(No Model.) 2 Sheets—Sheet 1.

E. & F. SMITH.

GLASS ORNAMENTATION.

No. 392,935. Patented Nov. 13, 1888.

Fig. 1.

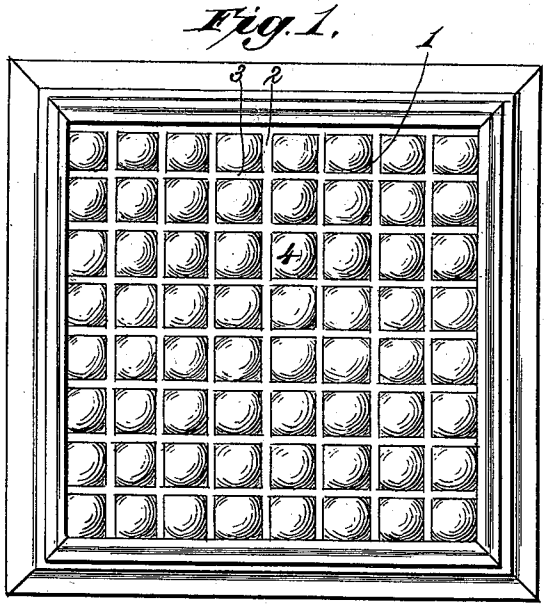
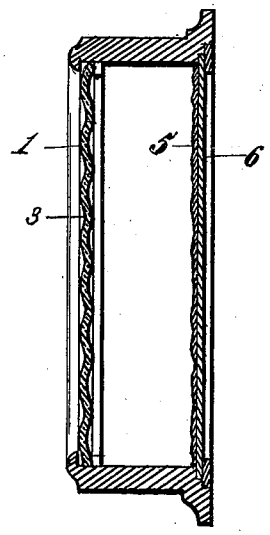


Fig. 2.



Witnesses.
Robt Ewett.
Percy B. Mills.

Inventors.
Edward Smith.
Frederick Smith.
By James L. Norris.
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

E. & F. SMITH.

GLASS ORNAMENTATION.

No. 392,935. Patented Nov. 13, 1888.

Fig. 3.

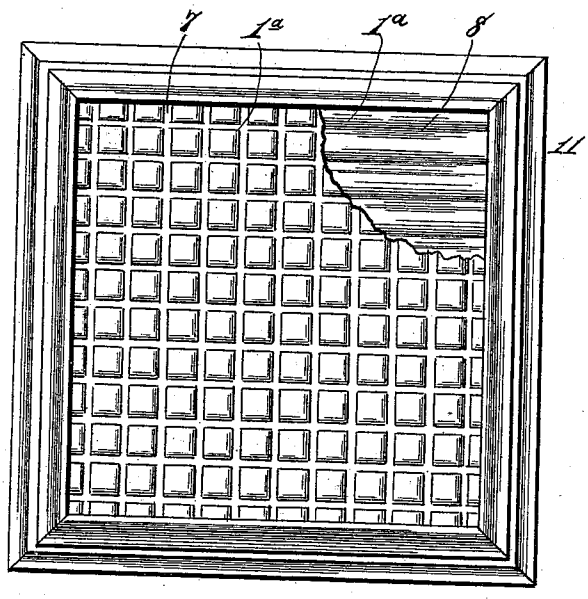
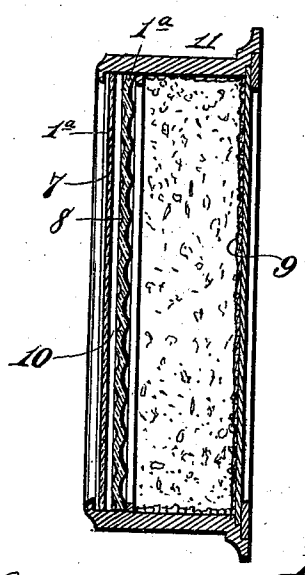


Fig. 4.



Witnesses,
Robt. Ernett.
Percy B. Hills.

Inventors,
Edward Smith,
Frederick Smith,
By James L. Norris.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD SMITH AND FREDERICK SMITH, OF LONDON, ENGLAND.

GLASS ORNAMENTATION.

SPECIFICATION forming part of Letters Patent No. 392,935, dated November 13, 1888.

Application filed February 9, 1887. Serial No. 227,060. (No model.) Patented in England June 24, 1884, No. 9,631, and January 23, 1886, No. 1,056; in France March 23, 1886, No. 174,951, and in Belgium March 23, 1886, No. 72,467.

