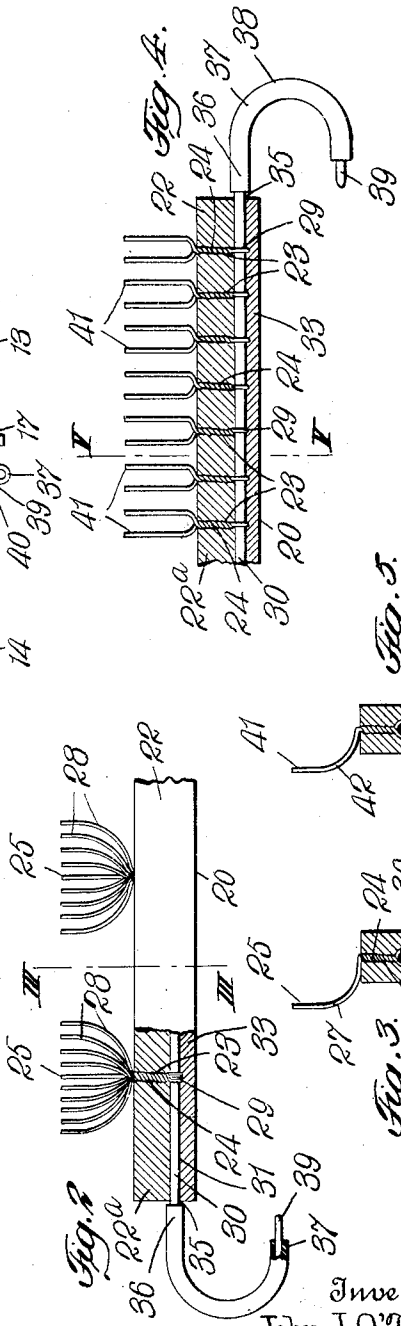
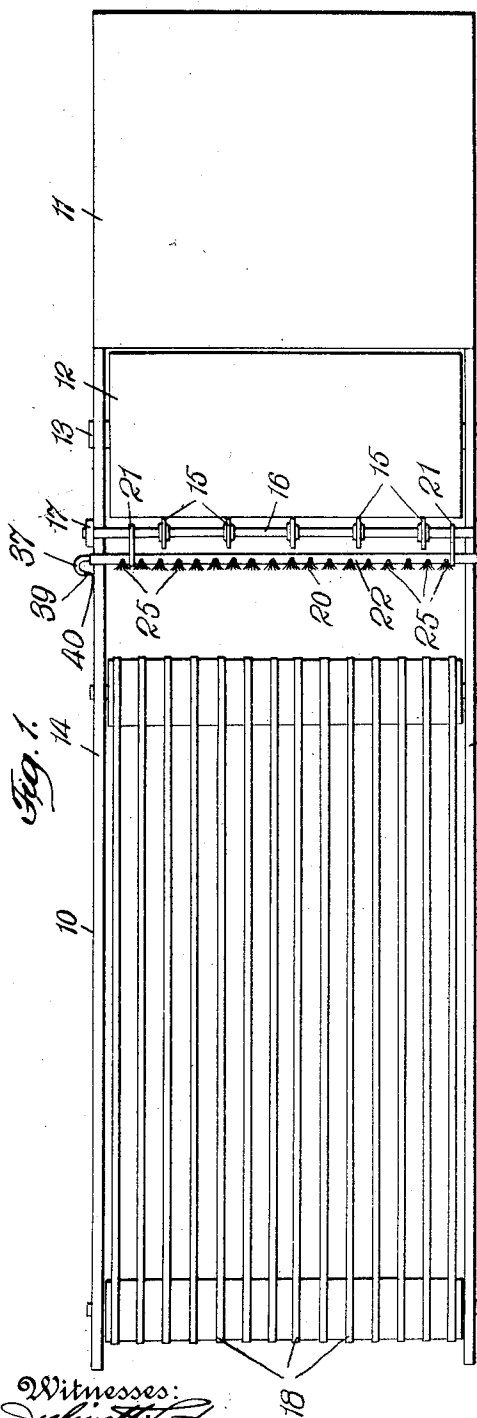


J. J. O'TOOLE.  
 ANTISTATIC FRICTION DEVICE.  
 APPLICATION FILED MAR. 4, 1910.

997,085.

