

July 31, 1934.

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1,968,287

DEVICE FOR TRANSLATING SIGNS AGREED UPON

Filed July 21, 1933

2 Sheets-Sheet 1

Fig. 1.

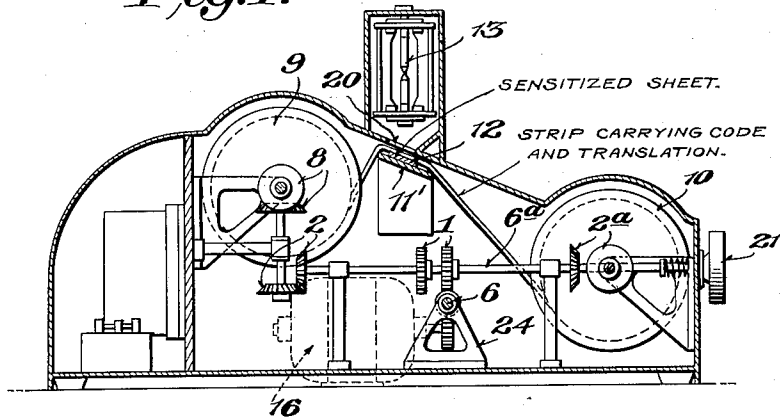
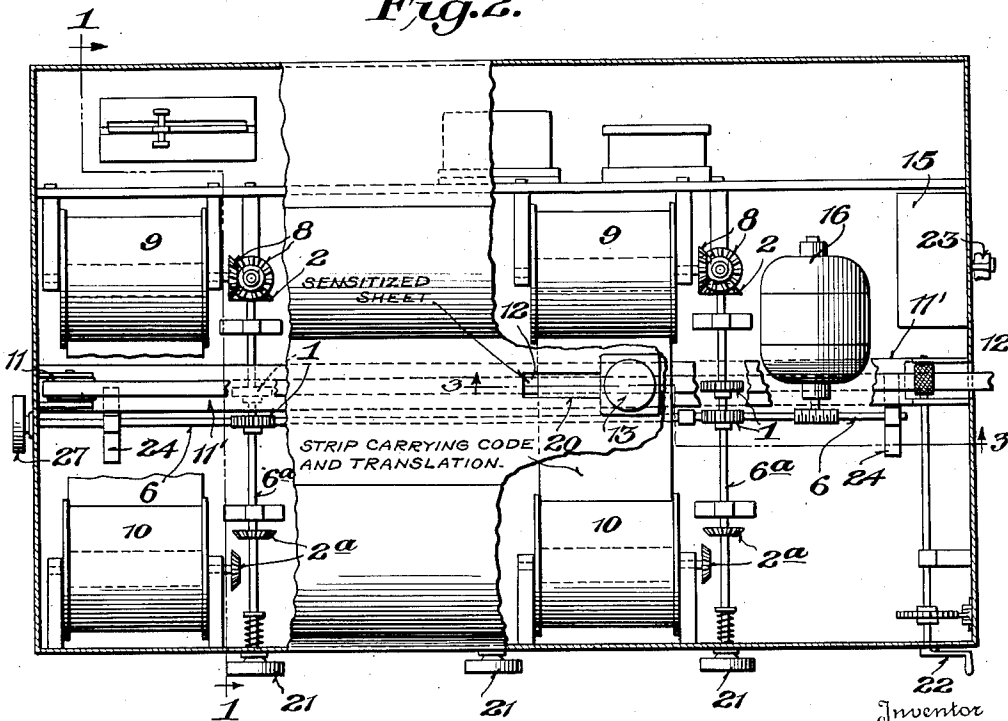


Fig. 2.



