June 26, 1951 R. B. JOHNSON 2,558,616

IMPACT MARKING DEVICE

Filed Nov. 24, 1947

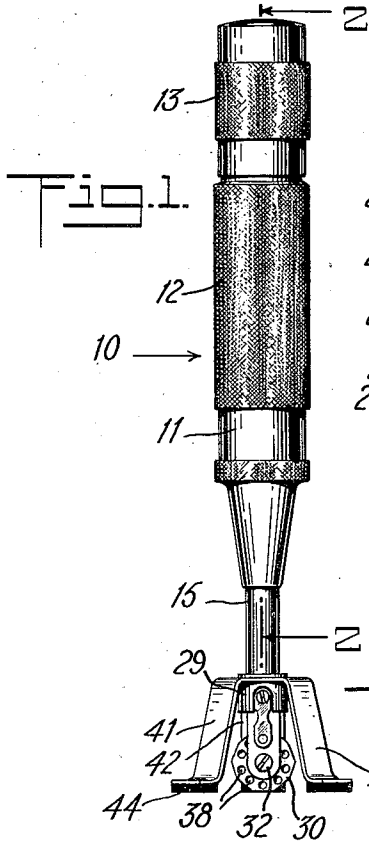


Fig. 1.

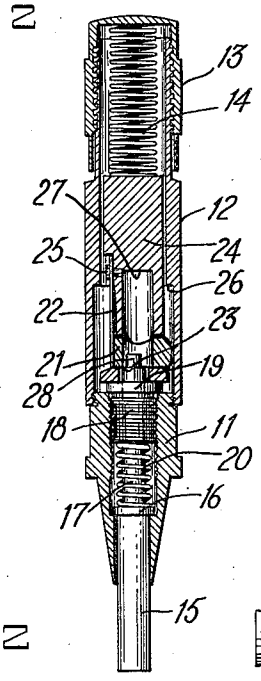


Fig. 2.

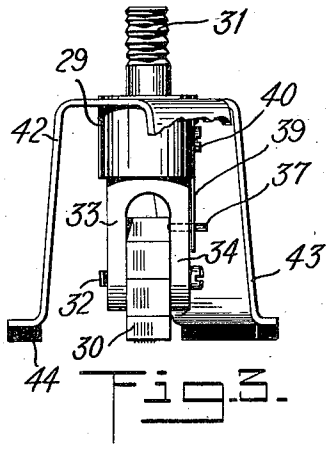


Fig. 3.

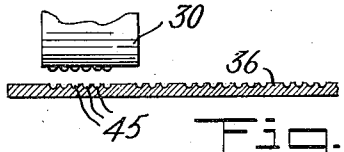


Fig. 6.

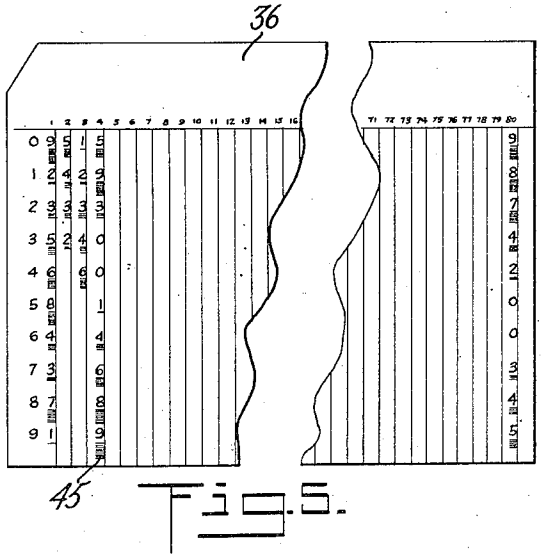


Fig. 5.

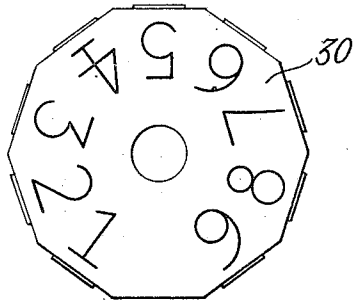


Fig. 4.

INVENTOR
R. B. JOHNSON
BY
Robert S. Dunham
ATTORNEY

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IMPACT MARKING DEVICE

Reynold B. Johnson, Binghamton, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

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1 Claim. (Cl. 101—3)

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This invention relates to an impact marking device for making impressions upon a card or other object. Among the objects of the invention is to provide an unitary marking instrument having provisions for the making of impressions of symbols representative of different numbers which may be read by a sensing instrument or needle.

Another object of the invention is to provide a manually operable impact marking device having provision for the selection of any one of a plurality of dies which are representative of different characters or symbols and whereby any selected symbol may be impressed upon a card or other object by the application of force to the device.

Other objects and uses of the invention will appear from a detail description of the same which constitutes features of construction and combinations of parts hereinafter described and claimed.

In the drawings,

Fig. 1 is a side view of a device embodying the principle of the present invention;

Fig. 2 is a longitudinal section of the impact producing portion of the device taken on line 2—2 of Fig. 1;

Fig. 3 is a detail of the marking portion of the device;

Fig. 4 is a side view of the marking wheel illustrated in Fig. 3;

Fig. 5 illustrates a card which has been embossed by the use of the device; and

Fig. 6 is an enlarged view illustrating the manner in which impressions are made in the surface of a card.

The impact marking device of the present invention has a movable hammer adapted to be subjected to the tension of a spring and automatically released therefrom for delivering a blow onto an anvil in the form of a plunger by which the force of impact is transmitted to a selected die of a marking device. The impact device 10 includes a casing comprising a tubular member 11 which is fastened to one end of a sleeve 12, and a cap 13 which is adjustably attached to the other end of the sleeve 12. The adjustable cap 13 is in threaded engagement with sleeve 12 so as to enable relative movement between the cap and the sleeve to adjust the initial tension in the power spring 14.

