H. WRONKER.

MACHINE FOR PRINTING LABELS.

APPLICATION FILED NOV. 12, 1913.

1,115,646.

Patented Nov. 3, 1914.

2 SHEETS—SHEET 1.

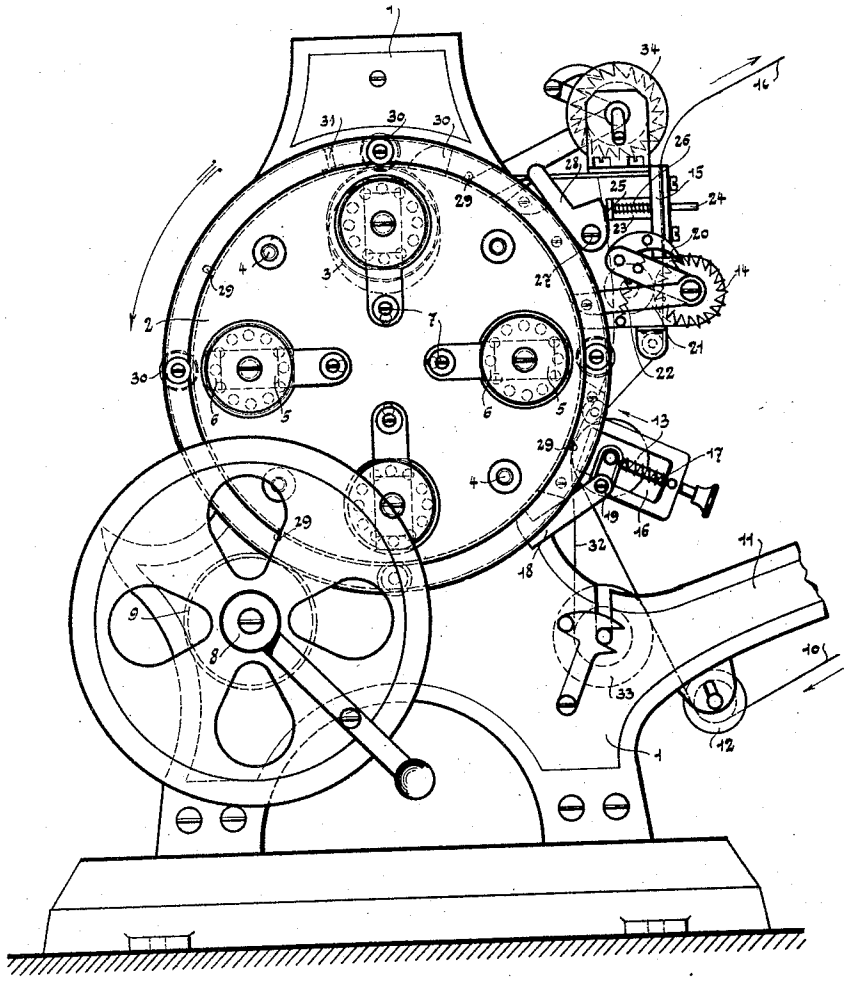


Fig. 1

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Bert R. Newcomb

Inventor:
Hermann Wronker
by O. Singer Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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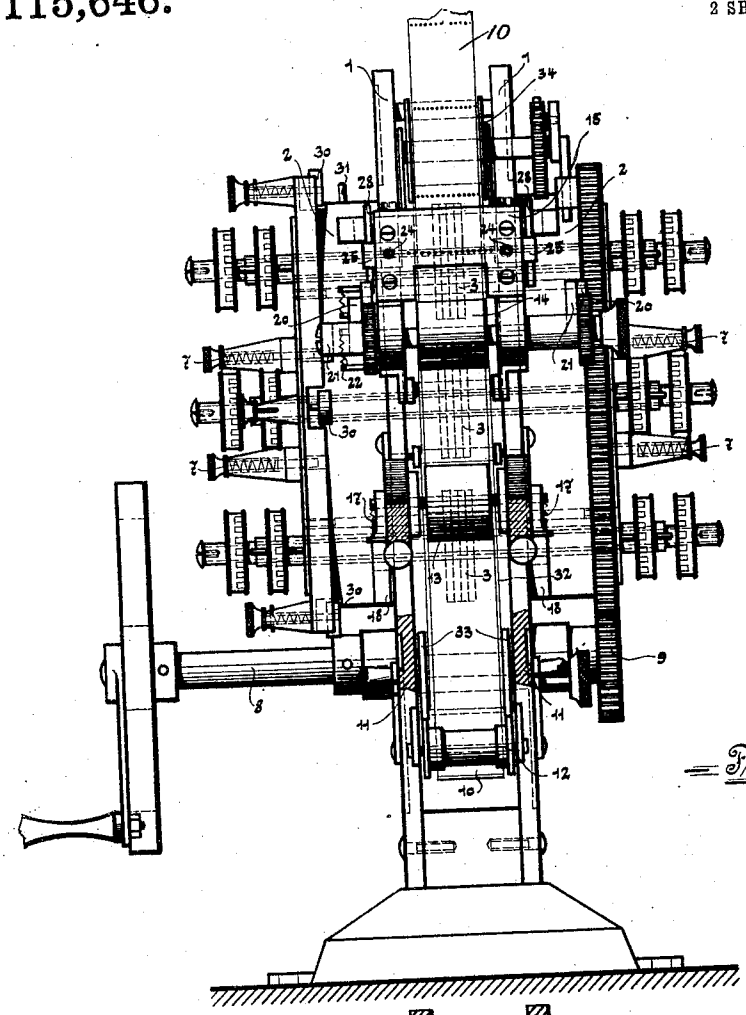


Fig. 2

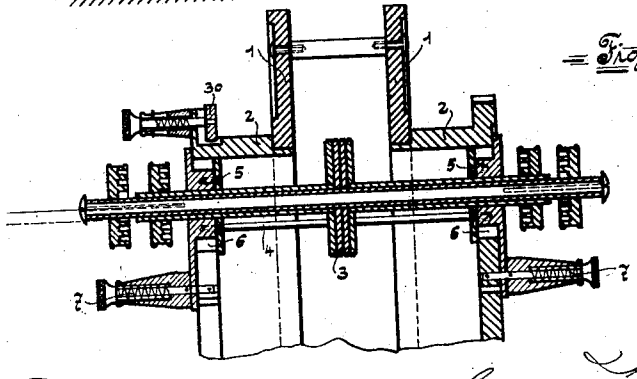


Fig. 3

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UNITED STATES PATENT OFFICE.

HERMANN WRONKER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

MACHINE FOR PRINTING LABELS.

1,115,646. Specification of Letters Patent. Patented Nov. 3, 1914.

Application filed November 12, 1913. Serial No. 800,550.

To all whom it may concern:

Be it known that I, HERMANN WRONKER, of 67 Schumannstrasse, Frankfort-on-the-Main, in the Empire of Germany, merchant, having invented certain new and useful Improvements in Machines for Printing Labels, do hereby declare that the following is a full, clear, and exact description of the same.

The present invention has for its subject a machine for printing labels, particularly labels in the form of strips for ticketing goods; a revoluble drum is used carrying a plurality of adjustable sets of type-carriers, against which the paper strip to be printed is pressed by means of an impression roller during the rotation of the drum, so that the types which are set in the printing position will print on the paper. As many lines can be printed on each label as there are sets of type-carrying members on the drum.

The drawings illustrate by way of example a machine constructed according to the invention.

Figure 1 shows the machine in side elevation. Fig. 2 shows a face view thereof; and Fig. 3 is a sectional detail view showing one set of the adjustable type-carrying members.

