

UNITED STATES PATENT OFFICE

2,690,913

MAGNETIC MEMORY DEVICE

Jacob Rabinow, Takoma Park, Md., assignor to the United States of America as represented by the Secretary of the Army

Application March 14, 1951, Serial No. 215,616

11 Claims. (Cl. 274-10)

(Granted under Title 35, U. S. Code (1952), sec. 266)

1

The invention described in the specification and claims may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates generally to new and useful improvements in recording and reproducing machines.

In the field of electronic digital computers and in work where voluminous records must be kept, it is important and desirable that vast quantities of data or information be stored in such a way that any specific part thereof may be quickly reached for reading or reference.

It is well known that coded and other forms of information can be stored on a magnetizable medium in the form of local "spots" provided that the medium possesses appreciable magnetic retentivity. My invention contemplates in its preferred form the use of magnetic surfaced discs so arranged that several thousand of them may be readily available for use in recording or reproducing information. It is a broad object of my invention to provide a novel recording and reproducing machine in which a plurality of records or discs can be stored and any one of them used at will.

The methods used by Government and business for keeping records have, in recent years, become of greater and greater importance. In industry the physical handling of goods has been mechanized to a very high degree while the handling of information has lagged behind. As the tempo of business operations increases it has been generally recognized that to maintain efficiency the handling of business data must be speeded up or the point of diminishing returns in the growth of the size of business enterprises may be reached sooner than would otherwise be the case. One of the preliminary functions of Government is, of course, the keeping of voluminous records particularly in such functions as the keeping of the census, social security, military personnel and inventory, weather bureau, Government control of prices and wages, allocations, etc.

It is important to point out that records are not made for the sake of history but must be made in a form which is readily available so that decisions for action can be intelligently based on the information contained in them. This means that the records must be both complete and readily available. Because of the volume of information which is involved in the above operations, three dimensional storage is

2

indicated. By three dimensional storage is meant methods of recording data which is then packed in solid form. Information can also be stored in a single dimension or in two dimensions and may be packed in two or three dimensions. For instance, storage of magnetic pulses on a wire is essentially of single dimension unless the wire is rolled up into a reel when it becomes three dimensional, but the access is still along a single dimension and the reel must be played out in order to reach a particular bit of data. Magnetic discs are frequently employed. This is essentially two dimensional recording and two dimensional storage. Recording on magnetic tapes is two dimensional while the storage is three dimensional. Tapes suffer from the same disadvantage of low access time as do wires.

My invention contemplates the use of disc recordings which are two dimensional but which are stacked in three dimensional arrays and which can be "played" without being moved from their stored position. An ordinary printed book is of the same type of recording machine except that the pages must be opened in order to be read. My invention results in a "book" in which the pages can be read without the book being opened.

By using magnetic discs, various types of information can be stored including, if necessary, the recording of ordinary voice sounds. Because of the rapid access possible, this device should find uses in fields heretofore unmechanized. For instance, it should be possible to record the telephone numbers of all the subscribers of a large city on one machine and have the machine operated directly by the person who is looking for information. The machine should be capable of keeping up with the dialing of a number and should be able to read back to this person the telephone number of any subscriber. The method of operation of such machine would become obvious after a study of the following specifications:

It is another object of my invention to provide an improved means for storing magnetic records and controlling the shifting action of the recording head whereby a record may be selected.

It is a further object of my invention to provide a recording and reproducing means which is relatively simple but of durable character and which is compact and relatively inexpensive to make.

Other objects and advantages of my invention will be understood by reference to the following specification and accompanying drawing where-