J. McLAURIN.

EMBOSSING MACHINE.

APPLICATION FILED JAN. 7, 1913.

1,114,620. Patented Oct. 20, 1914.

Fig. 1.

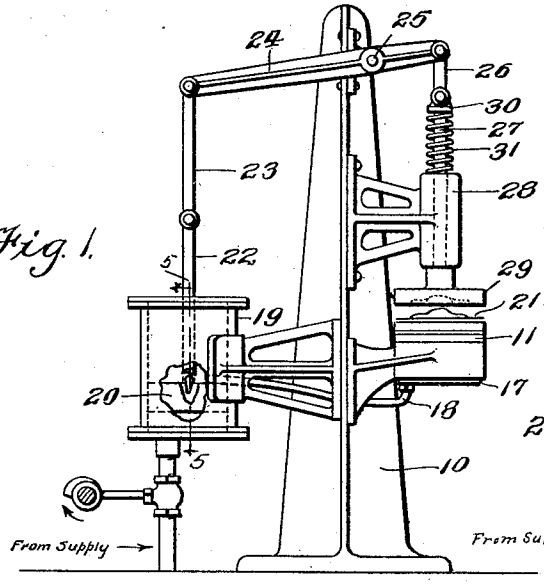
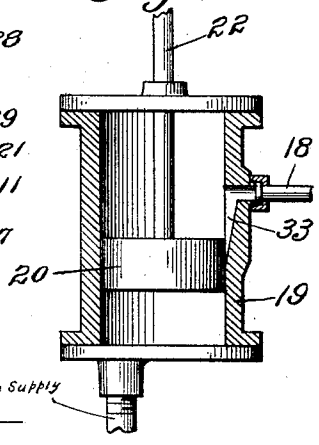


Fig. 5.



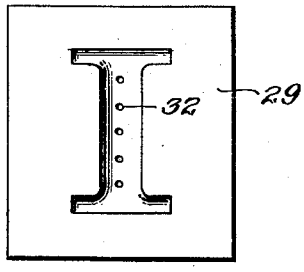


Fig. 2

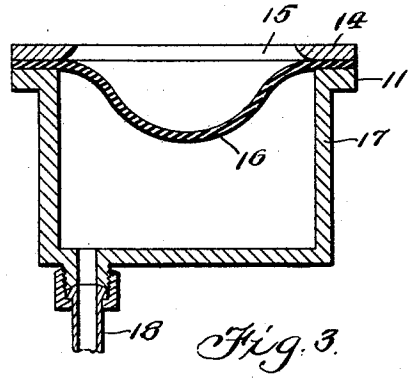


Fig. 3.

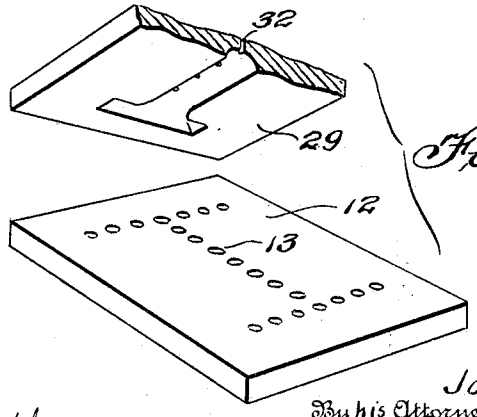


Fig. 4

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EMBOSSING-MACHINE.

1,114,620. Specification of Letters Patent. Patented Oct. 20, 1914.

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To all whom it may concern:

Be it known that I, JOHN McLAURIN, a citizen of the United States, residing at Brookfield, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Embossing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to embossing machines and more particularly to that type using pneumatic pressure.

It has for an object, to provide means for receiving a gummed tape and by an intermittent motion of said tape, to emboss or impress therein, a single or series of designs, letters, characters or the like, along said tape at predetermined intervals.

Another object of this invention is to provide a simplified form of die members for treating the tape, or in fact, to dispense with the use of one of the die members of the present types of machines.

A further object of this invention is to provide an embossing means which does its work in a simplified way with a minimum of injury to the paper being treated.

Other objects will be apparent from the following specification, appended claims and drawings, in which,

Figure 1 is an elevation of a machine embodying the features of my invention, showing parts in section, Fig. 2 is a plan view of the die member, Fig. 3 is a sectional view of a portion of the device, and Fig. 4 is a view of a modification. Fig. 5 is a sectional view as on line 5—5 of Fig. 1.

