

G. S. NEELEY.  
FEEDER REGULATING TRANSFORMER.  
APPLICATION FILED AUG. 27, 1909.

999,245.

Patented Aug. 1, 1911.

FIG. 1

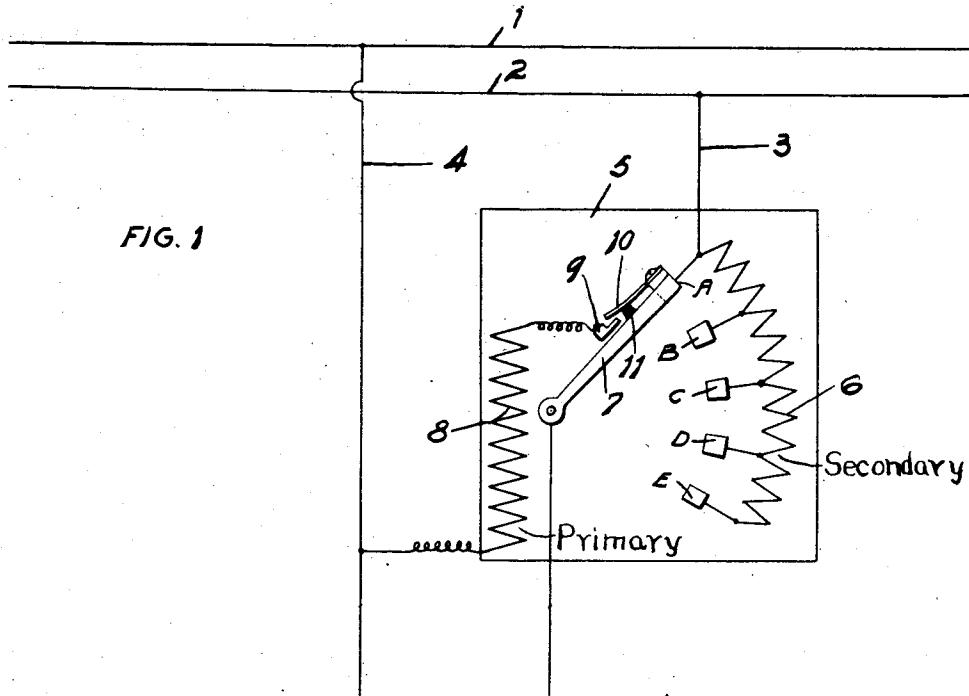
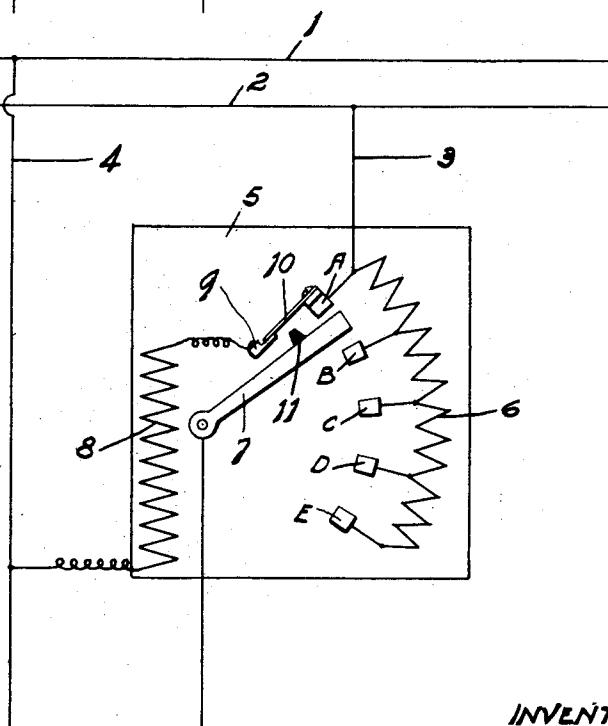


FIG. 2



WITNESSES

James.

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INVENTOR

GEORGE SPENCER NEELEY

BY *J. R. Cornwell.*  
ATT'Y.

# UNITED STATES PATENT OFFICE.

GEORGE SPENCER NEELEY, OF ST. LOUIS, MISSOURI.

## FEEDER-REGULATING TRANSFORMER.

999,245.

Specification of Letters Patent. Patented Aug. 1, 1911.

Application filed August 27, 1909. Serial No. 514,938.

*To all whom it may concern:*

Be it known that I, GEORGE SPENCER NEELEY, a citizen of the United States, residing at St. Louis, Missouri, have invented 5 a certain new and useful Improvement in Feeder-Regulating Transformers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make 10 and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a diagrammatic view of a system of distribution in which is located 15 a transformer embodying my invention, with the contact arm on the first contact point of the secondary coil. Fig. 2 is a diagrammatic view similar to Fig. 1 and with the contact arm shown in position between the first and second points of the 20 secondary coil.