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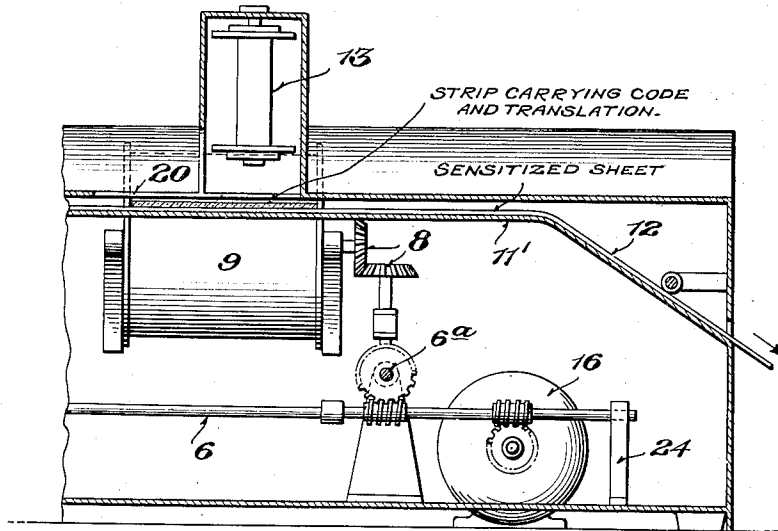
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Fig. 3.



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UNITED STATES PATENT OFFICE

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DEVICE FOR TRANSLATING SIGNS
AGREED UPON

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3 Claims. (Cl. 35—13)

This invention relates to a device for translating signs agreed upon.

For translating conventional signs, e. g. by means of a code agreed upon in transmitting messages, and, in general, when interpreting into another medium, no matter whether the translation of the signs agreed upon finds expression in writing, words or pictures, the only means and devices known hitherto require a knowledge of the code, language or the like concerned by the operator. It was therefore unavoidable that the correctness of translations effected by means of known devices depended to a large extent upon the attentiveness of the operator, and another drawback was that the translation could not be kept secret and subsequent improvements or changes of the translated text could not be checked.

The invention has for its object to eliminate the sources of error connected with the known kinds of translations and also to do away with the necessity of effecting the translation by a specialist who must know the meaning of the translation or be at least more or less initiated into what is going on by mechanizing the translating operation to a great extent or by fixing the translated signs in their translated meaning in an essentially automatic manner.

Proceeding from this fundamental idea, the invention covers also other spheres of application and possibilities of extraordinary importance, which will be discussed in detail below.

The invention principally consists in the steps firstly selecting from the whole complex of signs in question, which are suitably arranged preferably in alphabetical order, the sign to be translated, the selection automatically adjusting the corresponding translation in proper position to a reproducing device, and then of reproducing the translation.

In the most simple embodiment of the invention the signs to be translated with their respective bystanding translations preferably in alphabetical order are arranged on one or several strips of paper or the like, the side of the strips which contains the translated signs being transparent. Every one of these strips is disposed on a combination of 2 rolls so that by means of these rolls, the strips are moved past a corresponding observation slit.

When the sign to be translated appears in the observation slit, the rolls are stopped and now the standing by translation is reproduced by means of an illuminant positioned in such a manner that the transparent side of the strip

containing the translation is illuminated on an optically sensitive sheet located under the transparent part of the strip.

The combination or combinations of rolls taking up the strip or strips is or are preferably disposed, together with the entire apparatus, in a suitable casing. They are driven by a reversible electric motor, the speed of which can be regulated by a starting resistance. The observation slit for every strip is, as a rule, proportioned so that only one line is visible therein at a time. Transversely to the paper film moving over every pair of rolls runs underneath a narrow film of sensitized paper, which is manually or mechanically moved independently of the roll drive. On the other side of the sign strip a relatively powerful illuminant is positioned. The user of the apparatus causes the sign strip to roll off in front of the observation slit until the word to be translated appears therein, whereupon the strip is stopped and the translation found alongside the word concerned transmitted from the transparent strip by the illuminant to the sensitized film underneath, the latter moving transversely to the transparent strip. The sensitized film is then moved to the extent of the exposed section thereof corresponding to the length of the word, and the roll combination continues its motion to enable the operator to pick out the next word for translation. In this way the entire translation is consecutively recorded on the narrow sensitized film which passes underneath of, and transversely to, the paper film and which is transported a corresponding distance after each representation of a word, so that this sensitized film need merely to be developed when a translation is finished, and then torn off.

