

(No Model.)

J. JACOBSON.
IRIDESCENT SURFACE.

No. 551,769.

Patented Dec. 24, 1895.

Fig. 1

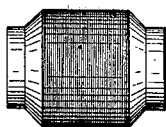
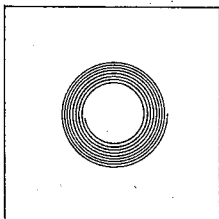


Fig. 2.



Witnesses
Jas. J. McAloney.
M. C. Bell.

Inventor,
John Jacobson
by J. P. Brumie
Att'y.

UNITED STATES PATENT OFFICE.

JOHN JACOBSON, OF BOSTON, MASSACHUSETTS.

IRIDESCENT SURFACE.

SPECIFICATION forming part of Letters Patent No. 551,769, dated December 24, 1895.

Application filed March 15, 1893. Serial No. 466,040. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN JACOBSON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Iridescent-Surfaced Articles, of which the following description, in connection with the accompanying drawings, is a specification.

My invention consists in an article having its surface provided with striations composed of the successive convolutions of a continuous line upon said surface which is thereby rendered iridescent, the articles thus being ornamental and adapted for use as buttons or other articles which may be made more ornamental by having a surface that is iridescent or capable of decomposing the light reflected from it.

It is well known that the iridescence or decomposition of light produced by mother-of-pearl, for example, is caused by minute striations or substantially parallel lines or ridges which naturally exist on the surface, and a similar decomposition of light is produced by an artificially-prepared optical surface sometimes called a "grating" which is made by engraving numerous fine parallel lines upon a suitable surface. Such lines have to be carefully made and the optical gratings which have been heretofore used for producing this phenomenon of dispersion or decomposition of light have been very expensive, it being necessary to rule or engrave the surface with great care by special appliances. Such lines have heretofore been produced upon flat surfaces by a tool or graver having a reciprocating rectilinear movement with relation to the surface, or a corresponding movement of the article under the graver, there being a minute lateral feed of the graver between its successive cutting operations. Such operation is necessarily slow and attended with many difficulties, rendering the production of surfaces in this manner very slow and costly, as before stated.

The present invention is based on the discovery that a striated light-dispersing surface may be produced by ruling a continuous spiral line the successive convolutions of which are substantially parallel with one another and very close together and uniformly spaced, and thus cause the desired dispersion of the light falling upon the said surface to

give the same an iridescent appearance. Such a line may be produced upon an article having a cylindrical surface by rotating the latter while the tool or graver is pressed against it and feeding the tool in line with the axis of the cylinder in proportion to its rotary movement, so that the part at any time being marked by the tool is adjacent to the mark made at the preceding rotation of the article and the continuous tool-mark does not differ substantially in light-dispersing effect from a series of separate tool-marks or lines each extending continuously around the surface in a plane at right angles to the axis thereof.

A similar striated surface may be produced upon a cone by rotating the latter and feeding the tool along the slant height of the same, or it may be produced upon a flat-surfaced article by rotating the same so that the successive convolutions of the line engraved by the tool are substantially the same in light-dispersing effect.

Figure 1 is a side elevation of a cylindrical article having a striated or light-dispersing surface embodying this invention, and Fig. 2 a representation of a flat-surfaced article provided with light-dispersing striations in accordance with this invention.

The article forming the subject of this invention is provided with a continuous line ruled or engraved upon its surface the successive convolutions of which are equidistant from one another and very close together, so that the said successive convolutions of the continuous line do not differ substantially from separate parallel lines, and afford a light-dispersing or iridescent surface. Such a continuous line may be ruled upon the surface of a cylinder in the form of a helix or cylindrical spiral, as indicated in Fig. 1, or upon a flat surface in the form of a flat spiral, as indicated in Fig. 2, the lines in both figures being greatly exaggerated, as in practice they are so minute and the successive convolutions so close together that it would be impossible to represent them in their actual size by a mechanical drawing. In practice the lines will be so ruled as to produce anywhere from about seven or eight hundred up to several thousand striations to the inch. A continuous spiral line of this kind can be ruled

or engraved far more rapidly and accurately than a number of separate parallel lines and the article to which it is desired to give an iridescent surface may in some cases be ruled
5 or striated by the direct action of the graver; or, if desired, an article having its surface striated by engraving a continuous line thereon, as herein described, may be employed as a die to transmit the counterpart of its surface to other articles, in which case the striations of a cylindrical surface such as represented in Fig. 1 may be imparted to a flat or
10 plane surface.

It may be possible in some cases to rule
15 two or more lines simultaneously by employing two or more graving-tools, the line produced by each tool being in the form of a spiral, the several convolutions of which are

substantially parallel and equidistant, and an article having the iridescent surface resulting therefrom would be within this invention.

I claim—

An iridescent surfaced article having its surface provided with a continuous spiral
25 line the successive convolutions of which are equi-distant from one another and sufficiently close together to produce dispersion of light, substantially as described.

In testimony whereof I have signed my
30 name to this specification in the presence of two subscribing witnesses.

JOHN JACOBSON.

Witnesses:

JOS. P. LIVERMORE.

M. E. HILL.