To all whom it may concern:

Be it known that we, EDWARD SMITH and FREDERICK SMITH, subjects of the Queen of Great Britain, residing at Hatton Garden, London, England, have invented Improvements in Glass Ornamentation, (for which we have obtained patents in the following countries: Great Britain, by Patents Nos. 9,631 and 1,056, dated June 24, 1884, and January 23, 1886, respectively; France, by Patent No. 174,951, dated March 23, 1886, and Belgium, by Patent No. 72,467, dated March 23, 1886,) of which the following is a specification.

The object of our invention is to provide simple and comparatively inexpensive means for the purpose of interior or exterior decoration, wherein the ornamental effect produced may be greatly and infinitely varied by slight alterations in arrangement.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and definitely pointed out in the claim.

Referring to the drawings, Figure 1 is a front elevation of a device in which our invention is embodied. Fig. 2 is a central vertical section of Fig. 1. Fig. 3 is a front elevation showing a slightly-modified construction. Fig. 4 is a vertical section of Fig. 3 from front to rear.

In the said drawings the reference-numeral 1 designates a plate of white glass, of any suitable thickness and size. This plate is molded into any pattern suitable for the purpose—as, for example, by forming a series of parallel depressions, 2, running from top to bottom of the plate and crossed by similar depressions, 3, arranged at equal intervals. This gives the glass plate the appearance shown in Fig. 1, each of the square portions 4 being convex upon its outer face and concave upon the opposite face. In order to increase the checkered effect, the glass may be ground along the lines of depressions 2 and 3 upon the back face of the plate, or the glass may be rendered opaque in other ways.

Behind the plate 1, at a suitable distance, is arranged a backing, 5, of any suitable material, such as colored or stained glass, bright metal, or a metallized body, whether of plain smooth surface or crimped and uneven. This backing may be so constructed that light will pass directly through the same and thence through the glass plate 1, or it may be so formed as to operate by reflected light, which first enters through the plate 1, and is reflected back by the backing 5, or the latter may be of a transparent material, and a reflecting-surface, 6, may be placed just behind it, as shown in Fig. 2.

As a modified construction, we may corrugate two glass plates, 1^a, by vertical and horizontal corrugations upon the outer and inner plates, respectively, as shown in Figs. 3 and 4, wherein the numerals 7 and 8 denote, respectively, the vertical and horizontal depressions upon the front and rear plates.

Behind the glass plate 1^a we arrange a backing, 9, composed of various colors, either incorporated in translucent or opaque substances, and formed of any suitable material. If the backing is of glass or particles of glass, the light will pass freely through the same, and thence through the plates 1^a; but if the backing is opaque or of reflecting material the light will enter and pass out through the front.

Colored or stained glass plates 10 may be laid in between the front plates, 1^a. The plates and backing thereto may be supported in any suitable manner—as, for example, by a frame, 11—and the light may be natural or artificial.

The front plate, 1 or 1^a, may have molded thereon letters, numbers, or other devices. The effect of the light, whether transmitted or reflected, is to produce multiplied fragments of colors and tints which change constantly with the slightest change in the angles of incidence and reflection, producing a kaleidoscopic effect, which is of great beauty, giving a dazzling sparkling effect that may be most effectively utilized for all decorative or ornamental purposes.

The backing may be fixed or movable, or the glass refracting-plates 1 or 1^a may be caused to vibrate or oscillate by any well-known means. Any suitable ornamental patterns—such as leaves, ferns, flowers, colored or otherwise—may be inserted between the outer and inner plates, 1^a. For a backing we may use a sheet of glass on which we fix broken or "cressoled" glass, white or colored, giving an uneven surface or one comparatively smooth,

upon which we may attach atoms of bright metal, white or colored, or other material. If flowers or other patterns are introduced between the plates 1^a, they may be rendered more prominent by paint or color on the back of one of the glasses, or on the backing.

We are aware that windows have been constructed of a double thickness of plate-glass having fluted or roughened surfaces, and having colored glass interposed between said plates. Such, therefore, we do not claim.

What we claim as our invention is—

The herein-described decorative device, comprising a supporting-frame, an ornamental refracting medium—such as a decorated glass plate or plates—located in the front portion of the supporting-frame, and a backing of reflecting material located at a distance to the rear of and separated from the refracting glass plate or plates, the front surface of said backing having attached thereto fragments of variously-colored reflecting material arranged so as to produce a broken or irregular surface, substantially as described.

In witness whereof we have hereto signed our names in the presence of two subscribing witnesses.

EDWARD SMITH.
FREDERICK SMITH.

Witnesses:
RICHARD CORE GARDNER,
166 *Fleet Street, London, England.*
M. PERSONS,
Hatton Garden, London, England.