

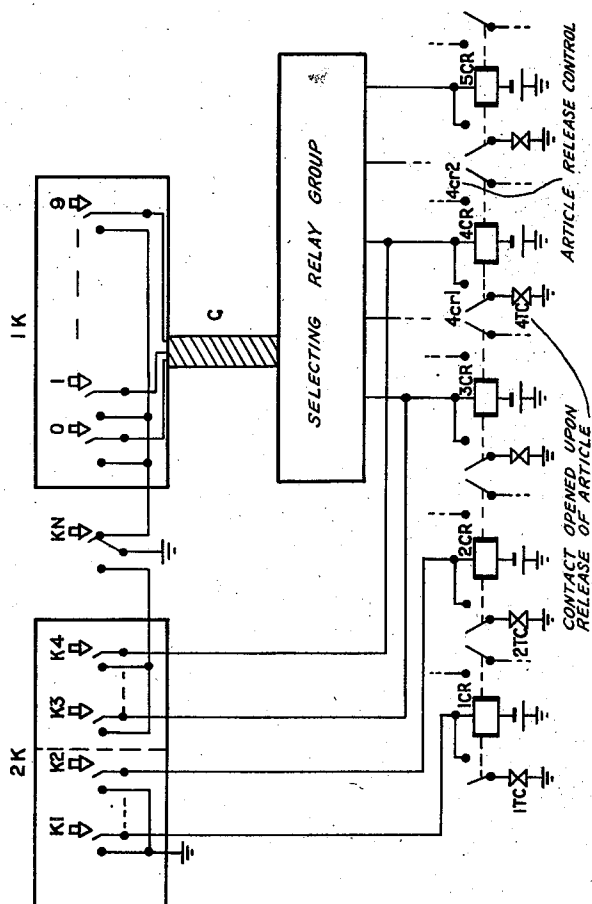
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KEYING ARRANGEMENT FOR ARTICLE DISPENSING SYSTEMS

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KEYING ARRANGEMENT FOR ARTICLE
DISPENSING SYSTEMS

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1 Claim. (Cl. 177—353)

1

The invention relates to article dispensing systems and more particularly to keying arrangements in such systems.

Article dispensing systems are known in which articles of various kinds are stored in individual shelves, and keying arrangements are provided to select one or more articles from its respective shelf. In one form of these arrangements, a separate key is provided for each kind of article, and these keys are electrically connected with a release mechanism of a corresponding shelf, so that when a key is operated an article is released from the appropriate shelf.

When, however, a great number of different kinds of articles has to be dispensed it is impracticable to provide a separate key for each kind of article, as this would necessitate a large keyboard which would be difficult to handle.

To overcome these difficulties, other keying arrangements have been proposed in which a limited number of keys is used to select a far greater number of articles. In this latter case, the articles are identified by a stock number or code, the digits of which are keyed up on the keyboard.

Although this latter arrangement reduces considerably the number of keys necessary to key up a great number of various kinds of articles, another disadvantage arises. When, for example, more than a hundred different kinds of articles have to be selected, three-digit stock numbers have to be used to select each individual article. This again necessitates the operation of three keys in succession, to release one article from its storage shelf.

When an article is in big demand a considerable time is lost when the operator has to key the three digits of the stock number of the same article again and again to get this article out of its appropriate shelf.

To overcome this advantage and at the same time to keep up the advantage of the comparatively small number of keys for the selection of a great number of different articles, it is a feature of the invention that the release devices for the different kinds of articles are selectively actuated by the operation of electrical contact members in accordance with the code allotted to each kind of article, while additional electrical contact members are provided to selectively actuate the release devices for those articles which are in big demand directly, by a single operation of a corresponding additional contact member. The two groups of electrical contact members may be operated by two sets of keys. Thus the operator

2

can key up the articles in big demand by pressing the individual key designated for each article, while a great number of other articles can still be dispensed by the digit keying method.

According to another feature of the invention switching means are provided by which the release devices for certain kinds of articles can be connected alternatively with the code selecting contact members and the direct selecting contact members. This latter arrangement is especially useful when certain articles are required to be available after hours, and when no operator is present and the customer himself has to operate the keyboard. The customer then presses the key designated for the wanted kind of article excluding any errors which might occur if the customer had to key up the digits of a stock number or code.

According to a further feature of the invention additional contact members may be provided to select directly additional kinds of articles which cannot be selected over the code-selecting contact members. This feature is useful for those articles which are in such constant demand that it will never be desired to select them by digit keying.

The invention will be more clearly understood from a description of an embodiment thereof in connection with the drawing showing schematically the circuits for the new keying arrangement.

