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CATALOGUE  
OF  
GLASS DEPARTMENT  
OF THE  
ALPHA GLASS AND METAL COMPANY.

[INCORPORATED 1889.]

MANUFACTURERS UNDER THE PENNYCUICK AND PENNYCOOK PATENTS IN GLASS AND METALS.  
SEE ILLUSTRATED CATALOGUES.

M. H. BELLAMY, President.  
F. McCASKIE, Vice-President.  
G. PENNYCUICK, Treasurer and Glass Manager.  
T. PENNYCOOK, Metallic Manager.  
F. ATKINSON, Secretary.

57 BROADWAY, NEW YORK.  
76 MONTGOMERY STREET, JERSEY CITY, N. J.  
12 PEARL STREET, BOSTON, MASS.



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## PREFACE.

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WE respectfully call the attention of architects, real-estate owners, and others to the greatly enhanced value given to property by the use of the Pennycuick Semi-Prismatic Window Glass and Lenses, of which it has been said by the late Professor Silliman, of Yale, and in similar words by one of our leading scientific magazines, "that the heretofore recognized theory of the impossibility of getting more light through an opening than its area of admission, seems in this instance to be set at naught, as the amount of light shown from the improved glass, in comparison with that from an equal space of clear daylight, would almost lead us to imagine that no manner of reasoning on the old theory could account for the beautiful and marvellous results shown in the severe tests given by the inventor." The Semi-Prismatic Window Glass and Lenses, for Sidewalks, Deck Lights, Port Lights, etc., — these latter being a simple adaptation of the window glass; although covered by distinct patents, — is the discovery and simple adaptation of the natural law of prisms.

We claim to improve the natural light to an extent far ahead of anything of the kind yet discovered. *Heretofore* there has been no lens or window glass that would render light *equal* to the amount of natural light received. *We* seemingly give *more* than we receive, and *diffuse it equally* through the apartment. Any lens or bull's eye, even a clear glass skylight or open well-hole, only delivers a vertical light immediately beneath it, leaving the balance of the apartment in comparative darkness. Our improvement distributes the vertical light horizontally throughout the apartment, and in any required direction.

Bull's eyes and some qualities of window glass concentrate the sun's rays, and are, no doubt, the unknown cause of many fires.

THE PENNYCUICK principle is all toward diffusing the light. We do not concentrate the sun's rays. As a polarized light, with all its brilliancy, it is harmless to the eyes.

By the adoption of certain angles, the window glass can be used either vertically, horizontally, and at various angles, with the same effect. It has been placed and proved in every known position in which window glass is used, and always with the same satisfactory results.



Economy of space with abundance of light being of paramount importance to architects and real-estate owners, while the constantly increasing value of land in commercial centres renders this combination almost impossible, we now come to your aid with our PRISMATIC WINDOW GLASS, the marvellous results of which, in comparison with ordinary glass, must be seen to be fully appreciated.

We respectfully invite you or your representative to witness a thoroughly practical test, in accordance with the following illustrations, at any of our offices; and as light or sunny weather is not essential to the use of our glass, we are well pleased to receive our visitors on dark or cloudy days, if they prefer a test under these circumstances.

In the matter of testimonials to the merits of this improvement, we have not gone into that business. The glass always speaks for itself, and we think it can be said of it, above possibly every other patent, "*There is no doubt about it!*" for we have yet to find, after the thousands who have witnessed the tests, *the first dissenting voice*. We might possibly fill a book, if we collected all the approving letters received, and simply give the *last* one. The responsible and respected reputation of the writers will vouch for all that is said:—

[COPY.]

F. H. PRINCE & CO., BANKERS AND BROKERS,  
2 AND 8 STATE STREET.

BOSTON, MASS., July 16, 1889

J. G. PENNYCUICK, Esq.:

*Dear Sir,*—In reply to your inquiry how we are pleased with the Prismatic Glass Skylight you recently fitted on one end of our stock board room, we cannot speak too highly; it has completely metamorphized a dark, cavern-like chamber, requiring four electric lights, into one of the brightest rooms on State Street. There is no necessity for electric lights, and this improvement, together with your simple form of ventilation, pleases us, and is generally commented on by our customers.

We are, yours truly,

F. H. PRINCE & CO.

Meanwhile we would ask a careful perusal of the following pages.

