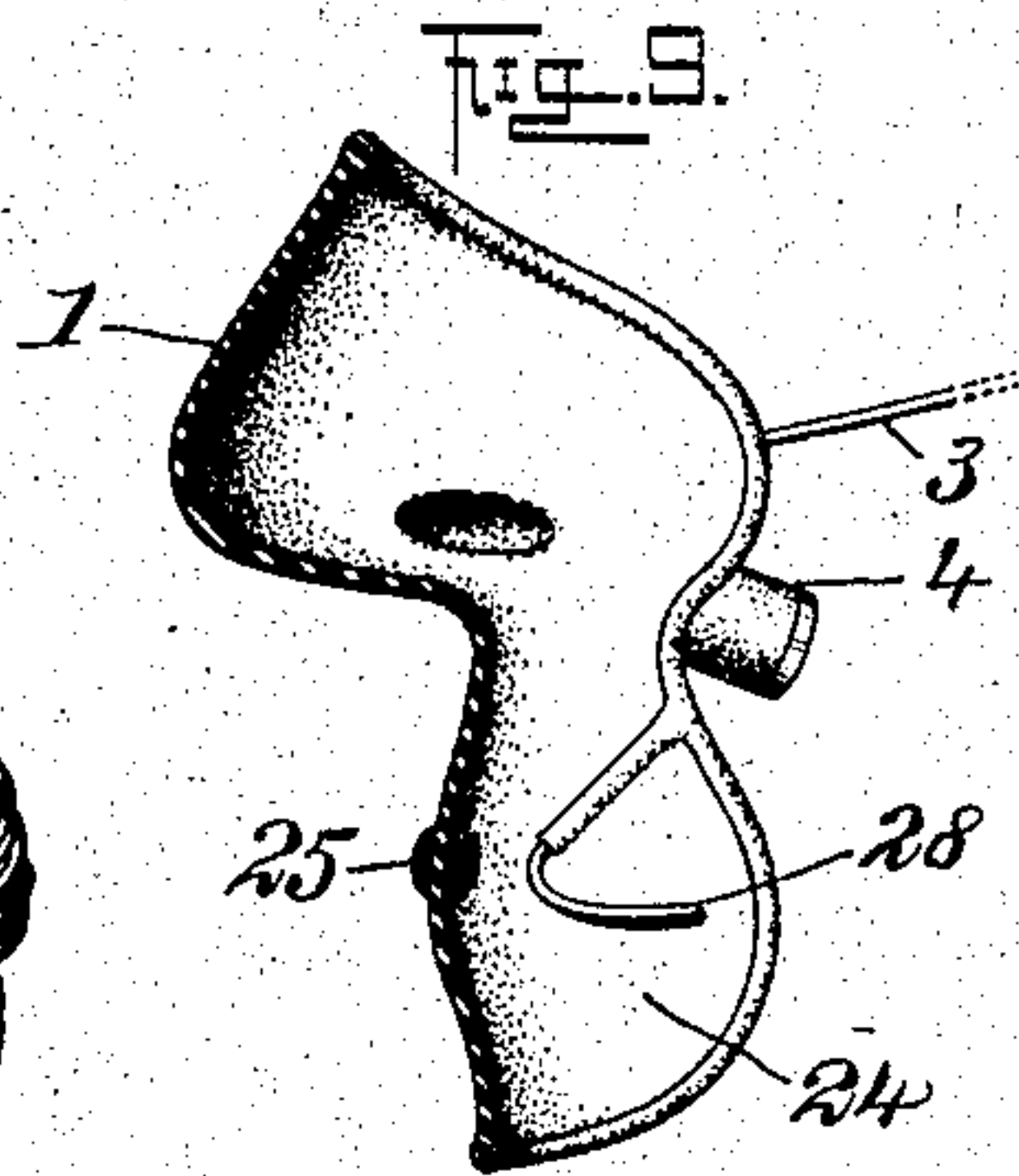
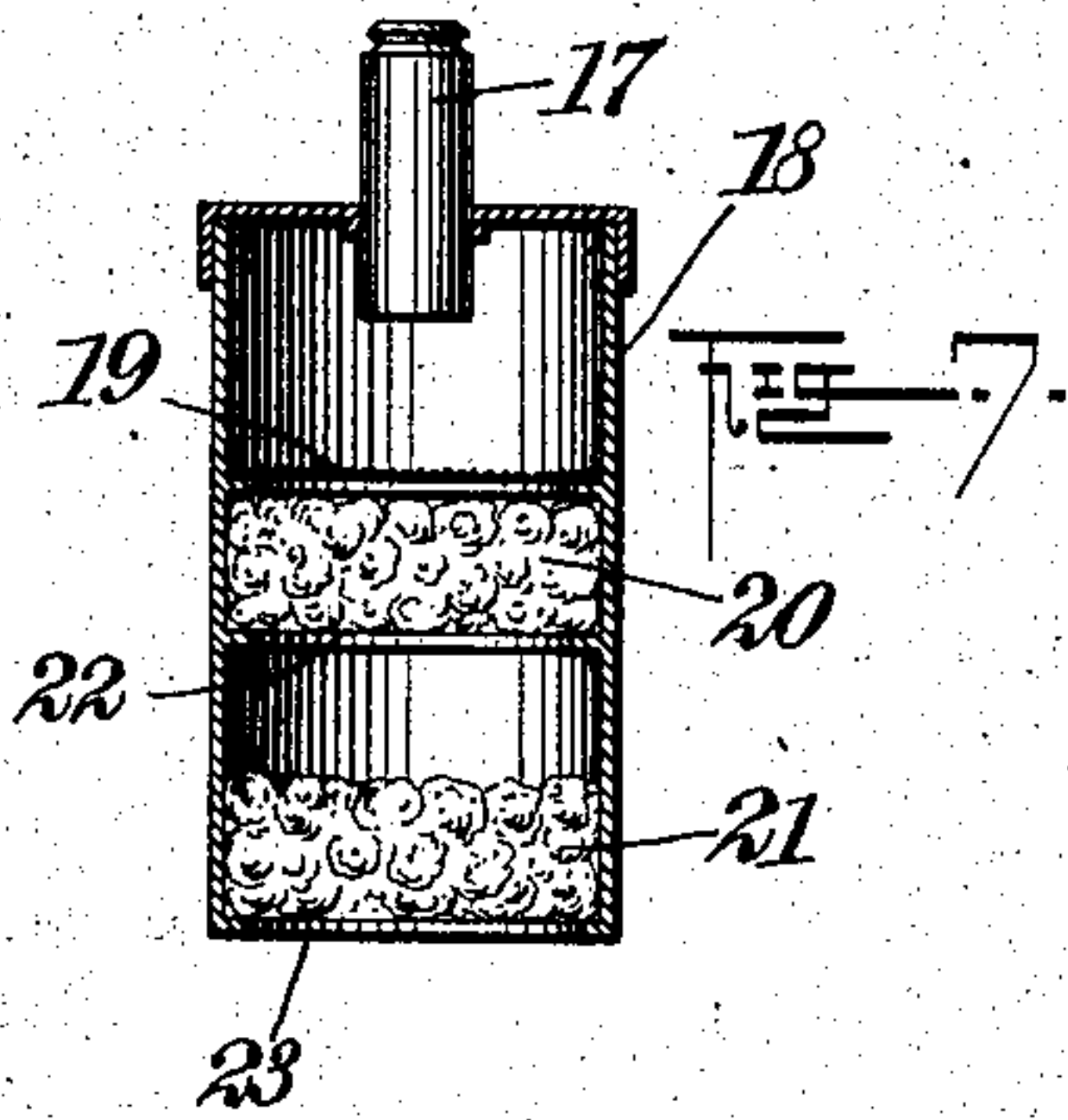
