

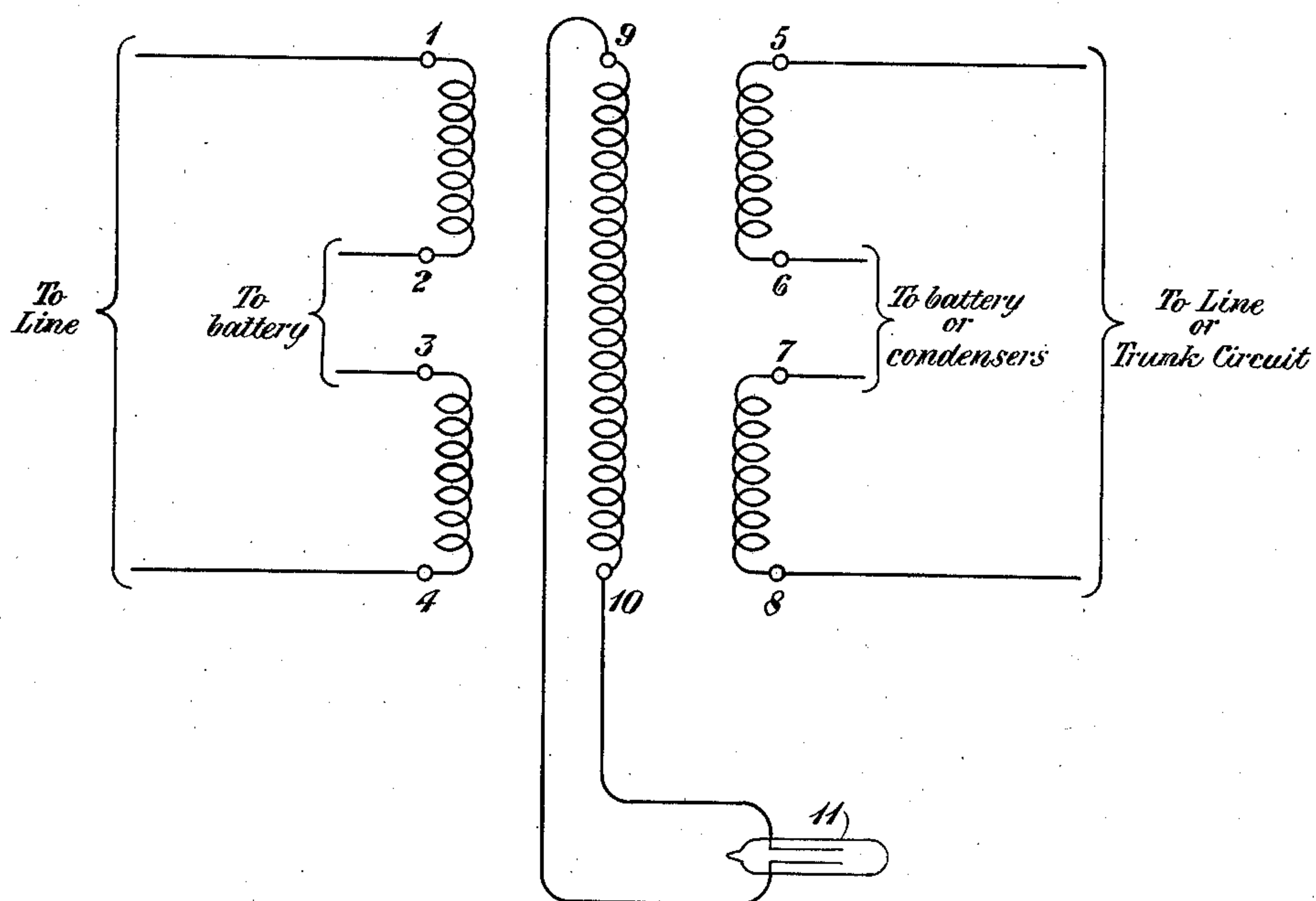
March 23 , 1926.

1,577,720

W. H. T. HOLDEN

ACOUSTIC SHOCK ABSORBER FOR TELEPHONE LINES

Filed May 20, 1924



BY

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UNITED STATES PATENT OFFICE.

WILLIAM H. T. HOLDEN, OF BROOKLYN, NEW YORK, ASSIGNOR TO AMERICAN TELEPHONE & TELEGRAPH COMPANY, A CORPORATION OF NEW YORK.

ACOUSTIC SHOCK ABSORBER FOR TELEPHONE LINES.

Application filed May 20, 1924. Serial No. 714,696.

To all whom it may concern:

Be it known that I, WILLIAM H. T. HOLDEN, residing at Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Acoustic Shock Absorbers for Telephone Lines, of which the following is a specification.

