(Specimens.)

W. E. COLEMAN.

MANUFACTURE OF CANDIES, TOY CONFECTIONS, &c.

No. 356,450. Patented Jan. 25, 1887.

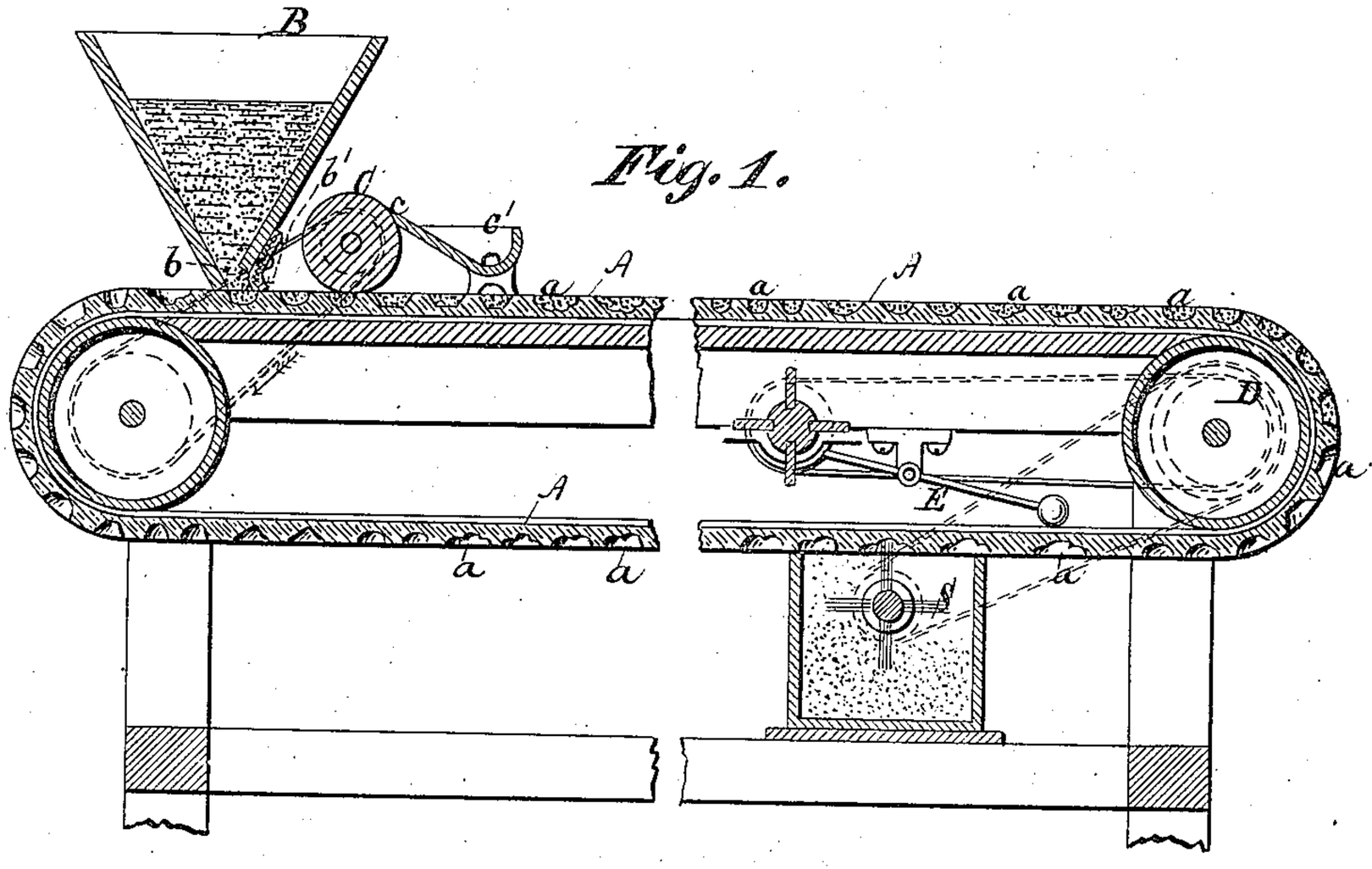

Fig. 1.

