Sept. 2, 1941. B. LÉGER ET AL 2,254,299

TABULATING MACHINE OR THE LIKE

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Fig. 1.

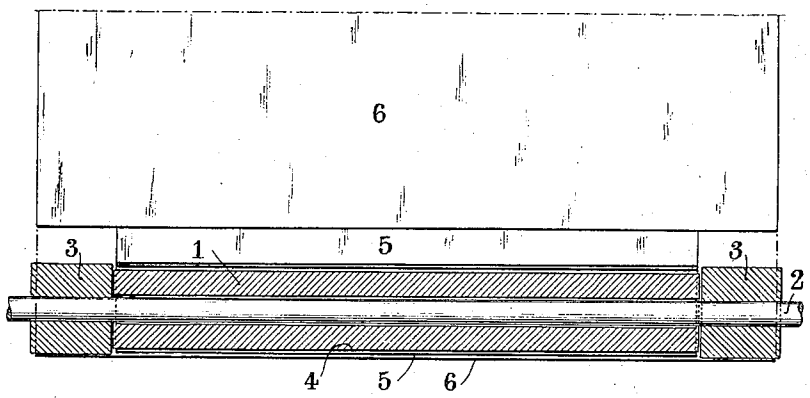
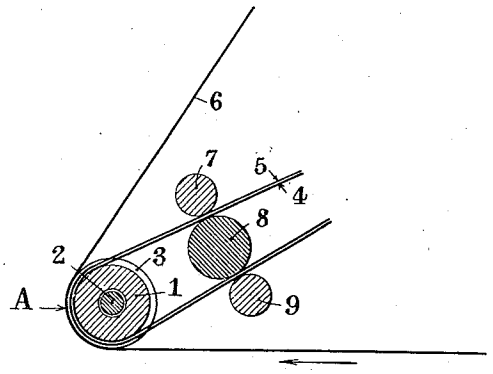


Fig. 2.



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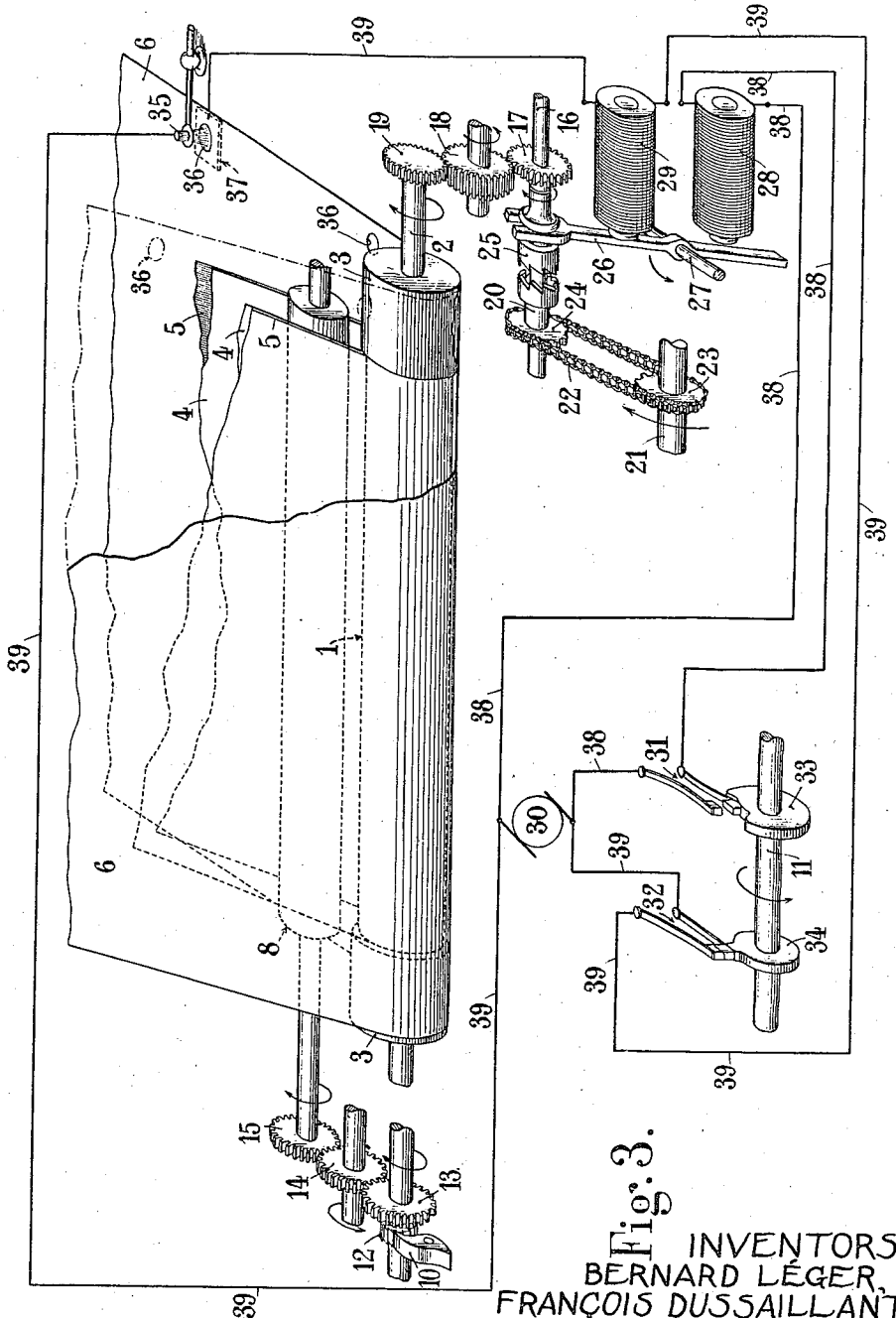


