

G. TAUSCHEK

TABULATING MACHINE FOR BOOKKEEPING PURPOSES

Filed Feb. 8, 1929

2 Sheets-Sheet 1

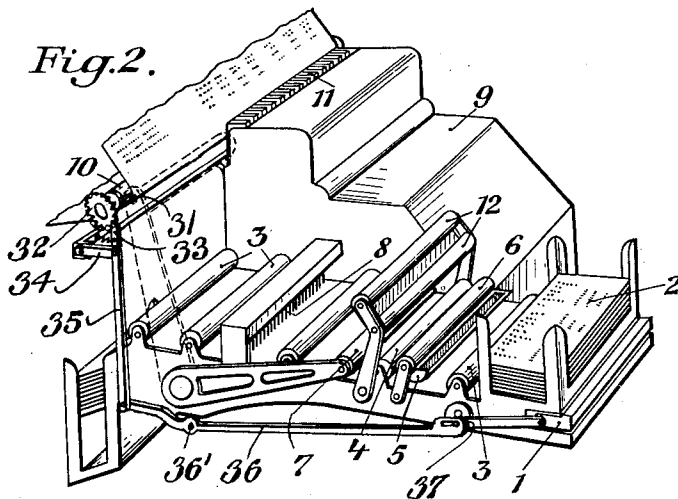


*Fig.1.*

| DATE | SENT FROM | SENT TO | AMOUNT TRANSFERRED | POSTAGE | CHARGES | INSURANCE | AMOUNT PAYABLE |
|------|-----------|---------|--------------------|---------|---------|-----------|----------------|
| ••   | •         | ••••    | •••••              | ••      | •••••   | ••        | •••••          |

Remitter: Alexander Schulz, Berlin, No Boxagenerstr. 7.

Payee: Friedrich Weiss, Frankfurt a/M. Kaiserstr. 51.

INVENTOR:  
GUSTAV TAUSCHKE  
BY  
*Stike, Kehlens & Hartog*  
ATTORNEYS.

Dec. 12, 1933.

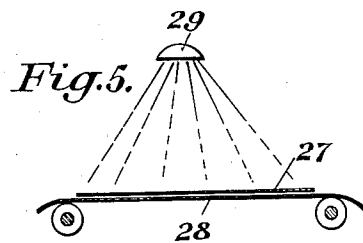
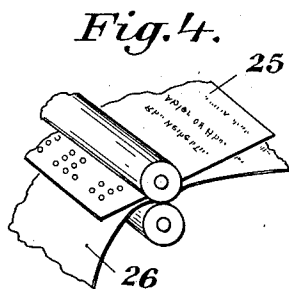
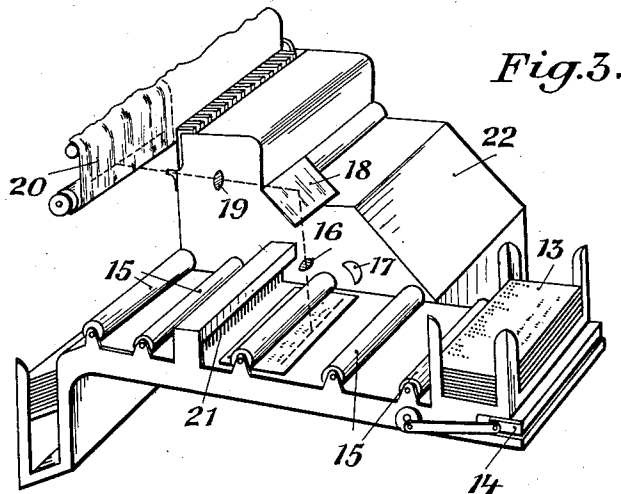
G. TAUSCHEK

1,939,089

TABULATING MACHINE FOR BOOKKEEPING PURPOSES

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

1,939,089

## TABULATING MACHINE FOR BOOKKEEPING PURPOSES

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17 Claims. (Cl. 101-93)

My invention relates to machines for tabulating the indications or data of cards. In contradistinction to the known tabulating machines which suppose a symbolic representation of the letter- and number-data of the cards by perforations or the like, the devices according to the present invention allow the tabulating of the characters provided upon the card by way of offset printing or photography.

