

No. 885,464.

PATENTED APR. 21, 1908.

J. FRYDMANE & L. CHAMBON.  
COLOR PRINTING DEVICE IN CASH REGISTERS.

APPLICATION FILED JULY 31, 1908.

4 SHEETS—SHEET 1.

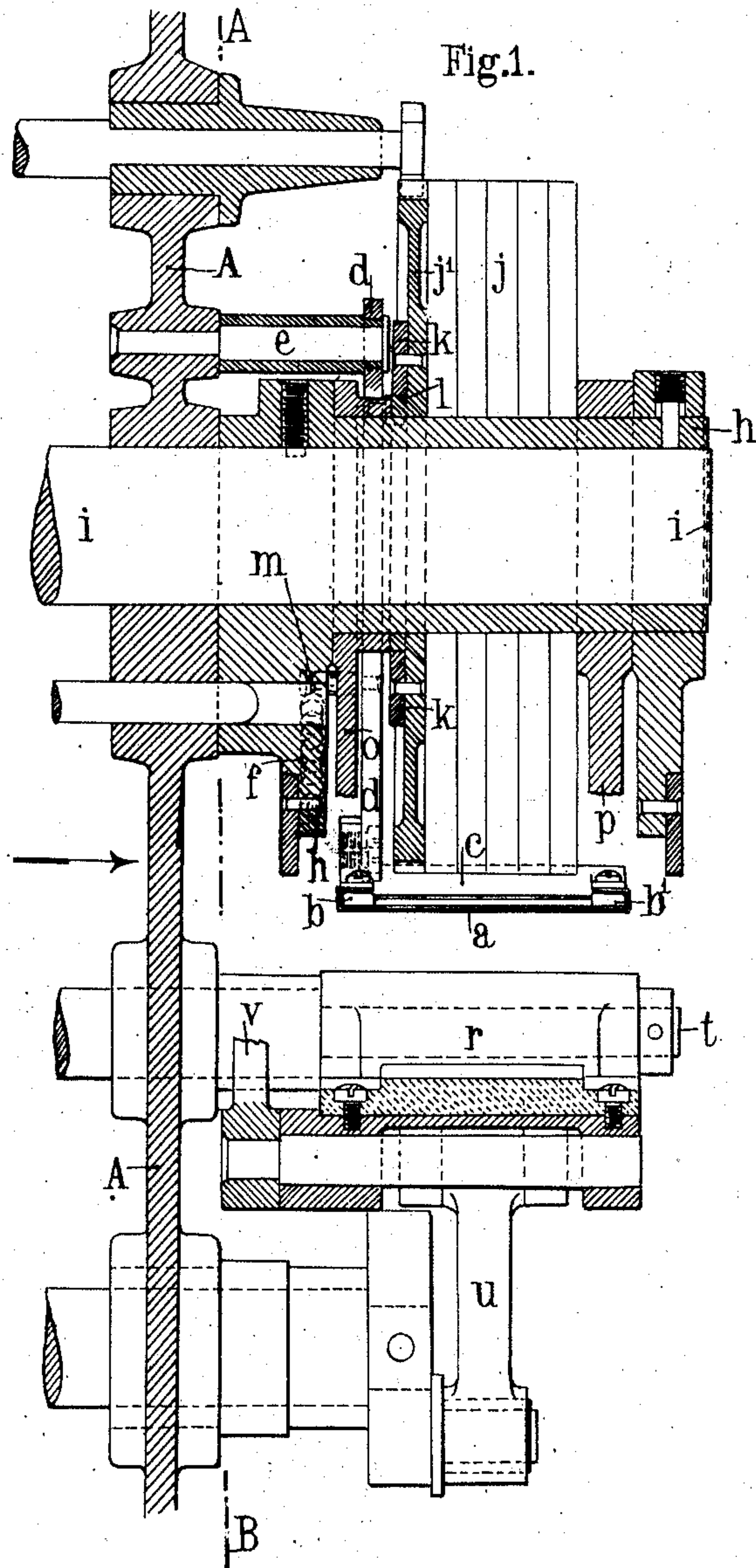


Fig. 9.

WITNESSES  
*William Atte*  
*W. E. Keir*

S v 74.77  
P v 70.07  
AV<sup>vii</sup> 40.09  
VC<sup>vii</sup> 54.05  
vii 56.06

INVENTORS  
*Jules Frydman*  
*Louis Chambon*  
*by* *Hanson and Hanson*  
Attorneys.

No. 885,404.

PATENTED APR. 21, 1908.

J. FRYDMANE & L. CHAMBON.  
COLOR PRINTING DEVICE IN CASH REGISTERS.

APPLICATION FILED JULY 31, 1906.

4 SHEETS—SHEET 2.

Fig. 2.

