Mar. 3, 1925. 1,528,399

G. P. BRYAN ET AL

EMBOSSING AND PRESSING MACHINE

Filed May 29, 1924

Fig. 1.

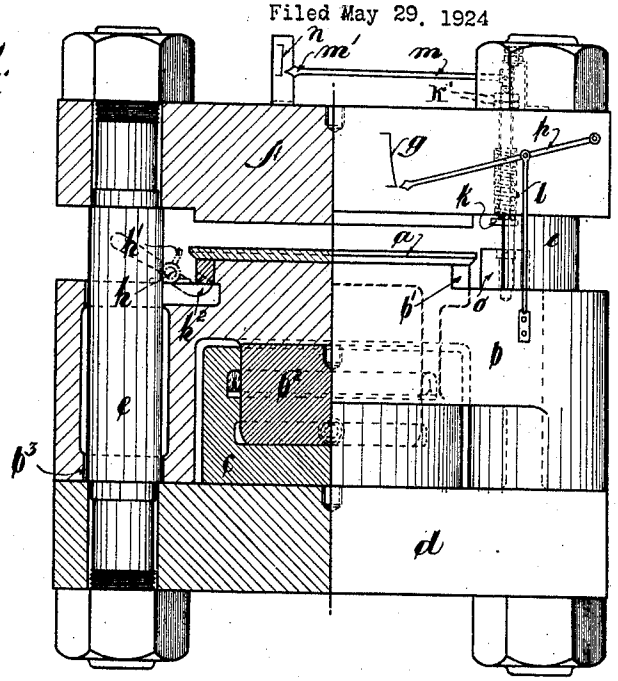



Fig. 2.

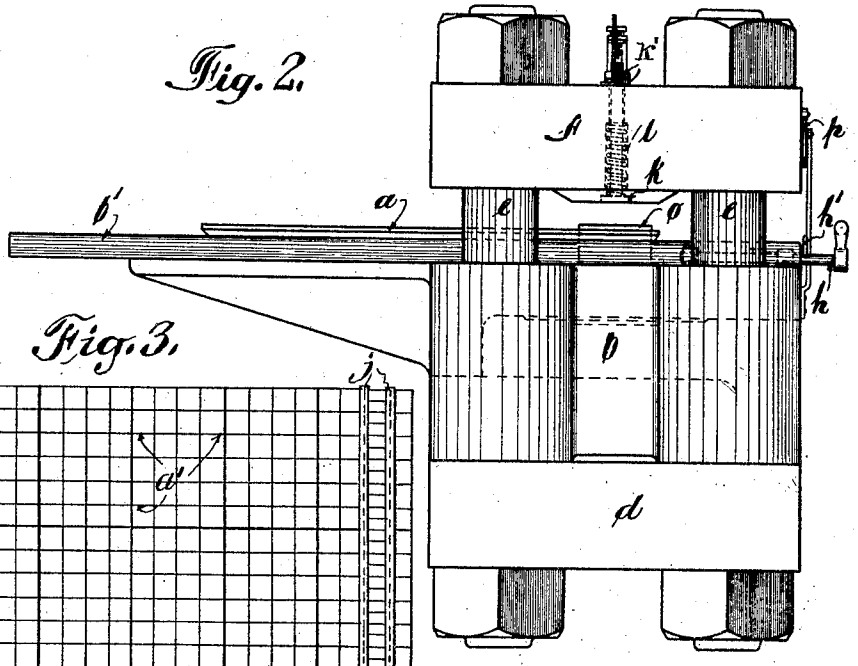



Fig. 3.




Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## EMBOSSING AND PRESSING MACHINE.

Application filed May 29, 1924. Serial No. 716,818.

*To all whom it may concern:*

Be it known that we, GEORGE PATRICK BRYAN and OSWALD ERNEST ARMSTRONG, both subjects of the King of Great Britain and Ireland, residing at Sale and Altrincham, near Manchester, England, respectively, have invented new and useful Improvements in Embossing and Pressing Machines, of which the following is a specification.

This invention relates to machines primarily directed to embossing materials such as cardboard or millboard, in which a heavy even pressure is required over a comparatively large area, and has for its main object to provide an hydraulic press operated from a suitable source of pressure for such purpose. Further objects are to provide means to indicate the correct penetration of the type into the cardboard and the position of the platen relatively to the press head and also improved means to position and hold the embossing dies on the press table.

An embossing and pressing machine made in accordance with this invention comprises means for indicating the degree of impression effected, said means comprising engaging members respectively mounted on the stationary and moving parts of the machine and engaging faces between the said members adapted to receive a sample of the material being embossed, and the engaging members may be adjacent to the press table and so located with respect thereto as to receive between the engaging faces an overhanging portion or extension of the material on the press table, and the table may be slidably mounted on the machine with means for locating sections of the table successively in register with the platen, and clamping means may be provided for securing the dies to the table.

In order to ensure that the embossing shall be uniform and the dies penetrate to the correct depth, an indicator is provided which by means of a multiplying motion indicates to fine limits the penetration of the embossing dies and the same indicator may be adapted or a separate indicator provided to indicate the relative position of the platen to the press head so that the pressure is only released to an extent sufficient for the withdrawal of the show card or for changing the position of the same to obviate undue movement of the platen.

The invention will be more particularly described by the aid of the accompanying drawings, wherein:—

Fig. 1 is a part sectional elevation of an embossing press constructed according to the invention.

Fig. 2 is a side elevation of Fig. 1.

Fig. 3 is a view showing means for positioning the type, and

Fig. 4 is an end view of Fig. 3.