The importance of the machine according to the invention will become most evident if it is considered that all codes necessary for the symbolic representation of the letters and numbers are dispensed with and therefore the symbols need not be retranslated again into their sense, which means a simplified construction of the machine. Furthermore the available space of the card may much better be used as all symbols, for instance combinations of holes and so on, are omitted which, of course, require much more space than the letters or numbers.

It is, of course, also evident, that the tabulating machine according to the invention may be used in combination with a tabulating machine of known construction which, for instance, operates on the basis of perforations provided in the card. Such a combination may preferably be used for the purpose of tabulating the letter data by way of photography or by way of offset printing, but of tabulating by means of the ordinary devices for feeling off the holes, counting- and printing-mechanism the number data which as a rule are to be subjected to a calculative interpreting operation such, as an addition or the like, and which are replaced or represented by perforated symbols.

The following description is based upon such a combined construction of the machine which will be explained in connection with the accompanying drawings in which:

Figure 1 illustrates by way of example a perforated card used in connection with machines according to the invention; Figure 2 shows a perspective view of a combined machine using the offset printing method; Figure 3 is a perspective view similar to Figure 2 but using the method of photographing and Figures 4 and 5 show details of other modes of carrying out the invention.

As may be seen from Figure 1, the perforated symbols for the number data are arranged in the upper half of the card, whereas the lower half of the card contains the written or printed notes. The card represented in Figure 1 may be used for the transmission of money and shows, for instance, a card which is usual in blanks- and

post-office services. The interpretation of the card for book-keeping purposes requires a repeated tabulating of the numbers as well as of the letter data, whereby simultaneously the number data must be added.

Figure 2 shows a tabulating machine which may be used for interpreting cards illustrated in Figure 1. By means of an oscillating knife 1 the cards are successively taken off from the pile 2 and are, by means of feeding rollers 3, passed first underneath a moistening roller 4 which is provided for the purpose of moistening the ink or colour by which the notes are made upon the card and in this manner adapting said ink or colour for the offset printing method. The nature of the moistening material depends upon the nature of the offset ink- or colour-material chosen. The moistening material is stored in an elongated receptacle 5 and is transferred to the moistening roller 4 by an oscillating roller 6 adapted to be dipped into the liquid contained in the receptacle 5. In the next phase of movement the card is passed underneath the offset printing cylinder 7 which, according to the offset printing method chosen, consists of rubber, cylinder material or the like. The cylinder 7 is used to take the colour off the card. The card is then passed underneath the feelers 8 which enter into the holes of the card and thereby effect the usual control of the counting and printing mechanisms of the tabulating machine 9. During this time the cylinder 7 is moved against the paper carriage 10 of the machine the width of which corresponds to that of the printing mechanisms 11 of the tabulating machine 9 and to the length of the cylinder 7. Hereby the offset printing cylinder comes into contact with the paper web, so that on the feeding of the paper web, after the operation of the printing mechanisms 11, the ink- or colour-material is transferred from the offset printing cylinder to the paper web. The printing and calculating mechanism may be constructed as shown and described in United States Patent No. 1,617,088. During the return movement of the offset printing cylinder into the original position this cylinder comes into contact with wiping or cleaning rollers 12 arranged in the path of movement of the cylinder 7. These rollers 12 remove the rest of the ink- or colour-material from the offset printing cylinder, so that the latter is ready for the reception of other data or notes.

According to the modification shown in Figure 3, the characters printed or written upon the card are transferred by optical means to the

paper web. By means of an oscillating knife 14 the cards are in this case also successively taken off from a pile 13 and are passed by feeding rollers 15 underneath an objective 16. As soon as the card arrives underneath the objective 16 a powerful source of light 17 becomes effective which, by way of the mirror 18 and a second objective 19, projects the image of the card upon a part of the paper web 20 which has been made light sensitive. The card is further advanced and passes underneath the feelers 21 which in a well known manner control the counting- and printing-mechanisms of the tabulating machine 22. As soon as the printing is effected, the paper web is advanced. As already mentioned the paper web has a light sensitive portion which is situated opposite to the objective 19 and a portion arranged opposite to the printing mechanisms which is not light sensitive. Of course, the light sensitive portion of the paper web is permanently enclosed in a light tight cover or casing, so that an exposure can only be effected through the objective 19. For the purpose of developing and fixing of the exposed portions of the paper web, the latter on its further way is passed through receptacles containing suitable solutions, whereupon said web finally passes a drying roller.