Fig. 3.

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Patented Sept. 2, 1941

2,254,299

UNITED STATES PATENT OFFICE

2,254,299

TABULATING MACHINE OR THE LIKE

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Application October 20, 1938, Serial No. 236,024
In France March 1, 1938

3 Claims. (Cl. 197—132)

The present invention has for object improvements to tabulating machines in view of allowing the same to print at same time the receipts and the memoranda in one single impression upon continuous paper bands which are superposed and separated by carbon paper or the like.

The difficulty consisted in causing the superposed bands to advance in variable quantities without that they rub the one against the other.

After having printed every debit, it is in fact necessary to cause the receipt to be fed along the whole of its height, for instance from eight to ten centimeters, whilst the memorandum is to be advanced but of an interline, i. e. a few millimeters.

In order to overcome said difficulty, the invention consists in utilising receipts which are broader than the memoranda and in arranging a feeding and guiding device for the endless bands so that the memorandum and a band of carbon paper will pass together around the platen in bearing against the latter, whilst the band of receipts will pass around said platen in bearing by its edges against two drums, the diameter of which is somewhat larger and which can revolve independently from said platen, so that it may be freely shifted relatively to the memorandum and the band of carbon paper, and without rubbing against the latter. The invention also consists in arranging the feeding and guiding device so that an eventual slowness in the displacement of the band of receipts relatively to the displacement of the memorandum will be automatically and immediately taken up.

The accompanying drawings show diagrammatically, by way of example, an embodiment of the object of the invention.

Fig. 1 is a vertical section made through the axis of the platen.

Fig. 2 is a cross vertical section.

Fig. 3 is a diagram showing means for controlling the feeding of a memorandum and of a band of carbon paper, on the one hand, and of a band of receipts, on the other hand.

The platen 1 is so mounted as to rotate loosely upon a shaft 2 between two sleeves or drums 3 which are secured to said shaft and whose diameter is somewhat larger than the one of the platen.

The band of paper 4 used as a memorandum as well as the band of carbon paper 5 have a width which is equal to or somewhat smaller than the length of the platen 1, whilst the band of receipts 6 has a larger width and bears by its edges against the drums 3.

It will be seen that said band 6 is thus maintained at a small distance from the band 5 and may be freely displaced relatively to the latter.

The impression produced at a point A for example prints simultaneously the receipt and the memorandum owing to the band of carbon paper. When the printing of the required text and numbers has once come to an end, the band 4 is fed forwards of a quantity corresponding to an interline and the band 6 is fed forward along the whole of the height of a receipt without that any friction will at this moment take place between the bands.

The forward motion of the memorandum may be obtained for instance by means of rollers 7, 8, 9, between which the bands 4 and 5 pass together, the intermediate roller 8 being driven and the rollers 7 and 9 being loose and simply pressed towards the roller 8.

The drive of the roller 8 may be obtained in a known manner by means of a pawl 10 which at every revolution of a cam shaft 11 of the tabulating machine will receive such a to-and-fro motion that it will cause a ratchet wheel 12 to rotate according to a small angle; said rotation is transmitted through pinions 13, 14, 15 to the shaft of the roller 8, in such manner that the latter will cause the memorandum 4 to advance of a quantity corresponding to an interline.

On the other hand, the band of receipts 6 may be driven along by the drum 3, the shaft 2 being driven to this effect and the adhesion of the edges of the band to said drums being secured either by the surface of said drums itself, which is striated or otherwise prepared, or with the assistance of pressing rollers, and the like.