In the drawings, 1 is the machine frame consisting of a base and two side pieces connected together by suitably placed tie members (Fig. 3) and carrying the revoluble drum 2 with the sets of type-carrying members 3. These consist, as is usual, of disks with types on their edges, the disks being carried on hollow shafts fitting concentrically one over another around a central spindle. The shafts pass through the cheeks of the drum and carry outside the same suitable setting devices such as marked disks, Fig. 3. The drum 2 is preferably formed as a double disk member without a circumferential cover in its central part, the cheeks being connected together by bolts 4. If the drum is to have a cover, this must have openings at each of the sets of type-carrying disks in order to permit of the printing.

It is advantageous to support the drum 2 as shown by lateral annular pieces at its circumference working in concentric guideways in the frame 1 (Fig. 3) so that the interior of the drum may be quite free to accommodate the type sets 3 and so forth.

In order to enable any of the type sets to be thrown out of position for printing if desired, each set is supported in bearings 5 adapted to slide in slots 6 in the drum cheeks so that they can be moved radially therein. Thus the type-carrying disks may be set as required either for printing or in a retracted position wherein they will not print. The adjustment may be effected in any convenient way, for instance as shown, by means of handles 7 having spring-pressed pins for engaging each with one or other of two holes in the drum cheeks, as seen clearly in Fig. 3. In Fig. 1, the topmost set of type-carrying disks is shown by a double dotted circle in the printing position, while a single dotted circle indicates the retracted position.

The drum 2 is actuated for example by means of teeth at one side thereof meshing with a pinion 9 on a shaft 8, which is adapted to be turned by hand or motive power as may be required. A handle is shown for actuation in Figs. 1 and 2.

The strip of paper 10 to be printed upon, is fed upward at one face of the machine, between the sides of the frame 1, being unwound for instance from a roll (not shown) suitably supported in the arms 11 of the frame, which are shown broken off. On the same face of the machine are arranged the various devices which operate upon the paper strip. In their order from below upward these are as follows: The guide roller 12, the impression roller 13, the feed device 14, and the perforating device 15, in place of which latter any suitable cutting or severing device might be used.

The impression roller 13 is supported in bearings which slide in radial guideways 16 mounted on the frame, and is normally drawn backward by tension springs 17. Double armed levers 18 pivoted at 19 serve to operate the impression roller, their shorter arms engaging with the roller while their longer arms slide against the drum cover or upon the lateral inwardly projecting portions of the drum cheeks.

Above the impression cylinder 13 is the feed device 14 for the paper strip; this device comprises two gripping rollers between which the strip is fed while one of them is adapted to be turned by a suitable device such as the ratchet 20. The pivoted lever carrying this ratchet has an arm 21 which slides against the drum cover or the lateral

surfaces of the drum. A suitable spring 22 holds the strip feed device normally in the retracted position as shown.

The perforating device 15 above the feed device 14, consists of two perforated plates between which the paper strip travels, and of a perforating stamp 25 guided by lateral guides 23 and by pins 24 passing through the perforated plates, the stamp 25 being normally held retracted by springs 26, but being pressed up when required by cam levers 28 pivoted at 27. The nose-like projections on the free ends of these levers 28 slide on the cover of drum 2 or its lateral surfaces.

The levers 18, 21 and 28 of the impression roller 13, feed device 14, and perforator 15 respectively are made with the free engaging ends laterally displaced relative to one another so that they may be operated respectively by sets of cams or the like which are also laterally displaced in a corresponding manner relatively to one another on the drum 2.

The operation of the impression roller, of the feed device, and of the perforating device, is effected in each case by the pressing outward of the free ends of the corresponding levers 18, 21 and 28. This is done by means of cams or the like 29, 30 and 31 arranged on the cover of the drum or on its lateral annular faces in such a way that the cam members 29 operate the lever 18 of the impression roller, cam members 30 operate the lever 21 of the feed device 14, and cam members 31 operate the lever 28 of the perforating device 15 during the rotation of the drum 2. The arrows in Fig. 1 indicate the direction of rotation of the drum 2, the direction of motion of the paper strip 10, and the direction of motion in the pressing forward of the roller 13.