A further modification of this construction could result in replacing the type carriers of the tabulating machine 22 by stencil carriers, so that these data also could be projected upon the paper web which would then completely be made light sensitive.

In Figure 4 another manner of use of the offset printing method is shown. The front and rear surfaces of the card 25 carry text which at the rear surface is inverted. This may easily be obtained in a well known manner by arranging a carbon or the like colour-paper underneath the card the carbon or colour-face of which is adjacent the card and then making the impression or writing the text upon the card. These cards are fed in direct contact with the paper web and firmly pressed against each other as soon as they occupy the proper position, whereby the text is offset printed.

Figure 5 illustrates a corresponding modification for transfer by photography. In this case also the card 27 is brought into direct contact with the light sensitive paper web 28, whereupon a source of light 29 comes to action, so that the written data of the card are copied upon the paper web.

The paper web which is wound around the roller 31 may be advanced by means of any suitable mechanism. This mechanism may be composed of a ratchet wheel 32 fixed to the roller shaft, the wheel being engaged by a spring-pressed pawl 33. The latter is oscillated through the links 34, 35 and lever 36 pivoted at 36' to a fixed part of the machine. The lever 36 is oscillated by the crank disk 37 which may serve also to operate the knife 1.

The construction of the machine according to the present invention may, of course, be altered in accordance with the numerous kinds of offset printing- and photographic-methods, so that the machine may be employed with any and all of these methods.

What I claim is:

1. In a tabulating machine for book-keeping purposes, in combination an oscillating knife for taking off cards from a pile, feeding mechanisms for advancing said cards successively through the

machine, a receptacle arranged above the path of movement of said cards and containing a moistening liquid, a moistening roller arranged above the path of said cards, a transfer roller journaled in arms pivoted to the frame of the tabulating machine and adapted to be dipped into said receptacle, said moistening roller and said transfer roller being adapted to be rotated in contact with each other for the purpose of moistening the moistening roller underneath which the said cards are passed, an offset printing cylinder rotatably mounted in the free ends of arms the other ends of which are pivoted to the frame of said tabulating machine, wiping rollers journaled in arms of the said machine frame and adapted to be brought into the path of movement of said offset printing cylinder for removing ink or colour from said offset printing cylinder on its return movement after printing against an automatically advanced paper web carried by a platen arranged in a paper carriage provided at the end of the said tabulating machine opposite to that carrying the said pile of cards.

2. In a tabulating machine for book-keeping purposes, in combination an oscillating knife for taking off cards from a pile, feeding mechanisms for advancing said cards successively through the machine, feeler devices in said machine for feeding off said cards, and operative to introduce the interpreted values in a counting mechanism, printing mechanism adapted to transfer the result obtained by a calculative interpretation of a card to an automatically advanced paper web carried by a platen arranged in a paper carriage provided at the end of the said tabulating machine opposite to that carrying the said pile of cards, a receptacle arranged above the path of movement of said cards and containing a moistening liquid, a moistening roller arranged above the path of movement of said cards, a transfer roller journaled in arms pivoted to the frame of the tabulating machine and adapted to be dipped into said receptacle, said moistening roller and said transfer roller being adapted to be rotated in contact with each other for the purpose of moistening the moistening roller underneath which the said cards are passed, an offset printing cylinder rotatably mounted in the free ends of arms the other ends of which are pivoted to the frame of said tabulating machine, wiping rollers journaled in arms of the said machine frame and adapted to be brought into the path of movement of said offset printing cylinder for removing ink or colour from said offset printing cylinder on its return movement after printing against said paper web.

3. In a machine of the class described, in which printing is effected upon a web strip under control of perforated record cards, said record cards also containing printed data, and means cooperating with the printed data for transferring the data printed upon a record to the web strip.

