(No Model.)

R. T. TRIPLETT.

PROCESS OF MANUFACTURING CELLULOID CLOCK CASES.

No. 255,355. Patented Mar. 21, 1882.

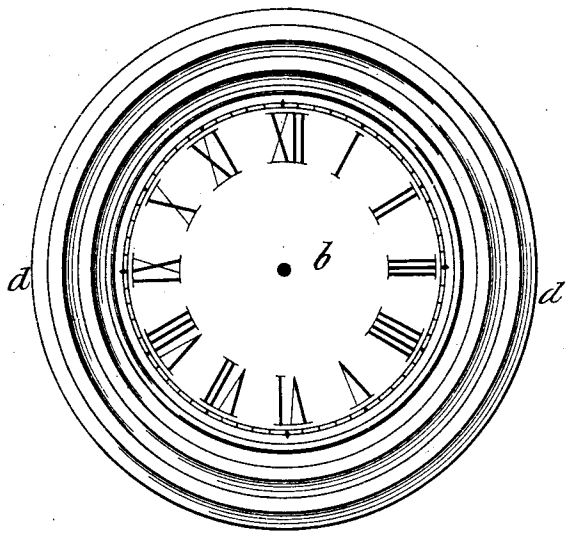

Fig: 1.

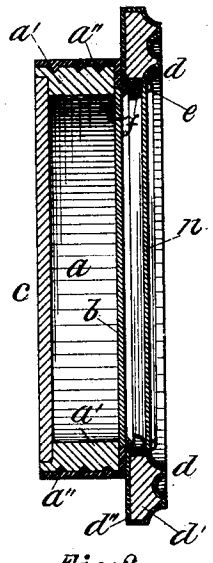

Fig: 2.

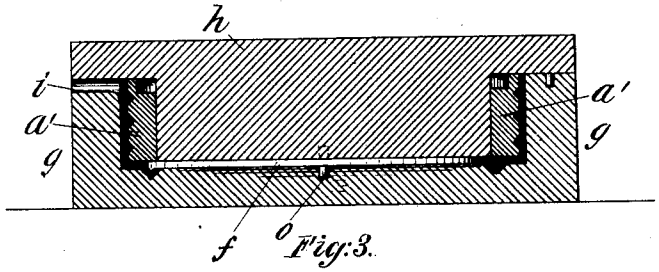

Fig: 3.

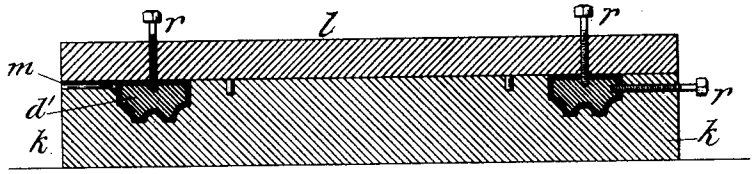

Fig: 4.

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UNITED STATES PATENT OFFICE.

REUBEN T. TRIPLETT, OF NEW YORK, N. Y.

PROCESS OF MANUFACTURING CELLULOID CLOCK-CASES.

SPECIFICATION forming part of Letters Patent No. 255,355, dated March 21, 1882.

Application filed September 7, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, REUBEN T. TRIPLETT, of New York city, county and State of New York, have invented an Improved Process for Manufacturing Celluloid Clock-Cases, of which the following is a specification.

My invention may be briefly stated to consist in the manufacture of clock-cases from solidified collodion or celluloid in one or more pieces, suitably molded or pressed, and formed either entirely of collodion or celluloid, or of an external enveloping-sheath of the same, pressed or molded upon an internal concealed core or skeleton of metallic or non-metallic material, whereby clock-cases of great beauty, permanence, and comparative cheapness are produced, forming a new article of manufacture having many distinguishing and valuable qualities for the described purpose, as hereinafter set forth.

Figure 1 of the annexed drawings represents a face view or front elevation, and Fig. 2 a diametrical section, of one well-known form of clock-case constructed according to my invention. Figs. 3 and 4 represent respectively a diametrical section of the molds for forming the two parts of the case.

In these drawings I have illustrated a simple form of clock-case adapted for marine movements; but it is obvious that the same system may be applied to any of the usual forms of case, whether for pendulum or marine movements, without appreciable change.

