MACHINE METHODS OF ACCOUNTING

ALPHABETIC PRINTING PUNCHES

TABULATING cards, containing a printed record of data which have been recorded in the form of punched holes, place at the disposal of the Electric Accounting Machine user a file of unit documents from which complete information may quickly and easily be obtained by any of the following methods:

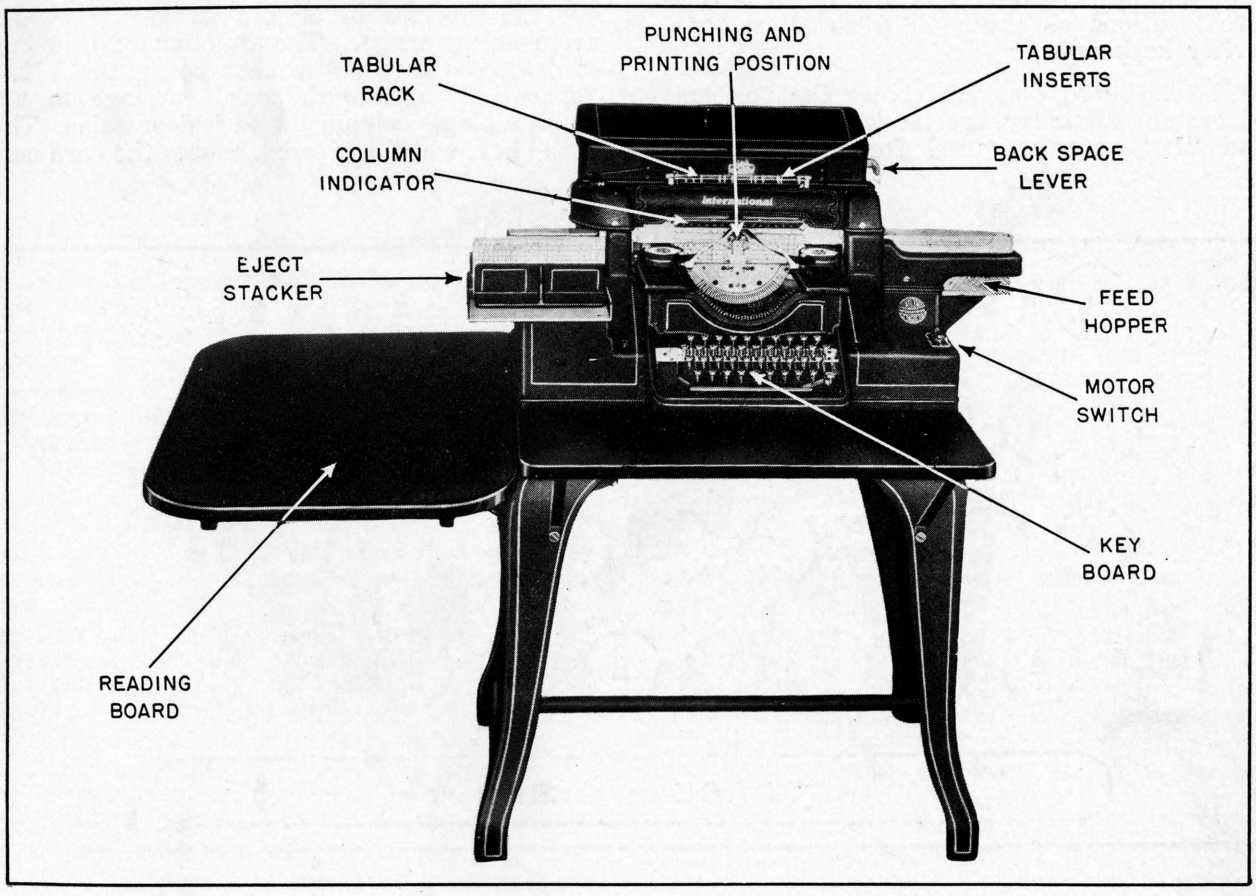
1. Accumulating and printing summarized reports on the Accounting Machine.
2. Printing on the Accounting Machine detailed lists of related transactions grouped according to various classifications.
3. Referring to the completely typed records of the transactions which appear along the top margin of the punched cards themselves in a readily visible position.