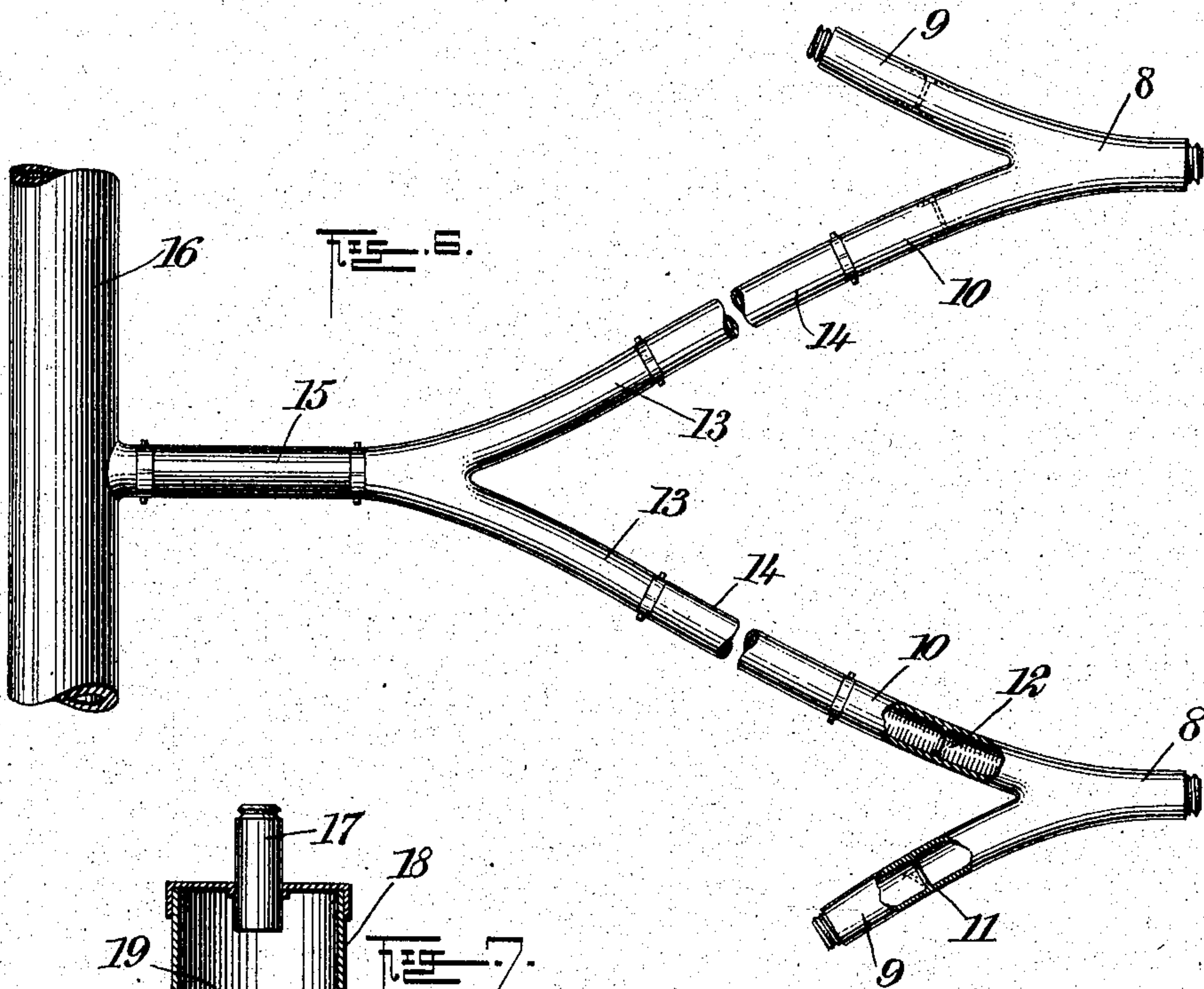