We are, yours very respectfully,

ALPHA GLASS AND METAL COMPANY.

J. G. PENNYCUICK, *Glass Manager*.



Illustrations of tests to be seen at either of our offices.

These cuts show the glass laid horizontally, placed vertically or at an angle; the result is the same.

Fig. 1 shows the light from one square foot of ordinary glass; at twelve feet distant it is quite dark.

Fig. 2 shows the apartment under only one square foot Prismatic Glass; a newspaper can be read at the end of the room.

Fig. 3 shows the result of removing the frames containing the glass, giving a daylight opening seven times the space occupied by the glass; at sixteen feet distant the light fades, leaving the rear in shade.

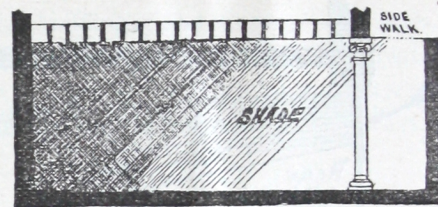


FIG. 1.

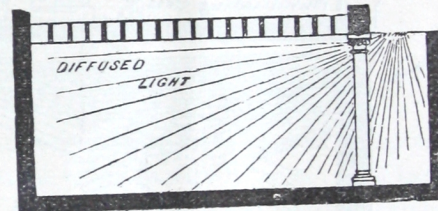


FIG. 2.

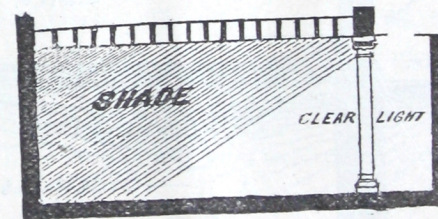
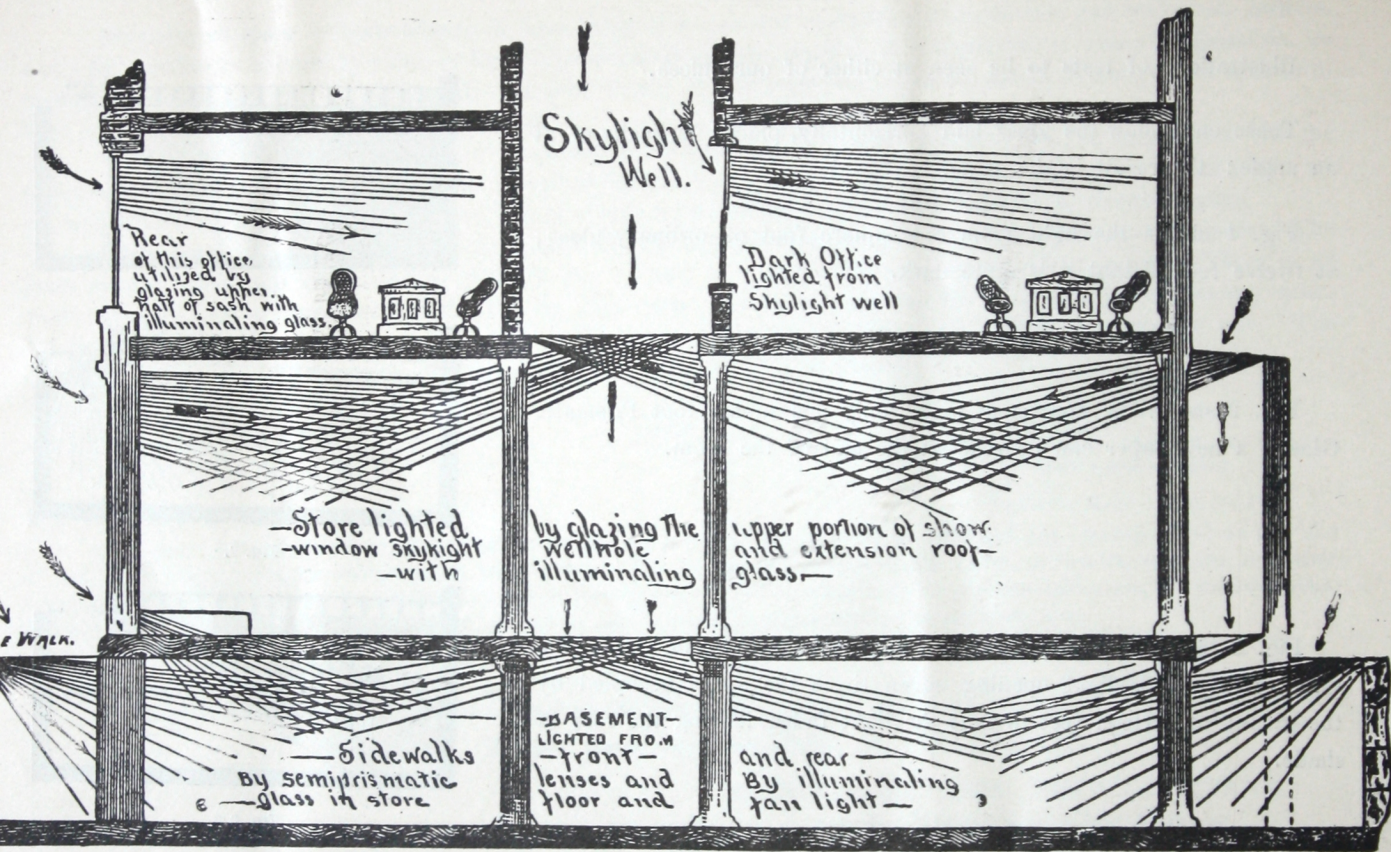


