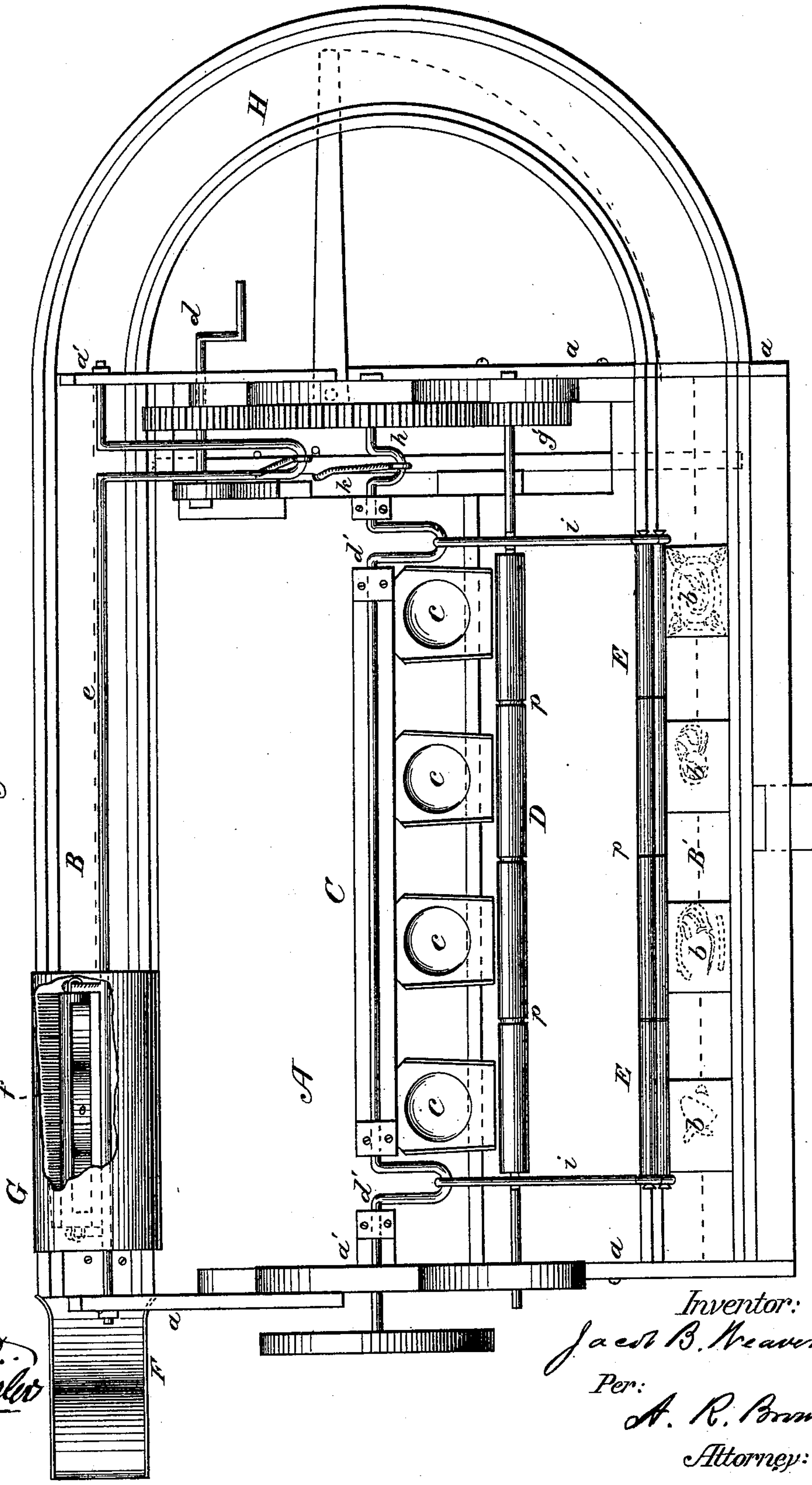
3 Sheets—Sheet 1.

