

W. KOLBE.
 PRINTING DEVICE FOR REGISTERING CASH AND THE LIKE.
 APPLICATION FILED FEB. 9, 1921.

1,398,435.

Patented Nov. 29, 1921.

Fig.1.

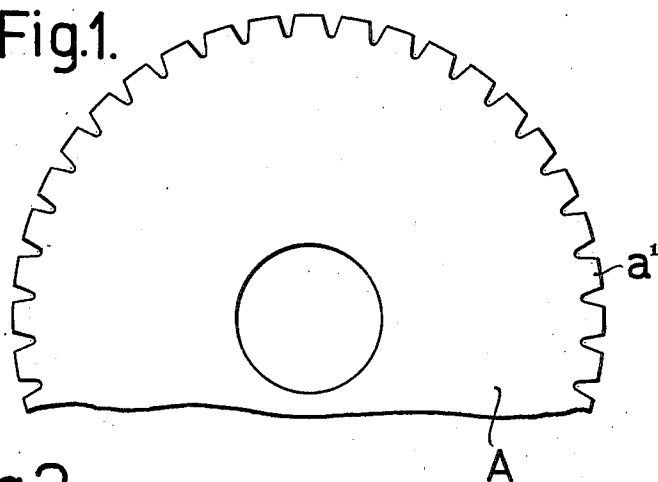


Fig.2.

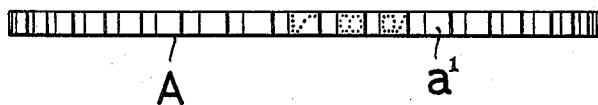


Fig.3.

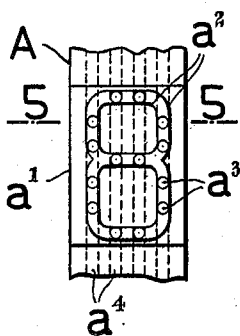


Fig.4.

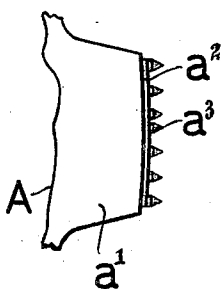


Fig.5.

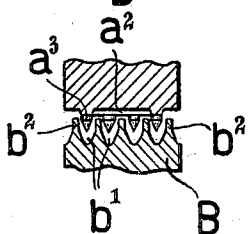


Fig.7.

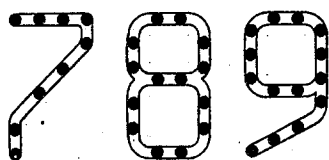
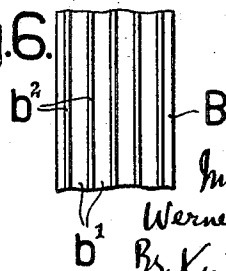


Fig.6.



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PRINTING DEVICE FOR REGISTERING CASH AND THE LIKE.

1,398,435.

Specification of Letters Patent.

Patented Nov. 29, 1921.

Application filed February 9, 1921. Serial No. 443,647.

To all whom it may concern:

Be it known that I, WERNER KOLBE, residing at Essen, Germany, a citizen of the German Republic, have invented a certain new and useful Improvement in Printing Devices for Registering Cash and the like, (for which I have filed application in Germany, Oct. 22, 1919,) of which the following is a specification.

This invention relates to printing devices for registering cash and the like, of the kind serving for making inked prints, and this in particular such as are adapted to offer a great deal of safety against fraud by rendering it impossible to subsequently alter the print. To this end in accordance with this invention, the types or ciphers of the printing device are provided, within their contours, with points having the form of center-punches and being adapted to pierce the material on which the print is to be made during the printing operation.

One embodiment of the essential elements of the subject matter of the invention is shown by way of example in the annexed drawing in which—

Figure 1 is a side view of a portion of a type-wheel,

Fig. 2 a top view thereof,

Fig. 3 a top view of a type on an enlarged scale,

Fig. 4 a corresponding side view thereof,

Fig. 5 a sectional view taken on line 5—5 in Fig. 3, along with the counter die belonging thereto,

Fig. 6 a top view of a portion of the counter die and

Fig. 7 a reproduction of the print made by several of the types.

Referring to the drawing, the type-wheel A is constructed in the manner of a toothed wheel. On the top surface of each tooth a^1 is there arranged a type, representing, say, a cipher. Each type comprises ridges a^2 (see Figs. 3 to 5), forming the contours of the type, and is provided with points a^3 having the form of center-punches and being lodged within said ridges a^2 . These points a^3 are of such length as to project beyond the ridges. Further, these points a^3 are disposed in rows a^4 which lie in parallel to each other (Fig. 3). The counter die B (Figs. 5 and 6), destined for carrying the object to be printed, say a slip of paper or the like, is

provided for its part, with a series of grooves b^1 disposed in parallel and running in the same direction as the rows a^4 of points, the width of these grooves being somewhat larger than the diameter of the cylindrical portion of the points a^3 . Ridges b^2 , confining the grooves b^1 laterally serve as a support for the slip of paper.

