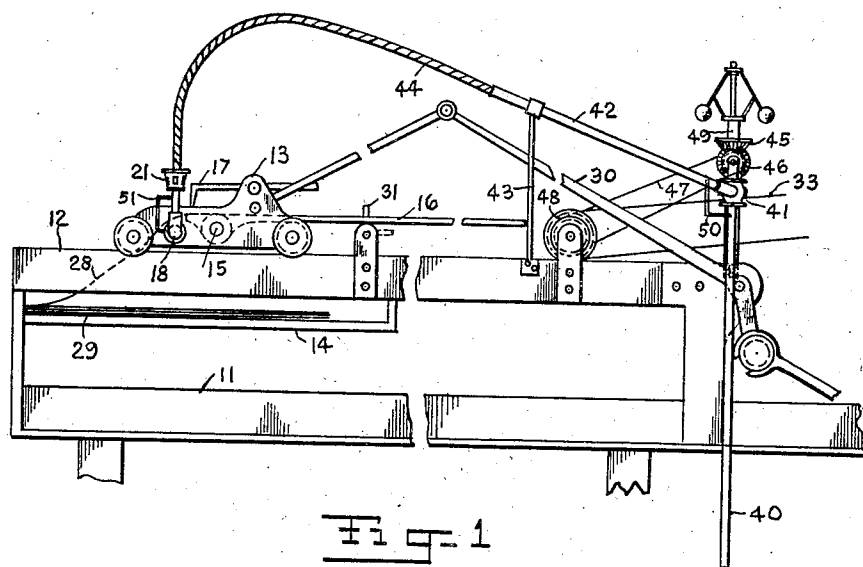
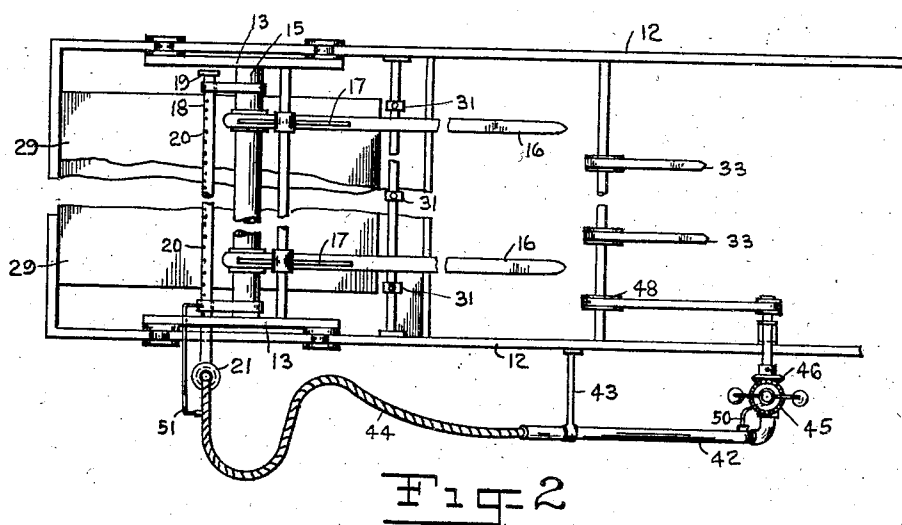


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 APPARATUS FOR DISCHARGING STATIC ELECTRICITY FROM PAPER AND THE LIKE.
 APPLICATION FILED OCT. 29, 1918.

1,338,071.

Patented Apr. 27, 1920.



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 By his Attorney.
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DISCHARGING STATIC ELECTRICITY FROM PAPER AND THE LIKE.

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To all whom it may concern:

Be it known that I, HERBERT COHEN, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Discharging Static Electricity from Paper and the like, of which the following is a specification.

My invention relates to means, to be used in connection with a printing press, for discharging from the paper being printed thereon the charge of static electricity which is generated on the paper by the friction accompanying its passage through the press, and the object of the invention is to provide a simple and practicable mechanism for this purpose which shall be easily attached to the press, efficient in operation, easy to control, and which shall prevent waste of the gas used therewith, by automatically shutting off the flow of gas when the press is not in operation.

The invention consists in the novel construction, arrangement and combination of various elements and parts, as fully described in this specification and shown in the accompanying drawings.

In the said drawings Figure 1 is a side elevation of an apparatus embodying my invention, and Fig. 2 is a plan view of the same.

It is well known that when paper is operated upon in a printing press, and thereby subjected to friction, particularly under dry and cold atmospheric conditions, it becomes charged with electricity, which causes the sheets of paper to adhere together as they are delivered from the press, thus causing offsetting or smutting of the ink thereon, and it is also well-known that the momentary application of a gas or other flame to the paper quickly dissipates the static charge thereon. My invention provides an improved form of an apparatus for this purpose.

In carrying my invention into effect, in the embodiment of the same which I have selected for illustration in the accompanying drawings and description in this specification, I employ a printing press of any suitable form, certain portions of which are shown in a general way in the drawings, the frame of the press, 11, being provided with tracks 12 upon which the delivery carriage 13 runs. The usual receiving table 14 is provided, upon which the printed sheets are

stacked from the delivery carriage. 15 represents the finger shaft, journaled in the carriage, and 16 the fingers, which receive the printed sheet from the tapes 33. The automatic sheet stops 17, stripper stops 31 and carriage reciprocating mechanism 30, are of the usual or any suitable type and will be well understood without detailed description.

