

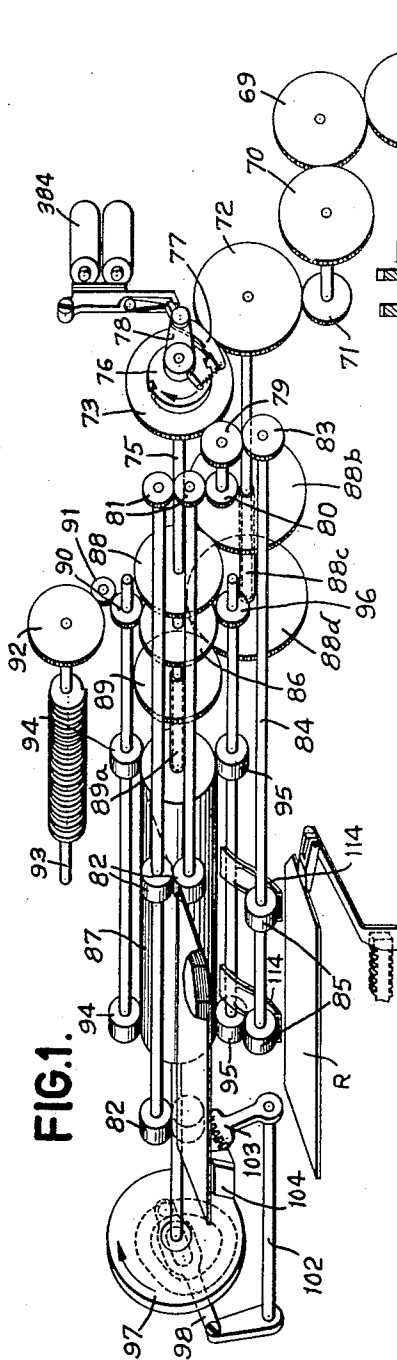
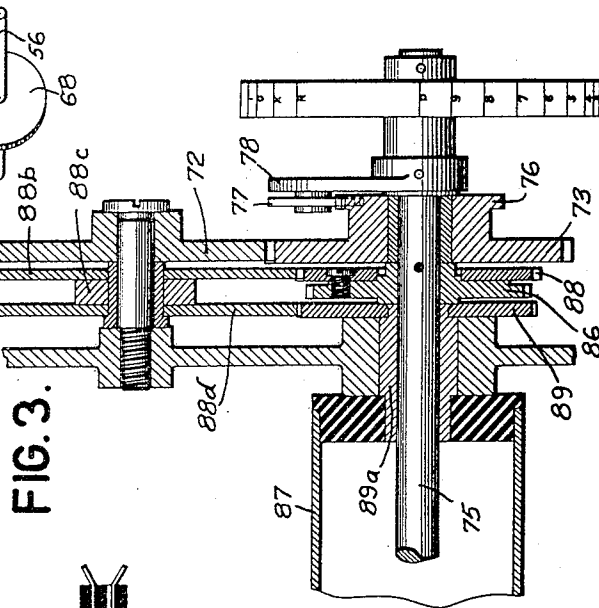
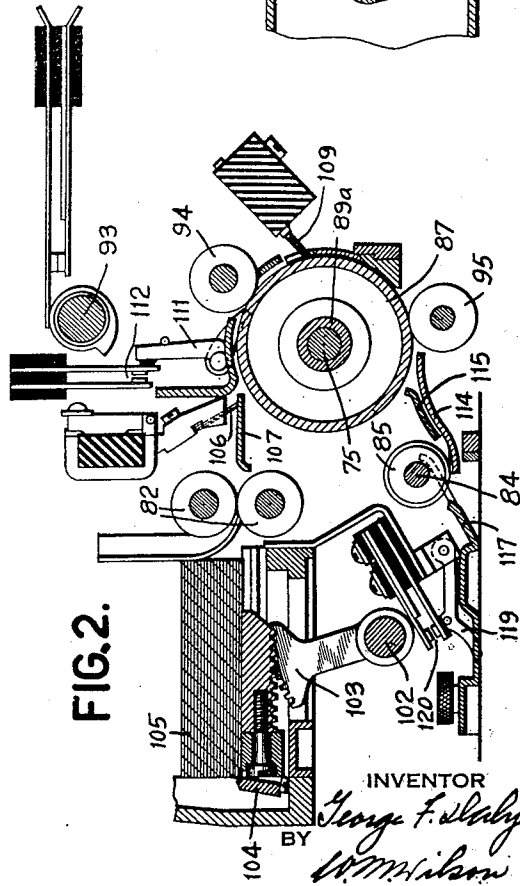
Sept. 1, 1936.

