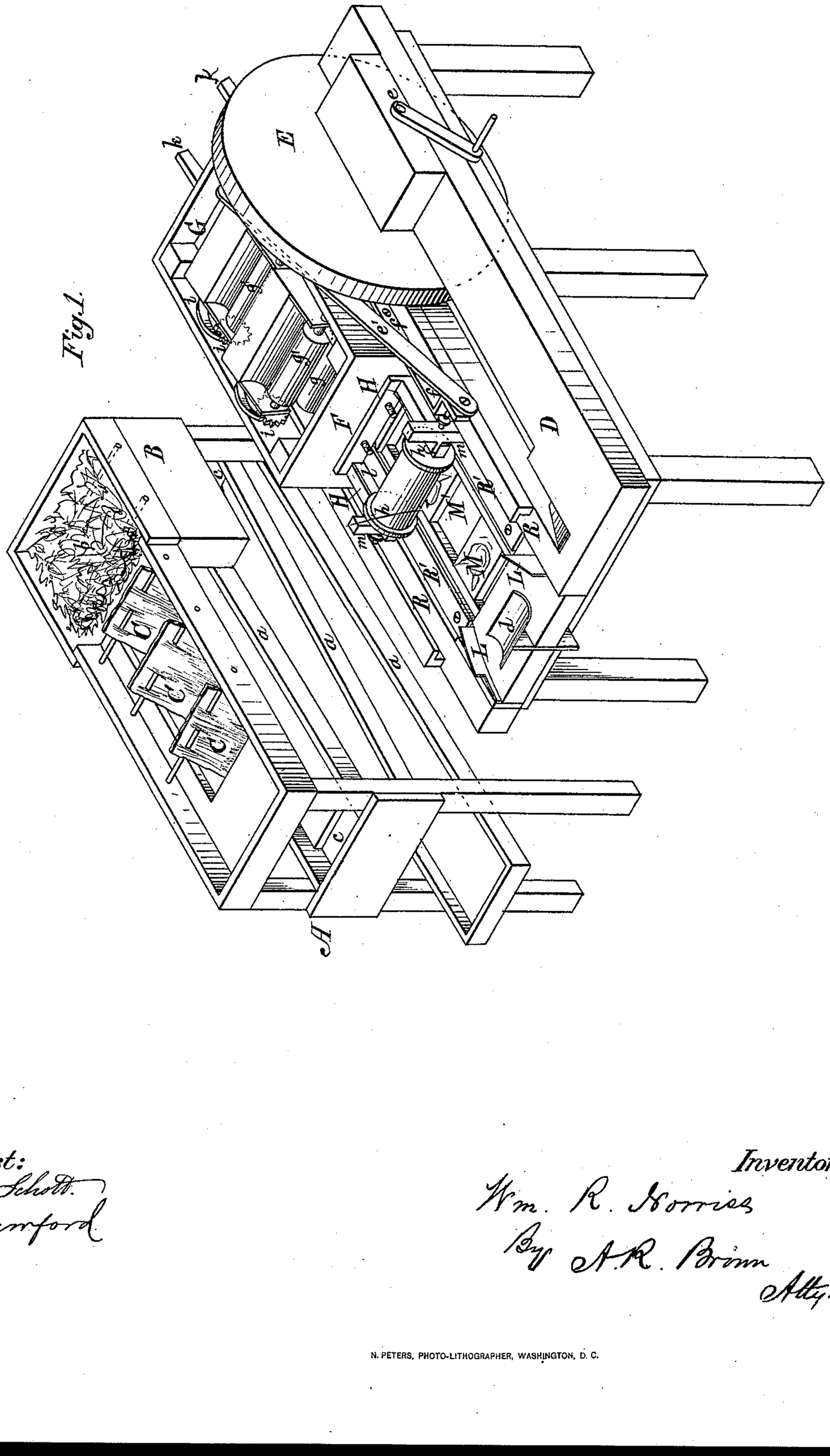
2 Sheets—Sheet 1.

W. R. NORRISS.

Can-Printing Machine.

No. 210,552. **Patented Dec. 3, 1878.**

Fig. 1.



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2 Sheets—Sheet 2.

W. R. NORRISS.

Can-Printing Machine.

No. 210,552. **Patented Dec. 3, 1878.**

Fig. 2.

