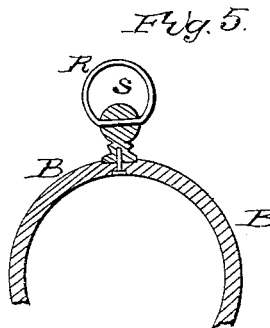
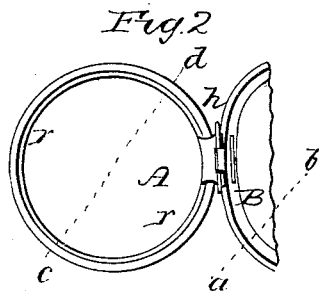
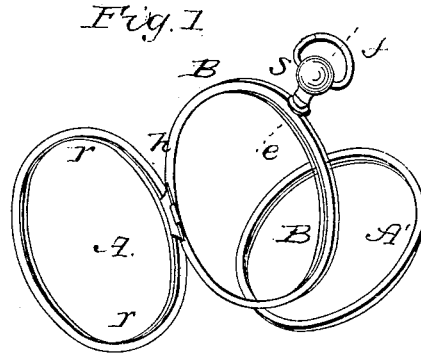


G. S. RICE.

Manufacture of Hard Rubber Articles.

No. 47,457.

Patented April 25, 1865.



Witnesses
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John Mathias

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UNITED STATES PATENT OFFICE.

GEORGE SAMUEL RICE, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF HARD-RUBBER ARTICLES.

Specification forming part of Letters Patent No. 47,457, dated April 25, 1865.

To all whom it may concern:

Be it known that I, GEORGE SAMUEL RICE, of New York, in the county and State of New York, have invented certain new and useful Improvements in the Manufacture of Hard-Rubber Articles—such as watch-cases, medallions, &c.; and I hereby declare the following to be a full, clear, and exact description of the same.

The hard india-rubber compound invented by Nelson Goodyear received on account of its peculiar physical properties, which give it a place among materials intermediate between the wood and the metals, many applications for which wood and metal or neither are fit to be used. Its deep rich black and the high polish it is capable of rendered it eminently adapted for ornamental purposes—such as jewelry, &c.—and furnished a cheap substitute for the costly jewelry made of precious metals.

Efforts have been made to use vulcanite in lieu of gold-enameled watch and locket cases; but the method in which this material was adapted proved costly and otherwise defective for both mechanical and chemical reasons. Thus it was deemed impossible to make the bezel of watch-cases and lids of lockets sufficiently flexible to allow of the glass to be sprung in yet rigid enough to hold it therein, as this is done in metal frames; nor was it known how to permanently combine a metal hinge with concavo-convex shells or round frames of vulcanite or how to dispense with the metal shank or ring. On the other hand, metals with the exception of gold, owing to the action of sulphur upon them, could not be used in connection with vulcanite cases, and the watch-works or other metallic parts inclosed in or combined with such cases would soon become black and deteriorate. Hence vulcanite in watch-cases and lockets was heretofore used simply as a substitute for enameled work—i. e., was inlaid in gold frames, involving an amount of labor which rendered the cases or lockets quite as expensive, if not more so, than those made of gold, while the ordinary brass watch-works used in such cases were liable to become seriously affected by the action of sulphur upon it.

The object of this invention, therefore, is to make watch-cases, lockets, medallions, or

other like articles wholly or in part of vulcanite, in which the difficulties before suggested are overcome, and I have accomplished the same by making the same in the manner as follows:

Referring to the accompanying drawings, in which I have shown my invention applied to a watch-case, Figure 1 represents a perspective view of the same, the two covers being shown open on their hinges. Fig. 2 is an elevation of the inner side of one of the covers, exhibiting the method of securing the hinge thereto. Figs. 3, 4, and 5 are transverse sections on line *a b*, *c d*, and *e f*, respectively.

The case is composed of five parts—viz., the two covers or lids, *A* and *A'*, the bezel *B*, and the shank *S*, and ring *R*—all of which are made entirely of vulcanite and exclusively by lathe-work. The great cheapness of the material and the extreme facility of working the same entirely by machinery on a turning-lathe enables these cases being made at a very small expense, which renders them accessible to the most humble. The lids are preferably of concavo-convex form, and are provided on the interior or concave side with an annular groove or flange, *G*, within which is located the metal ring *r*. This ring carries the hinge portion *h* on the lid, and affords a firm connection of the hinge to the lid; but for additional security I prefer to insert a rivet or two at or near the hinge to prevent the ring from slipping or from becoming detached by careless or violent usage. The other portion of the hinge is partly let in, and is riveted to the bezel *B*. The other cover or lid (if two be used) is secured in like manner. The bezel is at one side provided with a groove, *m*, having a thin overhanging rim sufficiently elastic to allow of the glass being inserted in the same manner as in gold frames. The shank *S* is riveted or screwed onto the bezel, as shown in Fig. 5, and the ring *R* is snapped into the side apertures of the knob on the shank, and held therein by virtue of the extreme springiness of the material it is made of. The interior of the case is coated with lacquers, varnishes, or other similar preparations, whereby the action of sulphur in the rubber on the metallic watch-movement is prevented. In this manner watch-cases or lockets may be produced possessing the beauty

of enameled work, the slightness of the thinnest gold cases, and the strength of solid silver cases, at comparatively small cost.

The character of ornamentation upon the face of the cases may be varied according to taste or fancy.

Having thus described my invention, I claim as a new article of manufacture—

1. Watch - cases or lockets made of hard rubber or vulcanite, in the manner hereinbefore set forth.

2. In vulcanite watch-cases or lockets, the method of securing the hinge, substantially as described.

3. In vulcanite watch - cases or lockets, forming an annular groove with a thin over-

hanging rim for the inserting and holding the glass, substantially as set forth.

4. The method of securing the hard-rubber shank to the hard-rubber besel, substantially as described.

5. In combination with vulcanite watch-cases or lockets, the use of varnishes, in the manner and for the purpose set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

GEO. SAM. RICE.

Witnesses:

R. H. LYON,

F. E. MATHER.