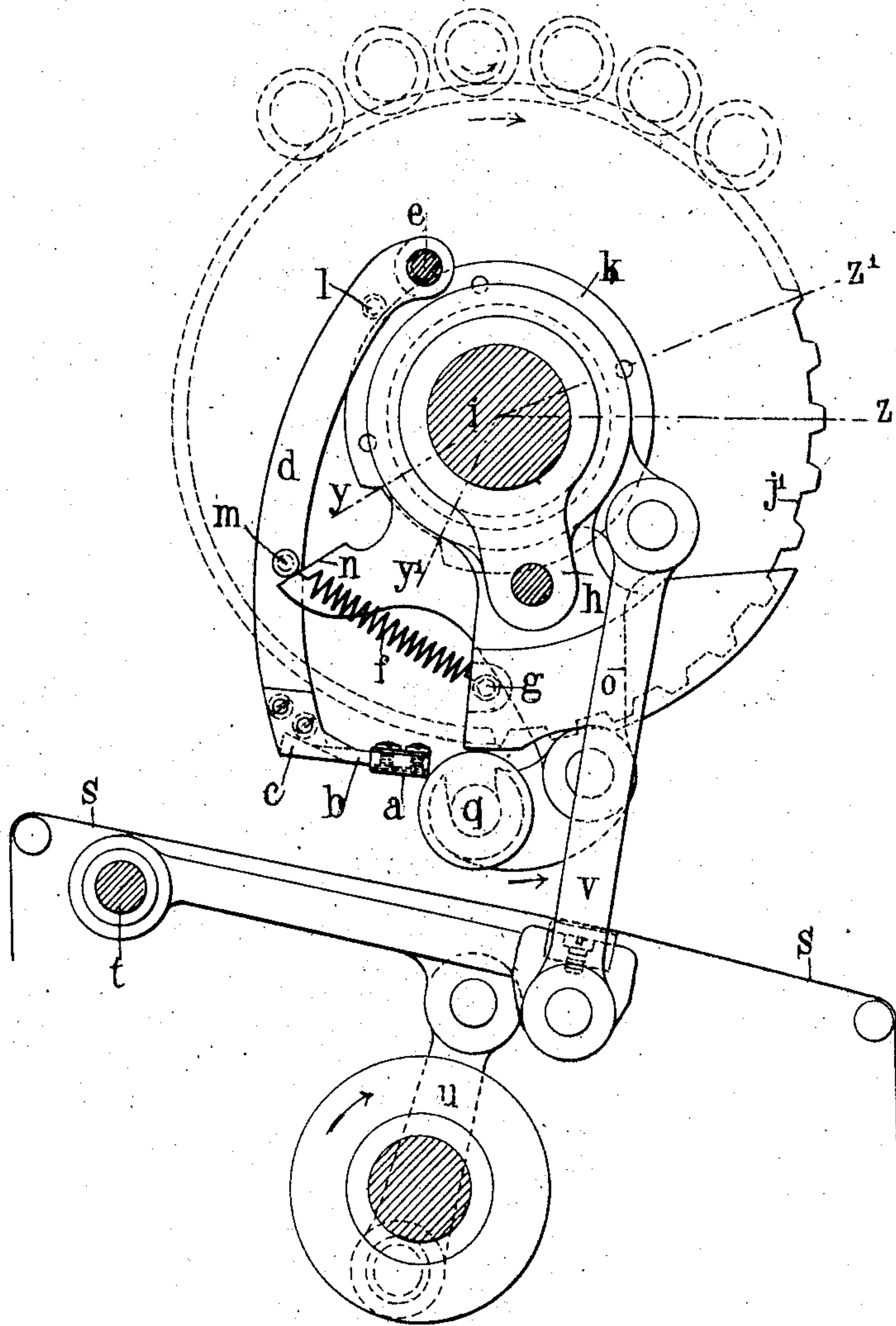


Fig. 10.

S v	74.77
P v	70.07
AV <sub>viii</sub>	40.09
VC <sub>vii</sub>	54.05
vii	56.06

INVENTORS

Jules Frydman,  
Louis Chambon,

by *Howson and Howson*  
attys

WITNESSES  
*William Abbe*  
*M. E. Keir*

No. 885,464.

PATENTED APR. 21, 1908.

J. FRYDMANE & L. CHAMBON:  
COLOR PRINTING DEVICE IN CASH REGISTERS.

APPLICATION FILED JULY 31, 1906.

4 SHEETS—SHEET 3.

Fig. 6.