J. B. WEAVER.

MACHINE FOR PRINTING ON CANS.

No. 177,182. Patented May 9, 1876.

Fig. 1.



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3 Sheets—Sheet 2.

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Fig. 2.

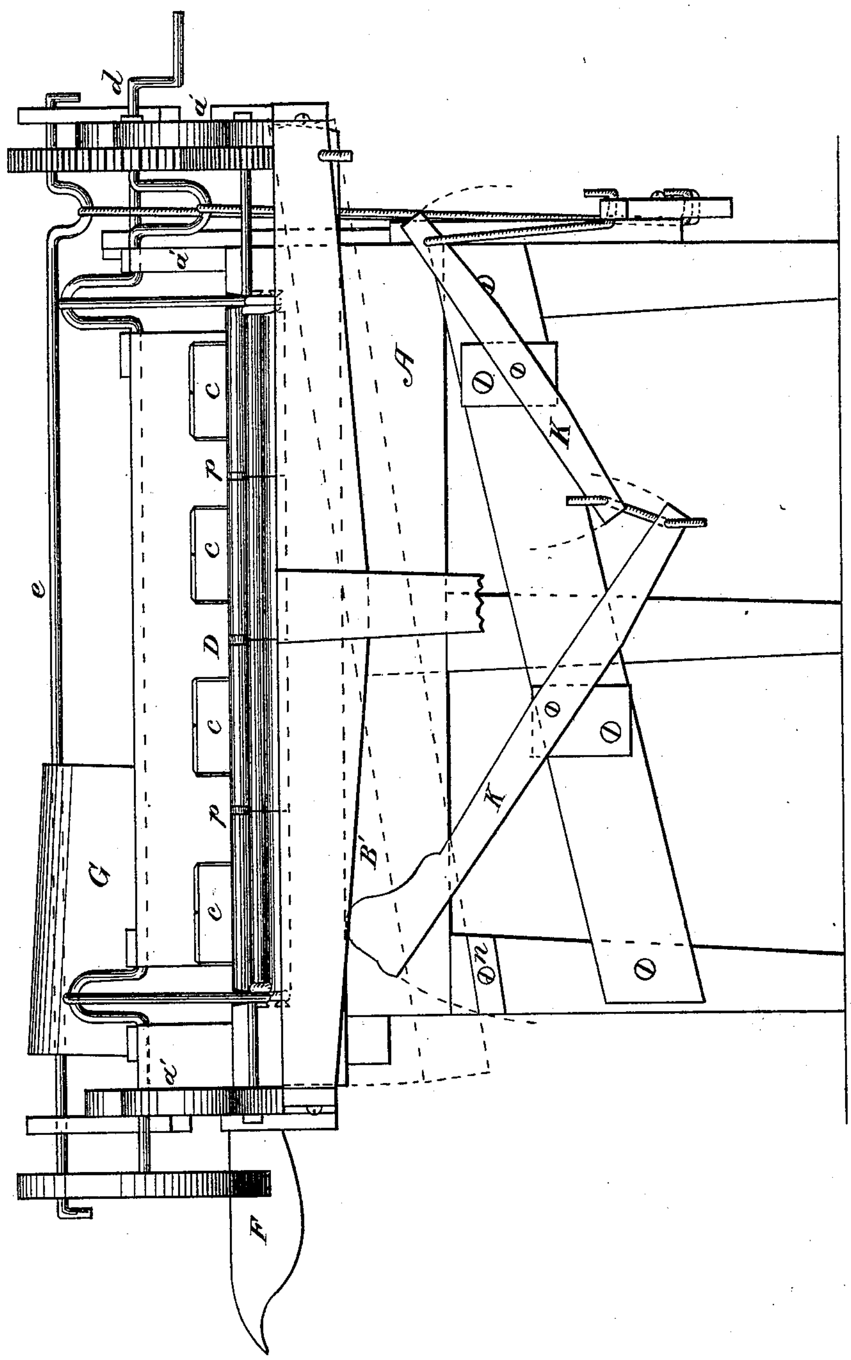

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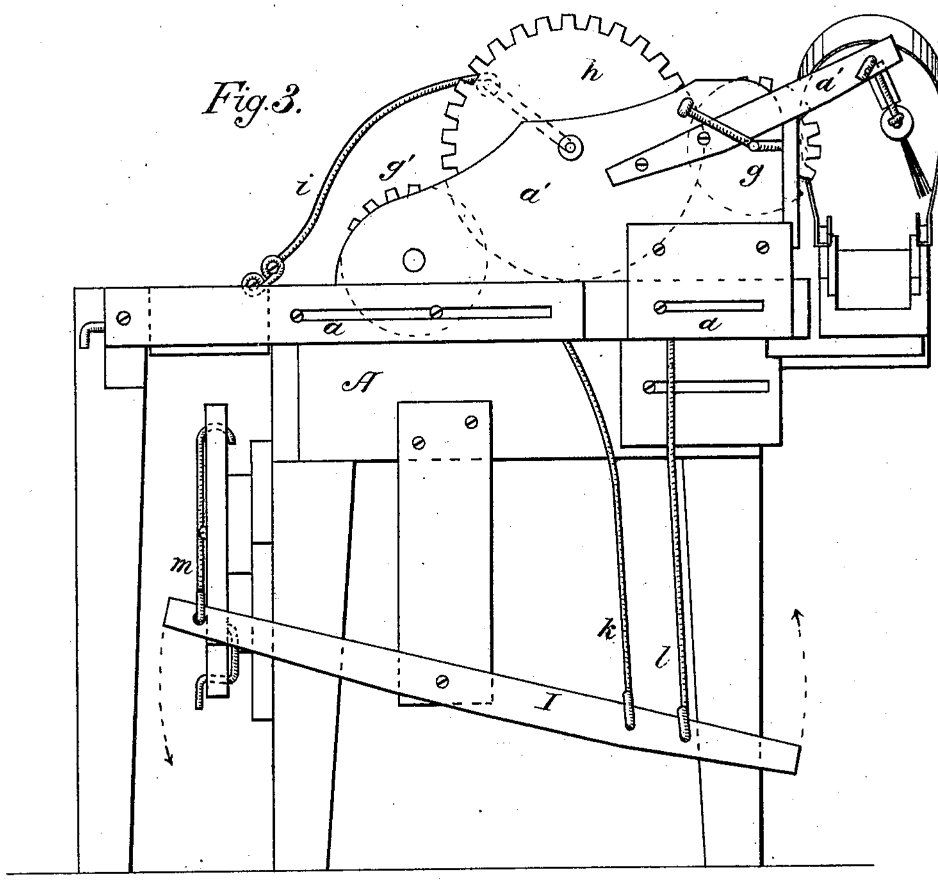
Fig. 3.