Before making a print the types, that is to say the ridges a^2 and the points a^3 are suitably inked. The print is made by the counter die B and therewith the sheet of paper being either moved toward the types, or else by moving the set of types toward the counter die. During this printing operation, the paper slip is pierced by the points a^3 passing through the sheet into the grooves b^1 , while the paper around the perforations so formed is saturated with ink. The result is that there is no possibility whatsoever of subsequently tampering with the print by either closing up the perforations again or erasing the print. Besides this, the contours of the types belonging to one group, say, for example, the types representing the ciphers from 0 to 9 are so chosen and the points a^3 of these types are so arranged that the print made by each type will embody at least one portion which in respect of its position as also of the arrangement of the perforations therein will not recur in any of the prints made by the other types (see Fig. 7). Hence, the print made by one type cannot be subsequently altered to resemble that of any other type by adding lines or perforations, and by these means again any forging of or tampering with the prints is rendered practically impossible.

It may be noted that a printing device is already known in which the printing surface of the types as also the counter die are provided with ribs and grooves in such a manner that when the counter die and the types come to be pressed together, the ribbed portion of the one member always comes to engage the grooved portion of the other member, and in which the paper to be printed is cut by the edges of the ribbed member. However, by this structure the legibility of the print is greatly impaired. Besides, the paper is very much weakened by the cuts running across the entire printing area of the types, and there consequently exists the danger of

the print being injured by the paper tearing. All these drawbacks are entirely obviated by the subject matter of this invention.

In contradistinction to the perforations being made by a method of stamping, the piercing of the paper or by other means of center-punch-shaped points embodies the advantage that it is no longer necessary to provide for the stamping element of each type an exactly shaped recess in the counter die or matrix.

A device of this kind will not work properly whenever the stamping element and the matrix do not happen to accurately register, for which reason this prior form of construction is wholly unsuitable for printing devices having an adjustable type arrangement, *i. e.* where the types are mounted on wheels, because in such an arrangement slight deviations from the proper adjustment effected and caused, say, by lost motion of the adjusting gear mechanism, are practically unavoidable. In addition, this prior arrangement makes it imperative to provide for the different types correspondingly different matrices, since it is not possible to produce a single matrix which will at the same time correspond to a large number of different types. In contrast to this prior construction, the arrangement of center-punch-shaped points in rows and the possibility thereby created of simply grooving the counter die yields the advantage that the points will always encounter the grooves, which are given a suitable width for this purpose, regardless whether the type wheels have suffered a slight lateral displacement or not, or even when there happen to prevail differences of adjustment in their direction of rotation, so that the piercing of the object to be printed will be effected without difficulty.

In the place of a grooved counter die under certain circumstances a non-grooved block of rubber or a similar soft material may be used.

Claims.

1. A printing device of the class described comprising a multiplicity of printing types, points disposed along the printing contour of said types for piercing the object to be printed during the printing operation, said

printing points being arranged in parallel rows, said points being arranged differently for each type, a counter die provided with spaced parallel grooves cooperating with said points during the printing operation.

2. A printing device for registering cash and the like having printing types, points mounted within the printing contours of said types in rows parallel to each other and piercing the object to be printed during the printing operation, and a counter die provided with cooperating grooves for the reception of said points.

3. A printing device for registering cash and the like having printing types and a counter die carrying the object to be printed, points mounted within the printing contours of said types in rows parallel to each other and piercing the object to be printed during the printing operation, said counter die being provided with grooves running in parallel with said rows of points of said types.

4. A printing device for registering cash and the like having printed types, points mounted within the printing contours of said types and piercing the object to be printed during the printing operation, each type differing from the remaining types of the same reach in at least, a portion of its printing area, as regards to the configuration of the latter and to the arrangement of said piercing points, said points being also arranged in spaced parallel rows.

5. A printing device of the class described comprising a multiplicity of printing types, points disposed within the printing contour of said types and adapted to pierce the object to be printed, said points being arranged in spaced parallel rows, a counter die carrying the object to be printed, said counter die being provided with grooves disposed parallel with said rows of points and of a width to permit a clearance between said points and the walls of said grooves when said types and counter die engage one another.

The foregoing specification signed at Essen, Germany, this 28th day of September, 1920.

WERNER KOLBE.

In presence of—

HANS GOTTMANN,
JOHANN DECKERS.