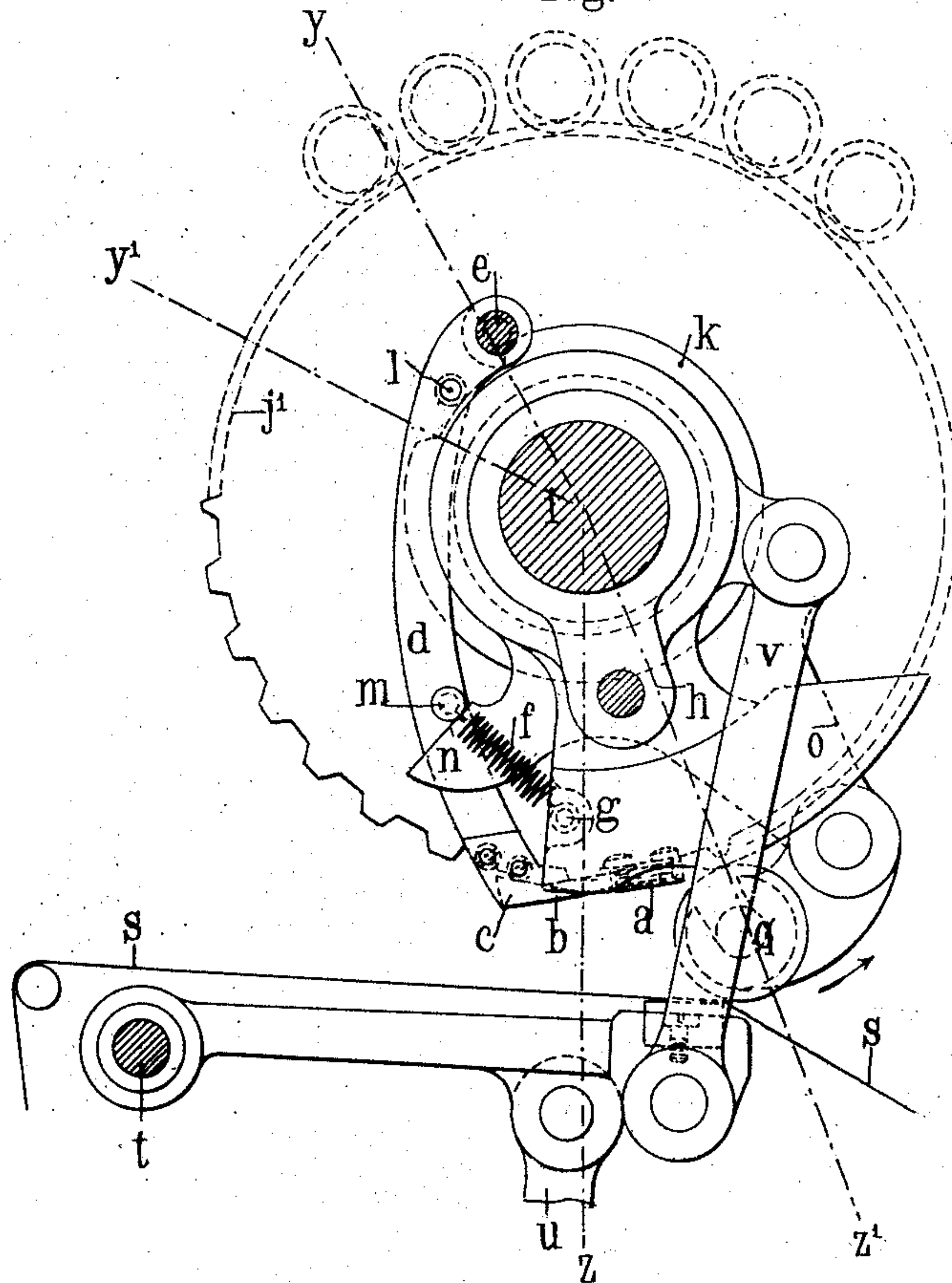


Fig. 3.

Fig. 4.