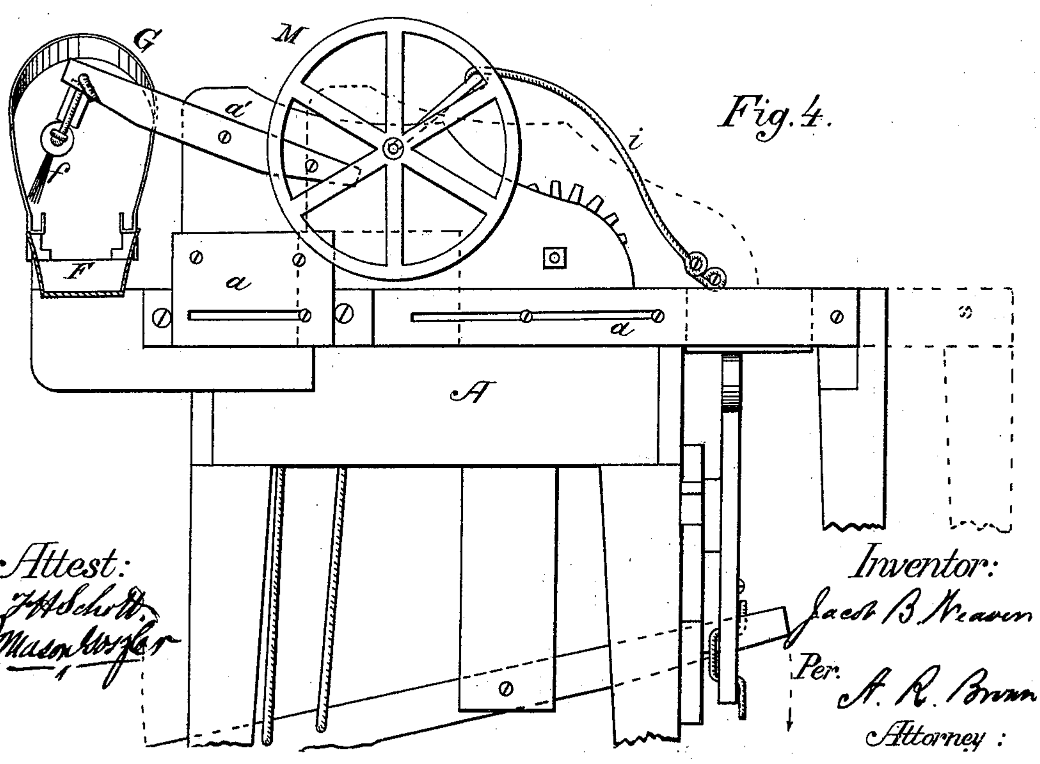


Fig. 4.

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UNITED STATES PATENT OFFICE

JACOB B. WEAVER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN MACHINES FOR PRINTING ON CANS.

Specification forming part of Letters Patent No. **177,182**, dated May 9, 1876; application filed April 13, 1876.

To all whom it may concern:

Be it known that I, JACOB B. WEAVER, of the city of Baltimore, and State of Maryland, have invented certain new and useful Improvements in Machines for Printing on Cans; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide an efficient machine for printing in colors directly upon the surface of tin cans, or other perfectly cylindrical packages, containing preserved fruits, &c., thus dispensing with the ordinary paper labels, which are liable to become detached; and it consists in the construction and arrangement of the various devices forming parts of the apparatus, as will be more fully hereinafter described, and distinctly pointed out in the claims.

In the annexed drawings, Figure 1 represents a view of the upper surface of a machine constructed according to my invention. Fig. 2 is a front or side elevation of the same, and Figs. 3 and 4 are end elevations.

A represents the table which supports the operating mechanism. B is an inclined railway, upon which the cans roll after having received a coating of paint or varnish preparatory to printing, and B′ is a movable printing-board or inclined railway, upon which are secured suitable elastic types *b b b b*. By means of the adjustable slides *a a* the table and inclined railway above referred to may be extended front and back, and adjusted according to the size of the cans to be printed upon. At each end of the table are suitable standards or bearings *a′* for supporting the rock-shaft *e* and crank-shafts *d d′*. An additional bearing for the crank-shaft *d′* is furnished by the upright center-piece C, which also supports the color-plates *c c c c*.

The center-piece C is made separate from the table, and may be adjusted in any desired position. Immediately in front of the center-piece is a stationary roller, D, for receiving the colors from the plates *c* and distributing them to the gum inking-rollers E E, which are connected by pitmen *i i* with the arms of the crank-shaft *d′*. Two distributing-rollers may be used, if desired. All the rollers are grooved, as shown at *p*, in order to prevent the colors from mixing together. At the upper end of the inclined railway B is a trough, F, for holding the paint, shellac, or japan colors, which may be used for coating the sides of the cans before printing upon them. After the desired color has been applied to the can, previously filled and sealed, it is placed upon the inclined railway B, and made to pass beneath the oscillating brush *f*, which is attached to the rock-shaft *e* for the purpose of evenly distributing the color and removing any superfluous quantity. A fender, G, is attached to the inclined railway over and around the brush, which strikes against it at each oscillation, and is thus cleaned and prevented from becoming clogged with paint. This fender is provided at the bottom with channels, which may be arranged so as to conduct the waste paint back to the trough. The can, having received this preparatory coating of paint, shellac, or japan color, continues to roll down the inclined railway B by its own gravity, together with that of its contents, and is received upon a table placed for that purpose, or may be run directly on the circular railway H to the printing-board B′. As the colors generally employed will dry rapidly, the latter course may often be adopted with advantage.

