Oct. 17, 1933. C. J. HUEBER 1,930,807

PRINTING DEVICE

Filed May 12, 1930

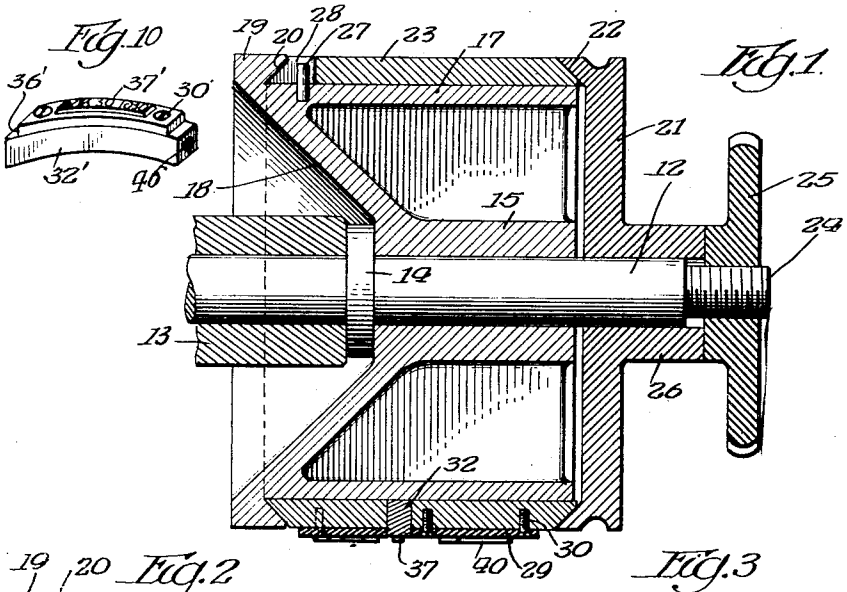


Fig. 1.

