

No. 692,834.

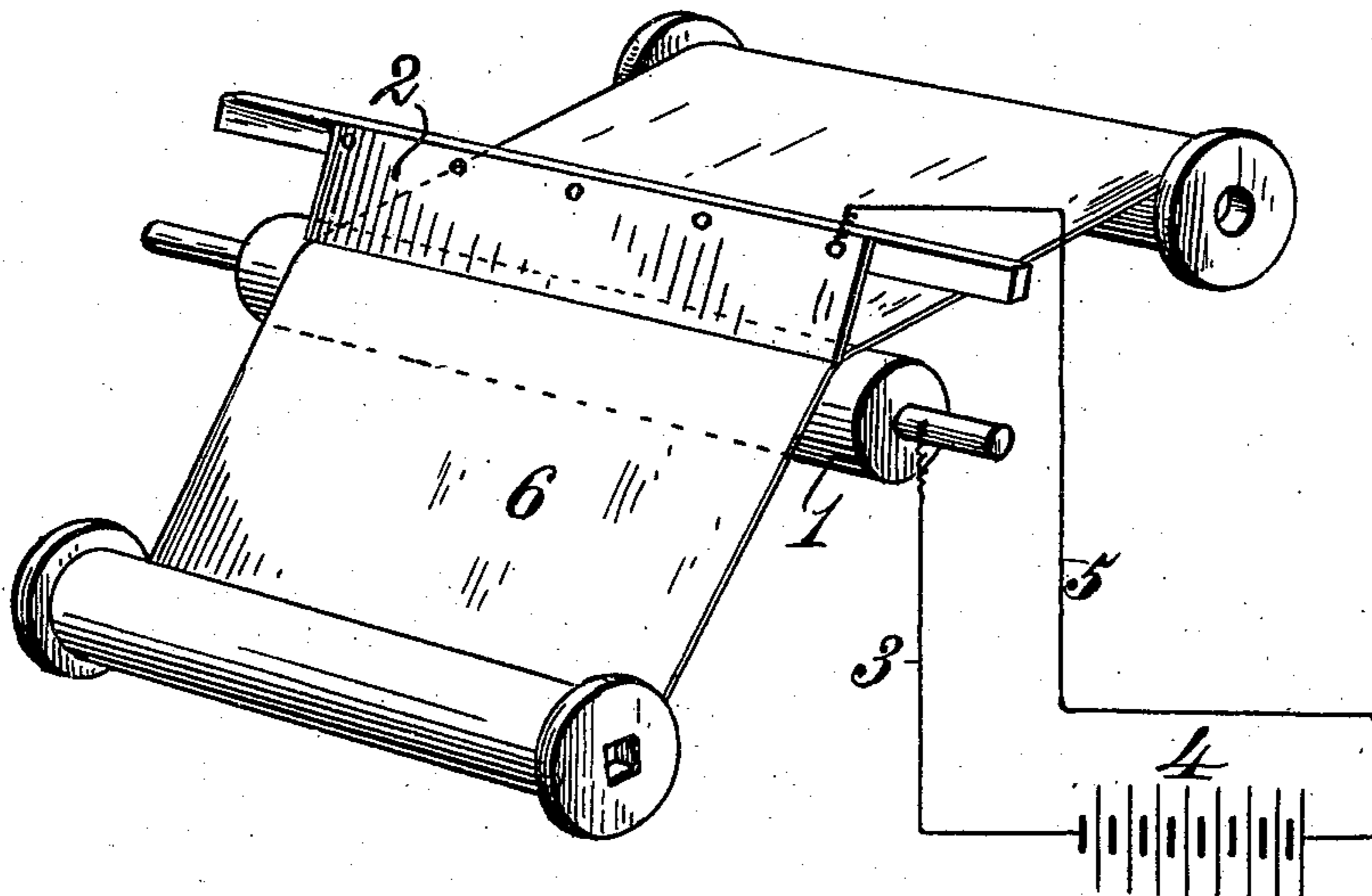
Patented Feb. 11, 1902.

G. H. DAVIS.

METHOD OF BURNING METALLIC PARTICLES FROM PAPER, &c.

(Application filed Aug. 9, 1901.)

(No Model.)



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## METHOD OF BURNING METALLIC PARTICLES FROM PAPER, &c.

SPECIFICATION forming part of Letters Patent No. 692,834, dated February 11, 1902.

Original application filed April 17, 1901, Serial No. 56,268. Divided and this application filed August 9, 1901. Serial No. 71,435. (No specimens.)