Patented July 4, 1911.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## ANTISTATIC FRICTION DEVICE.

997,085.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed March 4, 1910. Serial No. 547,269.

### *To all whom it may concern:*

Be it known that I, JOHN J. O'TOOLE, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Antistatic Friction Devices, of which the following is a full, clear, and exact specification.

This invention relates more particularly to an anti-static friction device adapted to be used in connection with printing or lithographing presses for extracting the static-electricity from paper which is generated during the process of printing thereon.

It is well known in the art of printing and lithographing that the frictional adhesion of layers of paper due to the presence of static-electricity causes a great waste of material, consumption of time and loss of labor. The charge of electricity in the sheets varies with weather conditions and varies in accordance with different classes of paper, and while the presence of the electricity prevents paper from being handled with facility before being printed upon the electricity is more pronounced and causes perceptibly stronger frictional adhesion after the sheets are printed on one side thereof. This adhesive tendency of the paper results in improper delivery of the sheets by the "fly-sticks" or other delivery appliances on the press, the sheets clinging closely one to the other producing "offsets" upon the unprinted side of the paper and preventing regular and even "jogging" or straightening-up of the sheets by the attendant or feeder at the press. Moreover, the edges and corners of the sheets become crumpled and curled thereby preventing the sheets from being fed to an accurate register in printing the second side of the paper or more particularly causing inaccurate registering when two or more colors are to be printed upon the paper.

The primary object of my invention is to provide a device which will effectually overcome these objections and which device consists mainly of a number of metal brushes extending across the width of the press in the field of static-electricity created by the sheets of paper during delivery from the printing cylinder, the said metal brushes be-

ing adapted to attract and transmit the electric-fluid to a main wire through which it passes and is discharged to ground provided in a space formed at one or both ends of the main wire and the metal frame of the press.

A further object of the invention is to provide a suitable casing of insulating material adapted to carry the main wire and the electricity absorbing brushes which project upwardly above said casing in outwardly curved flared fan like shapes or in the form of curved prongs, and to arrange the free end or ends of the main wire so as to provide an efficient ground for the discharged electricity.

My invention, furthermore, has for its object to provide a device of simple and inexpensive construction which may be readily applied to and used in connection with various forms, sizes and shapes of printing or lithographing presses, and to provide efficient means for connecting the device to a press.

A practical embodiment of the invention is represented in the accompanying drawing forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, the said invention being more fully described hereinafter and then pointed out in the appended claims.

In the drawing Figure 1 is a top plan view of a printing press with my anti-static friction device applied thereto in front of the printing cylinder. Fig. 2 is an enlarged fragmentary side view, partly in section, of my device, showing one form of fastening the twisted ends of the electricity absorbing brushes thereto. Fig. 3 is a section taken on the line III—III of Fig. 2. Fig. 4 is a fragmentary sectional view of another form of absorbing brushes showing the manner of fastening the same to the main discharge wire, and Fig. 5 is a section taken on the line V—V of Fig. 4.

The press 10 of any well known construction and adapted for printing or lithographing on paper may comprise the customary feed board or table 11, the printing cylinder 12 mounted in front of said table upon the revolving shaft 13 which is journaled in bearings in the frame 14 of the

press, the paper guiding rollers 15 rotatably held upon the shaft 16 which is secured, as at 17, to the side frames 14 and the endless tapes 18 of the usual draw delivery for delivering the printed sheets of paper.

Upon the top of the press 10 is mounted my anti-static friction device 20 adjacent to and in front of the guiding rollers 15, where the field of electricity is formed under the sheets of paper delivered by the printing cylinder 12 over the guiding rollers 15, after being fed into the press 10 for printing thereon from the table 11. The device 20 is preferably of sufficient length to extend across the entire width of the press 10 so as to rest upon the top of the side-frames 14, and is rigidly held against displacement to the shaft 16 bearing the rotatable rollers 15 by links or clamps 21 or by any other desired means.