FIG. 3.







The annexed illustration of a vertical section through a deep commercial building shows the practical results to be expected from using the window glass in the upper part of show and room windows, and in place of rough plate in skylights, sidewalks, extension roofs, and well-hole floor-lights; being quite translucent, its value in the latter case is evident. Stairs and landings are not shown, but reference to our Vestibule and Sidewalk Tiles will show what can be done in that direction.

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## Special to Architects and Builders.

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By the use of our Prismatic Window Glass, architects will be enabled to economize space with greatly improved light. Thus, in a store extension, instead of cutting off eight or ten feet from the upper stories to make room for an unsightly skylight, affording only a light beneath, or a Hyatt's Circular (which if against another building affords little or no light from that portion not horizontal), the ceiling line is continued to the outer wall or adjoining building by a flat or nearly flat roof, two or three feet wide, of the Prismatic Glass. The effect is marvellous, the economy obvious, and the soft beauty of the light massed in the roof cannot be surpassed. For rear or area windows, where the light is poor and the surroundings not agreeable, a full vertical sash of our glass guarantees greatly improved light, perfect fire-proof construction, economy in cost, and saving the inconvenience of iron shutters.

Architects and builders will find great advantage in using any light to have their ceiling lines as near as possible in line with or above, never below the level of sidewalk or extension.

In specifications, call for the Alpha Prismatic Window Glass or Tiles, Deck or Port Lights.



The following plan of an apartment house shows two tenements of four rooms each, within a space of 50 x 25, and fully illustrates the value of the Prismatic Glass in amply lighting (and efficiently ventilating, see our Ventilation Catalogue) the whole of the interior rooms, without giving up a large space for light and air, while the lower tenements get but little of either. The plan represents any floor above the entrance hall, which is supposed to be under partitions F. A is a four feet square shaft for light and ventilation to every bedroom in the building, while perfect light is obtained by glazing the sashes with Prismatic Glass. The glass being quite translucent, it guarantees to each apartment perfect privacy without the use of shades or blinds, and is much more ornamental than the surrounding brickwork.

NOTE. — It is always an advantage, in using this glass, to have the sash as near flush as possible with the outer wall so as to catch every ray of light that falls.

In shafts as described, great sanitary advantage is derived by leaving it open at top — simply fencing it on roof, and caring for drainage below.



Sizes of Window Glass.

7 x 7 inches.

7 x 9 inches.

