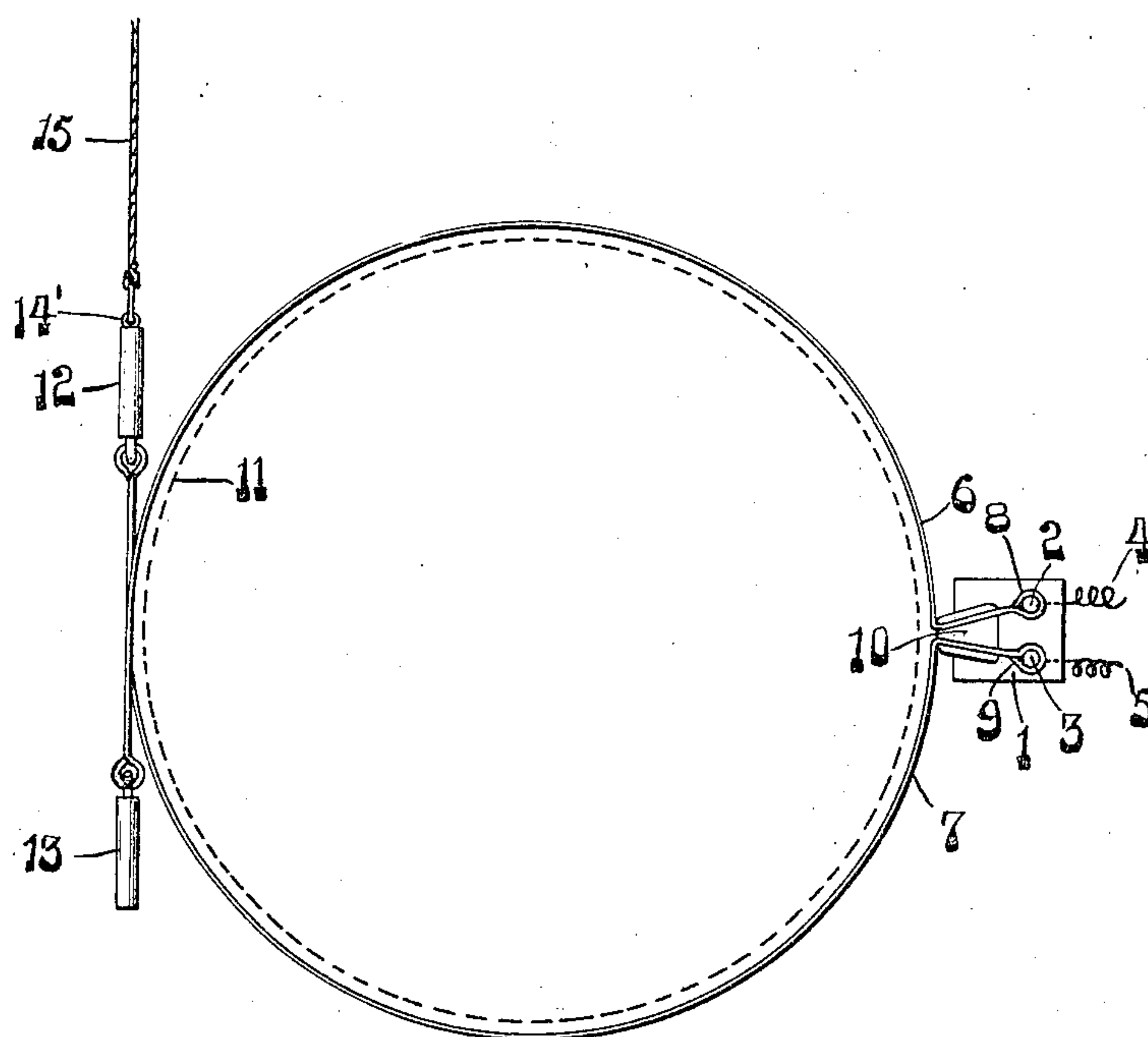


No. 859,218.

PATENTED JULY 9, 1907.

G. H. HARVEY.
ELECTRIC GLASS HEATING APPARATUS.
APPLICATION FILED NOV. 23, 1906.



Witnesses:
C. B. Meharpe
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UNITED STATES PATENT OFFICE.

GEORGE H. HARVEY, OF GLENFIELD, PENNSYLVANIA, ASSIGNOR TO BROWNSVILLE GLASS COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ELECTRIC GLASS-HEATING APPARATUS.