Fig. 10

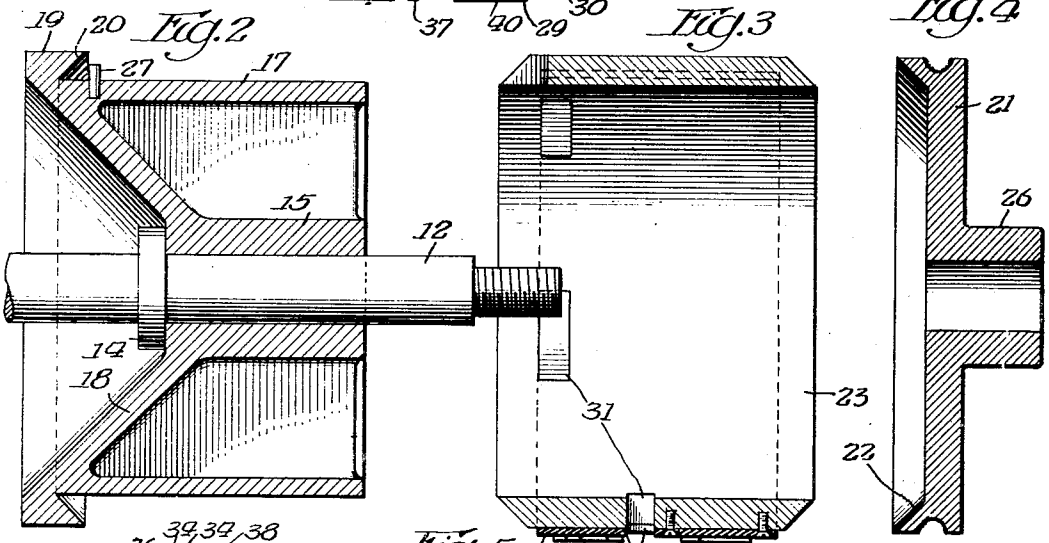


Fig. 2

Fig. 3

Fig. 4

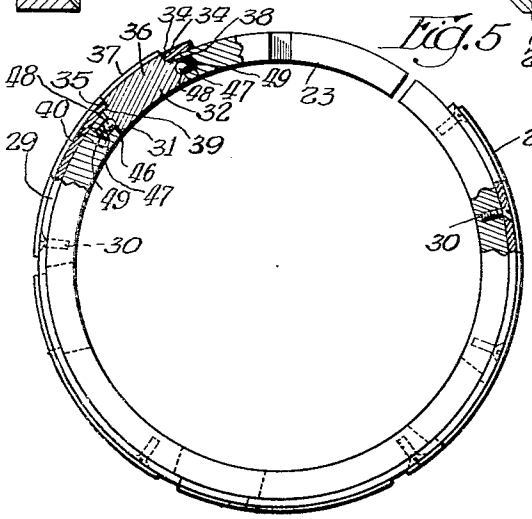


Fig. 5

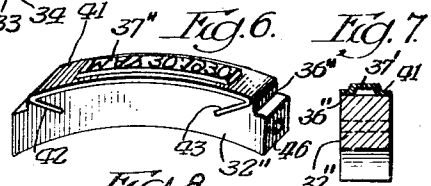


Fig. 6.

Fig. 7.

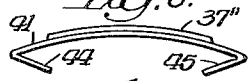


Fig. 8.

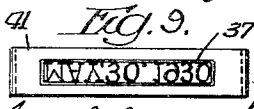


Fig. 9.

Inventor

Carl Joseph Hueber

By Mc. S. Bell Atty.

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1,930,807

PRINTING DEVICE

Carl Joseph Hueber, Chicago, Ill., assignor to Addressograph Company, Wilmington, Del., a corporation of Delaware

Application May 12, 1930. Serial No. 451,701

14 Claims. (Cl. 101—374)

This invention relates to printing devices and more particularly to a device embodying an electroplate or other permanent printing form. Such devices are often employed in printing operations wherein certain variable data is printed as, for example, dates, firm names, and addresses, and other analogous data. By reason of the permanent character of the device, considerable difficulty has been encountered in arranging it to include the variable data. Therefore, it is among the salient objects of my invention to provide a printing device that will print both permanent and variable data.

Other objects of the invention are to provide a printing device in which a replaceable portion may be expeditiously installed or removed without the employment of tools; and to provide a printing device that will be firmly retained on the mounting therefor.

An illustrative use of my invention is in connection with a printing device of the kind disclosed in the copending application of Curtis George Kranz, Serial No. 511,707, filed in the United States Patent Office on January 28, 1931.

A selected embodiment of the invention is illustrated in the accompany drawing wherein:

Fig. 1 is a vertical sectional view of the printing device assembled on the mounting therefor;

Fig. 2 is a vertical sectional view of a portion of the mounting illustrated in Fig. 1;

Fig. 3 is a vertical sectional view of the printing device illustrated in Fig. 1;

Fig. 4 is a vertical sectional view of a cap employed in the mounting illustrated in Fig. 1;

Fig. 5 is an end view of the portion of the printing device illustrated in Fig. 3;

Fig. 6 is a perspective view of one form of the replaceable portion of the printing device;

Fig. 7 is a vertical sectional view of the replaceable portion shown in Fig. 6;

Fig. 8 is a side elevation of a section of the replaceable portion illustrated in Fig. 6;

Fig. 9 is a plan view of the detachable section illustrated in Fig. 8; and

Fig. 10 is a view depicting a further modified form of the replaceable portion.