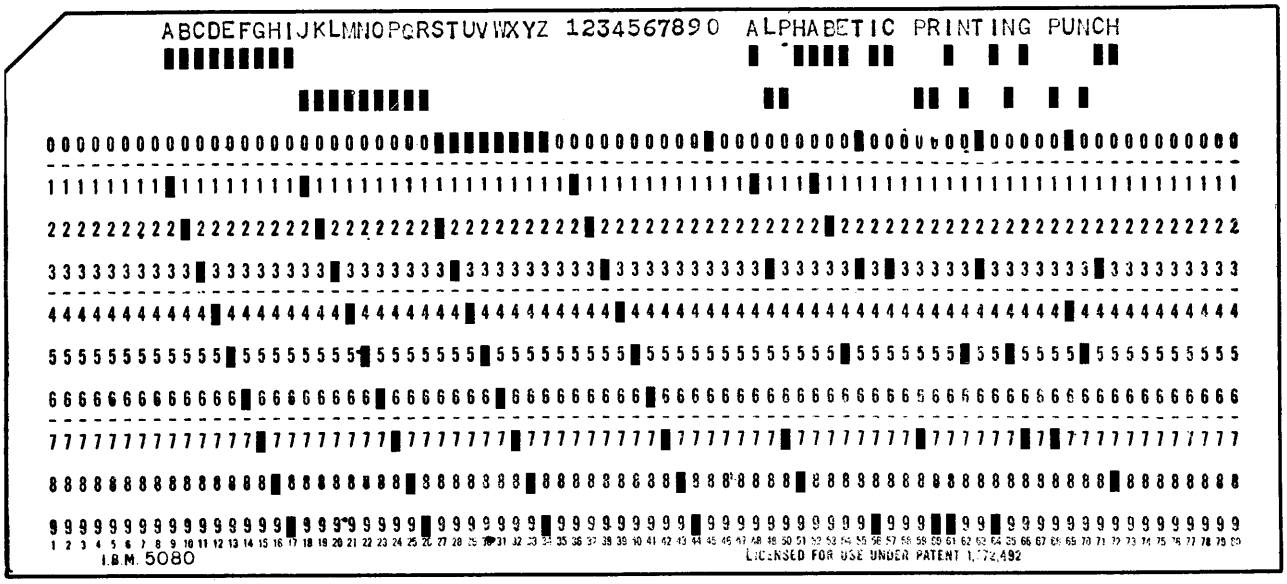
Although one may become adept at reading punched holes in tabulating cards, the value of the card for ready reference is enhanced by the use of a machine especially designed to punch and simultaneously print along the top edge of the card the information being recorded.

Alphabetic Printing Punch 031

The Alphabetic Printing Punch records both alphabetic and numerical data in tabulating cards in punched and printed form. The depression of a key causes the machine to punch the card and at the same time to print the corresponding letter or figure at the top of the card above the column being punched.

After a key is depressed, the card is automatically advanced to the next punching position. The machine operates in an entirely automatic manner. It is necessary for the operator merely to depress the keys as though typewriting.