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2 SHEETS—SHEET 2.



WITNESSES:

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BY

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ATTORNEYS



# UNITED STATES PATENT OFFICE.

GEORGE N. GUTHRIE, JR., OF COOKVILLE, TENNESSEE.

## RESPIRATOR AND INHALER.

SPECIFICATION forming part of Letters Patent No. 781,516, dated January 31, 1905.

Application filed February 3, 1904. Serial No. 191,779.

*To all whom it may concern:*

Be it known that I, GEORGE N. GUTHRIE, Jr., a citizen of the United States, and a resident of Cookville, in the county of Putnam and State of Tennessee, have invented a new and Improved Respirator and Inhaler, of which the following is a full, clear, and exact description.

My invention relates to respirators and inhalers for attachment to the human face in order to permit the subject to breathe air from other rooms or purified air and prevent inhaling of undesirable gases and vapors.

The objects of my invention are to provide such inhalers and respirators with devices for purifying the air, removing solid matter therefrom, and for conveniently connecting them to such purifying devices or to the outside air.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 illustrates one form of my invention applied to the human face. Fig. 2 is a bottom view of the same form of my invention with parts in section. Fig. 3 is a sectional view of the same on the line 3-3 of Fig. 2. Fig. 4 is a cross-sectional view of a detail. Fig. 5 is a view similar to Fig. 1, on a smaller scale, showing additional connections. Fig. 6 is a view of such connections when used to supply air from the outside of the room. Fig. 7 is a sectional detail view hereinafter more fully described. Fig. 8 is a view similar to Fig. 5, showing another form of my invention. Fig. 9 is a sectional view similar to Fig. 3, showing the details of the last form of my invention, and Fig. 10 is a sectional view taken on a horizontal line below the nose-piece in Fig. 9.

1 represents a nose-piece provided with a wire 2 at its edge surrounded by the material of the nose-piece, which may be rubber or other flexible or inflexible material. The nose-piece is adapted to be held upon the face by holders 3, similar to those used in spectacles, as shown. It is also provided with tubes 4-4 for connection with the purifying attachment or with pipes leading to the outside air.

5 represents one form of purifying attach-

ment which comes within the scope of my invention. This form has a rubber or other lining 6 within the metallic sleeve 5 and is provided with small hairs or follicles 7, extending radially from the internal surface toward the center. This device may be used without the lining 6, and it may be attached to the connections from the inhaler at any point, as desired. (See Fig. 6, for example.)