The printing device illustrated in the accompanying drawing is adapted to be used in a printing couple of the kind shown in the copending application of Curtis George Kranz, Serial No. 404,092, filed November 1, 1929, and the shaft 12, journaled in the bearing 13, is a portion of the machine disclosed in that application. However, it is to be understood that the device is not limited to such a structure and that the shaft 12 may be any suitable shaft. In the present instance, a collar 14 is fixed on the shaft 12 at the end of the bearing 13. Abutting this collar 14 is the bearing 15 connected to the sleeve 17 by the conical web 18, the base portion of which is arranged over and spaced from the bearing 13 whereby the sleeve 17 is of greater length than the bearing 15. At the end of the sleeve 17 connected to web 18 is a peripheral ring 19 having a beveled shoulder 20 thereon which projects over the sleeve 17. The shaft 12 is of greater length than the sleeve 17 and projects therebeyond. A cap 21 is mounted on the projecting portion of the shaft 12 and includes a portion providing a beveled shoulder 22. A split steel ring 23 has the opposite edges thereof tapered and one of these edges engages the tapered shoulder 20. The other of the edges is engaged by the tapered shoulder 22 on the cap 21. The cap 21 is spaced from the end of the sleeve 17. At the outer end of the shaft 12 is a reduced screw-threaded portion 24 on which a nut 25 is arranged. The nut 25 engages the end of the bearing portion 26 of the cap 21 and by tightening the nut the cap may be moved inwardly. Since one edge of the ring 23 is engaged by one edge of the shoulder 22 and as the opposite edge engages the tapered shoulder 20, it is manifest that tightening of the nut 25 forces the cap 21 inwardly and thus the ring 23 is effectively clamped on the sleeve 17 of the drum 16 over which it is fitted. By reason of the innate resiliency of the ring 23 and since this ring is split, the ring will tightly grip the sleeve 17. In order to prevent turning of the ring 23 about the sleeve 17 a pin 27 is fixed in the sleeve and is projected into a slot 28 in the ring. On the periphery of the ring 23 the printing forms, which may be electroplates 29 or other printing devices, are arranged and these forms are retained in position by screws 30, or in any other desired manner. These forms 29 are of a permanent character and, therefore, to provide for the printing of variable data, I employ replaceable portions 32. In the ring 23 openings 31 are provided and these openings are alined with the part of the form that is to print the variable data and, therefore, by inserting a member through these openings, printing characters may be provided at the proper place on the form to print the variable data. One type of such a member or replaceable portion for the form is illustrated in Fig. 11 and is indicated by 32'. At the part of the electroplate at which the characters for printing the variable information is to appear, I provide an opening 33. Axially this

opening 33 is of the same size as the opening 31, as illustrated in Fig. 3, but circumferentially this opening 33 is smaller than the opening 31, as illustrated in Fig. 5. Thus, portions of the electroplate 29 project over the opening 31 and provide lips which are indicated by 34 and 35. These lips project over the opening 31 circumferentially of the ring 23. The portion 32 is segmental in shape being formed on the same radius as the radius of the ring 23. On the upper surface of the portion 32 is a raised section 36 on which the type characters 37 are provided and this raised section 36 is shorter than the portion 32 and, therefore, shoulders 38 and 39 are defined. The portion 32 is passed into the ring 23 and is then inserted into the opening 31 and the section 36 is extended through the opening 33, this section 36 being of the same circumferential length as the opening 31 and is of the same axial width. Therefore, the portion 32 will be snugly fitted in the opening 31 and the section 36 will be snugly fitted in the opening 33 as this section is of a length equal to the distance between the free ends of the lips 34 and 35. The type characters 37 will be alined with the type characters 40 on the electroplate 29 because the section 36 is of a height equal to the thickness of the electroplate. The engagement of the lips 34 and 35 with the shoulders 38 and 39 will limit movement of the portion 32 outwardly of the ring 23. This portion 32 will be installed in the ring 23 when said ring is removed from the sleeve 17 of the drum 16. When the ring is slipped onto the sleeve 17 the inner surface of the portion 32 will engage the periphery of the sleeve and, therefore, movement of the portion 32 inwardly of the ring 23 will be prevented and it is, therefore, apparent that displacement of the portion 32 will be prevented when the device is arranged in the manner illustrated in Fig. 1. In order to retain the portion 32 in installed position, especially when ring 23 is removed from drum 16, the following arrangement is provided: In one end of the portion 32 a socket 46 is formed. At the end of the opening 31 with which the socketed end of the portion 32 is to contact I provide an opening 47 in which a ball 48 is arranged and which is held against displacement from the opening. A spring 49 is disposed in the opening 47 behind the ball 48 and urges the ball into the socket 46 but when pressure is exerted on the insert or portion 32 the ball will unseat against the action of the spring 49.

