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R. D. PARKER

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TELEGRAPH READING MACHINE

Filed June 29, 1929

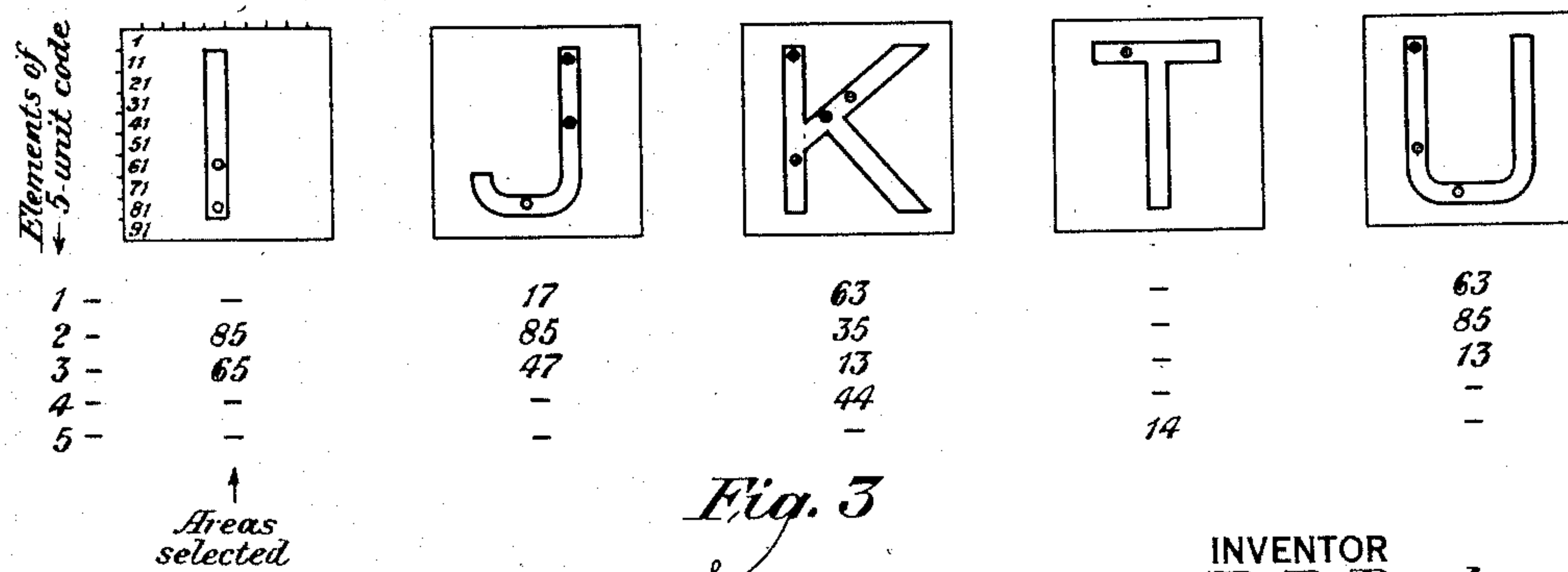
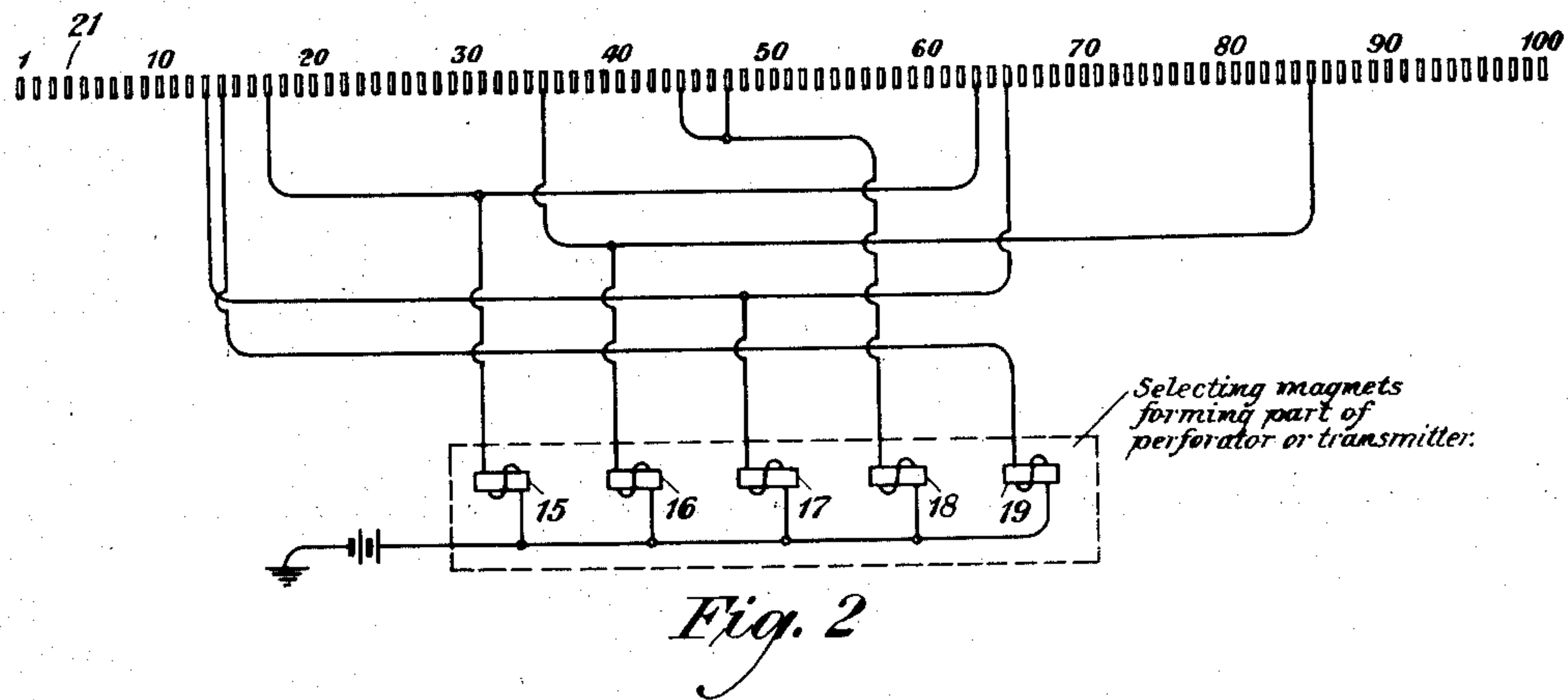
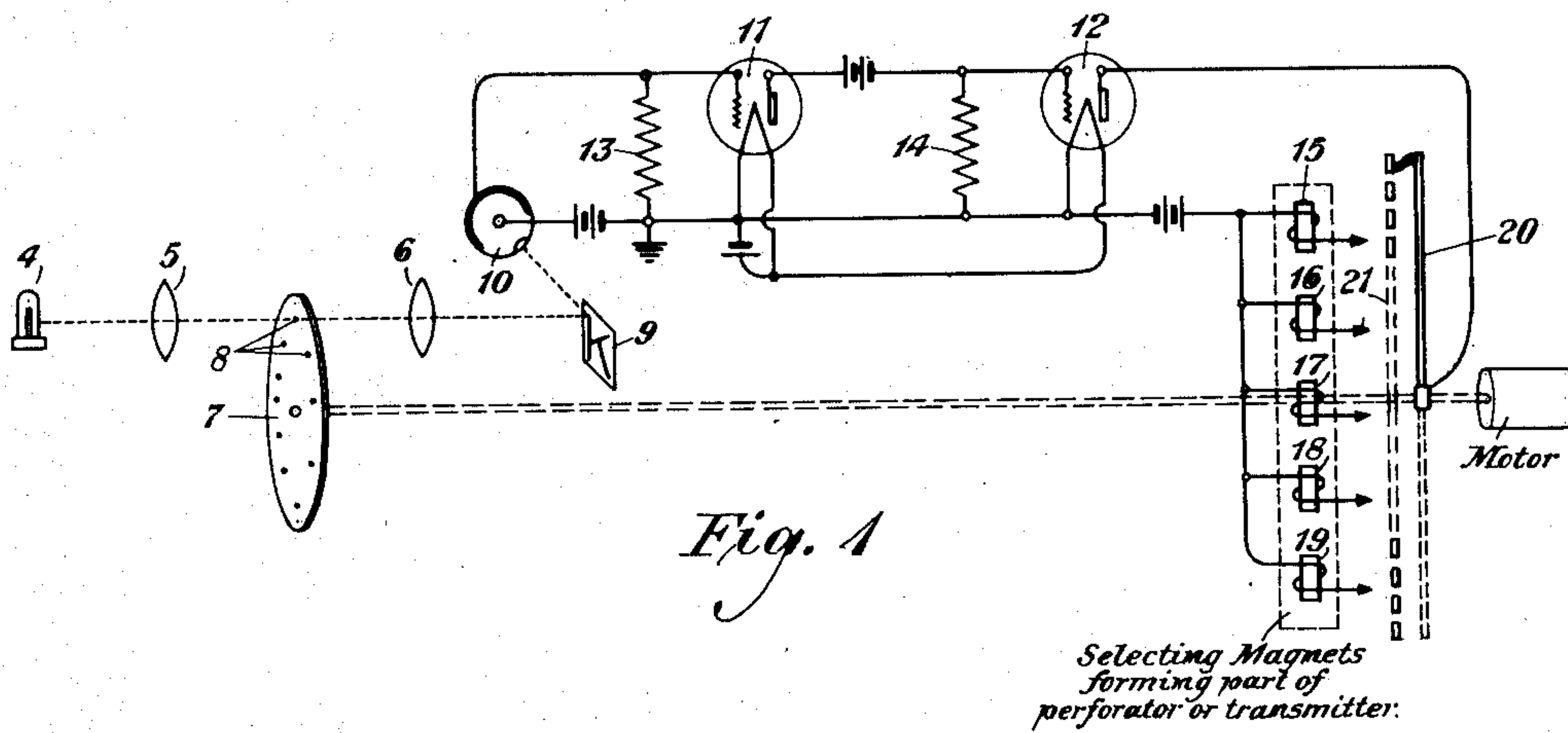