Referring to the drawings the table $a$ is provided with guides $b^1$ secured thereto and sliding on the vertically moving member $b$ resting on or secured to the plunger $b^2$ of the hydraulic cylinder $c$ which in turn rests upon the base $d$ of the machine, said base being mounted on a suitable stand, not shown. At each corner of the base a pillar $e$ is bolted, the four pillars constituting vertical guides for the comparatively long slipper bearing $b^3$ formed in the member $b$.

Bolted to the top of the pillars $e$ is the press top or head $f$.

The sliding table $a$ is adapted to be moved along the ways $b^1$ until all parts have registered with the head $f$, said table being adapted to receive the embossing dies and proportioned so that the embossing can be done in any desired number of stages. The table is of a size such that the type can be set up so that the cardboard can be embossed in sections and according to the drawings the table $a$ will allow of a showcard five times the size of the press-head being embossed by moving the table in successive stages with a different part under the press head; means such as the indicator $h^1$ on a spindle $h$ rotatably mounted on the bed $b$ being provided to register with markings on the table guides $b^1$ so as to gauge the correct positions thereof, and if desired a catch lever $h^2$ may be provided on the spindle $h$ to engage successive notches in the guides $b^1$ of the table $a$ to positively hold it in the correct position at all stages.

Upon the table $a$, lines $a^1$ are marked to facilitate the setting up of the type which is usually glued thereto. If desired the dies may be secured to the table by spring clamping strips $j$, the dies standing up above the clamps and the ends of said clamps being turned down and adapted to spring over

the edges of the table *a* as clearly seen in Fig. 4.

In practice, assuming the type to be set up and a sheet of paper which it is desired to impress into the cardboard and a sheet of cardboard placed over said type it is essential that the impression shall be the same over all parts of the cardboard and to very fine limits in order that the letters shall be embossed regularly to the same extent all over the card and just sufficient to separate the paper, which is usually glazed, evenly around the edges of the embossed letters and embed the edges to an extent sufficient to cause the separated portions to adhere to the card without fracturing or tearing the parts lying on the raised letters.

To ensure the correct impression being given every time to the card an indicator is provided which is conveniently constructed as shown. Referring to Figs: 1 and 2, a plunger *k* is slidably mounted in the head *f*, being normally forced downwardly by means of a spring *l*, the lower end of the said plunger forming an anvil and the upper end being connected to one end of a pivoted lever *m* the other end $m^1$ of which moves over a fixed scale *n* and constitutes an indicator.

Formed in one with or attached to the member *b* is an anvil *o* in vertical alignment with the plunger *k* and the top of which is flush with the tops of the embossing type. Two nuts $k^1$ are provided on the upper end of the plunger *k* to form an adjustable stop to limit the downward movement of the plunger in the head *f* so that the anvils will separate with the lowering of the member *b*. When a card is being embossed a strip of card of the same thickness is placed on the anvil *o* or a portion of the card itself may overhang the table and lie thereon so that when the table is raised in the act of embossing a card, immediately said card engages the press head, the before-mentioned strip or portion of card engages the pendant head of the plunger *k* and causes the same to ascend and impart movement to the lever *m* so that the end $m^1$ indicates on the scale *n* the extent of the impression. If desired the lever *m* may be adapted to indicate the relative position of the platen to the press head or a separate lever *p* pivotally connected to the press head for this purpose, said lever moving over a scale *g* under the influence of a link connected to the moving member *b*.

Pressure water is forced into the cylinder *c* by means of a hand pump, not shown, or supplied thereto from any other and suitable source, and if desired the member *b* may be mounted as a fixture and the head *f*, and associated parts, adapted to reciprocate, in which case, said head, would be provided with a counterbalance weight or springs to raise it off the work.

By these means a press is provided for embossing showcards and the like which can be readily operated by a single person and capable of applying the comparatively great pressure required for such purpose in a practical form for use by such persons as signwriters, wholesale and retail traders and the like, and which is particularly applicable for using what is known as cutter-crush type in which the edges of the type are bevelled off to a less acute angle than the ordinary type and the centre part removed whereby it is more robust and has a longer life.

What we claim is:—

1. In an embossing and pressing machine, means for indicating the depth of impression effected, said means comprising engaging members respectively mounted on the stationary and moving parts of the machine, movement-indicating means operated by one of said members, and engaging faces between the said members adapted to receive a sample of the material being embossed, so as to be separated by the thickness thereof during the embossing operation.

2. In an embossing and pressing machine, means for indicating the depth of impression effected, said means comprising engaging members respectively mounted on the stationary and moving parts of the machine, and movement-indicating means operated by one of said engaging members, said engaging members being adjacent to the press table and having engaging faces located to receive between them an overhanging portion or extension of the material on the press table, so as to be separated thereby during the embossing operation.

3. In an embossing and pressing machine, means for indicating the depth of impression effected, said means comprising a plunger slidably mounted in the fixed head of the press, an indicator lever connected to the upper end of said plunger, a return spring on said plunger acting to move it into its lowest position, and an anvil on the lower end of said plunger constituting one engaging member coacting with an anvil on the platen or moving member of the press constituting the other engaging member, which engaging members are adapted to receive between them a sample of the material being embossed so as to be separated by the thickness thereof during the embossing operation, as set forth.

4. In an embossing and pressing machine, means for indicating the depth of impression effected, said means comprising a plunger slidably mounted in the fixed head of the press, an indicator lever connected

to the upper end of said plunger, a return spring on said plunger acting to move it into its lowest position, an adjustable stop on said plunger to limit its downward movement, and an anvil on the lower end of said plunger constituting one engaging member coacting with an anvil on the platen or moving member of the press constituting the other engaging member, which engaging members are adapted to receive between them a sample of the material being embossed so as to be separated by the thickness thereof during the embossing operation, as set forth.

In testimony whereof we have signed our names to this specification.

GEORGE PATRICK BRYAN.
OSWALD ERNEST ARMSTRONG.