The insert 32 shown in Fig. 5 is made in one piece and in Fig. 10 I have illustrated another manner of making this insert and herein the raised portion 36 is provided by a strip 36' which may be an electroplate and the type characters 37 are formed on the face of this strip 36'. The strip 36' is secured to the main body portion 32' by screws 30' or the like. This strip is shorter than the main body portion and the ends thereof provide the shoulders which cooperate with the ends of the lips 34 and 35.

In the embodiment of the invention illustrated in Figs. 6 to 9, inclusive, the portion 32'' is constructed in the same manner as the portion 32 and embodies a section 36''. The type characters 37'' are embossed on a sheet metal strip 41. Adjacent the ends of the section 36'' the portion 32'' embodies gashes 42 and 43. These gashes extend across the portion 32'' and angularly thereinto toward each other. At the ends of the strip 41 are angularly extending portions 44 and 45. These angularly extending portions 44 and 45 are slipped into the gashes 42 and 43, respectively, and therefore the strip 41 extends across the upper surface of the section 36'' and, in this manner, the printing characters 37'' are positioned in the same relative location as the printing characters 37. In this arrangement, the section 36'' will be of less height than the section 36 in an amount equal to the thickness of the strip 41. When the section 32'' is fitted in the opening 31 the strip 41 is held against endwise displacement therefrom.

When it is desired to replace the portion 32, the nut 25 is removed and the cap 21 is slipped from the shaft 12. The ring 23 is then slid from the sleeve 17. The section 32 is then removed and replaced by a new one. The ring 23 is again slid onto the sleeve 17, the cap 21 replaced, and the nut 25 tightened. Therefore, the printing characters 37 on the portion 32 will be alined with the printing characters 40 on the electroplate 29 and will act in the same manner as though they were a unitary part of the electroplate.

In Fig. 5 it is shown that a plurality of electroplates 29 are provided, but it is to be understood that but one electroplate may be used without departing from the spirit and scope of the invention. Further, as many removable sections as required may be provided. While I have shown printing characters 37 as being arranged to print a date, it is to be understood that these characters may be arranged to imprint any information that may be desired.

By providing the nut 25 with a hand portion, it is apparent that the need for any tools is entirely eliminated since the portion 32 may be readily moved into or from position as soon as the ring 23 is removed from the periphery 17.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, it is to be understood that this is capable of variation and modification without departing from the purview of the following claims.

I claim:

1. In a printing device, a carrying member, a printing form having printing characters thereon, said carrying member and said printing form having alined openings therein, a portion insertable into said openings and having printing characters thereon, and means for alining the printing characters on the portion with the printing characters on the form.

2. In a printing device, a carrying member, a printing form, said carrying member and said printing form having alined openings therein, and a portion insertable into said openings, said form including sections extended over said opening, said portion having sections thereon adapted to engage said sections on said form to limit movement of said portion in one direction in said opening.

3. In a printing device, a carrying member having an opening therein, a printing form having an opening therein in alinement with the opeing in said carrying member and including sections extending over said opening in said supporting member, a portion insertable into said opening including a section adapted to snugly fit in the opening in said carrying member and another section adapted to snugly fit in the opening in said form whereby said sections of said form engage said portion to limit movement thereof in one direction in said opening.

4. In a printing device, a carrying member having an opening therein, a printing form having an opening therein in alinement with the open-

ing in said carrying member and including sections extending over said opening in said supporting member, printing characters on said form, a portion insertable into said said opening including a section adapted to snugly fit in the opening in said carrying member and another section adapted to snugly fit in the opening in said form whereby said sections of said form engage said portion to limit movement thereof in one direction in said opening, said other section having printing characters adapted to be alined with the printing characters on said form when said portion is engaged with said sections of said printing form.