Carried by the carriage 13 and secured thereto by clamps on the finger shaft or in any suitable manner, is a tubular burner 18, closed at one end by a cap 19 and provided with a series of perforations 20. At the open end is provided an ordinary gas and air mixer 21. 28 represents a sheet of paper, in process of passing from the fingers 16 on to the table 14 (see Fig. 1) other sheets 29 being already stacked upon said table.

The automatic valve for controlling the flow of gas and shutting the same off when the press ceases operation, with the appurtenant parts, is as follows: The main gas-pipe as shown in the drawings (see particularly Fig. 1) is designated 40, and this opens into a valve chamber 41. From this leads an extension pipe 42, which may be supported by a rod 43 and this is continued by a flexible pipe 44 leading to the mixer 21. Seated on the valve chamber 41 is a governor of the usual well understood type, driven by the bevel-gears 45 and 46, the gear 46 bearing a pulley over which runs a band 47 which also runs over a pulley 48 on the shaft which drives the pulleys bearing the belts 33 thus insuring the operation of the governor whenever the press is in motion. The balls of the governor communicate with the sleeve 49 (see Fig. 1) which operates a valve stem passing into the valve chamber 41, raising the valve and allowing the gas to flow therethrough when the governor-balls are raised because of the operation of the press, and lowering the valve and shutting off the supply of gas when the press stops operation and the governor-balls consequently fall.

In order that the main gas flames of the burner 18 may be ignited whenever gas is supplied thereto, I provide a small pilot-light at any convenient point contiguous to said main flames, and in order to insure a continuous supply of gas for this pilot-light, I provide a small by-pass pipe 50 (see Fig. 2) leading from the main pipe 40

around the automatic valve and into the pipe 42, then continued along inside of the pipe 42 and flexible pipe 44 and passing out therefrom and leading to the pilot-light 5 as shown at 51 in Fig. 2.

The operation of my invention is as follows: The carriage 13 is reciprocated backward and forward on the track by means of the actuating lever 30. When the carriage is in its most forward position, the fingers 16 are advanced so that they lie alongside of the tapes 33 and the sheet of paper which has been printed, being carried along by these tapes and deposited upon the fingers 16 is held by the automatic sheet stop 17. The carriage then passes back, carrying with it the sheet of paper supported on the fingers 16, until the forward edge of the sheet of paper engages with the automatic stripper stops 31. The stops 17 being then disengaged in the ordinary manner, the carriage moves forward again, and the sheet of paper is slid off from the carriage by the operation of the stripper stops, passing down upon the table 14. A sheet of paper thus sliding down is shown at 28 in Fig. 1, in the act of falling upon a pile of sheets 29 which have been previously stacked upon the delivery table. It will be obvious that the sheet, as it slips down from the carriage to the table, passes over the burner 18, the distance being so arranged that the flames from the burner approach near enough to the paper to discharge the static electricity therefrom. It will be seen that the action of the flame is not only to discharge the static electricity from the paper, but it also tends to dry the ink on the same; thus not only is the tendency of the sheets of paper to stick together lessened, but also the liability of the ink to smear or offset from one sheet to another is lessened even if the sheets should adhere somewhat.

In order to effect all possible economy in gas, it is desirable that the main flames of the burner be extinguished from time to time when the press temporarily ceases operation, the pilot-light remaining ignited so that the main flames may be lighted thereby when the press again operates. To accomplish this result is the object of the automatic valve which constitutes a part of my invention. It will be readily understood that when the press is not in operation and the shaft which operates the tapes 33 is not in motion, the governor balls will be in their lowered position and the valve will

be closed and the gas shut off from the burner, the pilot-light however remaining ignited. But when the press begins operation, the governor balls will rise in the usual well understood manner, open the automatic valve and permit the gas to pass into the tubular burner 18 and out through the gas-apertures 20, where the same will be ignited by the pilot-light.

The advantages of my invention will be obvious from what has been above stated with regard to its construction and method of operation.

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

1. In an apparatus for discharging static electricity from paper and the like, the combination with devices adapted to receive a sheet of paper and deliver same therefrom; of a burner adapted to direct the flame thereof toward said paper, and means adapted to automatically extinguish said flame when the apparatus ceases operation and to permit said flame to burn when said operation takes place: said flame controlling means comprising a valve, a governor controlling said valve, and means operatively connecting said governor with a moving part of the apparatus, whereby when the apparatus is in operation the said valve may be opened by the governor and when the apparatus is not in operation the valve may remain closed.

2. In an apparatus for discharging static electricity from paper and the like, the combination with devices adapted to receive a sheet of paper and deliver the same therefrom; of a burner adapted to direct the flame thereof toward said paper, and means adapted to automatically extinguish said flame when the apparatus ceases operation and to permit said flame to burn when said operation takes place; said flame controlling means comprising a valve, a governor controlling said valve, and means operatively connecting said governor with a moving part of the apparatus, whereby when the apparatus is in operation the said valve may be opened by the governor and when the apparatus is not in operation the valve may remain closed, and a pilot light contiguous to said burner and a gas supply pipe for the same.

Signed at New York city, N. Y., this 26th day of October, 1918.

HERBERT COHEN.