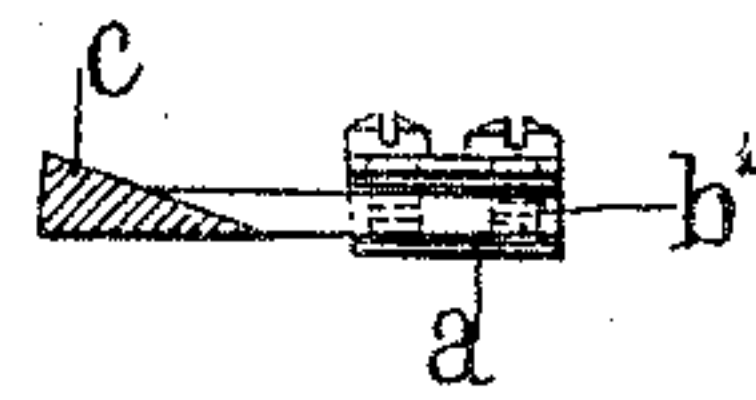
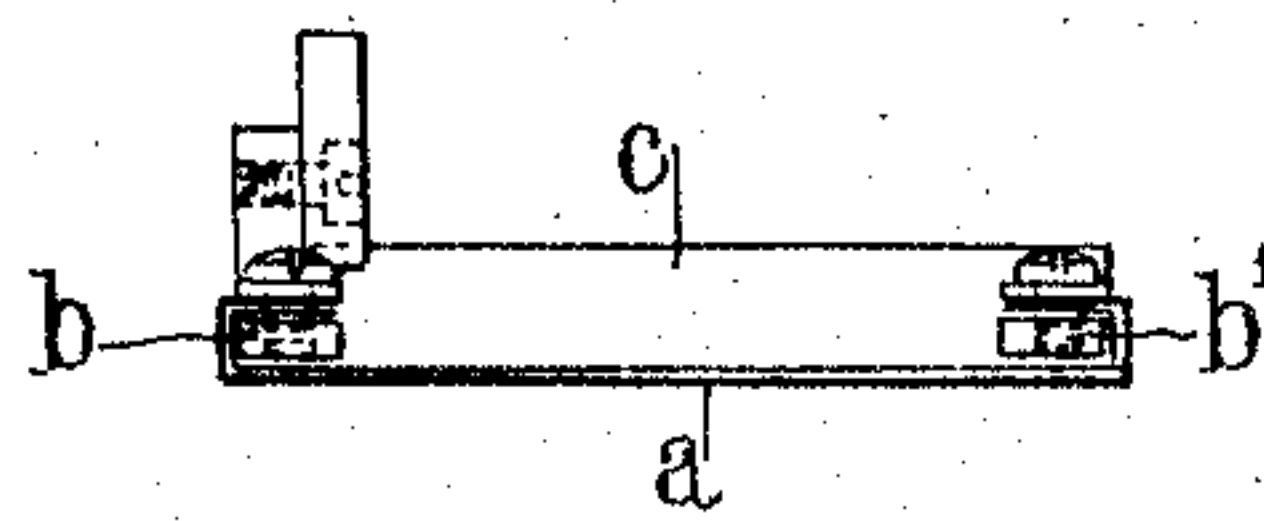
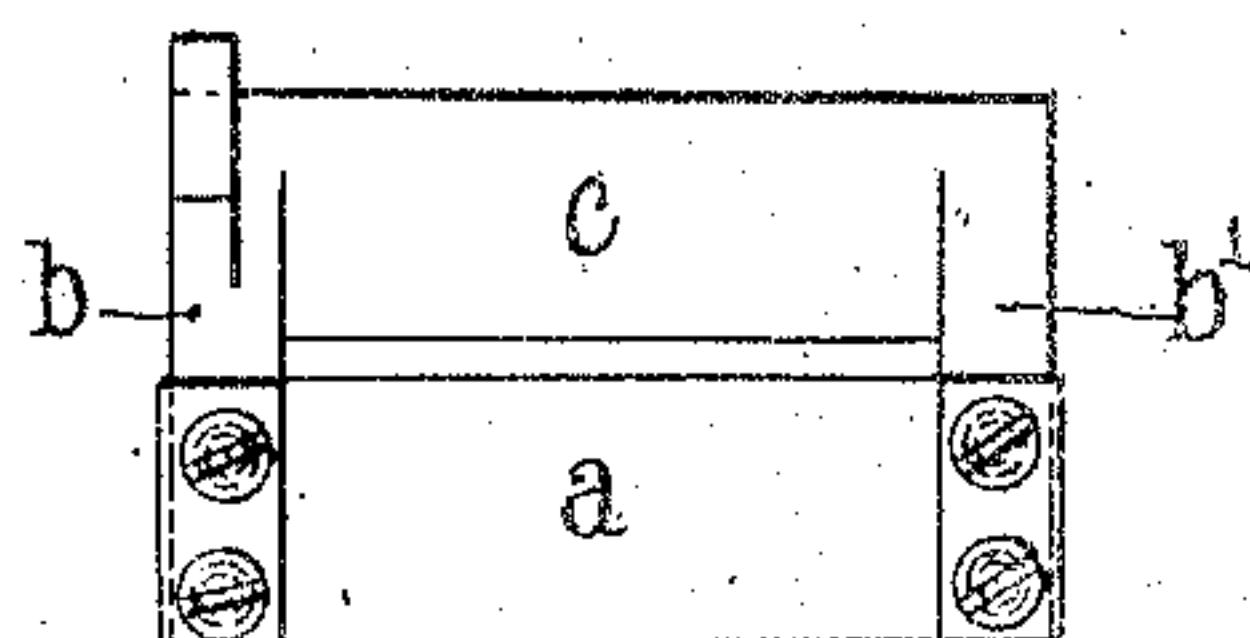


Fig. 5.



WITNESSES  
William Abbe  
M. E. Kier-

INVENTORS  
Jules Frydman,  
Louis Chambon,  
By Johnson and Johnson  
Attorneys



No. 885,464.

PATENTED APR. 21, 1908.

J. FRYDMANE & L. CHAMBON.  
COLOR PRINTING DEVICE IN CASH REGISTERS.

APPLICATION FILED JULY 31, 1906.

