Aug. 17, 1954 H. N. BLISS 2,686,468

SELECTIVE EMBOSSING DEVICE

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Fig. 1

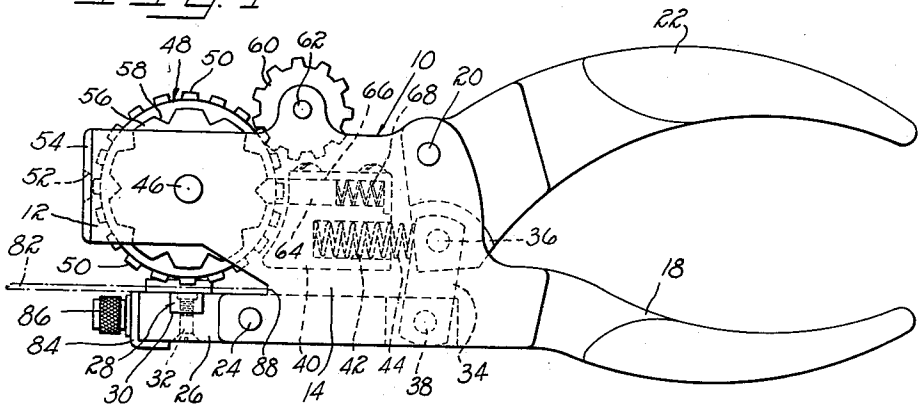


Fig. 2

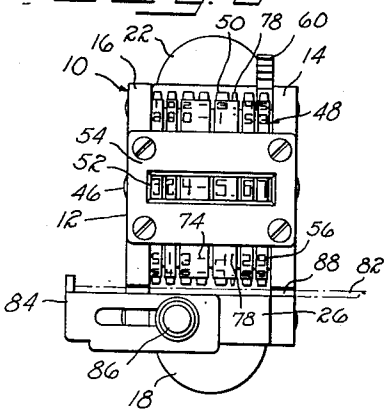


Fig. 3

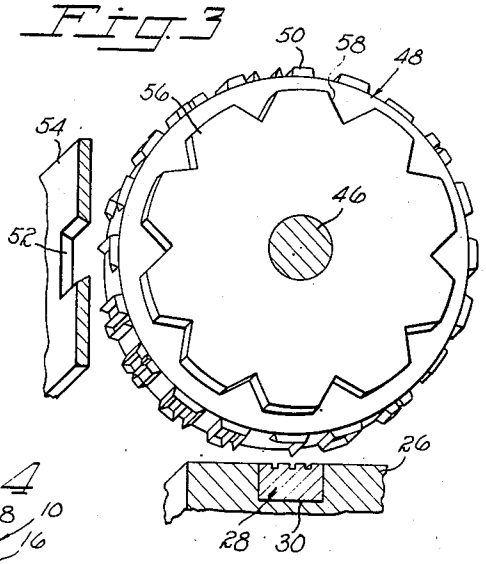
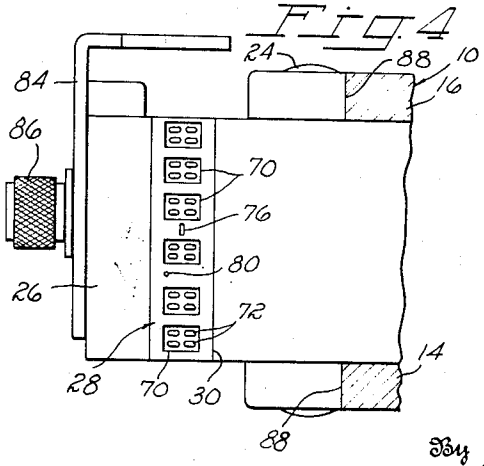


Fig. 4



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Fig. 5

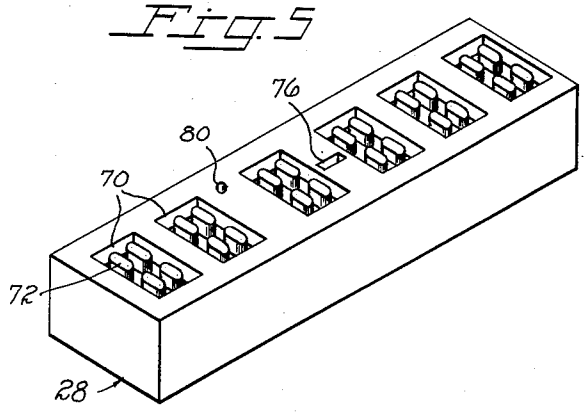
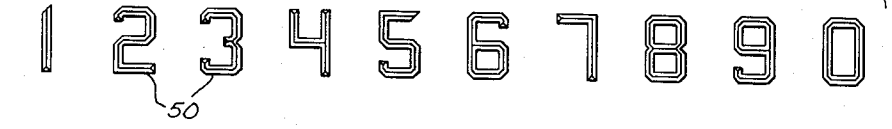