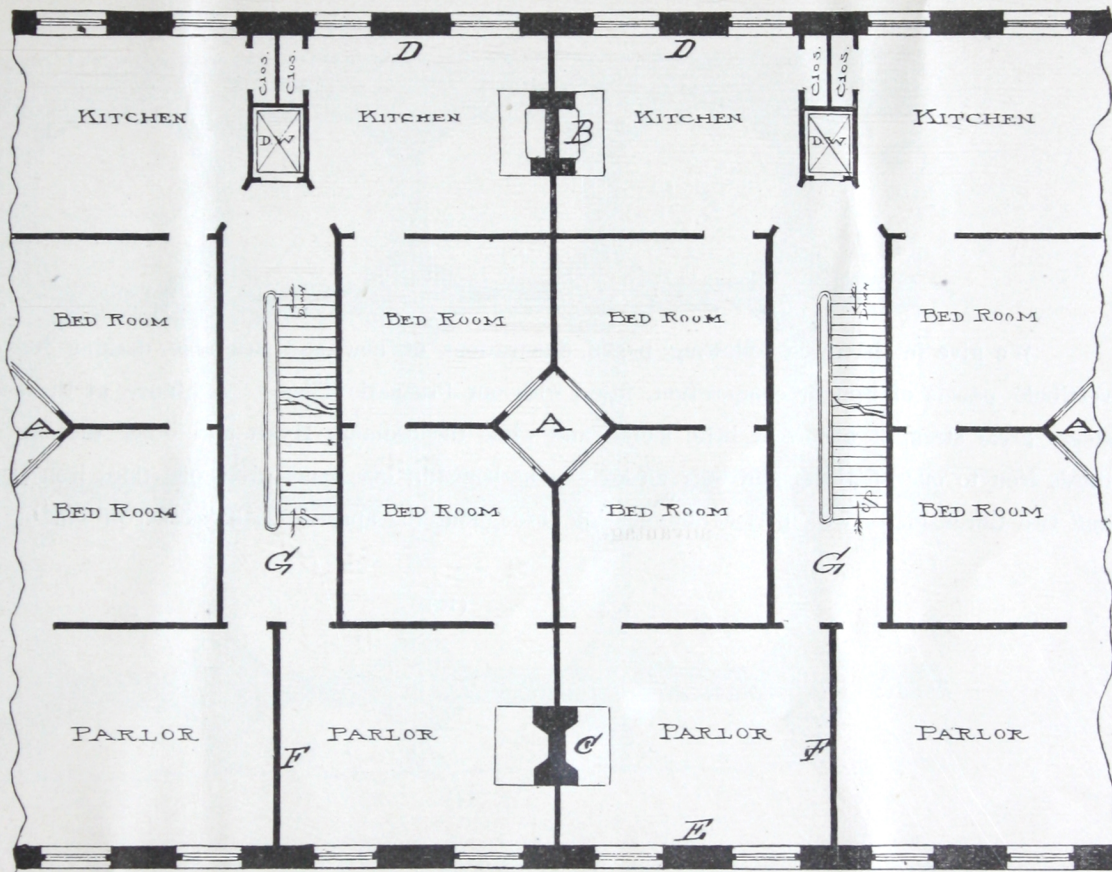
9 x 9 inches.

12 x 12 inches.

14 x 18 inches.

The two last have broad margins to reduce in size if desired.

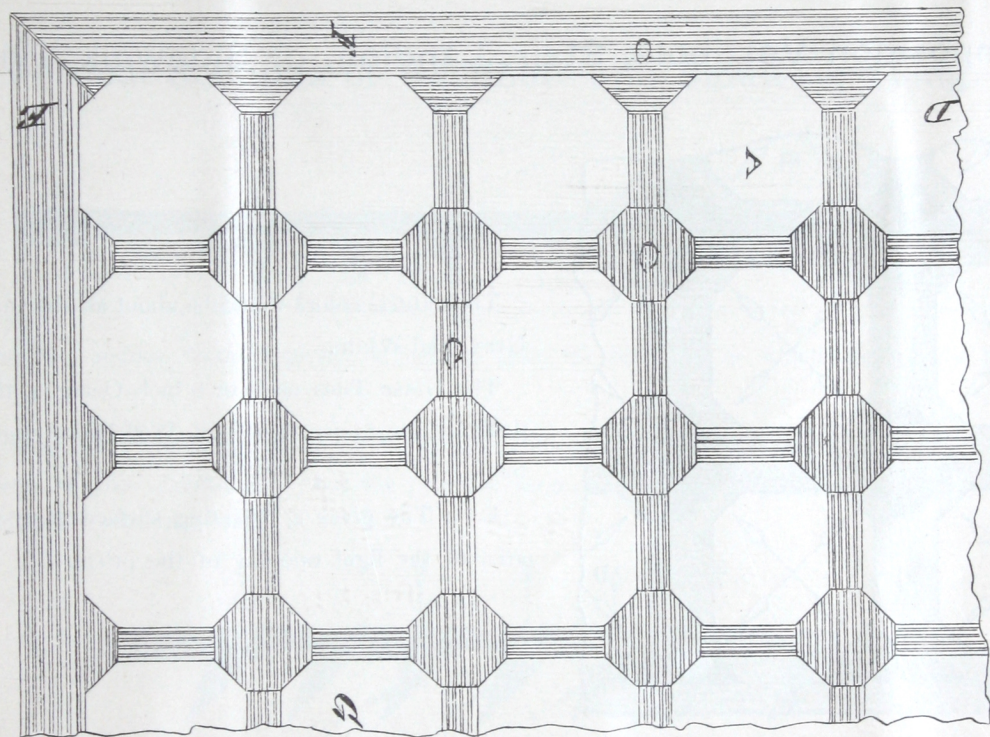
Machines for producing larger sizes are being made.