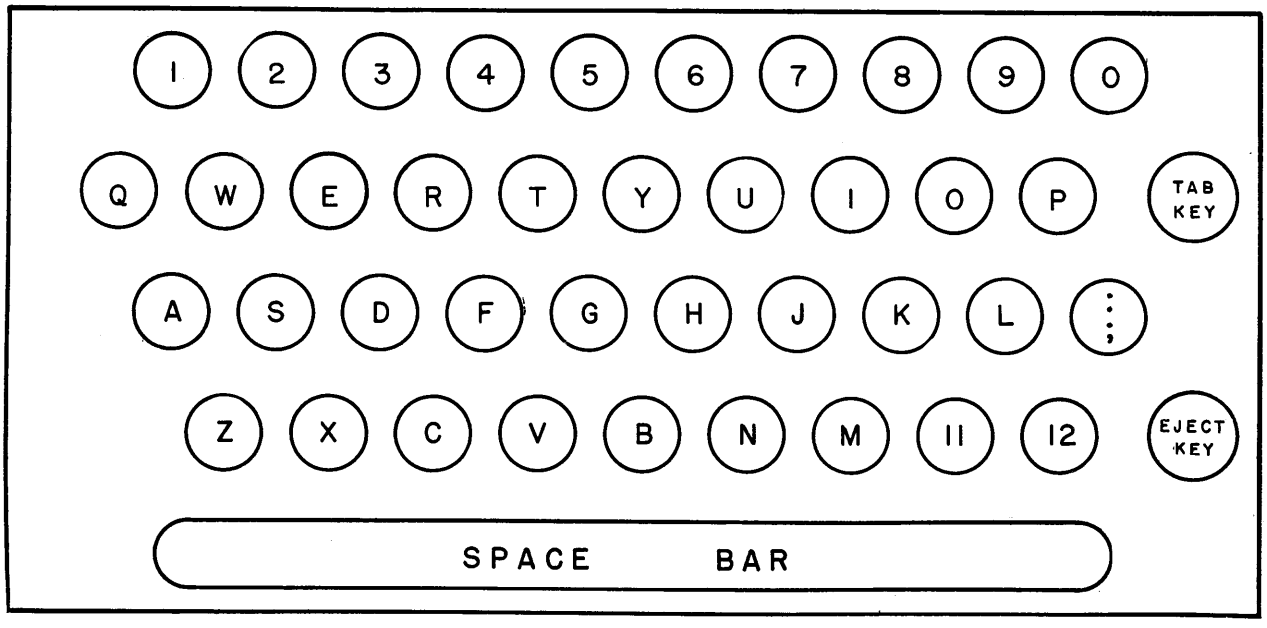


Keyboard

The machine is equipped with one keyboard which serves for both alphabetic and numerical recording. The entire keyboard assembly is like that of a typewriter. The alphabetic and numerical keys are in the same relative positions as those on a standard typewriter keyboard.

The keyboard diagram shows the positions of certain auxiliary special keys. The "11" and "12" keys are used for punching and printing individual X and R positions. The "colon, semicolon" key is a dummy key provided to complete the standard typewriter keyboard positions. It performs no function other than that of facilitating the use of the touch system of operation. The "ejector" key provides for the ejection of a card at any time and from any position. The function of this key is described in a subsequent paragraph. The "space bar" causes the card carriage to advance a single column for each depression. The "tab" key, when depressed, causes the card car-

KEYBOARD DIAGRAM



riage to skip to the column position following that in which a tab stop insert is placed, or to the 80th column if no tab stop insert intervenes.

A back space lever, located at the right of the tabular rack, as shown in the illustration of the machine, causes the carriage to back space one column for each depression.

The action of all keys is extremely light, since every movement is power-driven. The keys serve merely to engage the operating mechanism.