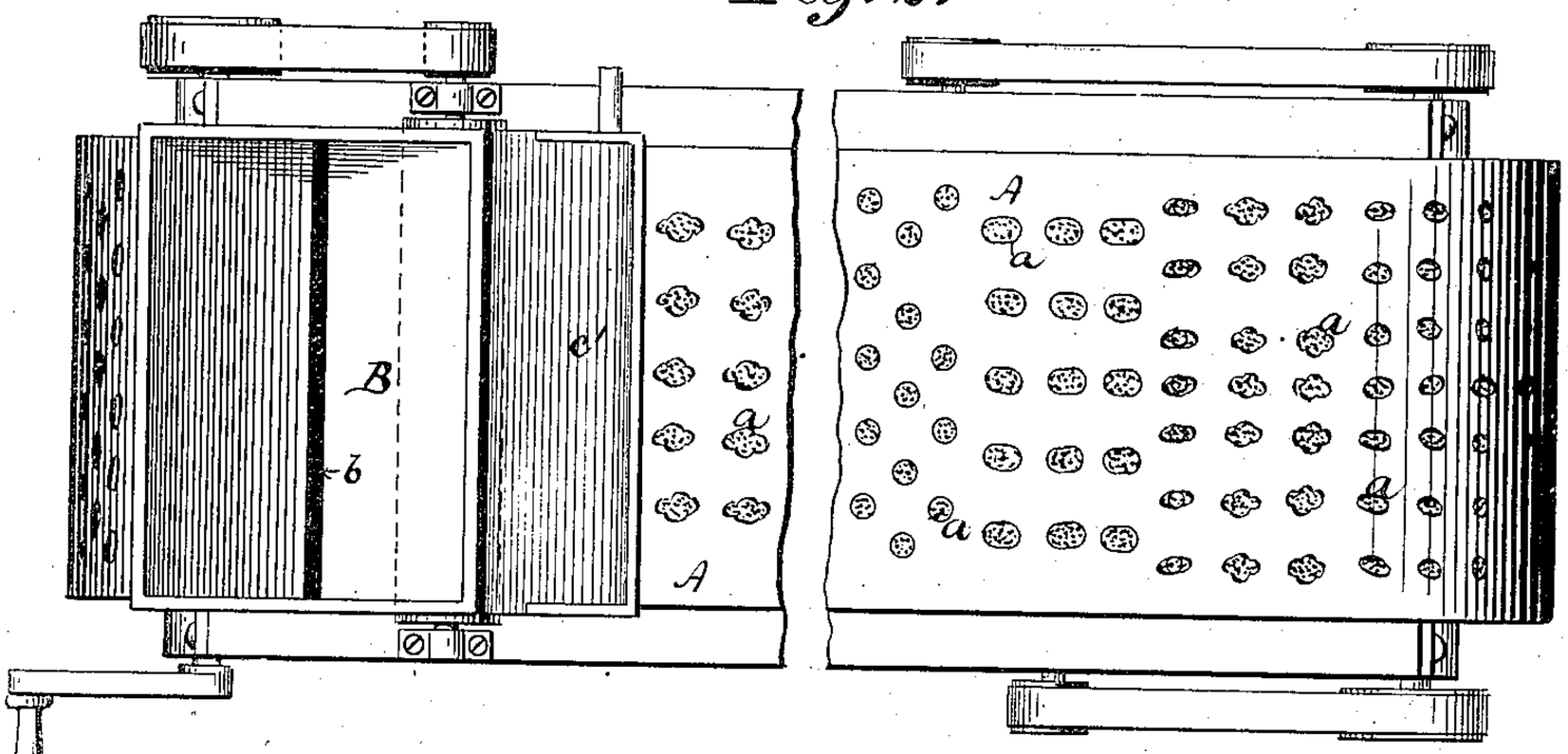

Fig. 2.

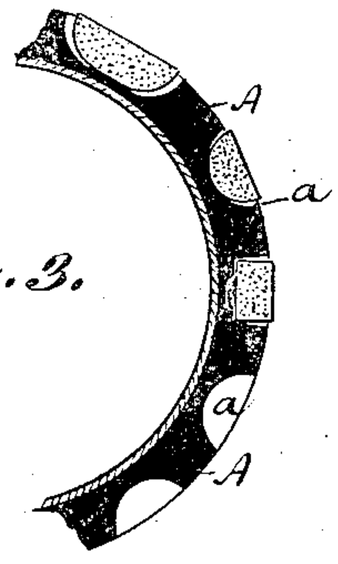

Fig. 3.

Witnesses:
Wm. Gardner.
Wm. A. Pollock

Inventor:
Walter E. Coleman,
By his Attorneys,
Geo. H. Miatt

UNITED STATES PATENT OFFICE.

WALTER E. COLEMAN, OF BROOKLYN, NEW YORK.

MANUFACTURE OF CANDIES, TOY CONFECTIONS, &c.

SPECIFICATION forming part of Letters Patent No. 356,450, dated January 25, 1887.

Application filed April 28, 1886. Serial No. 200,398. (Specimens.)