All the cams are constructed so as to be capable of adjustment both circumferentially and laterally in order on the one hand to control their various times of coming into action, and on the other hand to enable any cam which is not to come into action, to be moved quite out of its operating position. Between the successive operations of the perforating device the forward feeding movements of the paper feed device take place, and between the respective paper feeding movements the printing movements take place. At each printing action, the roller 13 is thrust inward radially toward the center of the drum 2 so far that it presses the paper strip against the set of types which at that moment are in front of the roller, thus printing on the paper from said types. During the time of contact, although the drum 2 continues to turn slowly, the printing is not blurred because the paper strip can also be carried forward in so far as is necessary by the contact with the types. The roller 13 springs back under the action of its springs 17, immediately after the lever 18 passes its cam 29. The forward movement of the impression roller must of course take place exactly at the moment when types which are to effect the printing are brought by the rotating drum just to the printing position. The cams only need to be correctly adjusted or thrown out of action according to the size of ticket required (a larger stroke of lever 21 produces a longer ticket) the number of lines on the ticket, and the desired spacing of the lines thereon, in order to obtain whatever result is required.

All of the actuating parts (cams, levers and so forth) for the impression roller, the paper feed device, and the perforating device, are shown in duplicate at the two sides of the machine, but this is by no means always essential.

In order to avoid the necessity of inking the types which are to print each time, an ink ribbon 32 like a typewriter ribbon is used. This is arranged between the drum 2 and the paper strip 10, behind the paper feeding and perforating mechanisms. The ink ribbon 32 is pressed with the paper 10, at each operation, against the types which are in the printing position, thus causing impressions of the types to be formed on the paper. The ribbon 32 can move forward slightly with the types and paper during the printing, so that blurring is avoided.

In order to insure that the ink ribbon shall be used up evenly, it is wound on rollers 33 and 34, one of which is arranged in the lower part of the frame and the other in the upper part thereof, so that the ink ribbon can be wound alternately from one roller on to the other, and back again. It is desirable to provide means for moving the ribbon 32 positively from the drum 2. In the example illustrated, the upper roller 34 is provided with a pawl and ratchet device for mechanical feeding thereof actuated by a lever engaging projections on the drum 2. The ribbon is rewound on the lower roller 33 when required by hand. The ribbon 32 can be changed easily when necessary so that it can be quickly replaced by a new one.

It is of great importance in the label printing machine described, that all movements for the various separate devices are derived from the turning movement of the drum 2, which bears the adjustable sets of type-carrying disks 3, the motions being given in such a simple manner that the whole machine can be actuated by hand and only takes up very little space.

The following is the sequence of actions in working with the machine described: The paper strip 10 runs off automatically from a revolubly supported roll, and is carried over the guide roller 12, then between the

drum and the impression roller 13, between the rollers of the feed device 14, and the perforated plates of the perforating device 15. The ink ribbon 32 moves at the same time, as seen from Fig. 1, between the paper strip and the drum at the printing position. The types to be used for printing in the respective sets of type-carrying disks 3 are adjusted to position by means of their setting disks outside the drum cheeks and are pushed forward into the printing position by sliding outward their bearings 5 by means of the handles 7, so that the paper strip and ink ribbon will be pressed against the types when the impression roller 13 is operated. When the adjustment of the type-carrying members is completed, it is only necessary to set the drum 2 in rotation. Its cam members then act upon the levers of the various devices 13, 14, 15 and 34, so that they fulfil their functions in the proper order. If all the type sets are in action the roller 13, paper feed device 14 and ribbon feed device 34 will be operated four times in each revolution of the drum 2, and the perforating device 15 will operate once to divide one ticket from the next, each ticket having four lines printed upon it. The paper strip ready printed and perforated to form the separate labels, comes out automatically from the perforating device so that the labels are ready for immediate use.