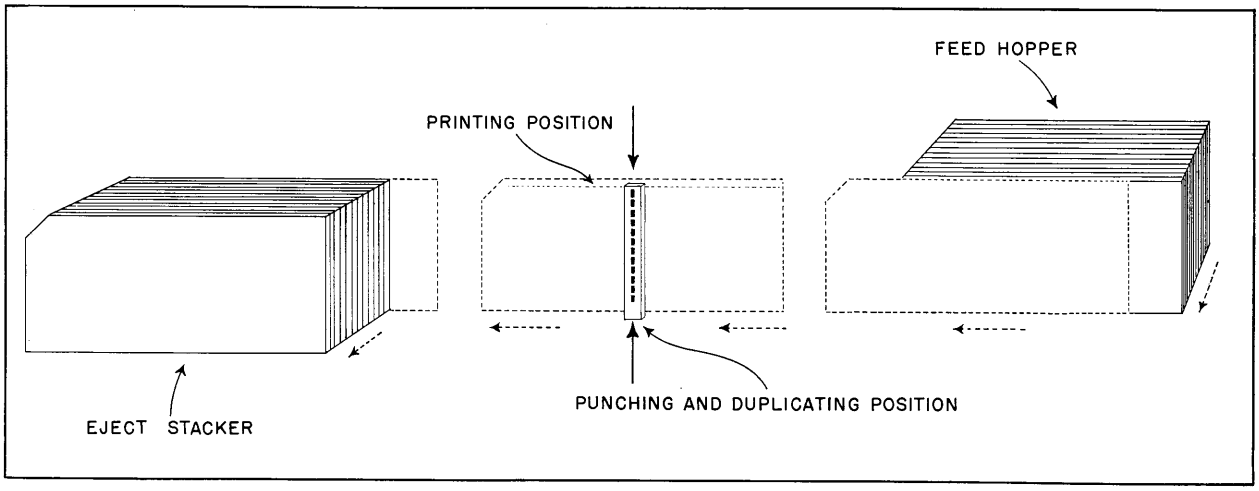
Operation

Blank cards are fed into the machine from a feed hopper located at the rear right of the machine in such a position that it may readily be refilled by the operator without moving from a seated position at the front of the machine. The capacity of the feed hopper is approximately 600 cards. The cards to be punched are placed in an upright position in the magazine. Pressure is exerted on them by a pressure plate. Each card is fed into punching position by a knife feed which takes the card from the pack by sliding it horizontally to the left, the card remaining in an upright position. The feeding operation is entirely automatic. As each punching key is depressed the carriage automatically advances one column. Upon completion of the desired punching, the card is ejected by the depression of the ejector key. This key must be used to eject the card regardless of whether the card is completely or partially punched. The ejecting mechanism causes the card to advance to a stacker. The stacker (capacity approximately 600 cards) is located in front of the machine and to the left of the operator. The ejection and stacking of cards is also an automatic operation.

Throughout the entire feeding, punching, and ejecting operations, the card remains in an upright position. The accompanying diagram illustrates the positions of the card and course of travel through the machine.

Recording

The depression of a punching key causes a clutch to engage a constantly running drive shaft. The engagement causes the proper punches to cut the card and simultaneously causes the proper type bar to print. The depression of a single alphabetic key causes the two holes, necessary for alphabetic recording, to be punched simultaneously in the card. In numerical punching only one hole is punched at a single depression of a key. In both cases, the symbol corresponding to the punching is printed at the top of the card and above the column punched.



The machine may be operated at a speed of 16 key depressions a second, a speed well above that required by the fastest operator.

Skipping

The machine is equipped with a skipping mechanism similar in operation to the tabular skip on a standard typewriter. A tabular rack is conveniently located at the top of the machine. It contains 80 slots, one for each column of a card, and thereby provides complete flexibility in skipping arrangement. Tabular inserts are placed in the proper column slots to govern column skips. For example, if it is necessary to skip from any preceding column to column 25, a tabular insert is placed in the "24" notch. At any time the tab key is depressed previous to this column, the machine will skip to column 25. It is not possible to

effect the automatic skipping of fields or positioning of cards without the depression of a key. All skipping, other than that accomplished by the use of the space bar and the ejector key, is governed by the action of the tab key and the positions of the tabular inserts.

The tabular inserts have, on one side, a slightly raised flange which, when inserted upright in the tabular rack, causes a bell to ring as the card carriage reaches the selected column position. Any number of inserts may be placed in this manner to cause the bell to ring at predetermined column positions of the card.

Motor Switch

The machine is equipped with only one switch, the motor switch, which is used to start and stop the driving motor. This switch must be ON while the machine is being operated.

