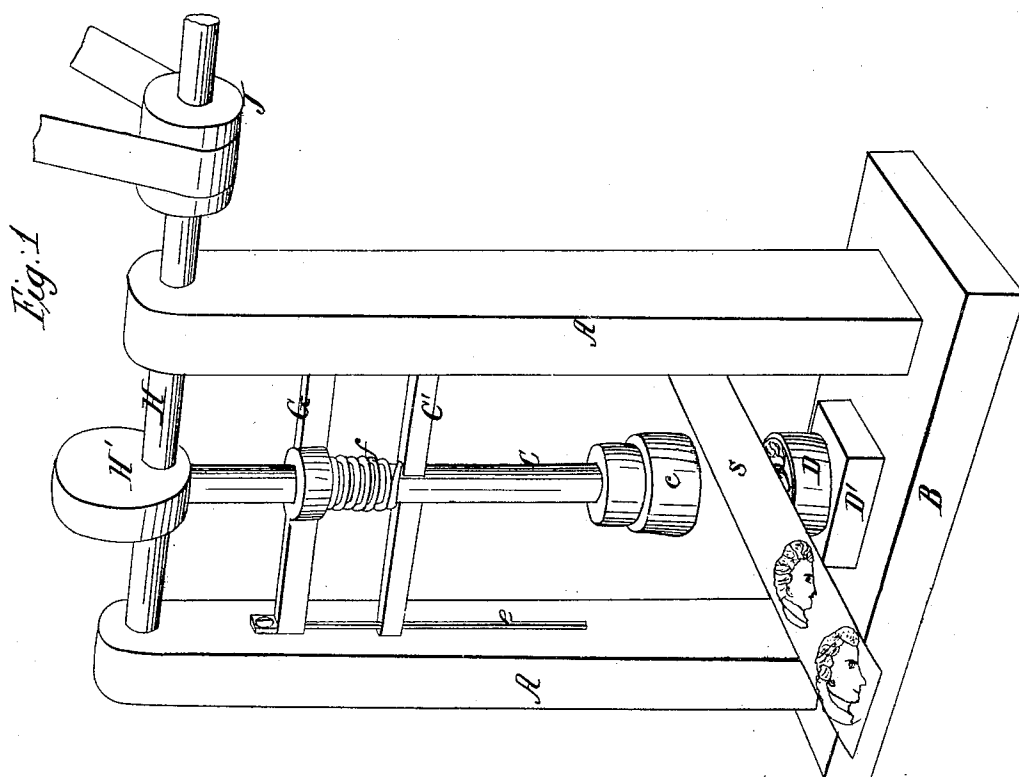
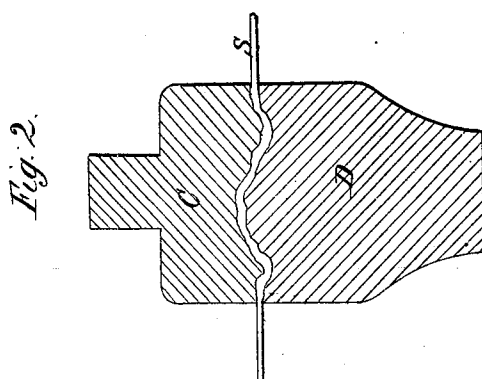


J. A. McCLELLAND.
 MODE OF PRODUCING USEFUL ARTICLES FROM COLLODION AND ITS
 COMPOUNDS.

No. 96,132.

Patented Oct. 26, 1869.



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United States Patent Office.

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Letters Patent No. 96,132, dated October 26, 1869.

IMPROVED MODE OF PRODUCING USEFUL ARTICLES FROM COLLODION AND ITS COMPOUNDS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN A. McCLELLAND, of Louisville, in the county of Jefferson, and State of Kentucky, have invented a new and improved Process for Producing Useful and Ornamental Objects of Collodion-Compounds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view, representing one form of a press which may be employed in conducting my improved process.

Figure 2 is a vertical central section, through a die and counter-die, showing a sheet of the compound pressed between them.

Similar letters of reference indicate corresponding parts in the two figures.

The object of this invention is to produce useful and ornamental wares or articles of compounds in which collodion is a constituent element.

The difficulty hitherto experienced in moulding compounds of collodion and resinous or other like substances, is chiefly caused by the shrinking or diminution in bulk, and warping of these compounds during the evaporation from them of the ether or other solvent used to soften them. For this reason it has not been hitherto practicable to produce casts or impressions with these compounds, which would present a fine finish, and retain the sharp outlines required for ornamentation.

To overcome the difficulties above stated, the nature of my invention consists in subjecting sheets, bars, or pieces of a composition produced by the mixture of collodion with resinous matter to such a degree of heat as will render them sufficiently soft and plastic to admit of their receiving distinct impressions and shapes, and then pressing them between dies or moulds, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe how to carry it into effect.

