

The Dictograph in the Trenches

IN our November, 1917, issue Mr. H. Gernsback showed graphically how the microphone could be used for trench warfare, and we showed several applications how it was to be accomplished. While the article was not official in any way and only showed the application as it existed in our minds, we are now happy to show actual photographs of the same idea, showing that the idea is now in actual use on the front, the strange part being that the several applications are exactly as shown by us in our article, which like many similar ones was only imaginary, we having no official information of any kind that the microphone was being used for such purposes.

Our photographs show the dictograph at the front, and how our boys "over there" use the instrument to detect plans of the enemy.

Illustration No. 1 shows one of the boys crawling up towards the enemy trench to place a highly sensitive transmitter. It will be noted that the transmitter is placed upright in an old tomato can which easily camouflages the sensitive little instrument. As is well known these microphones are so sensi-

necessary for him to lie perfectly still for perhaps hours at a time, as the slightest movement would draw machine gun or sharp rifle fire at once. When finally the man in "no man's land" retraces his course, he must do so very slowly and cautiously, going backwards at the rate of fractions of an inch at a time, irrespective of the fact that it may be freezing or that the rain may come down in torrents. However, this is only one of the disagreeable fortunes

is then sprayed with finely divided metallic powders. The metallic particles are thus driven into the surface of the glass and a very durable metallic coating ensues. It is stated that when the under surface of the glass flask is treated with copper or aluminum in this way the water can be raised to boiling point in three-quarters of the time that would otherwise be necessary, and, in addition, the vessel is much less liable to crack. One would imagine that this process would have useful applications for treatment of glass reflectors for lighting purposes.

The instrument known as the dictograph employs a super-sensitive microphone connected with a telephone receiver and battery. The microphone converts the sound waves into corresponding electrical currents variations, which operate the receiver.

INVENTOR CALLED BY U. S. TO FINISH U-BOAT DEVICE.

Experimenting for a year with an invention aiming at the destruction of submarines, Prof. Harvey C. Hayes, head of the physics department of Swarthmore College, has been so successful that he has received a call from



Photos Western Newspaper Union

How Our Boys "Over There" Listen in for Fritz's Secret Confabs. A Super-Sensitive Telephone—Known as a "Dictograph"—Is Used For This Purpose. Fig. 1, Shows a "Sammie" Crawling Up Near An Enemy Trench to "Place" a Camouflaged Microphone (In a Tomato Can); Fig. 2, How the Dictograph Transmitter Is Placed In a Dug-Out Near an Enemy Trench; Fig. 3, A Trench "Listening Station."

tive that they detect a whisper at a distance of fifty feet. The sensitivity too is increased a great deal if the wind blows towards the microphone.

Fig. 2 shows how one of the microphones is placed near the enemy trench in a sort of dug-out, but little ground separating the microphone from the trench. This is right under the enemy's parapet.

In Fig. 3 a trench receiving station is clearly shown. At this station the intelligence is received by one or more operators, usually one listening, the other writing down whatever talk is picked up.

It goes without saying that the successful placing of these detectaphones as well as the laying of the wire, which operations are always under direct fire of the enemy, is one of the most dangerous and difficult undertakings in modern warfare. It is a task allowed only to a man of iron nerve, and it takes much courage and good judgment not to blunder.

During the night very often the presence of a man is detected, and it then becomes

of war, and our boys do the work as cheerfully as they do it efficiently.

WHITE HOUSE ELECTRICITY.

The White House at Washington is said to have the most intricate and complete electrical system installed in any building in the United States. There are in the mansion nearly 170 miles of wires, providing for 3,000 incandescent lights, a bell system, and a private telephone system for the President and his family exclusively.

NEW METHOD OF MAKING LEYDEN JARS AND CONDENSERS.

Long ago the tinfoil type of Leyden jar and condenser for wireless telegraphy and other purposes passed into oblivion, and in its place settled the copper-plated type. A new method of producing metal-coated glass for such purposes is described in *Glasiütte*, which, it appears, is a variation of the Schoop process. According to this method the surface of the glass is heated until it just begins to soften and the surface

the United States Government to enter the national service. He refused to discuss particulars of his new venture adding that he has been forbidden to disclose the location of the laboratory where he is to continue his research work.

Professor Hayes will be joined by five other physicists from the best universities and laboratories in the country in the Government research work. They commenced work on January 1. Professor Hayes expects to be engaged in this service for a year at least, and it is unlikely that he will return to Swarthmore at the opening of the next term in September. His family will accompany him to the site of the laboratory.

Professor Hayes was in his fourth year as a member of the faculty of Swarthmore College. Previous to his service in the physics department he was an instructor in research work at Harvard, where he took his doctor's degree. The vacancy caused by Professor Hayes' withdrawal will be filled by W. O. Sawtelle, of Harvard.