Fig. 9 is an electrical and mechanical timing chart for the device.

Fig. 10 is an isometric view of portions of the record tape and the pin belt showing the respective arrangements of perforations in the former and set pins in the latter according to the standard Braille code.

Fig. 11 illustrates a pin belt in which some pins have been set for sensing and others restored to their neutral positions.

Fig. 12 shows the essential procedure for punching holes into the pin belt for yieldably holding the movable pins.

Fig. 13 illustrates further details of the process by which the pin belt is prepared and the positions taken by a pin in the pin belt when a pin is set to be sensed or restored to its neutral position.

In Fig. 1 is shown a preferred embodiment of the invention wherein a previously prepared record tape 20 is fed from a hopper 21 through a guide 22 to a sensing station 23 where information contained in the record tape 20 is sensed and analyzed in a manner similar to that shown in U. S. Patent No. 2,378,371. Thereafter, the information is passed on to the remaining mechanism of the subject invention, as hereinafter explained, and the tape 20 is fed into a receiving hopper 24. The sensed information is translated by the previously mentioned mechanisms and caused to actuate pins 25 to protrude from a pin belt 26, as shown in Fig. 11. The pins 25 are arranged in the pin belt 26 (see Fig. 11) in character groups 27 of six pins each to correspond to standard Braille character groups. The pin belt 26 is caused to move in the direction of the arrow shown in Fig. 1 so that the fingers of the hand of a person skilled in reading Braille characters may sense the positions of the protruding pins 25 as they are presented and thereby receive the information previously set up in the prepared record tape 20. The record tape 20 and the pin belt 26 are synchronized while any character group is being set into the pin belt 26; however, after a character group of set pins 25 in the pin belt 26 progresses beyond the reading area 28 the pins 25 are reset to their neutral positions so that other new settings can be made representing other new information being received from the record tape 20.

The rate of progress of both the record tape 20 and the pin belt 26 is controlled by the speed of a driving motor 29 (see Figs. 2 and 3) which is controlled by the switch 30 and the rheostat 31 (See Fig. 3), both of which controls are operated by the person who is reading the Braille character groups. These controls may be combined in a conventional manner to be operated by a foot pedal.

With reference to Fig. 2 and Fig. 3, when the previously mentioned switch 30 is closed the motor 29 and the clutch magnet 32 are energized to operate. A detailed description of the electrical circuits will be made later herein.

In Fig. 2 are shown the principal operating elements of the invention. The motor 29 through a belt 33 and a pulley 34 causes a shaft 35 to rotate in a predetermined direction. The previously mentioned clutch magnet 32 controls a clutch mechanism 36 (similar to that disclosed in U. S. Patent No. 2,378,371) which couples shaft 35 to another shaft 37. Shaft 37 is the main drive shaft for the mechanism which receives the prepared record tape, and, in addition, carries cams for operating electrical circuits which are described later herein. A drive gear 38 which meshes with an idler gear 39 to drive another gear 40 is attached to shaft 37. The gear 40 is fastened to a shaft 41 which is the main drive shaft for the mechanism which operates the pin belt 26. The gear ratios are so selected that shaft 41 will make one complete revolution for each complete revolution of shaft 37. A worm gear 42 is attached to the end of the shaft 41 to mesh with a worm gear 43 attached to a shaft 44; the gear ratio of these worm gears is one-to-one.

One revolution of shaft 37 represents one machine cycle during which a length of the record tape 20 progresses sufficiently to permit the succeeding group of punched designations to be sensed, and the pin actuating mechanism actuates pins in the pin belt 26 corresponding to the sensed designations in the record tape. Cycles of operation will be repeated as long as the switch 30 remains closed.

During the first part of each cycle, the record tape 20 is advanced to bring a new group designation into sensing position. With reference to Figs. 2, 4, and 5, the advancing mechanism consists of a cam 45 mounted on the shaft 37 and cooperating with a rocking lever 46 pivoted on a stud 47. In Fig. 5 the cam 45 and the lever 46 are shown in the starting position. When cam 45 starts to rotate, as indicated by the arrow, the lever 46 will rotate in the same direction due to the action of the spring 48 urging the cam follower 49 to follow the cam 45. Near the end of the cycle the action of the cam 45 on the cam follower 49 will rotate the lever 46 in the opposite direction. A link 50 pivoted on lever 46 is fastened to another link 51 by means of a stud 52. Link 51 is pivoted at one end on a shaft 53 to which is connected also a ratchet wheel 54. A pawl 55 is pivoted on the stud 52 and is secured to the other end of the link 51 by means of a spring 56. The action of the mechanism just described causes the ratchet 54 to be advanced by the pawl 55, in the direction indicated by the arrow, when the lever 46 begins to rotate due to the action of spring 48 at the beginning of each cycle while the link 50 will cause the pawl 55 to move upwards to engage the next tooth of ratchet 54 when the lever 46 is acted on by the cam 45 near the end of each cycle. A detent wheel 57 fixed to the shaft 53 and a cooperating roller 58 (see Fig. 2) prevent the ratchet 54 from reversing when the pawl 55 moves over it near the end of each cycle.

The shaft 53 is provided with a sprocket wheel 59 having radially extending pins 60 which engage perforations 84 (see Fig. 10) in the record tape 20 to advance it a predetermined distance when the shaft 53 rotates. The record tape 20, having perforations indicative of previously recorded informations, is caused to progress over a sensing station comprising six sensing pins 61, there being one sensing pin for each coded hole perforation in the record tape 20. When a group designation in the record tape 20 is advanced to the sensing station by the progress of the tape, the pins 61 will be aligned with their respective coded perforations in the record tape 20. Guide blocks 62 and 63 and their corresponding guide openings in a table 64 and a gate 65 (see Fig. 8) permit the sensing pins 61 to move upward in their respective sensing positions to engage and occupy perforations in the record tape when such perforations exist.

Each sensing pin 61 is supported by and oper-