The tubular member 11 is bored to receive a plunger 15 which is adapted to slide axially with respect to the tubular member. A flange 16 on the plunger determines the most outward position of the plunger. The plunger has a reduced portion 17 which extends through a bushing 18. The bushing 18 is in threaded engagement with the tubular member 11 and is provided with a flange 19 which is seated against the inner end of the tubular member 11 as shown in Fig. 2. Intermediate the flange 16 of the plunger and the bushing 18 there is mounted a spring 20 which normally holds the plunger in extended relationship with respect to the casing, but permits the sleeve member 11 to more fully encompass the plunger when the spring 20 is compressed during use of the device.

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Within the sleeve 12 there is mounted a laterally movable block or spacing member 21 which is bored at its center to provide for the passage of the reduced portion 17 of the plunger. The block 21 is normally held by a spring 22 in such position as to maintain the edge of its bore over a shoulder 23 at the inner end of the plunger 15, as shown in Fig. 2. Spring 22 is a cantilever spring and is secured at its fixed end to a hammer 24 by means of a screw 25. The block 21 serves to space the hammer from the plunger so long as its under surface is in engagement with the shoulder 23 of the plunger.

As force is applied between the casing and the plunger in opposition to the action of the springs, the hammer, spacing block and plunger are moved as a unit with respect to the casing. During such movement the power spring 14 is compressed and energy is stored therein until a cam surface on the spacing block 21 comes into contact with the shoulder 26 and causes the spacing block to be displaced laterally and to become relieved from engagement with the shoulder 23 of the plunger. Thereupon the hammer 24 is released to the action of the power spring 14 and the striking surface 27 thereof delivers a sharp blow to the anvil end 28 of the plunger.

The plunger 15 has secured to its lower end a marking device including a support 29 for a marking wheel 30. The support 29 has a stem 31 which is threaded for engagement with a threaded bore in the lower end of the plunger 15. The marking wheel 30 is supported on a pin 32 which is carried by a pair of arms 33 and 34 which extend from the support 29. Pin 32 is disposed at right angles to the plunger and preferably in the plane of the axis of the plunger.

In the embodiment of the invention described the periphery of the marking wheel is provided with ten tangential surfaces, each corresponding to one ordinal of a series of ten ordinals,

to wit: zero and 1 to 9, inclusive. One surface is left plain and is representative of zero. The other nine surfaces bear symbols in the form of raised lines of dies with one line representing the digit "1" on one surface, two lines representing the digit "2" on the next surface, three lines representing the digit "3" on the next surface, four lines representing the digit "4" on the next surface, five lines representing the digit "5" on the next surface, and so on, with the successive surfaces having lines in numbers corresponding to the respective digits. The first line of each die is preferably disposed in a common diametrical plane of the marking wheel so as to afford a manner for gauging the alignment of a series of impressions imparted by the die upon a card **36**. This is illustrated in Fig. 5 in which the first row of digits each have the 9, 5, 1 and 5 symbols impressed in the surface of the card and all of the symbols have the lines indicating the value of "1" in horizontal alignment.

Each of the dies representative of a given ordinal are selectable for placement in die-impressing position by rotating the marking wheel **30**. In order to justify the position of the selected die on the axis of the plunger **15**, a spring-pressed pin **37** is provided which is adapted to engage any one of the series of holes **38** on the side of the marking wheel. Pin **37** is supported from support **29** by a spring **39** which is fastened to the support by a screw **40**.

In order properly to locate a selected die above a desired location for an impression on a card, the marking device is provided with a bracket in the form of three legs **41**, **42** and **43**, which are secured at their upper ends to support **29**. The lower ends of the legs are preferably provided with cushions **44** of rubber or other deformable material. The arrangement of the legs and the disposition of the lower surfaces of the cushions are such as to permit the high portions of the dies to rest upon or be supported just above the card or other object upon which impressions are to be made.

When the device is properly positioned over a card an impression is produced by the application of manual force to the casing for the purpose of causing relative sliding movement between the casing and the assembly comprising the plunger **15**, hammer **24** and the spacing block **21** until the block is disengaged from the plunger, whereupon the power stored in the spring **14** is expended to drive the hammer against the anvil end of the plunger. The force of impact is transmitted directly to the marking wheel and die. The force of impact causes the die to impress grooves **45**, in number corresponding to the selected die, into the surface of the card in the manner illustrated in Fig. 6. The device is particularly suited for making lineal impressions on the surface of a card which may be readily read by a sensing instrument, such as a needle, upon passage over the card.

What is claimed is:

In an impact marking device, the combination comprising a casing containing an axially movable plunger and hammer, a spring compressible within said casing and releasable for forcibly moving said hammer with respect to said casing, means for releasing said hammer to the action of said spring for delivering an impact blow to said plunger, embossing means comprising a rotatable wheel mounted on a shaft and having its axis of rotation normal to the axis of said plunger, said wheel having a series of dies spaced circumferentially about its periphery, means fastened to said plunger for rigidly supporting said shaft from said plunger, means cooperating with said last-named means and said wheel for holding said wheel in an adjusted position with respect to said supporting means and plunger, a bracket carried by said supporting means, said bracket having legs extending to a plane just below the lower die of said embossing wheel for providing resilient support for said marking device in a position perpendicular to a surface to be marked with said lower die located slightly thereabove so that when said spring is released the energy stored therein is expended upon said plunger and the lower die of said marking wheel is forcibly brought into contact with the surface to be marked and to which said legs extend.

REYNOLD B. JOHNSON.

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