What I claim as my invention, and desire to secure by Letters Patent is:—

1. In a machine for printing labels, the combination of a frame, a revoluble drum therein, and type-carrying members on said drum, means for turning the drum, a feeding device for a paper strip, an impression device for pressing the strip against the types, means adapted to be operated automatically by the rotating drum, for actuating the feeding device and the impression device at the required moments, and means whereby one or more of the said type carrying members may be brought into the inoperative position.

2. In a machine for printing labels, the combination of a frame, a revoluble drum and a plurality of sets of type-carrying members thereon each comprising type-disks with means for adjusting them circumferentially, and means for adjusting each set of disks inwardly and outwardly, means for turning the drum, an impression device for pressing a paper strip against those type sets on the drum which are adjusted to the outward position, and means adapted to be actuated by surfaces on the drum for operating the impression device at the moments when the types are in position for printing.

3. In a machine for printing labels, the combination of a frame, a revoluble drum supported therein, a plurality of sets of radially adjustable type-carrying members on said drum, means for rotating the drum, and an impression device for pressing a paper strip at proper intervals against the types, said impression device comprising a roller, means tending to retract the same, lever arms connected to the roller, and means attached to the drum for acting upon said arms and adapted to move them automatically to press the roller toward the drum at the required moments.

4. In a machine for printing labels, the combination of a frame, a revoluble drum supported therein, a plurality of sets of radially adjustable type-carrying members on said drum, means for rotating the drum, an impression device for pressing a paper strip against the types as they come opposite the impression device, means actuated by the drum for operating the impression device at the proper moments, and an ink ribbon with means for feeding it forward intermittently between the paper strip and the types.

5. In a machine for printing labels, the combination of a frame, a revoluble drum supported therein, a plurality of sets of adjustable type-carrying members on said drum, means for rotating the drum, an impression device for pressing a paper strip intermittently against the types and means for actuating said device by the rotation of the drum, and a ratchet paper feed device comprising a pair of gripping rollers with mechanism for actuating the same, and projections on the drum for operating said mechanism as the drum rotates.

6. In a machine for printing labels, the combination of a frame, a revoluble drum supported therein, a plurality of sets of radially adjustable type-carrying members on said drum, means for rotating the drum, an impression device for pressing a paper strip against the types, and mechanism for operating the same by the rotation of the drum, a perforating device comprising perforated plates between which the paper strips can pass, a perforating stamp with cam levers for operating the same, and means for operating said cam levers by the rotation of the drum.

7. In a machine for printing labels on a paper strip the combination of a frame, a revoluble drum with sets of adjustable type-carrying members supported therein, means for turning the drum, an impression device for pressing the paper strip against the types, a paper strip feeding device, a perforating device, and a set of adjustable projections on the drum adapted to actuate respectively said impression device, feeding device and perforating device at the required moments during the continued rotation of the drum.

8. In a machine for printing labels on a paper strip, the combination of a revoluble drum bearing the types, means for support-

ing and for turning said drum, an impression device, a paper feed device, and a perforating device, each such device having an arm for operating the same projecting toward the drum, each arm being in a different plane from the other said arms, and adjustable cam members on the drum whereby said arms may be operated or not as may be required, according to the positions of setting of the cam members, as the drum rotates.

9. The combination with the drum 2 and its sets of radially adjustable type members 3, of means for turning the drum, a paper feed device, and the impression device 13 with the means for actuating it from the drum 2, substantially as described.

10. The combination with the drum 2 and its sets of radially adjustable type members 3, of means for pressing the paper strip at intervals of time against the types, and the paper feed mechanism 14 with its actuating mechanism, substantially as described.

11. The combination with the drum 2 and its sets of radially adjustable type members 3, of means for pressing the paper strip at intervals of time against the types, a paper feed device, and the perforating mechanism 15, with its actuating means, substantially as described.

12. The combination of the drum 2 with its sets of radially adjustable type-carrying members 3, and the slides 5 with handles 7 for adjusting the sets of members 3 into or out of the printing position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HERMANN WRONKER.

Witnesses:

JEAN GRUND,

CARL GRUND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."