This invention relates to means for eliminating clicks due to switching on common battery telephone lines, and more particularly to means for eliminating clicks due to switching on common battery telephone lines employing repeating coil battery feed.

The principal purpose of the invention is to prevent the acoustic shock to telephone operators which is caused by switchhook operation or by switching operation at the central office.

Applicant's invention consists broadly in adding to the talking windings of the repeating coil used on telephone lines employing repeating coil battery feed, a fifth winding of relatively high impedance having a suitable discharge tube connected across its terminals.

Applicant's invention will be more clearly understood when the following detailed description of one desirable form of embodiment is read with reference to the accompanying drawing, which shows the specific embodiment in circuit diagram.

With reference to the details of the drawing, the repeating coil shown has four talking windings with terminals 1 and 2, 3 and 4, 5 and 6, and 7 and 8, respectively, and a fifth protective winding with terminals 9 and 10. The four talking windings have each the usual impedance, inductance, etc., of a standard repeating coil winding. Terminals 2 and 3 are connected to battery, terminals 1 and 4 are connected to line, terminals 6 and 7 are connected to battery or to condensers, and terminals 5 and 8 are connected to line or trunk circuit, as is well understood in the art.

The fifth winding, the protective winding, has a high turn ratio to each talking winding, this ratio being preferably as great as the reasonable limits of size of the coil will permit. The resistance of this winding should not exceed 500 ohms. The lowest desirable ratio of the impedances of the protective winding and of one of the talking windings is 20 to 1. Across the terminals 9 and 10 of the fifth coil winding there is con-

nected a discharge tube 11. This tube should have the characteristics of rapid breakdown and small time lag. A desirable discharge device is the small tubular bulb designed and used to kill the spark at relay contacts upon the opening of highly sensitive circuits. This bulb contains two parallel plate electrodes mounted with a very slight separating space between them and is filled with commercial argon at a pressure of about 100 millimeters of mercury.

The operation of applicant's device is briefly described as follows: When there occurs in the talking windings a sudden change of current—such as that caused by switching—the result is a high voltage in the fifth or protective winding, and the discharge tube is operated, thus absorbing the energy which otherwise would cause clicks in the telephones fed from the repeating coil.

It is to be understood that the specific embodiment of applicant's invention herein described may be modified within the true scope of the invention, which is defined by the appended claims.

What is claimed is:

1. In association with a telephone line, a repeating coil comprising a plurality of talking windings of relatively low impedance and an additional winding of relatively high impedance, and a discharge device connected across the terminals of the high impedance winding.

2. In association with common battery telephone lines employing repeating coil battery feed, a repeating coil comprising a plurality of talking windings of relatively low impedance and an additional winding of relatively high impedance, and a discharge tube connected across the terminals of the high impedance winding.

3. In association with a telephone line, a repeating coil comprising a plurality of talking windings having a relatively small number of turns and a protective winding having a relatively large number of turns, and a discharge device connected across the terminals of said protective winding.

4. In association with common battery telephone lines employing repeating coil battery feed, a repeating coil comprising a plurality of talking windings having a relatively small number of turns and a protective winding having a relatively large number of turns, and a discharge tube connected

across the terminals of said protective winding.

5. As means for eliminating acoustic shocks due to switching on common battery telephone lines employing repeating coil battery feed, a protective winding in association with the repeating coil talking windings, and a discharge tube connected across the terminals of the protective winding, said protective winding having a high turn ratio to the talking windings.

6. In association with a telephone line, a repeating coil comprising four talking windings of relatively low impedance and a fifth winding of relatively high impedance, and a discharge device connected across the terminals of said fifth winding.

7. In association with common battery telephone lines employing repeating coil battery feed, a repeating coil comprising four talking windings of relatively low impedance and a fifth winding of relatively high impedance, and a discharge tube connected across the terminals of said fifth winding.

8. In association with a telephone line, a repeating coil comprising four talking wind-

ings and a protective winding, said protective winding having a high turn ratio to said talking windings, and a discharge device connected across the terminals of said protective winding.

9. In association with common battery telephone lines employing repeating coil battery feed, a repeating coil comprising four talking windings and a protective winding, said protective winding having a high turn ratio to said talking windings, and a discharge tube connected across the terminals of said protective winding.

10. Means for eliminating acoustic shocks due to switching on common battery telephone lines employing repeating coil battery feed, said means consisting of a protective winding of relatively high impedance associated with the repeating coil talking windings, and a discharge tube connected across the terminals of said protective winding.

In testimony whereof, I have signed my name to this specification this 17th day of May 1924.

WILLIAM H. T. HOLDEN.