4 SHEETS—SHEET 4

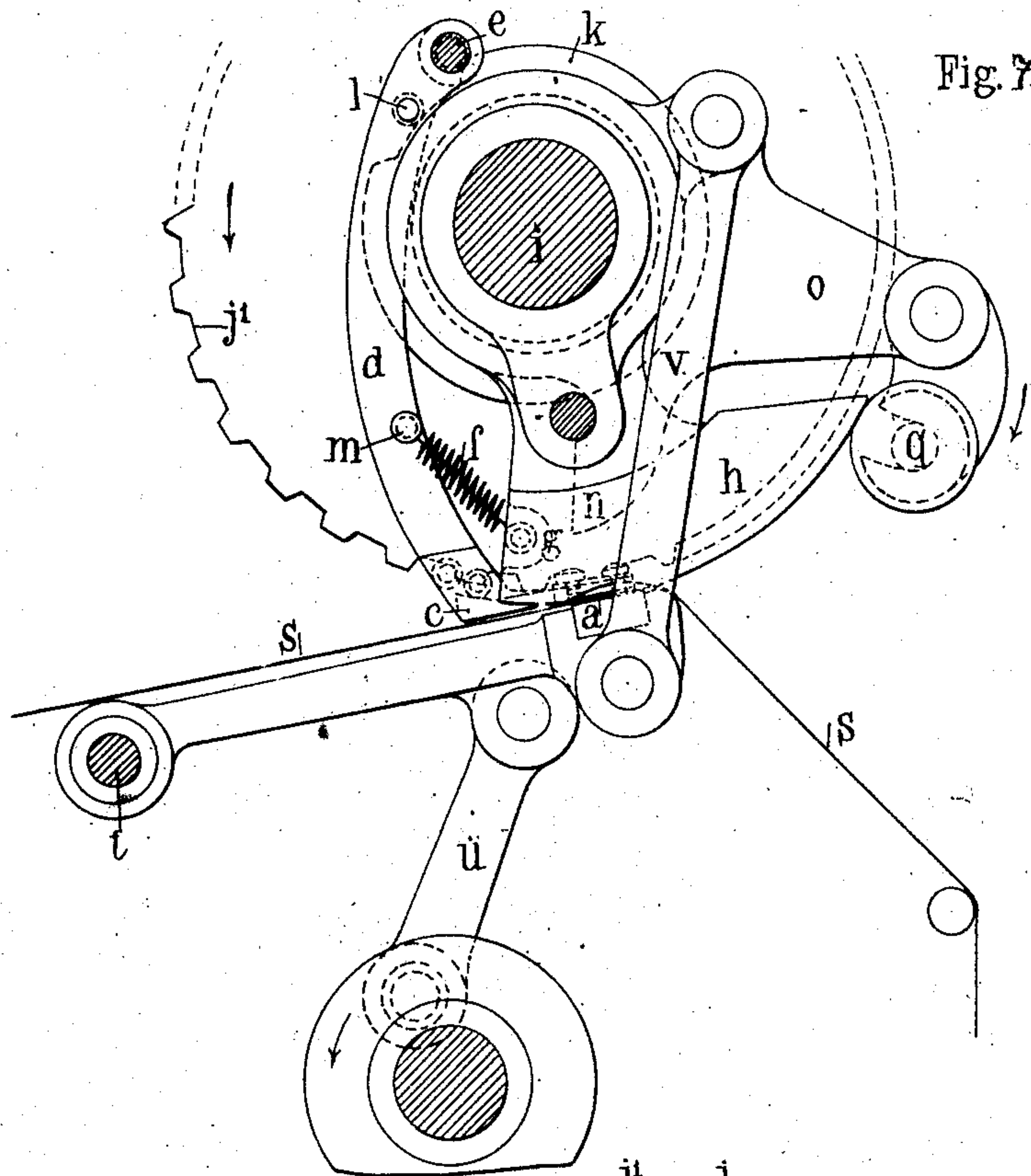


Fig. 7.

