F. A. SMITH.

STATIC ELECTRIC ERADICATOR.

APPLICATION FILED MAR. 28, 1913.

1,093,491. Patented Apr. 14, 1914.

Fig. 1

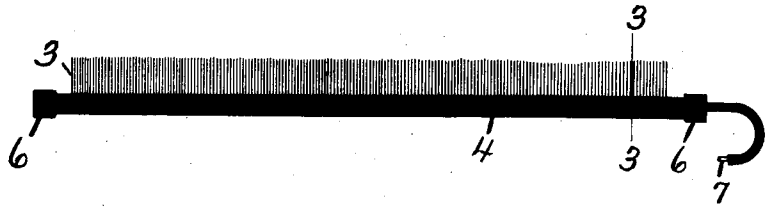


Fig. 2

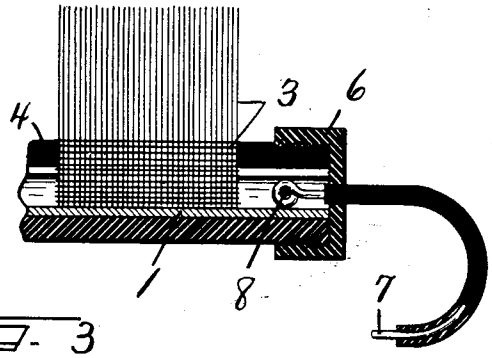


Fig. 3

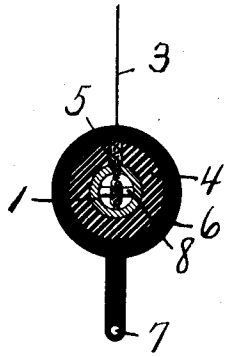


Fig. 4

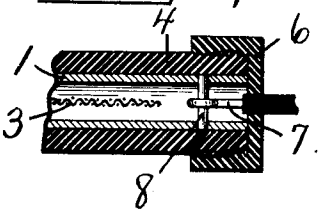
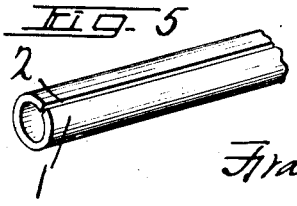


Fig. 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

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STATIC ELECTRIC ERADICATOR.

1,093,491. Specification of Letters Patent. Patented Apr. 14, 1914.

Application filed March 28, 1913. Serial No. 757,339.

To all whom it may concern:

Be it known that I, FRANK A. SMITH, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Static Electric Eradicators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in static electric eradicators and pertains more particularly to a device of this kind adapted to be used in connection with printing and lithographing presses or other machines for extracting the electricity from paper passing therethrough.

It is well known among those familiar with the art of printing and other allied arts that the presence of electricity greatly decreases the facility with which paper is handled, also the efficiency of the machine operating upon the same, resulting in an improper delivery of the sheets and causing crumpling and wrinkling of the same and curling of the edges. It is equally well known that the charge of electricity varies greatly in different classes of papers and in papers of the same class under different weather conditions and is perceptibly increased by the operation of printing or lithographing upon paper and results in a strong frictional adhesion of the sheets and great difficulty therefor in separating the same, particularly when it is desired to print upon the second side of the sheet, sheets often clinging together so closely that they escape the notice of the operator and are allowed to pass through the machine in duplicate, resulting in a good deal of waste material and time.

The object of my invention is, therefore, to construct a device which shall extract the electricity from the paper as it passes through the machine or as it is delivered therefrom and which shall be of simple and inexpensive construction and applicable for use in connection with any form of printing press.

A further object is to so construct the device that the main portion shall be substantially permanent, the electric charge-collecting members being preferably formed from a single sheet of material and readily removable for the insertion of a new sheet.

Other objects and uses will appear from the following description.