In the circuit shown, the keyset 1K is provided with a row of keys as indicated by the keys 0, 1 . . . 9. This keyset 1K is connected over the cable C with the selecting relay group SRG details of which are not shown in this drawing as they are not part of this invention. A selecting relay group of this type is shown for example in U. S. application Serial No. 110,149 by Peter L. Law for "Improvements in Selection Circuits" filed August 13, 1949.

The selecting relay group SRG is connected with relays which operate the release devices of the individual shelves of selected articles. These relays are indicated by the relays 3CR, 4CR and 5CR, the number of relays depending solely on the number of different kinds of articles that have to be selected.

Each kind of article corresponding to one of the relays 3CR, 4CR . . . is identified by a stock number or code, and when an article has to be selected from its corresponding shelf, the keys representing the various digits of the stock number of this article are pressed, and the selecting relay group SRG establishes a connection between the keyset 1K and the relay corresponding

to this article so that a circuit is closed from earth over the switch KN, the operated key corresponding to the last digit of the stock number and the selecting relay group SRG, one of the relays 3CR, 4CR or 5CR (according to the selection) to battery. One of these relays, for example, 4CR operates and closes a locking circuit for itself over the trip contact 4TC, its own contact 4cr1, relay 4CR to battery. Thus the relay remains locked when the key at the keyboard 1K is released, until an article is released from the corresponding shelf and temporarily opens the trip contact 4TC.

This interruption of the contact 4TC interrupts the locking circuit for relay 4CR which thus releases. The release of the article itself from the shelf is performed in any known manner and only schematically indicated by the contact 4cr2, which closes a circuit for a magnet, clutch or the like to release an article.

While thus the articles depending on the relays 3CR, 4CR, 5CR and further corresponding relays are selected in the manner described before by keying up the digits of their stock number at the keyboard 1K, other articles can be released by the single operation of a corresponding key designated for the particular article. This is shown in the drawing by the keys K1 and K2 of the additional keyboard 2K.

As can be seen from the drawing the key K1, for example, is directly connected with the relay 1CR, corresponding to a certain kind of article, whilst the key K2 is directly connected with the relay 2CR corresponding to another kind of article.

The relays 1CR and 2CR respectively operate over their trip contacts 1TC and 2TC in the same manner as described before for the relays 3CR, 4CR and so on.

To release an article from one of the shelves connected with the relay 1CR or 2CR, it is only necessary to press the key K1 or K2 once to operate the release device. As a result considerable time is saved when articles in big demand are selected in this latter manner.

Further provision is made to release articles by direct operation of a designated key when necessary, for example, when no operator is present. To achieve this result, a switch KN is provided, which can be switched over when required.

In the keyboard 2K further keys K3, K4 and so on, are provided, and designated for particular articles.

The key K3, for example, is connected with the relay 3CR and the key K4 with the relay 4CR, and when the switch KN is switched over, earth is connected with the keys K3 and K4 so that by operating one of these keys, the relays 3CR and 4CR respectively are operated directly by a single operation of the key. At the same time earth is

removed from keyboard 1K so that no errors can occur by false operation of the keys 0, 1 . . . 9.

The foregoing description shows the invention by way of example only. It must be understood that the keys can be combined in various ways without departing from the spirit of the invention. In some cases only the switch KN and the keys K3 and K4 are provided omitting the keys K1 and K2 for permanent direct keying. In another case only keys K1 and K2 are provided for some articles without provision of the keys K3 and K4 and switch KN.

In a further example the switch KN can be omitted and earth is always connected with the keyboard 1K as well as the keys K3 and K4 thus giving an opportunity at any time to key the article either directly or via the digit selection.

I claim:

A system for the storage and selective release of different kinds of articles wherein each kind of article is stored in a storage device and selectively released therefrom, comprising: a release device for each of said storage devices; a selecting switching device; selecting means for selectively operating any of said release devices, said selecting means comprising a first group of keys associated with certain of said kinds of articles, each key of said first group corresponding to one of the kinds of articles associated with said group, and a second group of keys associated with all of said kinds of articles, each key of said second group corresponding to a code digit; a switch interposed between said two groups of keys and operable to disable either of said groups while conditioning the other of said groups for operation; direct connections from said first group of keys to the release devices for the associated kinds of articles, each of these release devices being adapted to operate on the operation of the corresponding keys of said first group; and connections from said second group of keys over said selecting switching device to all of said release devices, each release device being adapted to operate on the successive operation of keys of said second group in accordance with the digits of the code allotted to the kind of article stored in the corresponding storage device.

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