

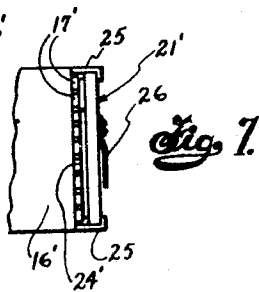
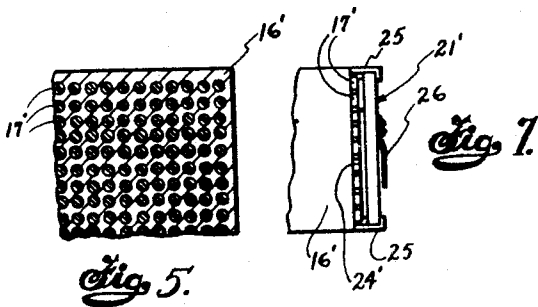
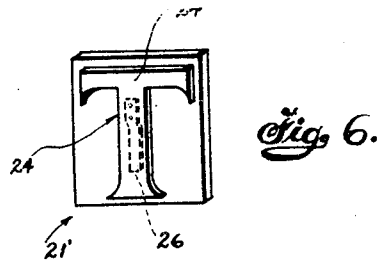
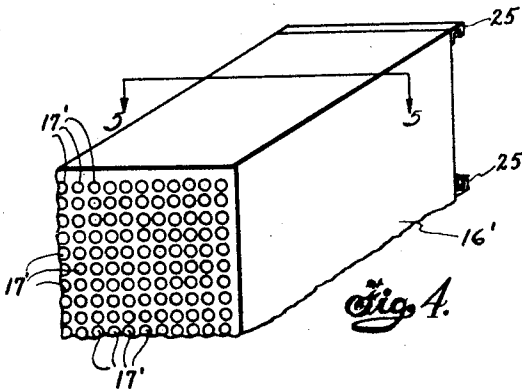
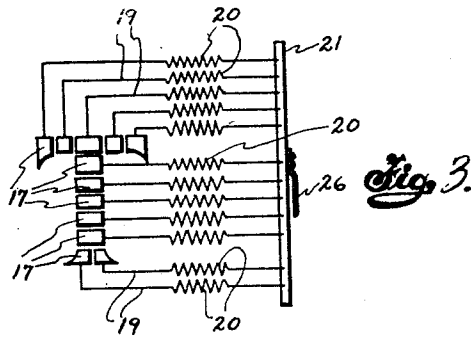
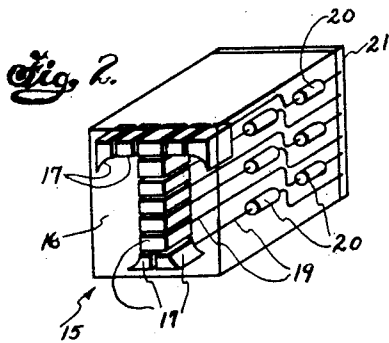
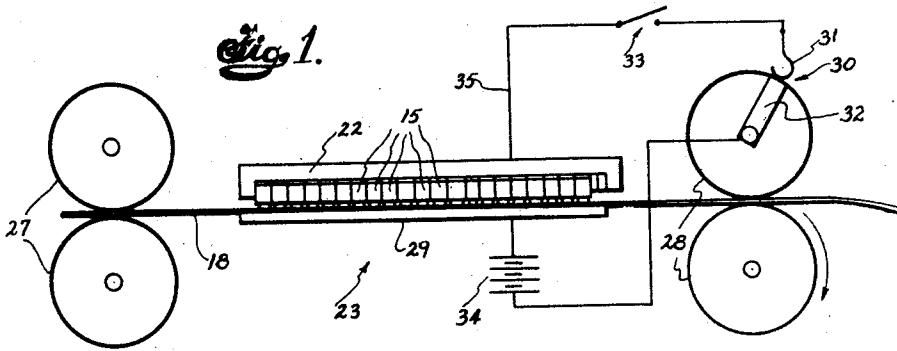
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2,486,985

ELECTRICAL PRINTING TYPE

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ELECTRICAL PRINTING TYPE

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10 Claims. (Cl. 101—93)

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The present invention relates to means to serve as type to be employed in electrical printing systems operating on the principle that a desired character, letter of an alphabet or other insignia is made to appear on a chemically treated paper or other suitable sheet material positioned between and in surface contact with an electrically conductive contact member and an electrically conductive type member, upon the passage of an electric current through such sheet from one to the other of said members.