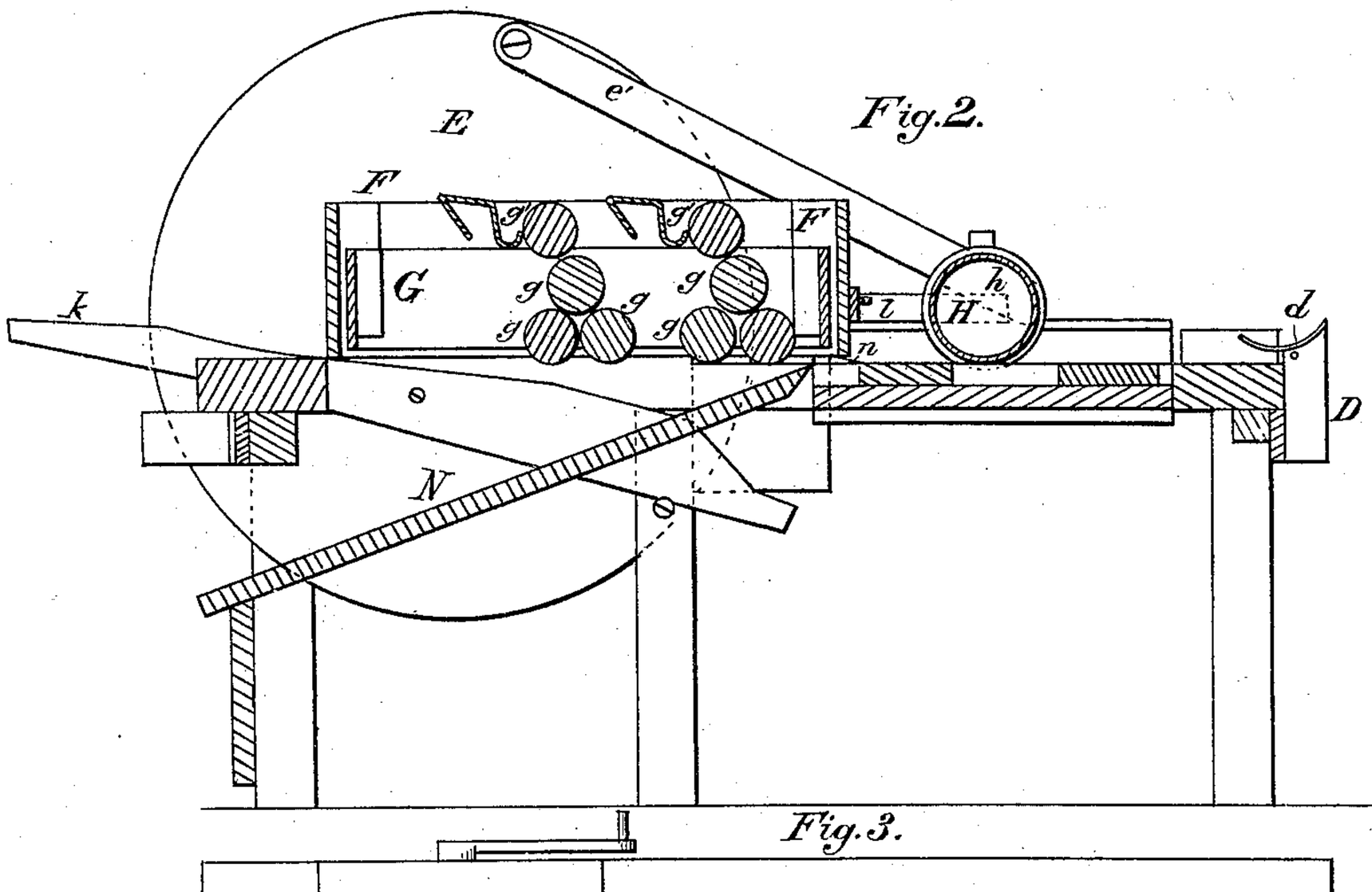
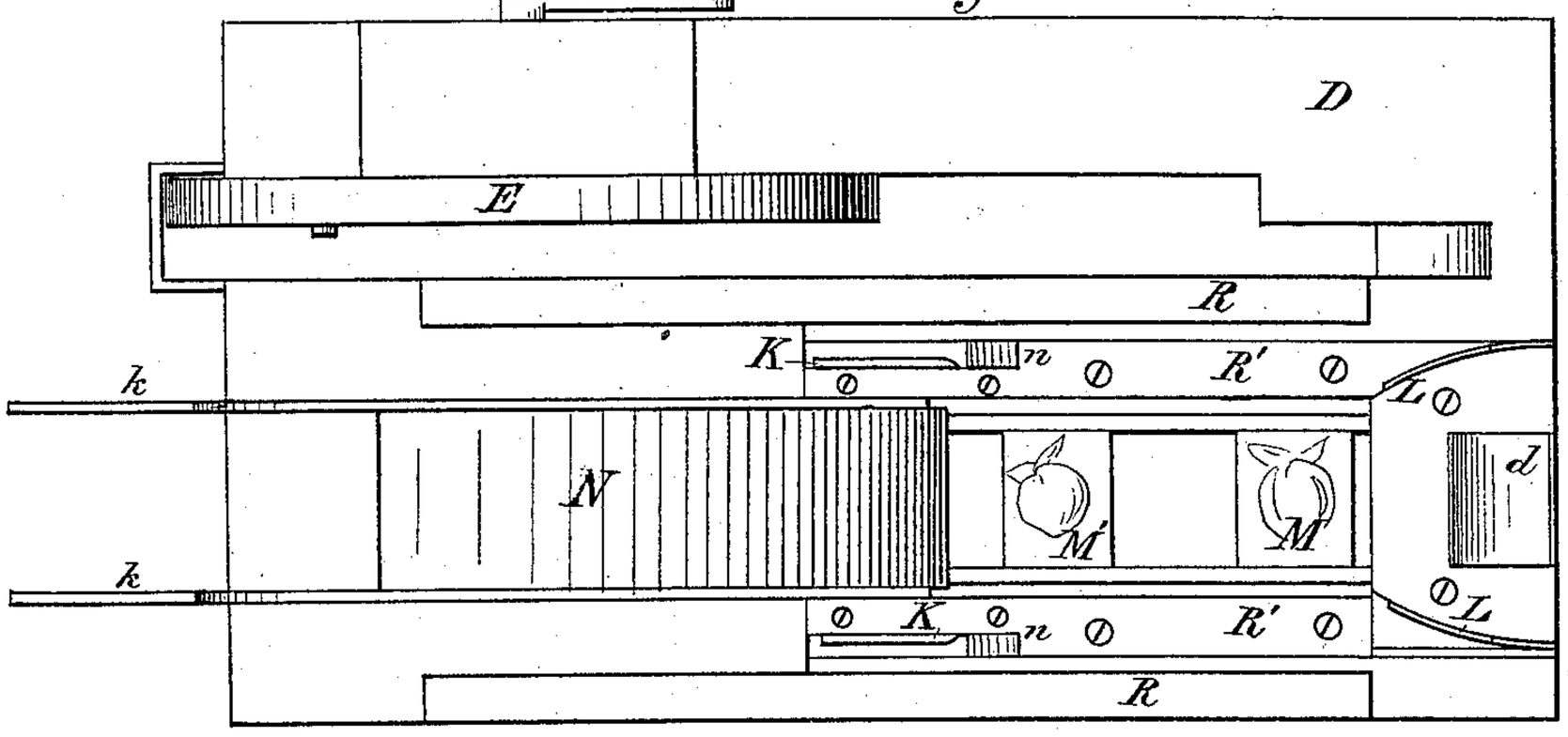