My invention relates to a feeder regulating transformer, the principal object of my invention being to eliminate the "core 25 losses" of the transformer during the hours that the services of the transformer are not needed.

Owing to the great danger arising from 30 the opening of the primary circuit of many classes of transformers, (the cause of which is well known to those versed in the art), while any portion of the secondary winding is in circuit with the system of distribution the customary practice is to connect up the 35 terminals of the primary winding solidly across the supply mains without fuses or switches, and which practice of using fuses or switches is customary with all other classes of multiple distributing trans- 40 formers.

My invention consists in a novel means for automatically and positively opening the primary circuit of such transformers, as soon as the secondary winding is cut out of 45 circuit with the distributing system, thus stopping all "core loss" at that instant; then automatically and positively reconnecting the primary circuit of the transformer before the first section of the sec- 50 ondary winding has been thrown into circuit with the distributing system.

My invention has a twofold advantage; the paramount one being the great saving on "core losses" and the second one is, by 55 reason of the transformer primary being cut out of the circuit for the greater portion of

the twenty four hours, the temperature of the transformer is at minimum when it is needed, and as it takes several hours to heat up the core, coils and oil, of a transformer 60 of this size, the transformer is thereby always operated at the best advantage as the heat losses are materially reduced.

Referring by numerals to the accompanying drawings, 1 and 2 are the alternating current supply mains.

3 and 4 are "sub-feeders" whose E. M. F. is to be increased or diminished by the regulating transformer 5.

A, B, C, D and E are the usual terminals 70 brought out from the secondary winding 6 at suitable intervals, and are usually mounted in a circle so that they may be traversed by the free end of the movable arm 7.

8 is the primary winding of the trans- 75 former, one end of which is connected rigidly to the sub-feeder 4. The other end of the primary winding is connected rigidly to the stationary terminal 9.

10, is a spring switch connecting rigidly 80 at one end to the first terminal of the series at, A, this connects the other end of the primary winding, 8, with the other side of the line, 3, thus completing the primary circuit of the transformer across the lines 3, 85 and 4.

Carried by the free end of the movable arm 7, is an insulated projection 11, the length of which is sufficient to cause the spring 10 to "break" contact with the terminal 9, when the free end of the movable arm 7, is resting on the first terminal of the secondary winding at A. Thus it will be readily seen that as soon as the free end 90 of the movable arm 7, is rotated toward the terminal B, the spring switch 10, closes the primary circuit of the transformer, by making contact with the terminal 9.

From the foregoing it will be readily seen by those skilled in the art and conversant 100 with the practice of using such transformers, that the dangers arising from the opening of the primary circuit of such transformers, while any portion of the secondary circuit is yet active, is an absolute impossibility where my device is in use and further 105 the primary circuit is positively closed automatically before any portion of the secondary winding becomes effective.

Having thus described my invention, what 110 I claim is:

1. A regulating transformer having in

combination a primary and a secondary winding, a series of contacts brought out from different sections of said secondary winding, the first contact of the series being 5 "non-active", a movable lever for engaging said contacts and means connected to the lever whereby the primary circuit of the transformer is broken when the said movable element stands on the first or non-active 10 contact of the said series and is reconnected before the said movable element reaches the second, or first active, contact of said series; substantially as described.

2. In combination, mains, two inductively 15 related windings, one adapted to be connected across the mains, and the other in series with one of the mains, and a single lever adapted to simultaneously break the connection of the first winding and throw 20 out the second winding.

3. In combination, mains, two inductively 25 related windings, one adapted to be connected across the mains, and the other in series with one of the mains, and a single lever adapted to throw in circuit the first winding and afterward throw in a section of the second winding.

4. In combination, mains, a primary winding adapted to be connected across the mains,

a switch in circuit therewith, a secondary 30 winding connected to the primary winding, and divided into sections, contacts connected with each section adapted to be engaged by a lever, said lever, and means on the lever for operating the switch.

5. A regulating transformer having in combination a primary and a secondary winding, a series of contacts brought out from different sections of said secondary winding, the first contact of the series being 35 "non-active", a movable lever for engaging said contacts, a switch in the primary circuit of the transformer and means connected to said lever adapted to operate said switch, so as to break said circuit when 40 the said movable lever stands on the first or non-active contact of the said series, and to reconnect the circuit before the said movable lever reaches the second or first active contact of said series.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 25th day of August, 1909.

GEORGE SPENCER NEELEY.

Witnesses:

M. P. SMITH,  
LENORE CLARK.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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