In Figs. 1 and 2, *a* indicates the back portion of the case, or case proper, which is adapted to hang against the wall, and is of an ordinary box shape to inclose the movement, being usually octagonal; but it may be round, square, or of other form. The front of this box is covered by the dial *b*, and the back by the back board, *c*, the outer face of which is adapted to rest against the wall, while the movement is affixed to the inner face within the case, and this back board is preferably made attachable to and removable from the back of the case *a*, so that the movement is thus insertible or removable from the back of the case when desired.

d indicates the front part of the case, which has the form of a circular ring nicely molded and finished on its visible face, and incloses the transparent glass front *n*, which overlies the dial *b*, and is held in place in this framering *d*, between outer and inner metal rings *e f*, in the usual manner, as illustrated. This ring *d*, with its glass, is hinged on its under side, near the margin, to the marginal front of the case *a* in the ordinary manner, whereby it may be swung out to give access to the dial for setting the hands or winding the movement in the usual manner, as will be understood, and a suitable hook or catch is of course provided to hold this lid or door *d* closed when shut against the dial.

According to my improvement I construct the case *a* of an internal core or skeleton, *a'*, of wood or of cast or sheet metal, or of some cheap and inert plastic material—such as plaster-of-paris or hydraulic cement—and I envelope or cover the same with an external layer or sheath, *a''*, of celluloid or some form of solidified collodion, now generally termed "celluloid." This sheath *a''* preferably covers only the middle portions or sides of the case *a*, and does not extend upon the back, as shown. The front *d* is formed in a similar manner of an internal core, *d'*, of the kind mentioned, and an external sheath, *d''*, of celluloid. This sheath preferably covers the entire core *d''*; but it may extend only around the visible front and side surfaces, the back being left uncovered, if desired. The surface of the cores *a' d'* may be indented with grooves or depressions at certain points, as shown, to give the sheath more adhesion to the core, if required.

The dial *f* may be made of any of the usual materials, but is preferably made of a plate of white celluloid united with the sheath *a''* of the core *a'* in the act of molding the same; or, if the sheath be itself white, this dial may be molded homogeneous with the sheath, as will be understood. As the sheath or external covering of the core will, however, be usually made of some dark or bright color distinct from the usual white of the dial, the latter will be preferably made and applied as before stated, and illustrated in the drawings.

The case, or rather its celluloid sheath, may be applied or molded as illustrated in Fig. 3.

g h indicate two sections of a mold, the section *g* having a cavity formed to produce the external shape of the desired case, while the

other section, *h*, is formed with a plunger to enter and closely fit the interior of the core *a'* and to approach the bottom of the cavity in the section *g*. The cavity of the section *g* is of course somewhat larger all around than the exterior of the core *a'*, forming a narrow annular space between the two to admit the plastic celluloid to form the sheath or coating of the core and the bottom of the core, and the plunger does not reach to the bottom of the cavity, so as to leave space for the celluloid to flow to form the front edges of the case and the dial thereof, as will be understood from Fig. 3. The dial *b* is, however, preferably formed separately of a white plate of celluloid, and placed in the bottom of the cavity in the section *g*, the central hole in the dial fitting over a central pin, *o*, in the mold, which thus holds the dial-plate in true position. The edge of the dial-plate is preferably turned over and lies coincident with a groove in the bottom of the mold, so that when the plastic celluloid is forced into the cavity of the mold it will flow around the edge of the dial and unite or interlock therewith, and form an ornamental raised bead around the edge of the dial, as will be understood. The two sections of the mold are accurately registered with each other by dowels or registering-pins, and are held forcibly against each other by a powerful clamp of suitable construction, and through one section of the mold a duct or passage, *i*, extends outward from the molding-cavity. This duct is coupled with the nozzle or mouth of the forcing-cylinder in which the hot and plastic celluloid is held, and the mold being now heated, the piston of this cylinder is set in motion, and the hot plastic celluloid is therefore forced under great pressure into the hot mold, into which the plastic material will now flow and form itself accurately around the core *a* and around the edges of the dial-plate *b*, and assume the form and finish corresponding to the cavity of the mold, as will be readily understood.