According to Fig. 3, the shaft 2 is driven from a shaft 16 through the medium of pinions 17, 18, 19, said shaft 16 being periodically in mesh with a sleeve 20 to which a continuous rotary motion is imparted from a shaft 21 of the tabulating machine through an endless chain 22 passing round pinions 23, 24. The periodic coupling of the shaft 16 with the sleeve 20 is obtained by means of a coupling sleeve 25 sliding along said shaft 16, said two sleeves being provided with suitable teeth or prongs; the sleeve 25 is axially moved by means of a forked lever 26 swinging about an axis 27 under the alternated attraction of two electromagnets 28, 29. The latter are energized by a dynamo 30 or other current supply and through the medium of cut out switches 31 and 32 controlled by respective cams 33, 34 secured to the cam shaft 11, and of a brush 35 rubbing against a margin of the

band of receipts which is perforated with holes 36 spaced apart of an amount equal to the height of a receipt and which slides over a contact piece 37.

The circuit of the electromagnet 28 causing the sleeve 25 to engage the sleeve 20 comprises a circuit 38 in which the generator 30, the switch 31 and the electromagnet 28 are series connected.

On the other hand, the switch 32, the electromagnet 29, the contact piece 37 and the brush 35 are series connected with the generator 30 in another circuit 39.

Fig. 3 shows the organs at the end of a period of advance of the band of receipts 6; the switch 32 is closed by the cam 34, a hole 36 of the band allows the brush 35 to touch the piece 37, so that the electromagnet 29 is excited and attracts the lever 26, thereby uncoupling the drive of the rollers 3; at same time, the switch 31 is opened by the cam 33 and the electromagnet 28 is disenergized. The band 6 then remains motionless. The impression in A is then controlled by the cam shaft 11, as in an ordinary tabulating machine.

Immediately after, the cam 33 closes the switch 31, so that the electromagnet 28 is excited and causes the sleeve 25 to engage the sleeve 20; the rotary motion as soon as it is imparted to the sleeve 20 is transmitted to the shaft 2, consequently to the rollers 3, and lasts until the cam 33 again opens the switch 31. Said duration is adjusted so that, in case no detrimental sliding exists, the band 6 will move forward of a quantity equal to the height of the receipt and a new hole 36 will present itself under the brush 35 at the moment where the cam 34 closes the switch 32. In case a sliding motion has determined a slight slowness of the band 6, the sleeve 25 remains for a moment engaged with the sleeve 20 although the electromagnet 28 is disenergized and the electromagnet 29 is not yet energized.

The driving along of the band 6 is thus still secured until the perforation 36 comes under the brush 35 and allows the current to pass into the discoupling circuit 39.

The feeding forward of the memorandum 4 and of the band 5 is produced by the movement of the pawl 10, during the period in which the cam 33 closes the switch 31 and a new impression is controlled by the cam shaft 11 at the end of the period during which the cam 34 closes the switch.

Moreover, without departing from the invention, it would be possible to use any other means for driving along the bands 4 and 5, on the one hand, and, 6, on the other hand. For instance, the latter could be driven along by other rollers parallel to the platen 1; the latter could by way of compensation be utilised for driving the bands 4 and 5, the shaft 2 being then connected to the platen 1 and independent from the drums, and so on.

It must be understood that the device as described can be used for printing continuous bands of paper adapted for other uses than receipts and memoranda, for example for printing record cards and recapitulative lists and that it will also be possible to cause to pass at same time as the broad band 6 one or several other bands with intermediate carbon papers, in order to print at same time several record cards, for example for various departments of a commercial or industrial concern.

We claim:

1. In a device of the character described, having a rotatable platen shaft, the combination of means for driving said platen shaft, two spaced rollers respectively secured at the ends of said shaft and over which a main web is intended to be fed, a platen loosely mounted on the shaft between said two rollers and over which superposed carbon and tally webs are intended to be fed, a feed roller rotatably mounted in parallelism with and spaced from said platen, means for driving said feed roller through a feed length less than that of said spaced rollers secured to said platen shaft and means for pressing against said feed roller said superposed carbon and tally webs intended to be fed to the platen and likewise away from the same.

2. A device as claimed in claim 1, wherein the means for pressing against said feed roller said superposed carbon and tally webs include two pressure rolls arranged on opposite side of said feed roller.

3. A device as claimed in claim 1, wherein the means for driving said feed roller are arranged for causing a feeding of the carbon and tally webs equal to one line space thereof and the means for driving said platen shaft are arranged for simultaneously causing the feeding of the main web equal to the height of a sheet.

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