Fig. 3

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TELEGRAPH READING MACHINE

Application filed June 29, 1929. Serial No. 374,911.

This invention relates to the transmission of intelligence by telegraph, and more particularly to the conversion of characters into a telegraph code.

5 The principal object of the invention is the elimination of certain manual operations heretofore required in the transmission by telegraph of intelligence recorded by means of characters which are printed on a page,
10 for example.

In the operation of a printing telegraph service, for instance, the message or copy to be transmitted is handed to an operator in the printer-room, and this operator then
15 either punches a tape or sends the message out directly over the line in the telegraph code.

In accordance with the present invention, the copy may be slipped into a machine—
20 which may be termed a "telegraph reading machine," and the remaining operations will be automatic.

In general, I employ the photo-electric cell and scanning arrangements now well known
25 in the art of television, and cause the operation of the photo-electric cell resulting from the scanning process to control the operation of a plurality of selecting elements, which form a part of a perforator or a transmitter
30 (both well known in the art of printing telegraphy), to produce the code symbols to be transmitted over the telegraph line.

My invention will be clearly understood when the following description is read with
35 reference to the accompanying drawings. Figure 1 of the drawings shows diagrammatically the apparatus and circuits involved, while Figs. 2 and 3 show, in part diagrammatically, examples of the coding arrangement and the arrangements for operating the
40 proper selecting elements. Like numerals of reference in Figs. 1 and 2 designate corresponding elements.

It is assumed that one letter at a time is
45 passed before a scanning or analyzing device which, as is stated above, is similar to that used in television. Each letter is illuminated, as is the case in the television apparatus, by a source of light and a perforated disk where-
50 by the area covered by the letter is scanned in

parallel lines; that is, parallel rows of small sub-areas are examined in sequence. Since each letter of the alphabet and each of the other commonly employed characters is of a distinctive shape, a different arrangement of
55 pulses will be produced in the output circuit of a photo-electric cell associated with the illuminating and scanning device. The output of the photo-electric cell is then amplified by suitable means and is passed to the arm of
60 a distributor having a series of segments—one hundred, for instance. Each letter or other character may be represented by a certain combination of these distributor segments, and when that combination is recorded
65 the proper selecting magnet or magnets of the perforator or printer will be operated.

With reference to the details of the drawings, a source of light 4 is associated with lenses 5 and 6 and a disk 7 which has a series
70 of holes 8 near its periphery to scan the area 9 covered by the letter, from which area the light is reflected to a photo-electric cell 10. For an amplified description and discussion of this television apparatus, reference may
75 be had to the Bell System Technical Journal, Vol. VI, pages 551 et seq., October, 1927.