Current

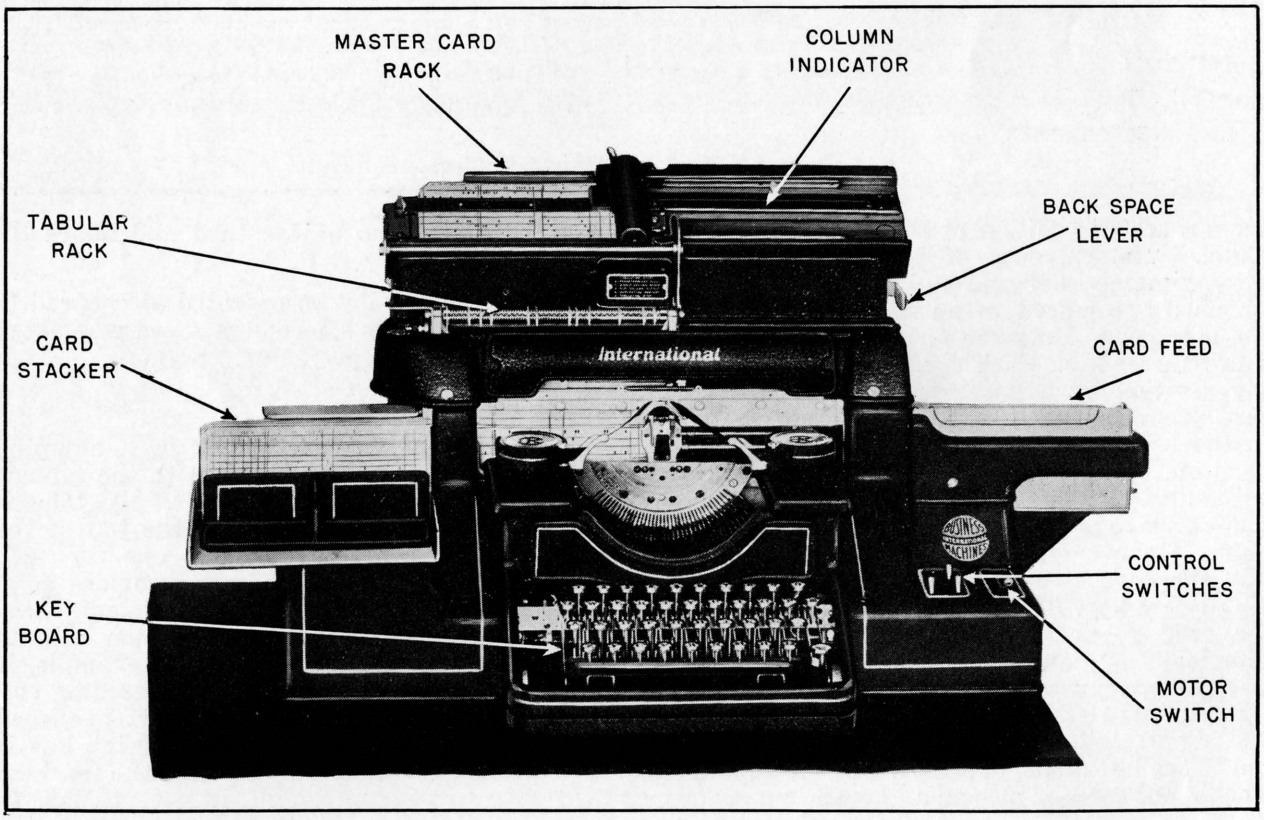
The machine is designed to operate on either alternating or direct current at 110 or 220 volts. The driving motor is supplied for operation on the current and voltage specified for the particular installation. The power consumption at 110 D. C. is five amperes for starting and one ampere for running loads, and at 110 A. C. it is seven amperes for starting and two for running. Two power outlets are incorporated to permit multiple coupling of machines for current supply.