By turning the crank *d*, the shaft of which carries the cog-wheel *g*, motion is transmitted thence to the large cog-wheel *h* on the crank-shaft *d′*, and through it to the cog-wheel *g′* on the shaft of the distributing-roller D. The arms of the crank-shaft *d′* are connected by pitmen *i i* with the shafts of the inking-rollers E E, and by another pitman, *k*, with the lever I, the latter being also connected, by means of connecting-rods *l m*, with the arm of the rock-shaft *e* and with the compound lever K. This compound lever operates the movable printing-board B′, which is pivoted at one end to the table, while its free end is supported by the lever, so as to cause it to rise, for the purpose of receiving ink from the rollers E E, which pass over the faces of the elastic types *v*, and prepare them for giving the desired impression to the sides of the can. As the crank-shafts *d d′* revolve, the inking-rollers

E E, which may be supposed to rest upon the type, will pass back to the distributing-roller D. The printing-board B′ falls into an inclined position, resting on the stop *n*, and a can, being ready at the upper end of the board, will roll over the elastic types *b b* and receive their impression. When the rollers E E have passed over the distributing-roller D, and returned to their former position, the printing-board has been again raised by the compound lever K, and the types are thus supplied with ink for printing the next can, which will roll over them, as before described, as soon as the printing-board again falls into an inclined position. The rock-shaft *e*, to which is attached the brush *f*, is also operated at the same time by means of the lever I and connecting-rod *l*. A fly-wheel, M, is placed upon the crank-shaft *d′* for the purpose of equalizing the motion.

It is obvious that, by employing the requisite number of elastic type, cans, or other cylindrical packages, may be printed upon in a variety of colors, at small expense, and in a convenient, neat, and expeditious manner. The types are composed of gutta-percha, gum, or other suitable elastic material, and must be attached to the type-board at proper distances, depending on the diameter of the can, so that it will make one revolution for each impression. Strong-colored printers' inks are preferably employed, together with a small quantity of bees-wax, which prevents the colors from checking or running together, and japan-driers may be used to facilitate drying.

I claim as my invention—

1. The combination, with the table A, of the adjustable center-piece C, inclined railway B, circular railway H, and movable printing-board B′, having elastic types *b b*, substantially as and for the purpose herein described.

2. The adjustable center C, supporting the color-plates *c c*, in combination with the crank-shaft *d′*, pitmen *i i*, distributing roller or rollers D, and gum inking-rollers E E, substantially as set forth.

3. The inclined railway B, paint-trough F, and fender G, in combination with the rock-shaft *e* and brush *f*, substantially as herein described.

4. The crank-shafts *d d′* and gearing *g h g′*, in combination with the distributing roller or rollers D, gum inking-rollers E E, levers I K, rock-shaft *e*, connecting-rods *l m*, and pitmen *i i*, substantially as and for the purpose herein described.

3. The apparatus for printing on cans, herein described, consisting in the combination, with the adjustable inclined railway B and printing-board B′, of the oscillating brush *f*, one or more distributing rollers, D, and gum inking-rollers E E, with suitable operating mechanism, said printing-board being provided with elastic types *b b*, and arranged to rise for the purpose of inking the type, and then fall to allow the cans to roll over its surface, substantially as set forth.

In testimony whereof I have hereunto affixed my signature this 11th day of April, 1876, in presence of two witnesses.

JACOB BELVILLE WEAVER.

Witnesses:
ELIAS MARSDEN,
JNO. T. MADDOX.