In the drawings Figure 1 is a side view of my device. Fig. 2 is a partial vertical longitudinal cross section. Fig. 3 is a cross section on line 3—3, Fig. 1. Fig. 4 is a partial horizontal longitudinal cross section. Fig. 5 shows a portion of the split tube confining the wire fabric.

I have not deemed it necessary for a clear understanding of my invention that it should be shown as applied to a press, it being understood that it may be placed in any position upon said machine so long as it lies within the field of static electricity created by the paper passing therethrough and sufficiently near the paper to extract the electricity therefrom. Preferably, however, it is positioned at the delivery end of the machine and at a point adjacent the delivery of said paper to the fly-sticks.

The device comprises a tube —1— of conducting material, as copper, and split through one side to form a longitudinal opening —2— of equal length with the tube. Through the opening —2— is inserted a wire fabric —3— having a portion thereof formed of transverse threads only. The tube —1— is then compressed together in any suitable manner as by a vise, in order to tightly confine the wire fabric, and it is equally apparent that the tube may be readily expanded for removal of the fabric. An insulating casing —4— of equal length with the tube —1— and within which said tube is adapted to telescope is provided with a longitudinal slit or opening —5— of a width preferably just exceeding the thickness of the wire fabric so that the tube —1—, confining one end of the fabric, may be inserted in said casing, the fabric lying in the opening —5—, and the longitudinal threads of the fabric terminating preferably just within the outer circumference of the casing —4— so that the extending portion is formed only of transverse threads or wires lying in substantially the same direction.

In order that the tube —1— may be rigidly confined within the casing —4—, the ends of said casing are preferably externally screw-threaded for the reception of internally threaded fiber or rubber caps —6—, but it is readily apparent that these caps may be cemented or attached in any suitable manner to the casing —4— and it is not essential that they have a threaded relation therewith.

When the device is placed in a press and within the static field, the strands of the fabric being in substantial contact with the paper passing through said press, the electricity is extracted from the paper by the extending threads of the fabric, and for the purpose of causing this current to dissipate itself, I have provided a wire —7— connected to the tube —1— or held in contact with the same in any suitable manner as by a pin —8— seated in a loop upon the end of the wire. The wire —7— passes outwardly through an opening in the cap —6— and is preferably covered with insulating material or an insulating casing extending from a point within the tube —1— to substantially the end of the wire.

It is readily apparent that the wire —7— may be directly connected to the fabric and that therefore the tube —1— need not necessarily be formed of conducting material although I have preferably shown it as such. It is equally true that the wire fabric —3— may be of any form, the only essential feature being that strands thereof shall project from the casing —4—, and that the length of the tube and casing, as well as the diameter of each of them, may be varied to suit different sizes and styles of machines without departing from the invention as set forth in the appended claims.

What I claim is:

1. In combination a split tube, wire fabric confined by said tube and having projecting strands, an insulating casing within which said tube telescopes, said casing provided with a longitudinal opening through which said strands extend, means for confining said tube within said casing, and a discharge wire electrically connected with said fabric.

2. In combination a split tube, a row of transversely extending wires confined by said tube and projecting therefrom, an insulating casing within which said tube telescopes, said casing provided with an opening through which said wires extend, means for confining said tube within said casing, and a discharge wire electrically connected with said projecting wires.

3. In combination a tube split through one side, a row of transversely extending wires having one end confined by said tube, an insulating material surrounding said tube and from which said wires project, caps upon the ends of said insulating material, and a discharge wire electrically connected to said transversely extending wires and passing through an opening in one of said caps.

4. In combination a tube split through one side, a row of transversely extending wires having one end confined by said tube, an insulating casing within which said tube telescopes and from which said wires project, caps upon the ends of said casing and confining said tube, and a discharge wire electrically connected to said transversely extending wires and passing through an opening in one of said caps.

In witness whereof I have hereunto set my hand this 14th day of March, 1913.

FRANK A. SMITH.

Witnesses:
E. A. THOMPSON,
VIOLA HOWLAND.