The compound which I employ is prepared in the form of sheets, strips, or bars, and may be made by mixing resinous substances, and, if desired, any suitable coloring-matters, with collodion, in any well-known manner, or as described in the schedule annexed to my Letters Patent, numbered 77,304, although for my present purpose it is not essential to re-treat the compound by pulverizing it and again uniting its particles, as described in said Letters Patent.

The compound may be formed into sheets, or strips, or bars of any required thickness, as it is expelled while in a plastic state from a mixing-mill, or the

sheets, strips, or bars may be formed by spreading the compound, while plastic, upon flat plates or moulds suitably adapted to the purpose.

In an application for Letters Patent of the United States, bearing even date with this, and marked "case A," I have described one form of mill which is adapted for mixing collodion with resinous and other substances. By applying to the discharge-orifice of such machine a mould of suitable shape, the compound may be conveniently obtained in sheets, bars of other desired or convenient shape, which are allowed to stand until the solvent used is expelled from them, when they are ready for use.

I prefer to employ the mill above referred to, because by its use the compound mixed in it is free from globules of air; but I do not confine my invention to its use, as articles of an inferior class may be produced of the compound, as prepared under the old processes, while exposed to air.

Hitherto compounds of collodion and resinous substances, which are allowed to harden, have been re-treated with ethereal solvents to reduce them to that degree of plasticity which will allow them to be wrought into useful shapes. While these solvents afford a convenient (although expensive) mode for softening the compounds in question, they will also swell these compounds so as to render it very difficult, and sometimes impracticable to produce a useful object of any definite form or size, owing to the shrinking of the mass as the solvents evaporate.

Where it is desired to obtain great strength and toughness in the object or objects produced, the proportions of the substances may be, say, one part of resinous or gumming-matter, to nine parts of soluble fibre, by weight. But where strength is not so much an object as beauty of finish and polish, the proportions of said substances may be reversed.

Instead of using resin with the collodion, gums, balsams, nitro-glucose, and other substances, which will soften by the application of heat, and when allowed to cool will become hard again, may be used in suitable proportions, according to the nature and requirements of the compound to be produced.

I take a sheet, strip, or bar of a compound prepared as above described, and subject it to heat, varying, say, from 150° Fahrenheit to 250° Fahrenheit, according to its fusibility, until it is rendered sufficiently pliable or plastic for working.

I then introduce the sheet, strip, or bar, while in this soft condition, between a die and counter-die, or between a die and a flat surface, and by the application of more or less pressure, as may be required, I produce upon or in the sheet, bar, or strip, the same

impression or configuration as I have upon the die or matrix, and this impression will retain the shape and sharpness of outline which it received.

The pressure will not only compel the compound to fill up every space in the matrix or die perfectly, but it will condense the compound, and render it harder and more durable than it otherwise would be.

To facilitate the production of useful and ornamental objects from the sheets, strips, or bars, I have represented in the accompanying drawings a machine which may be employed to advantage for stamping impressions very rapidly.

A A are two upright standards, rising perpendicularly from a bed or base, B, and carrying, near their upper ends, a horizontal shaft, H, upon which is fastened an eccentric, H'. This shaft H may receive a continuous rotary motion from any convenient power by means of a belt passing around a drum, J.

C is a vertical rod, which is guided in its up-and-down movements by cross-bars, C' G, and which is forced up against the perimeter of the eccentric H' by a spring, f, arranged between the bars C' G.

On the lower end of the rod C, a stamp or die, c, is suitably fixed, and directly beneath it is a counter-die, D, which is fixed to block D' on the bed B.

When shaft H is rotated, the rod C, with its die c, receives vertical motion, and if the parts are properly

adjusted, with reference to the thickness of the sheet or strip S of the compound, impressions corresponding to those on the die and counter-die may be made in this sheet or strip by feeding beneath the die c.

In this way a variety of useful and ornamental wares or articles, possessing strength and beauty of finish and polish may be produced with great facility, such, for instance, as various kinds of articles of jewelry, such as breast-pins, rings, studs, buttons, beads, bracelets, charms, &c., piano-keys, portemonnaie-sides, clock and watch-faces and watch-cases, letters for druggists' ware, &c., handles for pocket-cutlery and surgical instruments; also, for band and mouth-glasses for dentists' use, &c., paper-cutters, photographic plates, tablets, visiting-cards, combs, doll-heads or faces, tobacco-boxes, artificial noses, ears, &c., ornaments for the hair, and for trimming bonnets, cloaks, &c.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The production of useful and ornamental wares or objects, of compounds as herein described, by the application thereto of heat, substantially as described.

J. A. McCLELLAND.

Witnesses:

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