Although the above-described simplest application of the invention permits a translation of signs of any kind without depending on the skill of the operator or on his knowledge of the meaning or translation of the symbols concerned, it still requires some attention to insure the proper adjustment of the sign to be transmitted or translated relative to the observation slit, to expose the sensitized strip and to continually repeat these operations without mistake and so rapidly that the translation is effected at sufficient speed.

For this reason, the invention provides that the fundamental idea as described be carried out fully automatically, which can be done in various ways.

By way of example, various forms of the devices for carrying out the new method are illus-

trated in the accompanying drawings, wherein Fig. 1 is a section on line 1—1 of Fig. 2;

Fig. 2 is a top plan view partly broken away and in section;

5 Fig. 3 is a section on line 3—3 of Fig. 2.

In the simplest form of the device as shown in Fig. 1, 9 and 10 denote the two rolls forming a pair, one of which is driven by the motor 16 by means of the main shaft 6 arranged on the brackets 24 and thus by the shaft 6a by means of the toothed wheels 1 and a bevel gear 2 and 8 or 2a, so that both members of the pair of rolls are rotated in the same direction, the paper strip carrying the signs with their translation moving from one roll to the other in the manner described. Transversely to, and underneath of, this strip a narrow sensitized film 12 passes over the member 11 and is illuminated by the illuminant 13.

20 One or the other roll system is started in this case by means of a knob 27 which causes the main shaft 6 to be correspondingly shifted. For starting the motor a regulatable resistance 15 controlled by a switch handle 23 is provided. The forward and backward motion of the rolls is regulated by the knobs 21 whose position of the illuminant is started by a switch at the moment the sign is ascertained, which regularly and automatically takes place when the rolls stop. The crank 22 regulates the feed of the sensitized film 12 moving transversely to the paper strip.

The device operates as follows:

By means of the knob 27 the main shaft 6 is brought into engagement with the roll combination on which, in alphabetical order, the sign to be selected is found. Then the motor 16, preferably driven by lighting current reduced to low voltage by a small transformer, is started by the rotor 23, and the paper film begins to unroll before one of the observation apertures 20. As soon as in alphabetical order the sign to be selected approaches the aperture 20, the motor is slowed down to insure accurate adjustment of the word at the last moment before the opening 20.

The motor is stopped at this moment and the illuminant 13 started, whereupon through the transparent paper film the translation of the word selected is reproduced on the sensitized paper strip. When this step is completed, the sensitized film is moved by means of the crank 22 and the next word ascertained in the same way.

The sensitized paper strip which at the completion of the work contains the translations in their proper order preferably passes directly into a developing chamber connected with the device, wherein it is automatically developed and dried. The finished legible translation is placed in a container that is preferably capable of being locked and can then be taken out as required. The paper reels 9 and 10 are caused to roll back into initial position by reversal by means of the knobs 21 when the translation is finished.

I claim:

1. A device for translating signs or codes or the like, including a housing having an observation opening, a strip bearing the matter to be translated having a transparent portion bearing the translation, the transparent part of the strip appearing in the observation opening, a source of light adjacent to the observation opening to project its rays through the latter thereby to reproduce the translation on the sensitized sheet when the translation is in register with the opening, a sensitized sheet, means to move the strip across the observation opening, and means to move the sheet whereby to successively reproduce thereon the translations on the transparent part of the strip.

2. A device according to claim 1, in which the sheet is moved in a line transverse to the line of movement of the strip.

3. A device according to claim 1, in which the illuminating means is arranged over the observation opening so that it covers and renders the translation appearing in the opening illegible to the operator whereby to prevent the latter from viewing the translated matter.

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