Air-vents are provided at necessary points in the mold to allow the air to escape and the celluloid to flow properly to all points of the mold, and after the mold is fully charged the motion of the piston is stopped, and when the charge is sufficiently set the mold is disconnected from the cylinder and opened, and the core, with its sheath of celluloid and its attached dial, is then removed. The protuberance of celluloid which will now exist on one side of the case corresponding to the duct *i* can be partly cut off, and the remainder bored and finished to act as a suspending-eye, whereby the case may be hung on the wall. The rest of the case will have little or no fins or protuberances to be removed, and will hence be finished when removed from the mold, except that in some cases a polishing may be desirable to give the molded surface a higher finish.

The front *d* of the case is formed in substantially the same manner as just described, and as illustrated in Fig. 4. The mold for this part consists of a bottom section, *k*, and top section, *l*, properly registered and clamped to each other, as before described, and having a forming-cavity corresponding to the external shape of the ring *d*, and a duct, *m*, to convey the plastic celluloid thereto, in substantially the same way as already described in connection with Fig. 3. The core *d'* is preferably placed central in the molding-cavity, so that the celluloid will flow all around and envelop the same, and the core may be thus held in position by slender tight-fitting screws *r r*, which may be readily unscrewed after the mold has been charged, and before the casting or molding is removed, as will be readily understood.

From the foregoing descriptions and illustrations experts in the working of celluloid and similar plastic materials and experts in the manufacture of clock-cases will readily understand that any other forms of clock-cases beside that shown may be formed in substantially the same manner without requiring any further specification here. It will be readily understood, however, as before indicated, that the several parts of the case may be made entirely of celluloid, without the internal cores, *a' d'*, the molds being formed to correspond to this construction and to provide sufficient thickness of celluloid in the casting, so as to give the case sufficient strength and stiffness without an internal core or skeleton. The use of the core will be in most cases preferable, however, as it will render the construction cheaper, require less celluloid, and impart greater strength, and if the core be made of inert plastic material, such as before mentioned, or of thin sheet metal, little or no difficulty will be experienced by expansion or contraction of the core relatively to its celluloid sheath. A thin metallic core, particularly if cast, will render the construction very strong, light, and cheap, and when coated with the celluloid will form a clock-case of very advantageous quality.

The celluloid of which the clock-case is formed, or with which it is coated, as just described, may be made in any tint or color, either dull or brilliant and either plain or mottled, and may be made to perfectly imitate or-molu or marble, malachite, pearl, or ivory, or other precious and beautiful mineral or animal substances employed for cases in the richest class of clocks. Not only, therefore, will the celluloid clock-case rival the natural materials named in beauty of appearance—which is of course an essential requisite in a clock-case—and also be capable of production at a very cheap rate, but it will far exceed these materials in all other qualities that a good clock-case should possess. Thus, in being perfectly water-proof, impervious, and non-absorbent, the celluloid case will effectually resist moisture and protect the movement from rust or tarnish, and will be incapable of being per-

manently soiled or stained by any external defilement, as would be the case with the natural materials. Furthermore, it will possess great lightness and strength, and being of a flexible nature and homogeneous, or nearly so, it will effectively resist all jars or shocks that would readily injure other materials. It will thus not only rival the ornamental materials named in beauty, but will also rival even iron and glass in permanence. Iron and glass are the cheapest and most permanent materials heretofore employed in clock-cases, but iron has the defect of rust and incapacity of any high finish or imitation of natural ornamental materials, and glass is also incapable of very artistic finish without great expense, and is not capable of much scope in imitation of ornamental materials, as its vitreous crystalline character is always apparent, while, moreover, it has the further great defect of fragility. The celluloid clock-case thus presents a most characteristic and valuable combination of advantages, and forms a new and improved article of manufacture.

What I claim is—

1. The described mode of forming clock-cases and their dials in one structure by first forming the dial separately from a plate of celluloid, then placing this dial in a mold with a space in said mold beyond or around the edges of said dial, and corresponding to the walls of the clock-case, and finally filling said molding-space with celluloid, so as to form the sides or walls of the case and unite with the said dial-plate at the same time, substantially as herein shown and described.

2. As a new article of manufacture, a clock-case formed of celluloid, as herein set forth.

3. A clock-case formed of an internal core or skeleton of suitable material and an external sheath or layer of celluloid, substantially as herein set forth.

4. A clock-case formed of celluloid, with a dial-plate made separately therefrom, but united with the case in the act of molding the same, substantially as herein set forth.

5. A clock-case formed of an internal metallic core or skeleton and an external layer or sheath of celluloid, substantially as herein specified.

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