To construct the device 20 so as to be durable, efficient and conveniently applied to a printing press I provide a casing 22 made of wood or any other suitable insulating material in the top 22<sup>a</sup> of which are arranged a number of openings, as at 23, and through said openings pass the stems 24 of a number of metal brushes 25. These absorbing brushes 25 are formed of small flexible strands of wire of copper or any other metal adapted to attract and conduct electricity, and the said brushes are arranged in a row-like manner along the top 22<sup>a</sup> of the casing 22. Each of the brushes 25 have an outwardly curved part, as at 27, Fig. 3, and project upwardly and laterally into a flared fan like shape, as at 28, so as to embrace the entire field of electricity formed by the paper during the process of printing. The stems 24 of the brushes 25 are formed preferably by twisting the flexible strands of said brushes, as shown in Figs. 2 and 3, and providing loops, as at 29, at the lower ends thereof for reception of the main transmitting or discharge wire or rod 30 of aluminum, copper or any other suitable conductor of electricity. A channel or groove 31 and an opening 32 are provided lengthwise of the underside of the casing 22, and in said channel rests the transmitting wire 30 which is held against displacement by soldering or otherwise connecting the loops 29 thereto. These parts are inclosed within the casing 22 by a covering 33 of insulating material fitting snugly in the opening 32 and forming a closure 34.

At the ends of the casing 20 openings 35 are provided and through said openings extend the ends 36 of the main discharge wire 30. The ends 36 are insulated, as at 37, and curved, as at 38, so as to extend downwardly alongside of the frames 14 when the device is in use on top of the press 10. The extreme outer ends 39 of the main transmitting wire 30 is freed of the insulating cover

37 and forms in the spaces 40 between said ends 39 and the frames 14 of the press grounds for discharging the electricity absorbed by the brushes from the printed paper. While I have set forth my device as having two free ends of the main wire for forming the said grounds, it will be understood, that one free end of the main wire may be dispensed with and instead thereof I may close the casing at said end and employ at this end suitable means for connecting my device to the press.

Fig. 4 shows the electricity absorbing brushes in the form of prongs or forks, as at 41, arranged in a row lengthwise on top of the casing 22. The forked brushes 41 are curved, as at 42, so as to extend outwardly and upwardly, and are secured with their lower twisted ends to the main discharge wire 30 in the same manner as above described with respect to the form as shown in Fig. 2.

It is clear that changes may be made in the form of the brushes or in the proportions and forms of the parts forming my improved anti-static friction device and in the manner and place of fastening the same to a press without departing from the scope and purpose of my invention, therefore I do not wish to be limited to the particular form of the device herein described and illustrated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a device of the class described, the combination of an insulating casing being formed with a groove in one side thereof and having openings communicating with said groove and the front face of the insulating casing, a main discharge wire located within said groove, brush members being wrapped around and soldered to said main discharge wire and having twisted portions passing through said openings and terminating on the face side of said insulating casing in upwardly curved projecting pronged metal brushes, and insulating material adapted to rest upon said main discharge wire and substantially close said groove.

2. A device of the class described, adapted to remove static charges from sheets of paper as said sheets of paper pass through a printing press having a metallic frame, said device comprising an insulating casing having a groove formed in the rear face thereof and having openings communicating with said groove and the front face of said casing, a main discharge wire located within said groove, pronged metal brushes attached to said main discharge wire and being adapted to pass through said openings in such manner as to form brush members projecting from the front facing of said insu-

lating casing, insulating material being adapted to rest upon said main discharge wire and substantially close said groove, a portion of said main discharge wire extending beyond said insulating casing, said extending portion of said main discharge wire being curved and covered with insulating material, and means for mounting said device upon a printing press in such manner that said metallic prongs are adapted to con-

tact with sheets of paper, and an end of said main discharge wire terminating in close proximity with the metallic frame of a printing press, substantially as described.

This specification signed and witnessed 15  
this first day of March A. D. 1910.

JOHN J. O'TOOLE.

Witnesses:

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