Base

The machine is mounted on a base at the proper height for easy operation from a seated position. A large waste receptacle is located directly beneath the machine. This may be removed easily for emptying. A reading board of ample size is attached to the left end of the base to provide a place for records from which data are being punched.

Alphabetic Duplicating Printing Punch 034

The Alphabetic Duplicating Printing Punch is basically the same as the Alphabetic Printing Punch and performs all of the functions of which that machine is capable. In addition, it is equipped with a duplicating mechanism for automatic transcription of data from the punched fields of one card to the corresponding unpunched field of another card. A special



tabular arrangement with control switches is also provided by means of which the machine can be set to skip, space, duplicate, and eject automatically as required.

Duplicating Unit

All the information recorded in a tabulating card or any portion of it can be automatically reproduced on another tabulating card, in both printed and punched form, by the use of the Alphabetic Duplicating Printing Punch.

In order to transcribe automatically from a card, the card is placed in the master card bed and the door of the unit is closed by placing it down in the locked position. This raises a set of brushes which close an electrical circuit through each of the punched holes of the card on the duplicating rack in turn, and results in the automatic actuation in succession of the proper punching keys. The speed of the duplicating operation permits the reproduction of all columns of an 80-column card in 7½ seconds. All duplicated data are transcribed from specific columns of the master card to corresponding columns of the detail card: No transfer of punched and printed data to varying columns is possible. Certain tabular inserts, discussed below, control the recording of information from punched cards being duplicated.

Keyboard

The keyboard of this machine is the same as that of the non-duplicating Alphabetic Printing Punch.

Tabular Rack

The tabular rack, and the tabular inserts used with it, perform a very important function. Together with the control switches, they permit automatic control of all operations which can be predetermined, in any sequence or in any combination which may be required.

The tabular rack on this machine is similar to that on the Alphabetic Printing Punch.

Tabular Inserts

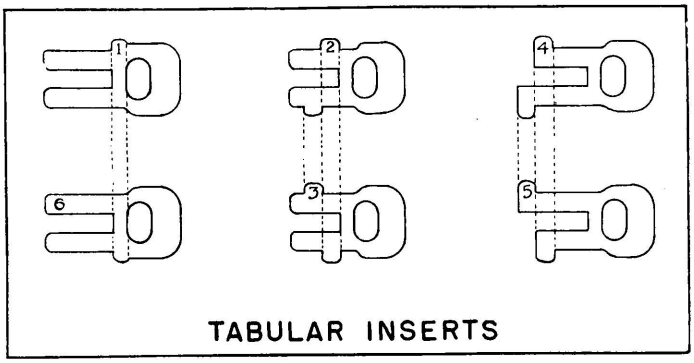
The tabular inserts automatically determine the action of the machine at or beyond the tabular rack column positions in which they may be placed. Three different kinds of tabular inserts are furnished with the machine, each of which is capable of controlling either of two different operations. In this manner any one of six operations can be predetermined for any column position. (These do not include automatic ringing of a bell in predetermined positions, which is a feature of the non-duplicating punch only.)

The operation which is controlled by any insert depends upon which "leg" of that insert is turned uppermost when it is placed in the rack. The operation controlled by each leg is identified by a number stamped on its left side, the six legs being numbered from one to six, as shown in the operating diagram. For convenience in the description of their use, these inserts are hereinafter referred to as Inserts Nos. 1 to 6, inclusive, as if there were actually six instead of three.