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM R. NORRISS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CAN-PRINTING MACHINES.

Specification forming part of Letters Patent No. **210,552,** dated December 3, 1878; application filed January 9, 1878.

To all whom it may concern:

Be it known that I, WILLIAM R. NORRISS, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Chromatic Can-Printing Machines; 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.

This invention relates to improvements in apparatus for printing chromatically upon the surface of cylindrical packages, such as tin cans, round wooden boxes, china and glass jars, &c., and thus dispensing with the ordinary paper labels, which are liable to become soiled or detached.

The invention consists in the construction and arrangement of the various devices forming parts of the apparatus for printing the labels, which will be hereinafter more fully described, and distinctly pointed out in the claims.

Figure 1 is a perspective view of the apparatus. Fig. 2 is a longitudinal vertical section of the printing-machine. Fig. 3 is a top-plan view of the same with the sliding car and rollers removed.

A represents the frame of a painting-machine, which supports a series of inclined planes, *a a*, arranged one above the other, so as to incline in opposite directions, and having openings *c c* for the passage of the can or other package. B is a box placed at one end of the upper inclined plane, and open at each end, in which the can to be painted is placed. The box B is covered at the top, and lined on the sides with sponge or other suitable porous material, *b*, which is saturated with paint, shellac, or japan colors. On being placed in this box, the package becomes covered with coloring-matter, which is evenly distributed by the brushes C C C when the package rolls beneath them. As the colors usually employed dry rapidly, the package, after passing through the openings *c c* and traversing the lower inclined planes, will be ready to be printed upon; but this painting mechanism is not herein claimed.