To all whom it may concern:

Be it known that I, WALTER E. COLEMAN, formerly a subject of the Queen of Great Britain, having declared my intention of becoming a citizen of the United States, and being at present a resident of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in the Manufacture of Candies, Toy Confections, &c.; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My improvements relate more especially to the class of confections which are designated as "molded goods," consisting of a suitable paste or semi-liquid preparation cast or molded into forms and designs of various kinds Heretofore this class of goods have been formed by pouring the material by hand into temporary molds or matrices previously formed by hand in a bed of starch. Briefly stated, the operation has been, after leveling the surface of a quantity of starch deposited in a suitable "starch board" or tray, to form in such starch a series of intaglio depressions or matrices by forcing alto-relievo patterns into the starch. The material to be cast was then poured into the several matrices by hand, and after it had "set" or hardened sufficiently the whole contents of the starch board or tray was sifted to separate the castings from the body of starch, that still adhering being presumably removed by further subjecting the castings to an air-blast.

For various reasons the old method is slow and expensive. Owing to the nature of the material in which the matrices are formed, unusual care and skill must be bestowed upon the operation in order to even approximate uniformity or perfection in result. Uniformity in the size and shape of the castings is desirable in all this class of goods, but especially when the castings are to be coated with chocolate or other comparatively expensive material, in which case imperfections or overflow not only spoil the appearance of the product, but also take up a disproportionately large quantity of the more expensive material. Again, the matrices, although so difficult and expensive to produce, are only available each for the formation of a single casting, so that, taking into consideration the number of matrices that are formed and not used on account of obvious imperfections, and also the number of castings that are finally discarded in practice for a similar reason, it will be seen that there are numerous disadvantages attending the use of such a process.

The object of my invention is to not only obviate the difficulties indicated, but also simplify, cheapen, and expedite the manufacture of the moldings or castings herein referred to, and to accomplish all without the aid of specially-skilled labor.

The more essential feature of my improved process consists in forming the castings in permanent molds formed of an elastic or semi-elastic material, and removing the said castings after they have set or hardened by bending the said molds, substantially as hereinafter set forth, in such manner as to cause the side walls of the matrices to open or recede from the casting, when the latter will drop out or may be readily removed without injury to either matrices or castings.

My invention also includes the process hereinafter described of filling the matrices and removing the surplus from the mold by passing the latter under a hopper charged with the material to be cast, and under a suitable scraper or flexible side wall of the hopper, which prevents the undue escape of the semi-liquid material and levels off the upper surface of the material thus detached and removed from the hopper.

Another feature of my invention consists in rendering the process continuous by forming the castings in matrices formed in an endless belt or mold, by which they are disonarged during the passage around the supporting-cylinder at one end of the apparatus, the matrices thus emptied continuing onward until they again come underneath the feeding-hopper and are again filled, conveyed around the cylinder, and emptied thereby, as before described. In connection with certain grades of goods which cool or set rapidly, this process of continuous uninterrupted working is of importance, although in other grades of goods which require considerable time to harden or set the process may be carried on by casting into elastic or semi-elastic mats or sheets of molds,

which, after being passed underneath the hopper and filled, may be conveniently set aside until the castings acquire the requisite degree of hardness or tenacity, when the castings may be removed from the matrices, as before stated, by bending the molds.

The castings produced by my process are perfectly uniform and true, and come from their matrix in proper condition for "dipping" or otherwise finishing.

I am aware that in patent to Sowle, No. 28,815, June 19, 1860, a continuous system of cutting lozenges from a sheet of paste is shown, in which the flat lozenges thus formed are deposited upon an endless belt from the series of cutter-dies arranged upon the periphery of a cylinder, the lozenges being forcibly ejected by plungers situated back of the dies, &c.; but such process of manufacture is not the equivalent of my invention, the essential feature of which consists in the use of elastic molds, in which the material in a liquid or semi-fluid condition is cast, and from which the castings are loosened and ejected by bending the molds, the inherent elasticity of the molds themselves effecting the discharge of the castings, whereas in the Sowle machine the lozenges are not cast at all, but are forcibly cut out of a sheet of material by rigid metal knives in the form of dies, from which they are removed by rigid plungers. There is absolutely no employment of elastic material in the Sowle device, except as a backing for the sheet of material from which the lozenges are stamped out, and the elasticity in that case is rather utilized to force the material into the dies than to remove it therefrom, as in my process of manufacture. Aside from the obvious differences in apparatus and process, it would be practically impossible to produce by the Sowle apparatus the equivalent of the various and intricate forms of castings which I can produce by my process of casting in flexible molds, his dies and plungers (which are even used for printing or compressing the faces of the lozenges) practically limiting his apparatus to the production of flat cakes of even thickness.