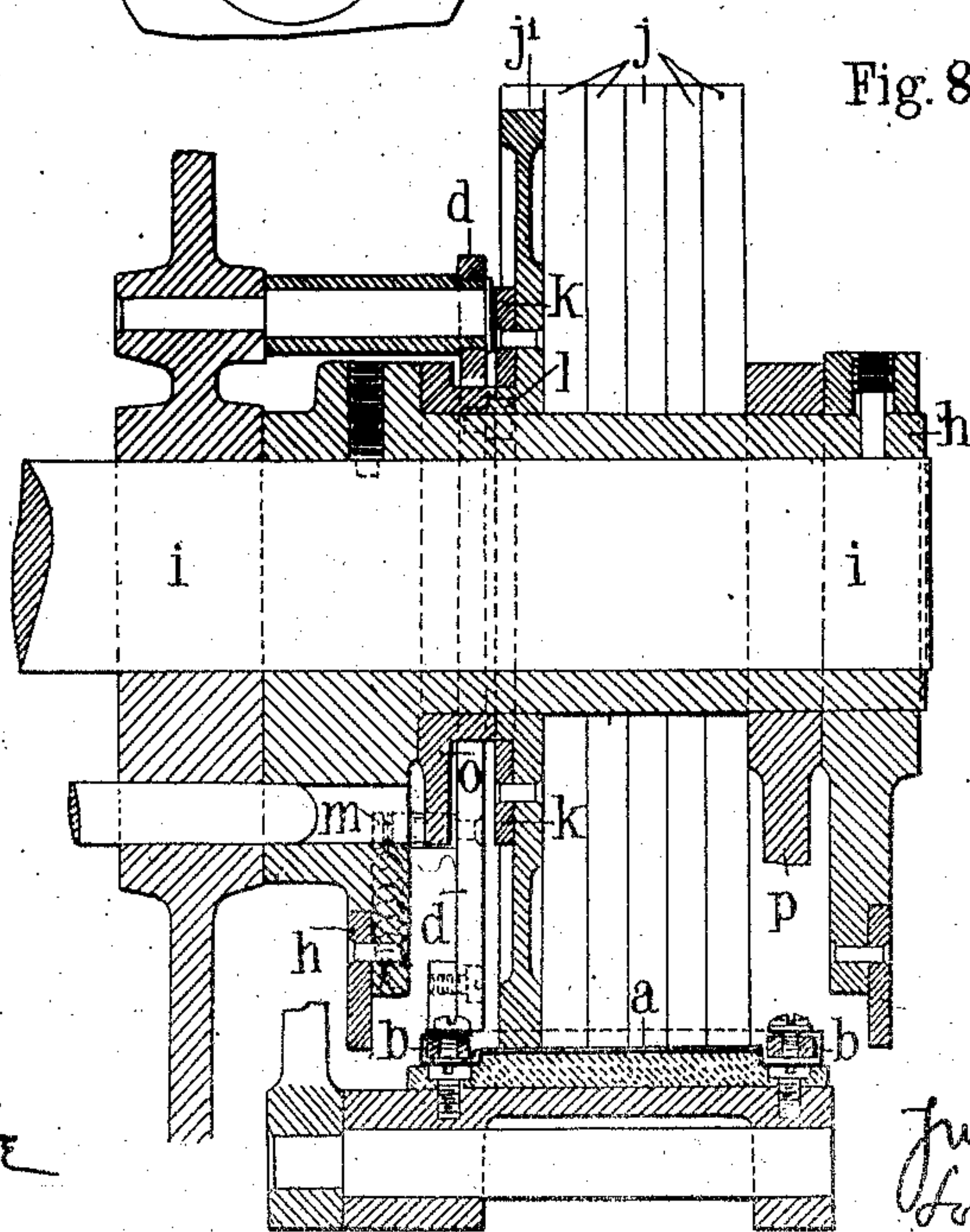


Fig. 8.

WITNESSES

William Abbe  
M. E. Keir

INVENTORS

Jules Frydman  
Louis Chambon

by Howard and Howard  
Attorneys



# UNITED STATES PATENT OFFICE.

JULES FRYDMANE AND LOUIS CHAMBON, OF PARIS, FRANCE.

## COLOR-PRINTING DEVICE IN CASH-REGISTERS.

No. 885,464.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed July 31, 1906. Serial No. 328,524.

*To all whom it may concern:*

Be it known that we, JULES FRYDMANE and LOUIS CHAMBON, both citizens of the Republic of France, and residing in Paris, France, have invented a Color-Printing Device for Cash-Registers, (for which we have obtained a French patent, May 14, 1906, not yet issued; Germany, May 19, 1906, not yet issued,) of which the following is a specification.

The present invention relates to a color printing device applicable in a general way to cash registers, and in particular to that described in French Patent No. 311813 of the 15th June 1901.

These cash registers are ordinarily provided with a checking band, impressed with the sums relating to the various operations effected (cash sales, cash payments, credit sales, general expenses, change, etc.) the nature of which is indicated by appropriate letters, initials or abbreviations.

In most cases, in spite of their diversity, the sums in question are printed one below the other in one and the same column. Certain difficulties result from this, especially when it is necessary for the purpose of a check of any kind to separate the sums represented (cash sales for example) for the purpose of totalizing them.

The apparatus described in the French patent referred to above, automatically distributes the aforesaid operations into two distinct columns; in the first it places, for example, the cash operations or sales, and in the second it inscribes all the other operations. This automatic division however, although it facilitates the checking and renders it more rapid, complicates the apparatus by reason of the mechanical arrangement necessitated by the lateral displacements that must be imparted to the checking band for the division into two columns of the sums printed by means of one and the same series of printing characters. Further, this distribution into two columns by lateral displacements, necessitates the employment of a checking band double the width of that required by the single column.

In accordance with the present invention, the impression of the various operations takes place in a single column, with this peculiarity, that all the operations other than those relating to cash sales are printed in

color, while the said sales are printed in black. In these conditions, checking is rendered more easy than when all these operations, arranged in a single column, are printed in the same way; on the other hand, the device by means of which the special impression in color is obtained, is very readily applicable to the checking apparatus which previously distributed the operations into two columns, and thereby simplifies such apparatus. Finally for the latter kind of apparatus, the cost of paper for the checking band is reduced by one-half.