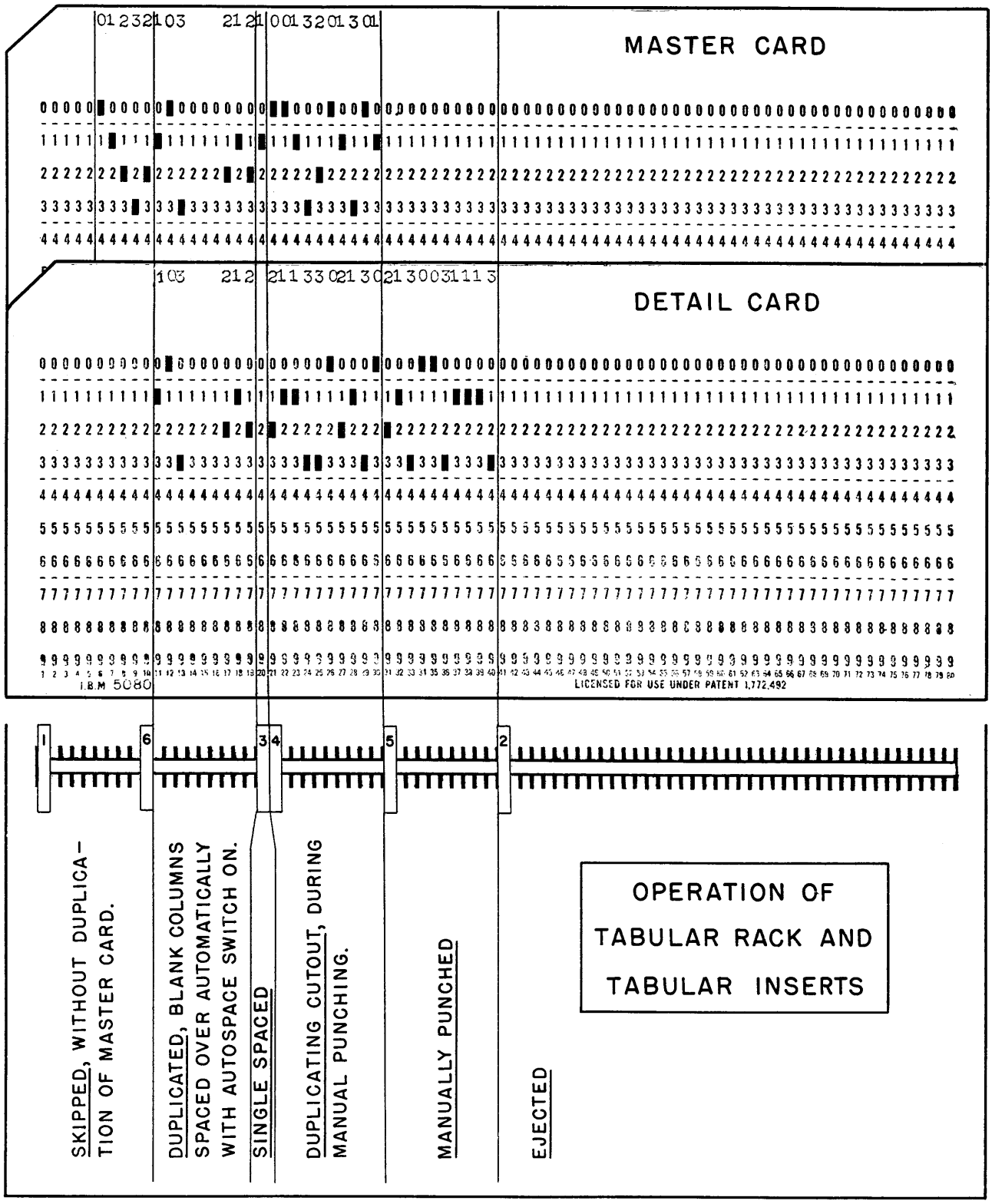
The tab start insert (No. 1), when placed in the rack with the "1" leg uppermost, causes the card carriage to tabulate (skip) automatically to the 80th or any intervening column. It must be placed in the column position following the last position punched, or, in other words, in the first column position to be skipped.

Any columns may be skipped manually by depression of the tab key or space bar on the keyboard. Duplication from a master card is automatically prevented in those column positions which may be skipped either by a tab start insert or by depression of the tab key.