*To all whom it may concern:*

Be it known that I, GEORGE HOWLETT DAVIS, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Methods of Burning Metallic Particles from Paper, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to an improved method of burning metallic particles, such as iron or other magnetic substances, from a strip, web, or sheet in which said particles are embedded or to which they are attached.

It is a well-known fact that the thin strips of Manila paper from which perforated music-sheets are cut are impregnated to a considerable extent with small particles of magnetic iron, such as iron oxid, said particles often being embedded in the paper to such an extent that when the music-sheet is employed to operate electrical self-playing musical instruments or the like the said magnetic particles will complete the electric circuit controlling the actuating means for the sound-producing devices, and thereby produce a false note, with a consequent discord of the musical composition. These metallic particles are very small and are hardly visible to the naked eye; but when the sheet is treated by my improved method all such particles will be quickly and effectively burned out or eliminated. As explained, these particles are as a rule extremely small, and the aperture remaining from such burning out or removal is correspondingly small, and the sheet is not materially affected thereby.

My improved method consists, broadly and briefly, in moving the web, sheet, or strip containing such magnetic particles between or in surface contact with the terminals of an electric circuit and in passing a current of electricity through the circuit in which said terminals are included of sufficient strength or intensity to cause a spark or are at the terminals when a metallic particle is encountered, which will cause said particle to be burned out.

In order to enable others to understand and practice my said invention, I will proceed to describe the same in detail, reference being made for this purpose to the accompanying drawing, in which the single figure illustrates one form of apparatus or means for carrying out the method.

In said drawing the reference-numeral 1 designates a metallic contact-roller journaled in any suitably - constructed frame, (not shown,) and the numeral 2 a thin contact plate or blade, preferably arranged to bear yieldingly upon the said roller. The roller and plate or blade each constitute an electric terminal, both of which are included in an electric circuit, one conductor 3 of which leads from the roller 1 to the source of electric supply 4, and the other terminal 5 of which leads from the contact-blade 2 to said source of electric supply, which latter is of sufficient strength or power to cause a sparking at the terminals when the current is passed therethrough. I have found in practice that a generator sufficiently powerful to supply a current of twenty volts and five amperes over the line is adequate for the purpose in hand; but of course the strength of the current may be varied, and I do not limit myself to any specific strength, except that it must be of sufficient intensity to cause a sparking at the terminals when a magnetic particle is brought therebetween.

In operation the sheet, strip, or web 6 is caused to move continuously between the contact roller and blade, it being understood that these two parts, which constitute the electric terminals, are normally held apart or separated by the sheet, strip, or web, and hence the circuit remains broken until a metallic particle bridges the said terminals, when a spark will be produced by the rapid completing and breaking of the circuit at this point, which will result in burning out the said particle.

I do not in this application claim the apparatus for carrying out the method herein described, as such forms the subject-matter of my application for patent filed April 17, 1901, Serial No. 56,268, of which the present case is a division.

What I claim is—

1. The method herein described of remov-

ing metallic particles or substances from a sheet, strip or web having such particles embedded therein, which consists in moving the sheet, strip or web in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when the latter are bridged by a metallic particle, and passing a current of electricity of sufficient strength through the circuit to cause the particles to be burned out as said particles bridge the terminals.

2. The method herein described of removing metallic particles or substances from a web or sheet, which consists in passing such web or sheet between and in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when a metallic particle or body is brought therebetween, an arc being thus produced and the metallic particle burned out.

3. The method herein described of removing metallic particles or substances from a web or sheet having such particles embedded therein, which consists in passing the web or sheet between and in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when a metallic particle or body is brought therebetween, and passing an electric current through said circuit of sufficient strength to cause a spark at the point of contact between the metallic particle and terminals whereby said particle will be burned out.

4. The method herein described of burning

metallic substances from a sheet, strip or web, which consists in moving the sheet, strip or web containing such metallic substances in juxtaposition to the terminals of an electric circuit, and passing an electric current through said circuit of sufficient strength to cause sparkings at the terminals when metallic particles are encountered whereby said particles will be burned out.

5. The method herein described of burning metallic particles from a sheet, strip or web, which consists in moving the same between two oppositely-arranged electric terminals, and passing an electric current through said terminals of sufficient intensity to cause a spark thereat when the terminals are bridged by a metallic particle carried by sheet, strip or web, whereby said particle will be burned therefrom.

6. The method herein described of burning metallic particles from a sheet, strip or web, which consists in subjecting the said particles to the action of an electric current through terminals arranged to be bridged by said particles, said electric current being of sufficient strength to cause the particles to be burned out as the current passes through them.

In testimony whereof I affix my signature in presence of two witnesses.

G. HOWLETT DAVIS.

Witnesses:

JOS. EVANS,  
FRANK E. SMITH.