5. In combination, a supporting member, a printing form, a carrying member for said printing form, said carrying member and said printing form having alined openings therein, a portion disposed in said openings, means limiting movement of said portion in one direction, said carrying member being mounted on said supporting member to limit movement of said portion in the other direction.

6. In combination, a drum, a ring, means securing said ring on said drum, a printing form on said ring, said ring and said form having alined openings therein, and a portion adapted to be disposed in said openings prior to the securing of said ring on said drum whereby said portion is retained in said openings when said ring is mounted on said drum.

7. In combination, a drum, a ring, means securing said ring on said drum, a printing form on said ring having printing characters thereon, said ring and said form having alined openings therein, a portion adapted to be disposed in said openings prior to the securing of said ring on said drum whereby said portion is retained in said opening when said ring is mounted on said drum, said portion having printing characters thereon, and means for alining the printing characters on said portion with the printing characters on said form when said ring is secured on said drum.

8. In combination, a drum, a ring, means securing said ring on said drum, a printing form on said ring, said ring and said form having alined openings therein, and a portion adapted to be disposed in said openings prior to the securing of said ring on said drum whereby said portion is retained in said openings when said ring is mounted on said drum, and sections on the printing form extending over the opening in said ring to limit the outward movement of said portion when said ring is mounted on said drum.

9. An insert for a printing form and including a body portion having a raised section thereon, a member having printing characters thereon, said body portion having gashes therein at the ends of said raised portion, and portions on said member adapted to be disposed in said gashes to retain said member in position on said raised portion.

10. An insert for a printing form and including a body portion having a raised section on one face thereof defining shoulders at opposite ends of the body portion, said body portion having inwardly extending gashes therein at the ends of said raised portion, a strip having type characters thereon and including inwardly extending portions at the ends thereof adapted to be fitted in said gashes to retain said strip on the face of said raised portion with the ends thereof in substantial alinement with said shoulders.

11. In combination, a printing form having an opening therein, a removable portion in said opening, means for positioning said removable portion in said opening, and releasable means for retaining said removable portion in said opening in said printing form, said releasable means including spring pressed balls carried by said printing form and engageable in sockets in the ends of said removable portion.

12. In combination, a supporting member, a printing form, a carrying member for said printing form, said carrying member and said printing form having alined openings therein, a portion disposed in said openings, means limiting movement of said portion in one direction, said carrying member being mounted on said supporting member to limit movement of said portion in the other direction, means securing said carrying member on said supporting member, and means for preventing relative movement between said carrying member and said supporting member and for positioning said carrying member on said supporting member so that said portion will always be disposed in the same relative position on said supporting member.

13. In a printing device which has a support having an opening therein, a printing form mounted on said support and having an opening therein registered with but smaller than the opening in the support to provide portions overlapping the opening in the support, the combination therewith of an insert adapted to neatly fit in the opening in said support, and a section on said insert adapted to neatly fit in the opening in said printing form whereby the portions on said insert about said section engage the overlapping portions on said printing form to aline the section on the insert with the printing form.

14. In a printing device which has a support having a substantially rectangular opening therein, a printing form mounted on said support and having a substantially rectangular opening therein registered with the opening in the support, the opposite sides of the opening in the printing form being alined with the opposite sides of the opening in the support and the other opposite sides of the opening in the printing form being arranged inwardly of the adjacent sides of the opening in the support to provide overlapping portions on the printing form at opposite ends of the openings in the support, the combination therewith of an insert adapted to neatly fit in the opening in said support, and a section on said insert having opposite edges thereof alined with opposite edges of the insert and having other opposite edges thereof spaced inwardly of the adjacent edges of the insert to provide shoulders, said shoulders engaging the overlapping portions of the printing form when the insert is disposed in said openings and said section is disposed in the opening in the printing form, said overlapping portions alining the section on the insert with the printing form.

CARL JOSEPH HUEBER.