Fig. 6



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SELECTIVE EMBOSSING DEVICE

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Application June 23, 1948, Serial No. 34,631

1 Claim. (Cl. 101—18)

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This invention relates to improvements in embossing devices and more particularly, but without restriction thereto, to hand embossing devices adapted for impressing numerals or other similar indicia on sheet-like material such as insurance collection and other types of record cards, tickets, identification cards, checks, library books and records, sales slips, and many other similar records on which it is desired to impress embossed indicia for purposes of rendering the indicia clearly readable as well as to render difficult any modification of the same.

Heretofore, it has been common practice in making records of the type referred to to print numerical indicia on the records or punch parts from the record material to outline indicia. In order to punch indicia such as different numerals, however, various types of stencil style indicia have had to be used to prevent central portions of the indicia from being punched out at the time the indicia is punched in the material. This has been generally true with such numerals as 6, 8, 9, and 0. Previous efforts have also included the use of a series of holes placed in the material in a pattern outlining a desired numeral but the result does not provide an indicia that is very legible.

When printing has been used to form indicia on records of this nature, tampering with the indicia is possible so as to alter the same, and in view of this, the afore-mentioned punching of indicia in the record sheet has been resorted to.

Further, it is also possible to form a continuous line style of embossed indicia on sheet material if complementary male and female type embossing indicia and die cavities are respectively formed on carefully indexed members. However, such mechanism requires, for example, a pair of rotatably mounted members which are geared together to insure such indexing. This results in the possibility of destroying the correct indexing by the gears becoming unmeshed, as well as the device being bulky and cumbersome which is undesirable if it is to be portable and hand operated.

It is an object of the present invention to provide a simple and preferably portable, hand operated embossing device which will form clear numerical or similar indicia embossed in the surface of sheet-like record material, the indicia comprising continuous lines such as usually found in printed indicia. It is an aim of this object of the invention to provide, for example, a plurality of rotatable members mounted side by side and having raised indicia formed on a surface of each. The indicia of each member cooperate with a single, small, universal die provided for each

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member and furnishing satisfactory support for the sheet-like material by having cavity portions cooperating with and closely conforming to the raised indicia of each rotatable member so that raised continuous-lined indicia are formed in the sheet-like material being embossed.

It is a further object of the invention to embody within the device constructions which render it compact and simplified not only in regard to the universal die and rotatable embossing members but also in the means for moving and setting the rotatable members, the indexing means for maintaining said members in any desired setting, and also in providing means for clearly indicating through a viewing opening the indicia which are set in position for embossing. It is a particular aim of this object of the invention to contribute to the compactness of the device by interspersing two sets of indicia on the embossing member, one being embossing and the other indicating indicia.

Details of these objects and of the invention as well as other objects thereof are set forth in the following specification and illustrated in the accompanying drawings comprising a part thereof.

In the drawings:

Fig. 1 is a side elevation of the preferred embodiment of an embossing device comprising the present invention.

Fig. 2 is a front end elevation of the device shown in Fig. 1.

Fig. 3 is a fragmentary sectional perspective view of details of certain parts of the embossing device shown in Fig. 1.

Fig. 4 is a fragmentary, sectional plan view of a part of the device which supports the universal die member.

Fig. 5 is a perspective view of the universal die member per se.

Fig. 6 illustrates a font of numerals comprising indicia suitable for use within the spirit of the invention on the changeable embossing members of the device shown in Figs. 1 through 3.

The hand embossing device comprising the preferred embodiment of the invention illustrated in Figs. 1 and 2 comprises a support member 10 having a front portion comprising a frame 12 provided with opposite sides 14 and 16 and a handle 18 extending rearwardly therefrom. Mounted between the sides 14 and 16 is a shaft 20 which pivotally supports one end of a second handle 22.

Also extending between the sides 14 and 16 is another shaft 24 which pivotally supports a work-supporting member 26 carrying a universal die 28, details of which are described hereinafter. The die is preferably mounted in a cavity 30 and

is retained therein by any suitable means such as one or more screws 32. The rearward end of member 26 is connected to the lower part of handle 22 by a link 34, said link and forward portion of handle 22 comprising a toggle arrangement. Normally, pintle 36 which connects link 34 with handle 22 is disposed rearwardly of a line passing between shaft 20 and pintle 38 which connects the lower end of link 34 with the rearward end of member 26. Thus, as is obvious from Fig. 1, when handle 22 is moved toward handle 18, the rearward end of member 26 is lowered as viewed in Fig. 1, and the forward or die-carrying end of said member is elevated toward the frame 12 of the embossing device.