This color printing device, applied by way of example to the checking apparatus which forms the object of French Patent No. 311813, of the 15th June 1901, is represented in the accompanying drawing, in which:

Figure 1 shows in cross-section the side of the apparatus comprising the printing disks adapted for the impression of the checking band traveling over a rocking table, which printing disks are rendered dependent upon operating disks controlled by the operator, and opposite which there is arranged the device forming the object of the present invention, and intended to produce the impression in color of the sums relative to operations other than those for cash sales. Fig. 2 is a section on the line A—B of Fig. 1 viewed in the direction indicated by the arrow  $\alpha$ . Figs. 3, 4 and 5 show separately in elevation; cross-section and plan, the inking ribbon of the special color printing device. Fig. 6 is a similar view to that shown in Fig. 2 and representing the first phase of rendering the color printing device operative. Figs. 7 and 8 correspond to Figs. 2 and 1 respectively, and show the action of the device in question at the precise moment of the color impression. Fig. 9 shows a fragment of the checking band relating to operations of various kinds printed in black and arranged in a single column. Fig. 10 shows a fragment of a checking band, relating to operations of various kinds, some printed in black, the others in color, but arranged in a single column. In this figure the cash sales operations which are assumed to be printed in black, are indicated by fine lines, while all the other operations assumed to be printed in red for example, are shown in heavy lines.

The device represented in Figs. 1 and 2 comprises broadly an inking ribbon  $a$  which



is similar to those of typewriting machines and stretched between two small bars  $b$   $b'$  proceeding from a cross-piece  $c$  fixed at the extremity of a lever arm  $d$  freely mounted upon a spindle  $e$  provided on the cheek  $A$  of the framework of the checking apparatus. This lever  $d$  is connected at  $g$  by a spiral spring  $f$  with a part  $h$  mounted upon the spindle  $i$  of the printing wheels  $j$   $j^1$  and locked by any appropriate means; the said spring is intended to maintain the lever  $d$  always in contact with a cam  $k$  fitted and fixed by any appropriate means upon the printing wheel  $j^1$  on the periphery of which there are characters suitable for indicating the nature of the operations registered. Contact between the lever  $d$  and the cam  $k$  is effected by the intermediary of a roller  $l$  carried by the said lever, and the recess  $y$   $y^1$  of the said cam is of an amplitude equal to  $z$   $z^1$  formed by the characters of the printing wheel  $j^1$  reserved for operations other than those consisting of cash sales; further, the cam  $k$  is keyed in such a position that the recess  $y$   $y^1$  presents itself to the roller  $l$ , when the characters in question are brought into the printing position. The lever  $d$  likewise carries a pin  $m$ , which in the condition of repose of the color printing device, is situated opposite a stop  $n$  of the lever  $o$  which is free to move upon the spindle  $i$ , and, together with the part  $p$ , carries the ordinary inking roller  $q$  which effects the inking of the characters on the printing wheels under the conditions ordinarily obtained in checking apparatus and in the present case every time that a cash sale has to be registered.

The printing table  $r$ , over which the band of paper  $s$  is unwound in the ordinary manner, pivots in the usual way upon a spindle  $t$ , and is connected by a rod  $u$  to a crank plate serving to actuate it, that is to say to lift it in the ordinary manner, so that the band  $s$  may receive the impression of the characters on the printing wheels  $j$   $j^1$ . The printing table  $r$  is connected in the ordinary manner to the lever  $o$  carrying the inking roller  $q$  so that by means of this latter the inking takes place at each oscillation of the table.

The ribbon is lined upon the face opposite to the table with a sheet of paper or other flexible material, which in any case is appropriately paraffined in such a manner that the ribbon  $a$  when brought opposite the printing wheels  $j$   $j^1$  is not marked by the characters of these disks, which are always coated with ink by the ordinary inking roller  $q$ .

The operation is as follows. In the case of cash sales, the printing wheels  $j$   $j^1$  displaced in the ordinary manner, when the apparatus is started, are inked by the inking roller  $q$  and print the sums and other indications for which they serve in the ordinary manner upon the checking band  $s$  submitted

to their action by the printing table  $r$ . In the case of operations other than cash sales, that is to say operations for which the characters on the wheel  $j$   $j^1$  comprised in the angle  $z$   $z^1$  are brought into printing position, the recess  $y$   $y^1$  of the cam  $k$  is brought opposite the roller  $l$  carried by the lever  $d$ . At this moment the lever  $d$  is only maintained by the stop  $n$  upon which the pin  $m$  carried by the said lever bears. This stop serves to maintain between the inking roller  $q$  and the inking ribbon  $a$  a constant interval, so as to protect the ribbon from being soiled by the roller. If at this moment, the apparatus is started, it is obvious that the lever  $d$  and consequently the inking ribbon  $a$  will participate in the receding movement of the inking roller  $q$  until the roller  $l$  bears at the bottom of the recess  $y$   $y^1$  of the cam  $k$  (Fig. 6), while the said roller continues its receding movement until the extremity of its ordinary stroke (Fig. 7). As will be seen, the ribbon  $a$  has come across the printing wheel  $j$   $j^1$  opposite the characters brought into printing position and it is by its intermediary that the impression takes place upon the band  $s$ , fed in the ordinary manner by the printing table  $r$ . On the other hand, seeing that the inking ribbon  $a$  is impregnated with colored ink, the impression produced by its intermediary is clearly differentiated from the black impression obtained directly.