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2,053,069

CARD FEEDING AND ANALYZING DEVICE

Original Filed Nov. 21, 1932



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2,053,069

CARD FEEDING AND ANALYZING DEVICE

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Original application November 21, 1932, Serial
No. 643,663. Divided and this application June
28, 1935, Serial No. 28,850

3 Claims. (Cl. 200—46)

The present application constitutes a division of my copending application Serial No. 643,663, filed November 21, 1932.

The invention relates to an improved card feeding and analyzing mechanism for electric accounting machines.

The principal object of the invention resides in the provision of a combined contact and conveyor roll for advancing successive record cards to an analyzing brush station at which circuits are completed through perforations in the cards. The arrangement is such that a given point on the periphery of the contact roll arrives at the brush station a slight increment earlier for each succeeding card cycle. This introduces a so-called "creep" in that the relationship between the contact roll and the cards it advances varies for each card so that the current through a given index point position does not pass through the same point of the contact roll for successive cards. In this manner an improved sensing action is secured and the contact roll is prevented from becoming pitted by the action of the analyzing brushes.

The object of the invention is realized by providing a compound gear connection for the contact roll or cylinder of such proportions that the peripheral velocity of the roll is equal to the rate of motion at which the card is required to pass the analyzing station and the roll at the same time is caused to make slightly more than a complete revolution for each card feeding cycle of the machine.

Various other objects and advantages of the invention will be obvious from the following particular description of one form of mechanism embodying the invention or from an inspection of the accompanying drawing; and the invention also constitutes certain new and useful features of construction and combination of parts hereinafter set forth and claimed.

In the drawing:

Fig. 1 shows a diagrammatic view of the card feeding mechanism of the machine and the drive therefor.

Fig. 2 is a vertical sectional view, taken through the card handling and reading section of the machine.

Fig. 3 is a sectional detail view of certain of the gearing parts which are used for driving the card transfer and contact roll, and for providing a creeping action for the pick up of cards. The gearing which is shown in section in this view is shown in isometric relation in Fig. 1.

Complete details of an accounting machine

with which the present improved card feeding and analyzing mechanism may be used, may be found in United States Patent No. 1,944,665.

Referring to Figs. 1, 2, and 3, shaft 56 is the main driving shaft and is driven in any suitable manner. Such shaft is provided with a gear 68 which, through idler gear 69, drives a gear 70 which in turn, through its shaft, drives a gear 71, which gear in turn drives a gear 72. Gear 72 in turn drives a gear 73 revolubly mounted on shaft 75. Gear 73 has fixed to it one element 76 of a one revolution clutch, the complementary part of which comprises a pawl 77 carried by an arm 78 which is fixed to shaft 75.

The one revolution clutch is of the electromagnetic type used in tabulating machines and with this one revolution clutch engaged by the energization of its clutch magnet 384, shaft 75 will rotate in unison with the gear 73, and with the one revolution clutch disengaged, 73 will continue its rotation and shaft 75 will remain stationary.

Gear 73 also drives an intermediate gear 79 which is fixed to gear 80, which drives a train of gears 81, which in turn drive the card feed rolls 82 of the machine. Such card feed rolls 82 are constantly rotating feed rolls, the same rotating at all times when gear 73 is rotating and when the main counter drive shaft (not shown) is rotated. Also in train with the gear 79 is a gear 83 which drives a drag roll shaft 84 having fixed thereon a pair of drag rolls 85.