We give in the three following pages illustrations of new and desirable designs for sidewalk, stair, or vestibule panels of iron or composition, fitted with our Prismatic Tiles. A glance at the sectional illustrations shows great strength with very little metal, and while the ordinary Hyatt and other tiles in use give about two thirds iron to one of glass, and only afford a light beneath, our panel gives one third iron (with equal strength) and two thirds glass, with perfect illumination throughout the apartment, staircase, or landing.



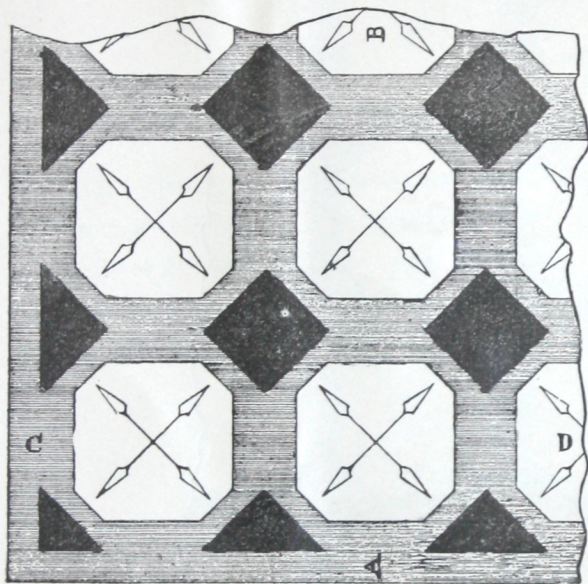


(11)



## Composition Vestibule, Stair, Landing, or Sidewalk Tiling.

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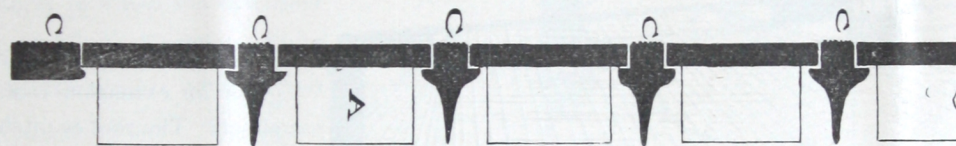
The natural colors would be about as shown here : Black, Gray, and White.

The Glass Tiles are 5 or 8 inch Octagon, the latter being designed for Steps, Landings, Well Holes, and Large Vestibules.

Each Tile gives a reflecting surface more than twice the area of the light opening of the prism.