Another leading distinction between the Sowle apparatus referred to and my improved process consists in the fact that his process contemplates the use of paste exclusively, and it would be impossible to mold a liquid or semi-liquid material in his apparatus, whereas my invention is especially designed for the purpose of making castings from a liquid or semi-liquid material which runs into and fills the molds by its own gravity, no cutting or compression being used to shape the castings, the surplus material being simply scraped off the face of the sheet of molds before the material has time to harden or set.

In the accompanying drawings I illustrate apparatus which may be employed in carrying out my process of manufacture, although I expressly disclaim any intention of confining myself to the use of any special form of apparatus, the essential features of my invention, as hereinbefore set forth, being capable of employment and adaptation in conjunction with various modifications in details of construction of apparatus.

Figure 1 is a vertical longitudinal section of an apparatus for continuously working my improved process, the central portion being broken away. Fig. 2 is a plan of the same parts shown in Fig. 1; Fig. 3, a sectional view of a portion of the semi-elastic mold bent and in the act of discharging the castings.

The mold A is made of rubber or other suitable elastic or semi-elastic substance permanently formed with a series of matrices, *a*.

The mold A may be in the form of an endless belt or sheet, as shown in the drawings; or it may be in the form of a sheet or mat of suitable length for handling, the essential feature being a sufficient degree of elasticity to permit of the discharge of the castings from the matrices by bending the mold so as to stretch or open the matrices, as illustrated in Fig. 3.

In carrying out my process the batch of candy or other confection to be used to form the castings is put, in a semi-liquid or soft condition, into a hopper, B, and the mold A is then passed underneath its lower opening, *b*, the matrices *a* being thereby filled with the material. The surplus material is removed from the face of the mold and retained within the hopper by a rubber dam or scraper, *b'*.

To still further insure the removal of any excess of material from the face of the mold A, I prefer to pass the mold underneath a take-up roll, C, the periphery of which moves in an opposite direction to that of the surface of the mold, and thereby wipes off any remaining surplus and transfers it to a scraper, *c*, which may be provided with a trough, *c'*, for its reception.

Where the apparatus used is continuous, as illustrated in the drawings, the endless mold is either made of sufficient length to effect the "setting" of the castings before they reach the discharging-cylinder D, or that end of the apparatus is situated in a chilling or drying room, whereby the castings are quickly rendered fit to discharge; or, the candy or confection naturally being prepared in "batches" of a given quantity, requiring a prescribed time to prepare, the endless mold may be made to accommodate a single "batch" within the matrices situated at any one time above the table T, and after being filled that portion of the mold may be allowed to remain upon the table until the next batch is ready, or until the castings have set sufficiently to be discharged.

In this continuous apparatus it may be desirable to use an agitator, E, of any suitable construction, which will beat or jar the back side of the mold A as it passes underneath, in order to insure the discharge of any of the castings that may be inclined to stick to their matrices from any cause. A starcher, S, may also be situated underneath the table for the

purpose of dusting the emptied matrices with starch preparatory to their again passing underneath the hopper B.

It is obvious that the endless mold is not absolutely essential to the carrying out of my improved process, since (by way of illustration) it might be divided into several sections, thereby forming mats or sheets which could be passed underneath the hopper and scraper and laid aside until the castings were ready for removal, when the mats or sheets might be bent or sprung out by any suitable means in order to effect the discharge of the castings, as hereinbefore set forth, and as illustrated in Fig. 3.

Any suitable means for applying the necessary power and effecting the required motions may be employed.

Having thus described means of giving effect to my invention, without confining myself to any special form of apparatus, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The process herein described of manufacturing castings of candy or confectionery from a fluid or semi-fluid material, consisting in depositing such material in matrices formed in a mold of elastic or semi-elastic material, allowing the castings to set or harden, and then loosening or discharging them therefrom by bending the mold, substantially in the manner and for the purpose described.

2. The process herein described of manufacturing castings of candy or confectionery from a fluid or semi-fluid material, consisting in depositing the prepared material in a suitable hopper, from the lower end of which it is discharged into matrices formed in a mold or sheet of elastic or semi-elastic material, removing all surplus material from the face of the mold, allowing the resulting castings to set or harden, and then loosening or discharging them from their matrices by bending the mold, substantially in the manner and for the purpose described.

3. The process herein described of manufacturing castings of candy or confectionery from a liquid or semi-fluid material, consisting in depositing the said material in a suitable hopper, from the lower end of which it is removed by an endless belt of elastic or semi-elastic material formed with a series of matrices, in which the castings are allowed to set or harden, and from which they are discharged by the stretching of the said elastic mold as it passes over a curved surface, substantially in the manner and for the purpose described.

WALTER E. COLEMAN.

Witnesses:
WM. GARDNER,
GEO. W. MIATT.