The tab stop insert (No. 6), when placed in the rack with the "6" leg uppermost, stops any skip which may have been started either



TABULAR INSERTS


MASTER CARD
DETAIL CARD
I.B.M. 5080
LICENSED FOR USE UNDER PATENT 1,772,492
1
6
3 4
5
2
SKIPPED, WITHOUT DUPLICATION OF MASTER CARD.
DUPLICATED, BLANK COLUMNS SPACED OVER AUTOMATICALLY WITH AUTOSPACE SWITCH ON.
SINGLE SPACED
DUPLICATING CUTOUT, DURING MANUAL PUNCHING.
MANUALLY PUNCHED
EJECTED
OPERATION OF TABULAR RACK AND TABULAR INSERTS

automatically by a tab start insert or manually by depression of the tab key. This stop insert must be placed in the last column position to be skipped, or, in other words, in the column position preceding that in which punching is to be resumed.

Duplication will be resumed after a skip has been stopped by a stop insert, if the master card is punched in the corresponding column, or if the auto space switch is ON.

The single space insert (No. 3), when placed in the rack with the "3" leg uppermost, causes the card carriage to space over one column automatically. It must be placed in the column position which is to be skipped. Its use is necessary because tab start and stop inserts cannot both be placed in the same slot.

All information punched in a master card is normally duplicated in the detail cards, no tabular insert being required to start duplicating. The duplicating cutout insert (No. 4), when placed in the rack with the "4" leg uppermost, prevents duplication from that column position to the 80th or any intervening column position. This insert must be placed in the first column position which is not to be duplicated.

This insert need be used only when card columns which are punched in the master card must be key-punched differently in the detail cards, or to prevent automatic spacing over unpunched columns in the master card when the auto space switch is ON. When columns which are punched in the master card are to be skipped in the detail cards, tab start and stop, or single space inserts are used, and automatically prevent duplication while the card carriage is in motion.

The duplicating restart insert (No. 5), when placed in the rack with the "5" leg uppermost, causes the punch to "restart" (resume) duplicating from the master card. Unlike the tab stop insert, the duplicating restart insert must be placed in the column position in which punching (duplication) is to be resumed. Duplicating cutout and restart inserts may therefore be placed in adjacent slots to prevent duplication of any single column.

The eject insert (No. 2), when placed in the rack with the "2" leg uppermost, causes the card carriage to skip to the 80th column position and eject the card automatically, unless the eject stop switch is ON, in which case ejection will not take place. The eject insert must be placed in the first column position which is to be skipped for ejection. A card may be ejected manually at any time by depression of the eject key. Manual ejection is not prevented when the eject stop switch is ON.

Control Switches

The power switch and three control switches are located on the right side of the machine. The control switches play an important role in the automatic operation of the punch, as mentioned in the description of the tabular inserts.

The auto space switch is used only when duplicating from a master card. When turned ON, it causes the card carriage to space automatically over all columns which are unpunched in the master card. When detail cards are to be punched manually in some of the columns which are unpunched in the master card, automatic spacing over those columns must be prevented. This may be accomplished by using duplicating cutout and restart inserts, to prevent automatic spacing in certain columns; or by turning the auto space switch OFF, which will prevent automatic spacing in all columns.

The auto eject switch, when turned ON, causes automatic ejection of a card after its 80th column has been punched, unless the eject stop switch is also ON. Automatic ejection before the 80th column has been punched can be accomplished by using an eject insert, and is possible only when the eject stop switch is OFF.

The eject stop switch is turned ON to prevent automatic ejection when it is necessary to change the master card in the master card unit. After the new master card is in place, the detail card just punched is ejected either by turning the eject stop switch OFF or by depression of the eject key. This switch need not be used to prevent automatic ejection which would be caused by the auto eject switch, because the same result can be accomplished by turning the latter switch OFF. However, the eject stop switch must be used to prevent automatic ejection which would be caused by an eject insert. It is therefore desirable to use the eject stop switch habitually whenever it is necessary to prevent automatic ejection.