4. In a machine of the class described, controlled by record cards containing perforated and printed data, a web strip receiving imprints designated by said perforations, and means cooperating with the printed data for transferring the printed data on said records to the web strip.

5. The combination with a tabulating machine provided with a printing mechanism set under control of card perforations to print data on a sheet, and an offset printing mechanism for reproducing adjacent the correlated data printed on the sheet the data printed on the card.

6. The combination with a tabulating ma-

chine provided with a printing mechanism including a platen carrying a sheet adapted to have printed thereon data represented by perforations of a controlling card, and an offset printing mechanism for transferring data printed by ink on the card to a part of the sheet carried by said platen.

7. The invention according to the preceding claim in which mechanism is provided for turning the platen after each printing operation by the printing mechanism to cause the transference of ink printed data on the common sheet.

8. In a tabulating machine, an offset printing mechanism adapted to cause the transference of data printed by ink on a controlling perforated card to a sheet, printing mechanism, and a perforation analyzing mechanism adapted to control the setting of the printing mechanism to print on said sheet coincidentally with the data transferring operation.

9. In a tabulating machine controlled by a card having perforations in one section thereof and characters printed by ink on a separate section, printing mechanism controlled by the perforated section for printing data on a sheet, and an offset printing mechanism correlated with the printed section of the card for transferring a reproduction of the ink imprint thereof on said sheet.

10. In a tabulating machine, printing mechanism and card perforation analyzing mechanism for controlling the setting of the printing mechanism to print a line of data on a sheet, said card having one or more lines of data printed by ink, and an offset printing mechanism including a roller receiving a reproduction of the data printed on the card for transferring the data printed by ink adjacent the line of data on the sheet printed by said printing mechanism.

11. In a tabulating machine, an offset printing mechanism including a roller receiving a reproduction of ink imprints on a card, a printing mechanism controlled by perforations in the card to cause printing of data on a sheet, and means for bodily shifting said roller from contact with said card to said sheet, and subsequently turning said roller to effect the reproduction on said sheet.

12. The invention according to the preceding claim in which means is provided to clean the roller of any remnants of the reproduction preparatory to its contact with a subsequent controlling card.

13. In a tabulating machine, means for feed-

ing a tabulating card to a bath including a suitable liquid for moistening ink imprints on said card, a roller adapted to contact said moistened card to receive a reproduction of the ink imprint, and means for shifting said roller to contact with a sheet carried by a printing mechanism of the tabulating machine and subsequently turning said roller to effect a reproduction on the sheet.

14. In a card controlled tabulating machine, a printing mechanism under control of a card perforation analyzing mechanism adapted to print upon a sheet and including a sheet carrying platen, an offset printing mechanism including a roller carrying a reproduction of an ink imprint upon the controlling card, said roller adapted to be shifted to contact with the sheet carried by said platen, and means for turning said platen to effect the transfer of the reproduction of the ink imprint to said sheet and space the printing effected by said printing mechanism.

15. In a tabulating machine, means for successively feeding tabulating cards from a supply hopper to a storage hopper, a roller receiving moistening ink for moistening an ink imprint of a controlling card, a roller receiving a reproduction of the ink imprint carried by the moistened card, a card controlled printing mechanism for printing on a sheet, and means for shifting said reproducing roller and subsequently turning the latter to effect a reproduction on the sheet during the operation of the printing mechanism.

16. In a tabulating machine, means for feeding a perforated tabulating card, a frame carrying roller of an offset printing mechanism, said roller receiving a reproduction of the ink imprint upon the tabulating card, said roller being shiftable by movement of the frame to contact with a sheet, and a card controlled printing mechanism of the tabulating machine for printing on said sheet, and means for rotating a sheet carrying platen of the printing mechanism to effect the transfer of the reproduction on said roller to said sheet.

17. The method of identifying accounts printed on a sheet by means of a record controlled printing mechanism of a tabulating machine which consists in feeding the record in position to secure a reproduction of the ink imprint on a record, and causing the reproduction of the ink imprint to be effected on the sheet adjacent the related printed account.

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