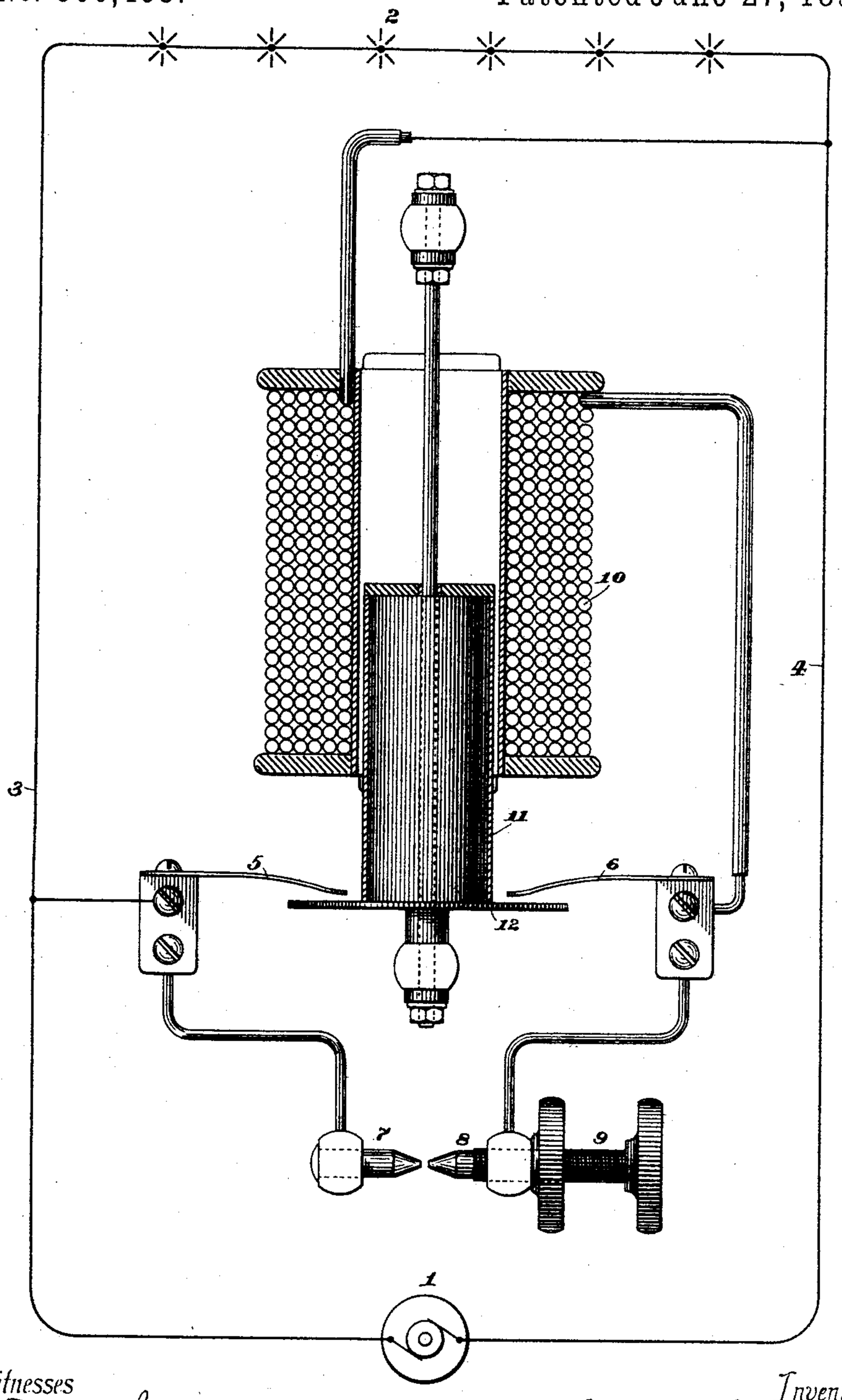
No Model.)