Fixed to shaft 75 is a gear 88 (see also Fig. 3) which in turn drives a gear 88b mounted on the sleeve 88c, which in turn drives a gear 88d. Gear 88d in turn drives a gear 89 which is fixed to the sleeve 89a revolubly mounted on shaft 75 but fixed to the card transfer and contact roll or cylinder 87. By referring to Fig. 3 it will be noted that gears 88 and 89 have a slightly different diameter and gears 88b and 88d also have a slightly different diameter. This slight difference in diameter provides for the slight creeping advance of card transfer and contact cylinder 87, as the card handling operations ensue and serves to prevent sensing occurring at the same spot or spots on the cylinder on successive card cycles.

Gear 86 is also fast to shaft 75 and drives a gear 90, which gear in turn drives an idler gear 91, driving a gear 92 fixed to cam contact shaft 93. Shaft 93 has secured upon it a number of cams for actuating a group of cam contact devices of the machine.

Such cams are so driven that they make one revolution per card feed cycle in contradistinc-

tion to a counter cycle. Fixed to the shaft of gear 90 are card feed rolls 94 which are spring pressed into contact with card transfer and card contact cylinder 87. Similar spring pressed card feed rolls 95 also cooperate with the transfer and contact roll 87 and such rolls are driven by the gear 96 in train with gear 86. Rolls 94 and 95 are preferably made of insulating material.

Card picker drive

Shaft 75 has secured to it a box cam 97 with which a follower 98 cooperates. The follower rocks a rock shaft 102 carrying a gear sector 103, which is in engagement with a picker block 104. Upon engagement of the one-revolution card feed clutch the picker is called into action to withdraw a single card from the magazine 105 (Fig. 2) and advance this card into the bite of rolls 82. These rolls in turn forward the card to the card transfer and contact roll 87. Intermediate the rolls 82 and the transfer cylinder 87 there is provided an advance or X brush sensing position. One X brush is shown at 106 and cooperates with the combined contact and guide plate 107. A curved card guide (see Fig. 2) is provided around the transfer cylinder and the advancing card is carried around by the forward rotation of the transfer cylinder and by the rotation of rolls 94 to traverse the main card sensing brushes generally designated 109 in Fig. 2. Also in cooperation with the card is a pivoted card lever 111 adapted to operate the usual card lever contacts 112.

After the card has been sensed by the main sensing brushes 109, it is advanced between guiding members 114 and 115 by the cooperation of feed rolls 95 with cylinder 87. While between these members it is advanced by drag rolls 85, which extend downwardly into recesses of the lower members 114, as shown in Fig. 1. This arrangement provides for the feeding of the card and the advance of the card after it has been released by the rolls 95 so that the card may be delivered into a tray of another section of the machine, for example, a punching section. The drag rolls 85 deliver the card under the guiding member 117 and after the card has been freed from the drag rolls the card is flipped down into a tray of another or punching section of the machine. The location of this tray is generally indicated at R in Fig. 1. A card lever 119 (Fig. 2) is also provided adjacent the tray for closing

card lever contacts 120 when a card is lodged in the tray.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is as follows:

1. In a record controlled accounting machine having record handling and record sensing mechanism, a card transfer and contact roll and a cooperating set of sensing brushes, means for feeding cards to said transfer and contact roll, and gearing for driving said contact and card transfer roll, said gearing being so proportioned with respect to the cooperating contact roll to provide for a creep of the point of pickup of successive cards upon said roll to change the sensing spots upon said roll from card to card, said transfer roll having peripheral dimensions to maintain the peripheral speed of the roll constant and the same as the card speed.

2. In a cyclically operated record controlled accounting machine having record handling and record sensing mechanism, a card transfer and contact roll and a cooperating set of sensing brushes, means for causing successive record cards to be advanced to said roll one for each cycle of operation, said roll being proportioned to advance the cards to and past said brushes at a uniform rate and means including compound gearing to cause said roll to turn through slightly more than a complete revolution for each card advanced.

3. In a cyclically operated record controlled accounting machine having record handling and record sensing mechanism, a card transfer and contact roll and a cooperating set of sensing brushes, means for causing successive record cards to be advanced to said roll, one for each cycle of operation, said roll being proportioned to advance the cards to and past said brushes at a uniform rate and means including compound gearing to cause said roll to turn through an angle different than 360° for each card advanced.

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