Associated with the output circuit of the photoelectric cell 10 are the vacuum tube
80 amplifiers 11 and 12 together with the usual resistances 13 and 14. The plate-filament circuit of the amplifier tube 12 is connected to a series of magnets 15, 16, 17, 18 and 19, which are the selecting magnets forming a
85 part of a perforator or transmitter, and to the arm 20 of a distributor which has a series of segments 21. A motor drives the disk 7 and the arm 20 of the distributor. With the revolution of the disk 7, which has holes
90 through it, as described in the above identified publication, the area 9 is scanned. Since the cell 10 is sensitive to light, it will be operated when the beam from the source 4 falls on an uncovered portion of the area 9 and
95 will be unoperated when the beam falls on a portion covered by the letter or other character. With the amplifier arrangement specifically disclosed, it will be understood by those skilled in the art that upon the inspection of a light portion of the area 9, the cur-
100

rent in the plate filament circuit of the tube 12 will be decreased, and that upon the inspection of a dark portion of the area, the plate filament current of that tube will be increased.

The rotation of the arm 20 of the distributor is synchronized with the revolution of the disk 7, and accordingly the arm 20 makes contact in sequence with the one hundred segments of the distributor in accordance with the scanning of the sub-areas of the area covered by the letter which is being read. From an examination of the area covered by the letter "I" in Fig. 3, it will be seen that this area may be divided into a number of sub-areas corresponding to the segments of the distributor—in the case specifically disclosed, this number is one hundred.

The operation of the proper selector magnet or magnets to produce the code symbol corresponding to any given character is a problem which has been solved in the art of printing telegraphy. It will, however, aid the understanding of my invention to disclose specifically a few examples of connections from the segments 21 to the magnets 15, 16, 17, 18 and 19. Reference may now be had to Figs. 2 and 3 in particular.

It is seen that the character "I", the first example shown, covers areas 15, 25, 35, 45, 55, 65, 75 and 85. For the "reading" of this character, two of these areas, 85 and 65, are chosen, and connection is provided from segment 85 of the distributor to magnet 16 and from segment 65 of the distributor to magnet 17. In response to the scanning of areas 65 and 85, magnets 17 and 16 will operate, and there will be produced the code to give ultimately at the receiving end the letter "I". Of the areas covered by the letter "J", areas 17, 85 and 47 are selected, and connections from the distributor segments are provided to produce the operation of magnets 15, 16 and 17 and the ultimate printing of the letter "J". For the letter "K", four areas, 63, 35, 13 and 44 are chosen, and connections from the corresponding distributor segments are provided to cause the operation of magnets 15, 16, 17 and 18. A single area, 14, is selected for the letter "T", and segment 14 is connected to magnet 15. In the case of the letter "U", areas 63, 85 and 13 are selected, and the corresponding segments are connected to magnets 15, 16 and 17.

It will be understood that my invention is not limited to the use of any particular code, nor is it necessary that any particular number of sub-areas should be scanned with the corresponding like number of distributor segments employed to provide the connections to the selecting magnets. It is enough that a number of sub-areas be employed which is suitable to the proper scanning of a letter or other character and that the num-

ber of distributor segments correspond thereto.

In general, while the invention has been disclosed in a specific embodiment, which at present I deem desirable, it is to be understood that it is capable of embodiment in many other and widely different forms within the scope of the appended claims.

What is claimed is:

1. The method of "reading" characters and converting them into a telegraph code, which consists in scanning the area of a character, causing the characteristics of the area scanned to control the operation of a single light-sensitive device, and operating selecting means in accordance with the operation of the light-sensitive device.

2. A device for converting characters into a telegraph code, comprising a single light-sensitive device, a source of light, means for scanning the area of a character and controlling said light-sensitive device in accordance with the characteristics of said area, a plurality of selecting elements, and means for controlling the operation of said selecting elements in accordance with the operation of said light-sensitive device.

3. A telegraph reading machine comprising a photo-electric cell, a source of light, means for scanning the area covered by a character and for controlling the operation of said photo-electric cell in accordance with the light and dark portions of said area, a plurality of selecting magnets, and a distributor having a rotating arm connected with the output circuit of said photo-electric cell, said distributor being adapted to control the operation of said selecting magnets.

In testimony whereof, I have signed my name to this specification this 28th day of June, 1929.

RALZEMOND D. PARKER.