An object of this invention is to provide novel and improved means to serve as type for electrical printing machines of the kind mentioned; any particular type set-up being used for the printing of numerous copies of the composition which may be a single character or extensive matter.

A further object hereof, is to provide novel and improved means to serve as changeable type for electrical printing systems of the nature described; the composition to be printed being effected in a novel manner.

Another object of this invention is to provide novel and improved type means of the class set forth, which is simple to manufacture and use, positive in operation and efficient in carrying out the purposes for which it is designed.

Other objects and advantages will become manifest as this disclosure proceeds.

In the accompanying drawings forming part of this application, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a diagrammatic view of an electrical printing system employing type means embodying the teachings of this invention.

Fig. 2 is a perspective view, partially in section, showing an embodiment of this invention, namely a type means for effecting a definite character.

Fig. 3 shows the electrical wiring diagram of the connections employed in the construction of the article of Fig. 2.

Fig. 4 is a perspective view showing another embodiment of this invention, namely a type means for effecting characters which may be changed as desired.

Fig. 5 is a section at lines 5—5 in Fig. 4.

Fig. 6 is a perspective view of a member adapted to be associated with the article shown in Fig. 4, for determining the particular character to be effected.

Fig. 7 is a fragmentary side view of the type means of Fig. 4, having mounted thereon the character determining member shown in Fig. 6.

In the drawings, the numeral 15 indicates generally a piece of type comprising as in Fig. 2, a rectangular prismatic body 16, which is of an electrically insulative material, in a face of which

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is imbedded the type elements 17, which may be of metal or other electrically conductive material; said elements being slightly spaced from each other and arranged to determine the character to be printed. These type elements 17 extend to the exterior surface of the body 16, and are adapted for contact with a surface to be printed on, as for instance sensitized sheet material 18. Individually electrically conductive elements or wires 19, are respectively connected to the type elements 17, and in each such wire 19, is interposed or inserted a current limiting device such as resistor 20. All the conductive elements 19 and the current limiting elements 20, are imbedded within the body member 16, and at their ends remote from the type elements 17, are all electrically connected to a connector member of metal, as indicated by the numeral 21, which is carried on the body member 16; the entire assembly making a single entity which is set as type in the frame 22 of an electrical printing machine indicated generally by the numeral 23.

The particular piece of type illustrated in Fig. 2, is one to effect the printing of the letter "T." Similarly constructed entities, with their type elements arranged to determine different letters of alphabets, numerals and other insignia, are provided for the printer, who shall make up the composition of the printing plate, in like manner as is now done in ink printing.

In a modified embodiment, the type body 16' may have therethrough a plurality of straight parallel wires, each electrically insulated from each other, and closely spaced, with each of their ends exposed, whereby the format presented by the group of one of their respective ends is similar to the format presented by the other of their ends. This construction is in the nature of a cable. It is desirable that each of the wires 17' be of high resistance material. One set of the ends of said wires serving as type elements, and the other set of ends being exposed for contact by a connector member indicated generally by the numeral 21'; such contact being only of those wires 17' which contact the face of the bas-relief character 24, thus determining for printing, the character said face 24' presents. In this instance the letter "T," because all wires 17' not in contact with said surface 24' will not be in electrical circuit and hence inactive. The connector member 21' is adapted to be detachably mounted on the type body 16', by being positioned in channels 25, or in any other suitable manner it may be separably associated with the body 16'. It is evident that the body 16' may be made as large as may be required for the printing of an entire sheet, and many connector members presenting contact surfaces determining different characters

respectively may be provided, which connector members may be assembled in contact with one set of exposed ends of wires 17' as in ordinary printing composition. Each such connector member 21' may be provided with a spring 26 for effecting good electrical contact with the frame 22 of the machine 23.