In embossing gummed paper or the like, which paper is intended for subsequent use as in application to an article to serve as a sealing agent all treatment must be done in such a manner as to avoid injury to the paper or the like. By using coacting die members, such treatment is impossible as the stretching of the paper occurs suddenly and in direct lines but by using a single die plate, with a compression means instead of a follower, the pressure may be varied and it is uniform over the entire exposed area.

My invention embodies the use of a compression means instead of a follower, and with or without a diaphragm, together with means for controlling the movement of the die member which produces the design of the embossing.

The essence of this invention is in the embossing means direct but to produce satisfactory results, the associated machinery is necessary, and referring to the drawings, there is shown a pedestal 10 to which is secured a base 11 which may be of flat metal provided with a series of perforations forming the design, as shown in Fig. 4 or, which may be formed with an opening through which an elastic diaphragm operates.

In Fig. 4 the plate is designated by the numeral 12 and is provided with the perforations 13 while in Fig. 3 the plate 14 has an opening 15 formed therein, and the walls of said opening are beveled to avoid any sharp edges or corners against which the diaphragm 16 may bear. The diaphragm and plate 14 are carried by the cup 17 which in turn is carried by the pedestal and the arrangement is such that compression cannot escape from said cup but can raise the diaphragm to serve its purpose. The cup 17 may be coupled as by a tubing 18 to a cylinder 19 in which operates a piston 20 and said tubing may have its communication with the interior of the cylinder 19 at the desired elevation to cause the piston to serve its purpose before any compression enters the cup 17. The cylinder 19 may also be supported by the pedestal 10 and may receive its compression from any source of supply and at timed relation to the intermittent movement of a tape 21, such mechanism to produce the results being of common construction. The compression may be uniform or it may be variable but in the cup 17, it is desired that the pressure increase by degrees to allow the proper stretching of the tape 21 in either a dry or moist state so that is accomplished by having the opening into the cylinder 19 from the tube 18 of an acute angle or V shaped so that as the piston 20 rises, a reduced opening is first exposed, which opening increases until the pressure is equal in the cylinder and cup.

The piston 20 serves as a valve for controlling the passage of fluid through the opening 33 in the following manner: When fluid under pressure is admitted into the cylinder 19, the piston 20 is raised, and in its upward movement, it first exposes the

reduced end of the V shaped opening 33 to admit a limited quantity of fluid pressure into the cup 17, then by continued upward movement of the piston, the opening 33 is uncovered by degrees until it is completely uncovered, and then the pressure in the cup 17 equals that in the cylinder 19.

The piston 20 is connected by its rod 22 to a link 23 which in turn is pivoted to the end of an amplifying lever 24 fulcrumed as at 25 to the pedestal 10. This lever causes the pressure exerted upon the piston 20 to overcome the reactive pressure on the die member 29. The opposite end of the lever 24 is connected as by a link 26 to the upper end of a vertically movable bar 27 slidable in the head 28 which is carried by the pedestal 10. This bar has the die 29 secured to its lower end and is moved downwardly to receive the impression and upwardly to permit clearance of the embossed portion. A flange 30 is formed on the bar 27 against which a coiled spring 31 bears, to return the several parts to inoperative position. To permit the escape of the imprisoned air when the die 29 has moved downwardly, a single or series of perforations 32 may be arranged to discharge this air from the recessed portions.

While in operation, the gummed tape 21 may be fed across the base 11 and the machinery necessary to move said tape in a forward intermittent motion can permit entrance of pressure in the cylinder 19 at the proper time or when the gummed tape is stationary to create the impression in the paper. The compression raises the piston and through the lever 24 and links 23 and 25, the die 29 drops and holds the paper while the compression forces the paper up into the recessed portion of the die.

Numerous modifications may be made within the scope of this invention and the drawings are for illustrative purposes only.

Having thus described my invention, I claim:

1. In an embossing machine, a movable die member, a base, said base receiving a compression and delivering the same against said die member, a cylinder to receive a compression and having communication with said base, a piston in said cylinder to control the movement of said die member, and said cylinder having a variable opening through the wall thereof which opening leads to said base and said opening being exposed upon movement of said piston in one direction.

2. In an embossing machine, a base, a movable die member for engagement with said base, a support for said base and movable die member, an amplifying lever carried by said support, a fluid actuated piston connected with said die member through said amplifying lever, a cylinder for said actuated piston, connection from said cylinder to said base, said piston serving as a valve for the admission of fluid pressure to said base and means whereby the fluid pressure admitted to said base impresses an article to be treated against the said die member.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN McLAURIN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."