A. WURTS.

AUTOMATIC SHORT CIRCUIT FOR CONSTANT CURRENT MACHINES.

No. 500,455. Patented June 27, 1893.



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UNITED STATES PATENT OFFICE.

ALEXANDER WURTS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, OF SAME PLACE.

AUTOMATIC SHORT CIRCUIT FOR CONSTANT-CURRENT MACHINES.

SPECIFICATION forming part of Letters Patent No. 500,455, dated June 27, 1893.

Application filed October 4, 1892. Serial No. 447,974. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WURTS, a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Automatic Short Circuits for Constant-Current Machines (Case No. 511,) of which the following is a specification.

My invention relates to safety devices for the protection of constant current dynamos, in case of accidental breaks in the circuit, and my object is to supply an automatic device whereby a permanent short circuit is provided between the terminals of such a dynamo, when the potential thereof becomes excessive.

The accompanying drawing shows a diagram of circuits and a partly sectional view of my improved safety device.

At 1 is shown a constant current dynamo, either alternating or continuous, adapted to feed arc lights or other translating devices in series, shown conventionally at 2. The dynamo 1 being a constant current machine can only be stopped by short-circuit, since if its circuit be broken, the effort of the machine to produce the constant current through an infinite resistance would cause a destructive rise in potential. In case of an accidental break in the circuit, the same danger would, of course, exist, and it is therefore desirable to provide some device whereby this danger may be obviated.

In my invention, the main leads 3 and 4 are electrically connected to the two contacts 5 and 6, respectively. These are preferably spring contacts, as shown. In electrical connection with these contacts are the two points 7 and 8, one of which may be made adjustable as by a screw 9. The contact 6 is connected with the line 4 through the coils of a solenoid 10, within which a core 11 is adapted to move. This core should be laminated, when used with an alternating current. Moved by this core 11 is a bridge piece 12, preferably mounted upon the core as illustrated, and adapted to make electrical connection between the contacts 5 and 6, when the core is lifted by the attractive influence of the coil 10. If, now, a break occur anywhere in the main line, the constant current machine 1 will produce an immensely increased difference of potential between the leaders 3 and 4, and consequently between the points 7 and 8, and 5 and 6. By properly adjusting the space between said points 7 and 8, this increase of potential may be made to cause an arc between said points before such a potential difference has arisen as would cause destruction. As soon as this arc is formed, there will be a short-circuit through the solenoid 10. This will lift the core 11, bridge the space between the contacts by means of the part 12, and thus establish a permanent short-circuit, reducing the electromotive force of the machine to almost nothing, and extinguishing the arc at 7, 8, in consequence. It is evident that this preliminary arc might be formed between the contacts 5 and 6, and the bridge 12, and thus render the points 7 and 8 unnecessary. This, however, is not the best construction, as the points 7, 8, can be made of refractory material, better suited to bear an arc, and formed to sooner produce one than the parts 5, 6.

What I claim is—

1. A constant current generator and mains fed thereby; in combination with a normally open short circuit across said mains, means for closing said short circuit, and a coil in said short circuit for magnetically holding said means in their closed circuit position, substantially as described.

2. A constant current generator, and mains fed thereby; in combination with a normally open short-circuit across said mains, contacts adapted to come together to close said short-circuit, arcing points in multiple therewith, and a coil in said short-circuit for magnetically actuating said contacts, substantially as described.

3. A constant current generator, and mains fed thereby; in combination with a normally open short-circuit across said mains, contacts and a bridge adapted to cooperate in closing said short-circuit, arcing points in multiple

with said contacts, one of said points being adjustable in position, a solenoid in said short circuit and a core in said solenoid, adapted to move said bridge and close said short circuit at said contacts, substantially as described.

In testimony whereof I have hereunto subscribed my name this 3d day of October, A. D. 1892.

ALEXANDER WURTS.

Witnesses:
JAMES WM. SMITH,
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