Associated elements 17, 19 and 20, in a single conductive line, may be termed an electrically conductive path through the body member 16 of the embodiment shown in Fig. 2, and likewise, each of the wires 17' may be deemed such a path through the body member 16' in the embodiment illustrated in Fig. 4.

The electrical printing machine 23, may include a frame 22 for holding the type herein described, in contact with a paper 18, chemically treated as is known in the art; said paper being fed by rollers 27 and 28, over a metal contact plate 29; said paper 18 being in contact with both said plate 29 and all the type elements 17 or 17', at the moment printing is to be effected thereon, which printing is accomplished by the passage of a current through the paper 18, from the type elements in circuit to the contact plate 29.

The electrical circuit may include a switch 30, comprising a brush 31 and a contact member 32 carried on one of the rollers 28, adapted for periodic contact with said brush, a manually operated switch 33, and a source of electrical energy 34 in series connection with said switch 30 and switch 33; the switch 30 being between switch 33 and the electrical energy source 34. The other terminal of source 34 is connected to the contact plate 29, and a conductor 35 is used to connect the frame 22 to switch 33, in such manner that when both said switches are closed, printing will be effected on the paper or sheet material 18. In this set-up, the diameter of each of rollers 28 should be such that the circumference of each of said rollers shall exceed the length of paper needed for each impression. Of course, any other suitable machine may be used for electrical printing with the type herein described.

I may here mention that this invention is for printing a large number of copies of desired composition in contradistinction to my previous invention in this art, namely my co-pending application Serial No. 592,756 filed May 9th, 1945 (now abandoned), for Electrical printing heads, for effecting primarily a single printing.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired that the particular description herein be deemed illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific embodiments herein to indicate the scope of this invention.

I claim:

1. In type for an electrical printing system, a body member, a plurality of independent electrically-conductive type elements carried by the body member, terminating at one of their respective ends exterior the body member arranged as segments determining the character to be printed; said ends being adapted for contact with a surface to be printed on, a connector member carried on the body member and individual electrical conducting means extending from the connector member in electrical contact therewith and respectively with each of the type elements.

2. Type as defined in claim 1, including current limiting elements inserted one in each of a plurality of individual conducting means.

3. In type for an electrical printing system, a cable including a plurality of closely spaced, independent, electrically-conductive parallel wires, terminating exposed at their ends and a connector member detachably carried on the cable presenting a surface in electrical contact with one or more of one of the respective ends of said wires to determine the character to be printed; the other ends of said wires being adapted for contact with a surface to be printed on.

4. In type for an electrical printing system, a cable including a plurality of closely spaced, independent, electrically conductive parallel wires, terminating exposed at their ends and a connector member detachably carried on the cable presenting a surface adapted to effect contact with the ends of such of the wires to determine the character to be printed; the other ends of said wires being adapted for contact with a surface to be printed on.

5. Type as defined in claim 3, wherein one or more of the wires are of current-limiting material.

6. Type as defined in claim 4, wherein one or more of the wires are of current-limiting material.

7. In type for electrical printing apparatus of the class included in an electrical circuit, a body member, a plurality of spaced, independent, electrically-conductive structures carried by the body member, terminating at one of their respective ends exterior the body member; said ends being adapted for contact with a surface to be printed on, and a connector member carried by the body member, in electrical contact with said structures whose ends determine matter to be printed and adapted to connect said connected structures in the electrical circuit when the type is set in the apparatus.

8. Type as defined in claim 7, wherein the connector member is detachably carried by the body member and presenting a surface adapted to effect contact with such of the wires as determine the character to be printed, when mounted on the body member.

9. Type as defined in claim 7, wherein the connector member presents a surface determining the character to be printed, adapted to effect contact with one or more of said wires when mounted on the body member.

10. Type as defined in claim 7, wherein one or more of the electrically-conductive paths are of current-resisting property.

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