No. 859,218.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed November 23, 1906. Serial No. 344,751.

To all whom it may concern:

Be it known that I, GEORGE H. HARVEY, a citizen of the United States, residing at Glenfield, in the county of Allegheny and State of Pennsylvania, have
5 invented or discovered new and useful Improvements in Electric Glass-Heating Apparatus, of which the following is a specification.

My invention relates to apparatus for heating glass cylinders on a circumferential line, along which it
10 is desired to crack the same, and its object is to provide for this purpose an electrical apparatus, which is capable of quick and easy adjustment and operation.

Referring to the drawing accompanying this specification, the figure represents in elevation one form of
15 my invention.

In the drawing, 1 represents a block of non-conducting material, which supports the two electric terminals 2 and 3, to which are secured the ends of the respective circuit wires 4 and 5 connected to a
20 suitable source of electric energy. Connected also to said terminals 2 and 3 which are insulated one from the other are the ends of the respective glass-heating wires 6 and 7 of high resistance to the passage of electric current. The wires 6 and 7 are provided
25 with end loops 8 and 9 which surround the terminals 2 and 3. From the loops 8 and 9 the wires 6 and 7 lead through the non-conducting guide 10, in which they are held out of electrical contact with each other and from which they curve in opposite directions
30 around the glass cylinder 11, shown by a dotted line. The remaining ends of the wires 6 and 7 cross each other opposite the block 1 and are provided with the insulating handles 12 and 13. Preferably the handle 13 is weighted and the handle 12 provided with the
35 eye 14, to which is connected the lower end of the swinging rope 15. This rope may be composed of elastic material or it may be of inelastic material secured to an elastic or yielding support.

In practice the wires 6 and 7 are passed around the
40 cylinder 11 from opposite directions and brought into contact with the cylinder and each other and drawn tight by the operator by means of the handles 12 and 13, or the wire 7 may be supported by the rope 15 which may be secured to the eye 14 for that purpose, the wire 6 being held tight by the hanging
45 weight 13. The electric current is then connected in any desired manner into a circuit including those portions of the wires 6 and 7 which form a loop around the cylinder 11. The wires 6 and 7 being of high re-
50 sistance to the current will heat rapidly and expand,

the expansion being taken up by the rope 15 and the weight 13, thus holding the wires tightly against the cylinder and permitting the operator the full use of his hands to crack off the cylinder in the usual or any desired manner. The current which may be sup- 55 posed to enter by the wire 4 passes to the terminal 2 and then along the wire 6 to its junction with the wire 7 and thence along the latter to the terminal 3 and the return wire 5. The current travels the wires 6 and 7 serially or in series. Where the current is caused 60 to branch or travel the wires in parallel as has been proposed, double the current is required to secure the same heating effect, since the heating effect depends on the resistance of the wire, the current re- 65 maining the same. As the resistance to the current in the parallel arrangement of the wire is only half of what it would be in a series arrangement thereof, the heating effect is accordingly divided in half.

It will be noted that applicant has but one gap in the continuity of the conductor around the glass, 70 which lessens the breakage of the glass in comparison with conductors having a plurality of gaps. Wherever a gap exists in the conductor, there is a possibility that the glass will check or crack irregularly, or not along the line heated by the conductor. Ap- 75 plicant reduces this possibility to a minimum.

I claim—

1. In an electric glass heating apparatus, two wires of high electrical resistance adapted to pass in opposite direc- 80 tions around a glass cylinder, and a terminal for one end of each wire, the opposite ends of the wires being free and electrically connected, so that the electric current will traverse the wires in series.

2. In an electric glass heating apparatus, two wires of high electrical resistance adapted to pass in opposite direc- 85 tions around a glass cylinder, a terminal for one end of each wire, the opposite ends of the wires being free and electrically connected, so that the electric current will traverse the wires in series, and means for taking up the expansion of the wires so as to maintain them in contact 90 with the cylinder.

3. In an electric glass heating apparatus, two wires of high electrical resistance adapted to pass in opposite direc- 95 tions around a glass cylinder, a terminal for one end of each wire, and an insulating handle for the free end of one of said wires, the free ends of said wires being electrically connected so that the electric current will traverse the wires in series.

Signed at Pittsburg, Pa., this 12th day of November, 1906.

GEORGE H. HARVEY.

Witnesses:

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