To the tubes 4 may be attached tubes 8, having branches 9 and 10, the branches 9 being for exhalation and the branches 10 for inhalation. Both these branches should be provided with very light and easily-operated valves 11 and 12, one opening outwardly and the other inwardly, as shown, so as to automatically provide for the operation of the device to cause the air to be drawn in through the branch 10 and forced out through the branch 9. To the branch 10 may be attached by tubes 14 a second branch tube 13, and said latter tube is preferably also attached to a tube 15, adapted to communicate with a main 16 or with the outside of the building. Instead of said tube communicating with the outside of the building it may be attached at any point to a short tube 17, fitting within the top of a casing 18, which is provided with a fine-wire sieve or strainer 19, and also has one or more compartments filled with sponge or other efficient straining device 20 or 21. An opening 23 will of course be provided in the bottom of the casing and a passage 22 to the upper sponge 20.

In the form shown in Figs. 8 and 9, 24 is a mouthpiece attached to the nose-piece 1 and forming a part thereof, and having tubes 25, attached to branches 26, leading therefrom to the main pipe 15 or to any of the other devices shown. 27 (shown in dotted lines in Fig. 8) is a passage which may be formed between the nose-piece and the mouthpiece. The parts 25-26 may be connected with the other parts (shown in the other figures) in the same manner as the parts 8, 13, and 14. 28 is a wire extending from the mouthpiece and adapted to be held between the teeth to support the device. Usually one of the supports 3 or 28 will be sufficient, but they may both be used, if desired.



The operation of this device will be obvious. The face-piece consisting of the nose-piece or mouthpiece, or both, should be attached to the face in an obvious manner and the pipes  
 5 connected up as desired to the outside atmosphere or to the purifiers 5 or 18. Usually both purifiers will not be needed, but they may be used in combination, if desired. The  
 10 inhaled air passes through the main 16, or the purifiers 5 or 18, the tubes 15, 13, and 14, the branches 10 of the tubes 8, to the tubes 8 and to the nose, and through the tubes 25 and the branches 26 to the mouth.

My invention is capable of universal use  
 15 and may be attached to any subject, being made in various sizes. It can be fitted up in various ways and the purifiers applied so as to make it useful under all conditions. One way in which I have contemplated applying  
 20 it is to secure a tube to a fire-hose throughout its length, providing valve-openings in the fire-hose at numerous points in order that the face-piece and tubes may be attached thereto at any desired point. This will in-  
 25 sure communication with the outside air at all times.

My device is light and simple in construction, it is inexpensive, and it prevents air from entering the lungs except through the filtering  
 30 medium. It does not permit the exhaled air to be rebreathed, it is not likely to become clogged, and is of good appearance.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

35 1. In an inhaler and respirator, a nose-piece, a tube extending therefrom, a conductor from said tube to the open air, an air-purifier attached to said conductor, and an air-straining device within said conductor comprising in-  
 40 wardly-projecting hairs.

2. In an inhaler and respirator, the combination of a nose-piece, a tube extending therefrom, a conductor from said tube to the open air, an air-purifier attached to said conductor,

a mouthpiece attached to said nose-piece and 45 provided with means for conducting air there- to and therefrom, and a passage between said nose-piece and mouthpiece.

3. In an inhaler and respirator, a nose-piece, a tube extending therefrom, a conductor from 50 said tube to the open air, an air-purifier attached to said conductor, a mouthpiece, and means for holding said mouthpiece in position, adapted to be held between the teeth.

4. In an inhaler and respirator, the combi- 55 nation of a face-piece, a tubular conductor extending therefrom, and an air-strainer in said conductor, comprising inwardly-projecting hairs.

5. In an inhaler and respirator, a face-piece, 60 a plurality of conductors leading therefrom, a branch in each conductor for exhalation, a valve in each conductor, a valve in each of said branches, and a main conductor connected to all of said conductors leading from the face- 65 piece.

6. An inhaler and respirator comprising a nose-piece, conductors leading therefrom, a branch in each conductor for exhalation, a valve in each of said branches, a valve in each 70 of said conductors, and a main conductor leading from both of said conductors.

7. An inhaler and respirator comprising a nose and mouth piece constituting a face- 75 piece, a plurality of conductors leading therefrom, a branch in each conductor for exhalation, a valve in each conductor, a valve in each branch, and a main conductor connected with all of said conductors leading from the face-piece to the open air. 80

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE N. GUTHRIE, JR.

Witnesses:

R. L. FARLEY,  
 W. M. SHANKS.