Mounted between the sides 14 and 16 is a block 40 having a recess 42 opening rearwardly thereof, said recess accommodating a coil spring 44 which normally biases rearwardly the central pivot portion of the toggle referred to in order that the handles 18 and 22 will be normally maintained in their fully separated, starting position, and the forward end of work-supporting member 26 will likewise be disposed in its work-receiving position illustrated in Fig. 1.

Another shaft 46 also extends horizontally between the sides 14 and 16 of the frame 12, as viewed in Fig. 1, for purposes of rotatably supporting a plurality of circular members 48 which are mounted thereon in side-by-side relationship.

The circular members 48 are provided on their peripheral surfaces with a circular line or row of raised numerical indicia 50 which preferably have configurations such as illustrated in Fig. 6. On each member, the row of indicia preferably comprises two sets of the same numerical series of different indicia. The individual different indicia of the two sets are regularly interspersed in order that one set may comprise embossing members while the other set, for example, comprises indicating indicia which may be viewed through opening 52 formed in the front wall 54 of frame 12. In the present exemplary embodiment of the invention, the corresponding individual embossing and indicating indicia of the two sets are spaced apart on each circular member 48 an angular distance of 90° since the plane of the viewing opening 52 is at 90° to the plane of the indicia when in embossing position. Such angular relationship may be varied, however, to suit other operating conditions.

If desired, the individual indicia of one set may be disposed on the peripheral surface either backwards or upside down relative to the indicia of the other set if such is required for desired embossing and viewing conditions. In the specific illustrative embodiment shown in Figs. 2 and 3 particularly, the indicia of one set are disposed upside down relative to the indicia of the second interspersed set. Such arrangement of viewing and embossing indicia renders the present device extremely compact particularly in regard to the over-all width of the embossing device. Also, each indicium is formed as a continuous line as distinguished from a series of spaced points, whereby very legible, embossed, continuous-lined numerical indicia impressions are formed on the record material referred to above.

Each circular member 48 has on one side surface a projecting circular portion 56 provided on its periphery with a plurality of notches 58, there being preferably one notch for each embossing indicium on the periphery of circular member 48. Thus, in the exemplary illustration shown in Figs. 1 and 3, there are only half as many notches 58 as there are total indicia 50 on the member 48 since only alternate indicia 50 are embossing indicia in normal operation of the device, the others being indicating indicia.

In order that a desired indicium of each circular member 48 may be readily moved to embossing position relative to the die 28, a single cogged setting member 60 is both rotatably and slidably mounted on a shaft 62 supported between sides 14 and 16 of frame 12. The cogs of setting member 60 engage between the raised indicia of member 48 and such cogs also afford frictional engaging means by which the setting member may be readily rotated by a finger of the user for purposes of setting the members 48 to any desired position. After one member 48 is set to such position, the setting member 60 is moved along the shaft 62 into engagement with the raised indicia of any other member 48 which requires setting. The utilization of the raised indicia, rather than an additional cog wheel on each member, as means to co-engage the cogs of setting member 60 also contributes to further compactness of the device.

Selected settings of the individual circular members 48 are releasably maintained by individual plungers 64 which are slidably mounted in a series of parallel longitudinal openings 66 formed in block 40. Each plunger is biased into engagement with one of the notches 58 by a coil spring 68, and the forward portions of the plungers are pointed so as to be readily cammed out of one notch and into another when the circular members 48 are moved to a different setting by setting member 60.

One of the principal features of the invention comprises designing a set of numerical indicia which are very legible and stylized so as to have continuous portions preferably connected only by a right angle and thus facilitate the designing of a universal die which will conform to the outline of any individual numerical indicium and provide a cavity which will support sheet-like material to such a continuous extent that a raised or depressed numerical indicium may be embossed on a sheet in such a manner that each individual embossed impression comprises a substantially continuous line. Conceivably, however, angles other than a right angle may be used to connect parts of the various indicia and still produce numerical indicia coming within the spirit of the present invention. Such continuous-lined embossed indicia impressions are clearly legible and more tamper-proof than indicia formed by a series of punched holes or printed indicia which have heretofore been used as described above.