D represents the frame of the printing-machine, which sustains the mechanism for printing in colors the desired labels upon the can or other package after its surface has been coated with shellac or other suitable priming, in the manner above described. This mechanism consists of a railway, which supports a type-board, and upon which slides a car or box containing suitable inking and distributing rollers, and having attached to it devices for grasping and holding the can while being printed upon.

Other devices are arranged to release the can after the operation is finished, when it rolls down an inclined plane beneath the machine, ready for market.

The can or other cylindrical package to be printed upon, after receiving a preparatory coating of shellac, varnish, or japan colors, as before described, is placed upon the can-holder *d*, and the machine put in motion by power transmitted through the crank-shaft *e* and wheel E, which is connected by the pitman *e'* with a fixed bar or arm, *f*, on the sliding car F. This car contains a box, G, within which are arranged the inking-rollers *g g g*. The distributing-rollers and color-plates *g' g'* are arranged within the car F, above the inking-rollers, upon shafts, each having a pawl and ratchet, *i i*, to regulate its motion.

An adjustable spring-clamp, H, is attached to the forward end of the car F, having revolving disks *h h*, guides *m m*, and springs *l l*. When the car F moves forward upon the outer railway, R, the guides *m m* pass on the outer sides of the adjustable cams K K until the cams are passed, when the springs *l l* force the disks *h h* toward each other.

The wheels on the ends of the forward inking-rollers *g* roll over the inner railway, R', and over the cams K K, which fall when the weight of the car is removed from their backward-projecting levers or arms *k k*.

After passing the cams the ends of the forward rollers strike the projections *n n* immediately in front of the cams, and the box is thereby raised, so that the forward rollers will pass clear of the rear gum type, M', which is to receive a different color, without touching it. The rear inking-rollers, being shorter than the

forward ones, pass inside of the lugs or projections *n n* without touching them, and in this way the forward and rear inking-rollers, bearing different coloring-matter, deposit their appropriate colors upon the type M and M′, respectively, without admixture. As the car continues to move forward, the guides *m m* strike the rear ends of the spring fenders or guides L L. These fenders or guides L L, being placed in an oblique position, force the guides *m m* outward, and thus draw open the revolving disks *h h*, which are secured upon the same shaft or spindle with the guides *m m*. On reaching the forward ends of the fenders L L, and their resistance being removed from the guides *m m*, the disks *h h* are forced inward by the elasticity of the springs *l l* on the inner sides of the adjustable clamp H, so as to grasp the can which rests upon the holder *d*. After the disks have picked up the can the car returns, and in passing over the type-board the disks *h h*, which hold the can, revolve, so as to bring the sides of the can in contact with the type M M′ in such a manner as to receive the desired impression. Upon reaching the cams K K the guides *m m* strike upon the beveled ends of the cams, and, being thus forced upon the outer sides of the latter, pull open the disks *h h* and drop the can, which is now printed, upon the inclined plane N, beneath the box, whence it rolls into any suitable receptacle. In returning, the guides *m m* again pass upon the outer sides of the adjustable cams K K, which rise by the weight of the car pressing upon their backward-projecting levers or arms *k k*, and fall again when this weight is removed, so that the extended ends of the forward inking-rollers *g* may pass over them without obstruction.

Instead of employing the cams K K in the manner above described, they may be made longer and rigidly attached to the tops of the outer rails, R, the levers *k k* in this case being dispensed with, and the adjustable clamp H made flare with the sides of the car F.

By the use of additional sets of rollers and type, it will be apparent that a great variety of colors may be employed in printing representations of fruit, flowers, &c., upon cans and other similar packages. This, however, will necessitate a slight enlargement of the machine, and the employment of a separate pair of rails for each set of rollers.

The improved apparatus herein described, for printing chromatically upon cylindrical packages, possesses several important and obvious advantages in its more perfectly registering the labels printed, while doing the work in a neat and expeditious manner. It can also be adapted, by means of the adjustable clamp and attached devices, to the various sizes of cans employed in the packing business.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The chromatic can-printing machine herein described, consisting of the supporting-frame D, railways R R′, and inclined plane N, in combination with the type-board M M′, can-holder *d*, guides L L, cams K K, and sliding car F, with clamp H, substantially as specified.

2. The adjustable clamp H, having guides *m m*, revolving disks *h h*, and springs *l l*, in combination with the cams K K and spring-guides L L, substantially as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature, this 29th day of December, 1877, in presence of two witnesses.

WILLIAM R. NORRISS.

Witnesses:

CHARLES P. WEBSTER,

A. R. BROWN.