It is obvious that after each impression, no matter what the nature of the operation registered may be, the various organs displaced are automatically returned to their normal position of repose (Fig. 2).

Seeing that, between each impression, the checking band  $s$  is displaced longitudinally over the printing table  $r$ , it follows that all the impressions, direct or indirect (in black or in color) follow each other in one and the same column, as shown in Fig. 10. In this single column, the operations other than cash sales operations, are differentiated clearly from these latter, owing to the fact that they are in color. The analysis of the checking band into debits and credits may therefore readily be effected from the point of view of any kind of check either of the cash sales or of the operations other than such sales. It follows that the checking band with a single column with impressions in black and in color comprises the advantages peculiar to the two column band from the point of view of distinction between the operations, without presenting its defects. The two column band necessitates twice the quantity of paper, and a lateral displacement for each kind of operation registered.

What we claim and desire to secure by Letters Patent of the United States is:—

1. In combination with a cash register, having printing means, a single means for inking the printing means at each operation



and a checking band, means for printing transactions other than those of a predetermined kind in the same column and in a different color, comprising a pivoted arm, a printing ribbon carried thereby differing in color from said inking means, and means for interposing said ribbon between said printing means and the checking band when said transactions take place.

2. In combination with a cash register having printing means, a single inking means therefor for inking the printing means at each operation, and a checking band, means for indicating thereon in the same column and in a different color transactions other than those of a predetermined kind comprising a supporting arm, a ribbon carried thereby differing in color from said inking means, and means for interposing said ribbon between the printing means and the checking band when said transactions take place, so that the printing is done indirectly through said interposed ribbon in a different color.

3. In combination with a cash register having a main spindle, printing wheels carried thereby, means for inking said wheels, and a checking band, an auxiliary printing mechanism comprising a cam on said spindle, a pivoted lever engaged thereby, a printing ribbon differing in color from said inking means carried on said lever, and means for interposing said ribbon between the printing wheels and the checking band when transactions other than those of a predetermined kind are to be recorded.

4. In combination with a cash register having a main spindle, printing wheels carried thereby, means for inking said printing wheels, and a checking band, means for printing in the same column and in a different color transactions other than those of a predetermined kind comprising a rocking support, a ribbon carried thereby, a cam on said spindle engaging said support having a recess of an amplitude equal to that formed by the characters reserved for said transactions and so keyed to said spindle as to release said support at the proper moment to render the ribbon operative relatively to said printing wheels.

5. In combination with a cash register having a main spindle, printing means on said spindle, ordinary inking means adapted to be moved across said printing wheels, and a checking band, means for printing in a color different from said ordinary inking means and in the same column transactions other than those of a predetermined kind comprising a rocking support, a colored ribbon carried thereby, a cam on said main spindle engaging said support, and means for bringing said ribbon across the printing parts under predetermined conditions and when the inking means moves aside.

6. In combination with a cash register having a spindle, printing means carried thereon, ordinary inking means adapted to be moved across said printing means, and a checking band, means for printing on said band in a different color and in the same column transactions other than those of a predetermined kind comprising a rocking support, a colored ribbon carried thereby, and means for moving said ribbon across said printing means as the ordinary inking means is removed so that said printing means prints indirectly through the interposed ribbon in a different color.

7. In combination with a cash register having printing means for printing transactions, a single means for inking said printing means at each operation, a cooperating inking means differing in color from said first inking means, whereby transactions other than those of a predetermined kind may be printed in a different color in one and the same column when said different transactions occur.

8. In combination with a cash register having printing means for printing different transactions, a single means for inking the same at each operation, a cooperating inking means differing in color from said first inking means, whereby transactions other than those of a predetermined kind may be printed in a different color in one and the same column when said different transactions occur.

9. In combination with a cash register having printing means for printing different transactions in one column, a single means for inking said means at each operation, a cooperating printing ribbon of different color, whereby transactions other than those of a predetermined kind may be printed in said different color in one and the same column.

10. In combination with a cash register having printing means, with ordinary inking rollers therefor, for printing different transactions in one column, a cooperating printing ribbon differing in color from said inking means, whereby transactions other than those of a predetermined kind may be printed in a different color in one and the same column.

11. In combination with a cash register having printing means, a single means for inking said means at each operation, and a checking band, a cooperating inking means of a different color, whereby transactions other than those of a predetermined kind may be printed in the different color when said transactions occur, and means for actuating said inking means.

12. In combination with a cash register having printing means, a single means for inking said means at each operation, and a checking band, a cooperating inking ribbon

of a different color whereby transactions  
other than those of a predetermined kind  
may be printed in the different color, and  
means for interposing said ribbon of a dif-  
5 ferent color between the inked printing  
means and the checking band when said  
transactions occur.

In testimony whereof we have signed our

names to this specification, in the presence  
of two subscribing witnesses.

JULES FRYDMANE.  
LOUIS CHAMBON.

Witnesses:

HANSON C. COXE,  
LÉON CUAN HEUL.