Due to the particular configurations of the font of numerical indicia such as illustrated in Fig. 6, it has been possible to design the universal die cavity 70 shown in detail in Figs. 4 and 5 for use with all of the different raised indicia 50. It will be noted that each cavity is rectangular in outline, in order to conform to the right angular indicia 50, and each cavity is provided with four regularly spaced, intermediate projections or members 72 which are adjacent but evenly spaced from the corners of the cavity 70. Certain of the side walls of said projections cooperate with the side walls of the cavity 70 to provide substantially continuous walls which are complementary to the opposite sides of all portions of the individual raised indicium 50. The only exception to the cavity walls being continuous is

where it is required to interrupt the continuity to permit, for example, a cross bar on the numerical configuration of certain indicium to be accommodated within the cavity. The upper surfaces of the projections 72 are flush with the upper plane of the die and such upper surfaces are somewhat elongated. Said projections are arranged in parallel pairs, the elongated upper surfaces of each pair being in longitudinal alignment.

The die member 28 is provided with a plurality of universal die cavities 70, there being one cavity for each circular member 48. The provision of a single small multiple cavity die member materially conserves space as compared to the use of an extra circular member having different die cavities therein which would respectively conform to the different raised indicia 50 on circular member 48. In addition to requiring such extra circular members, individual indexing gears would be required on each member.

Depending upon the specific requirement or use of a particular embossing member of this type, there may be provided on certain of the circular members 48 additional embossing indicia such as horizontal dashes 74 shown in Fig. 2, and to cooperate with such dashes, there is provided a complementary elongated recess 76 in die 28. Likewise, an indicium such as a period 78 may be required on certain of the circular members 48, and under such circumstances, a circular cavity 80 is provided in the die 28.

In operating the device comprising the present invention, setting member 60 is moved into engagement with each of the circular members 48 which require setting, and after the desired indicium on each member has been brought into alignment with the die 28 as can be readily ascertained by observing viewing opening 52, a card 82 or other sheet-like record means or material is disposed on work-supporting member 26. Movement of handle 22 toward handle 16 will move member 26 toward the frame 12 and the indicia of circular members 48, thus causing the indicia to be impressed in the surface of the card 82 in the manner described above. Correct positioning of card 82 relative to the embossing members is facilitated by an adjustable stop member 84 which is adjustably clamped to the forward end of member 26 by a suitable thumb screw 86. The stop 84 will position the card in one direction and the frame 12 may be provided with a notch 88, the inner wall of which comprises a stop for positioning the card 82 in the other direction.

Devices of the type comprising the present invention are particularly useful by bill collectors, and particularly insurance premium collectors making house-to-house solicitations. In using a portable device of this nature, it is desirable to construct the same as small and compact as possible, and to this end the present invention has in part been aimed.

The precise construction described above and illustrated in the drawing may be changed in certain details without departing from the spirit of the invention. For example, the circular members 48 may have a peripheral surface comprising a series of connected flat surfaces comprising a polygonal configuration in side elevation, one indicium 50 being provided on each flat surface. In this instance, the member 48 would, nevertheless, be generally circular. Further, under some circumstances, it may be desirable to form the individual indicia 50 so that they do not extend a substantial distance from the peripheral surface of the circular member 48 and the height of the indicia 50 may not be sufficient to provide notches between the indicia with which the cogs of the cogged setting member can readily engage. It is to be considered within the spirit of the invention that notches or indentations may be formed under these circumstances within the periphery of the circular member 48 between the indicia 50 so as to provide adequate spaces with which the cogs of the setting member 60 may effectively co-engage.

In certain specific applications of use for the embossing devices comprising the present invention, it is conceivable that the indicia of the circular members 48 may be used in conjunction with a printing media, such as carbon paper, typing ribbon, or any other suitable inking means for purposes of printing indicia on a record. In such applications of use, it will be readily appreciated that the continuous-line type of printed indicia illustrated and described herein will be as legible as when embossed on record material and much more legible than where indicia outlined by a series of dots have been heretofore used.

While the invention has been illustrated and described in its preferred embodiment and several variations thereof and has included certain details, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in still other ways, falling within the scope of the invention as claimed.

I claim as my invention:

An embossing device comprising a plurality of members each having a different raised numerical embossing indicium thereon comprising the members 0 to 9, said members being arranged to be selectively moved to an embossing position, in combination with a universal die member for use with the indicia of said members and having a cavity substantially rectangular in outline, and four quadrantly spaced, general rectilinear projections in said cavity having flat upper surfaces flush with the plane of the die, said projections being positioned adjacent but evenly spaced from the corners of said cavity said embossing indicia being collectively configured so as to engage between the walls of said cavity and said projections and between projections.

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