## Vertical Sections of Vestibule and Sidewalk Tiling.

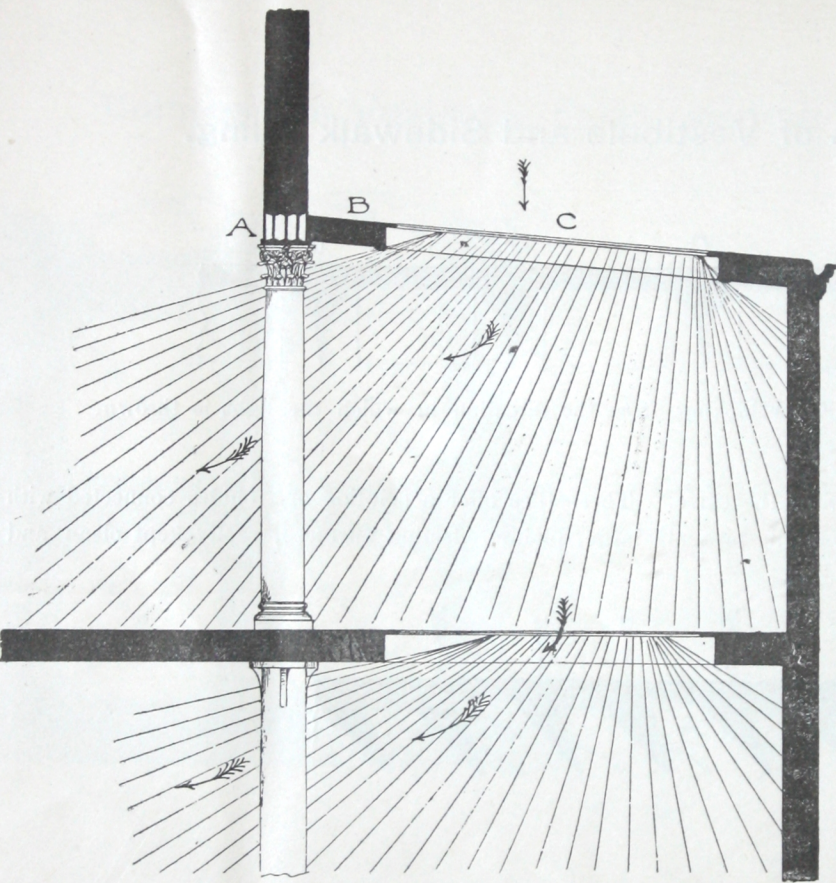


The above is a section from D to E, or looking from the direction in which the light is thrown.

The following cut gives a side view of the same. These tiles offer a solution of troubles connected with the original lenses of this character. Our tile presents large, plain, reflecting surfaces, easily kept clean and offering no lodging for condensation.







## Extension Lights.

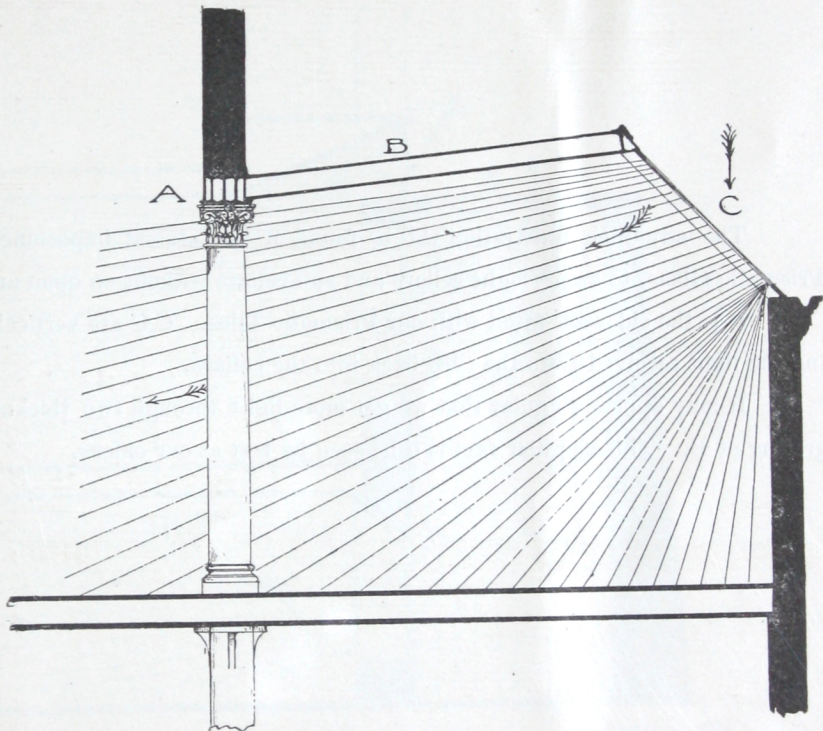
This cut shows one form of using the glass on extension roofs with the best effect. The roof is pitched at about one inch to the foot from the main wall, A, to the gutter, and has the appearance inside of a beautiful silver light, seemingly level with the ceiling.

We lately removed from one end of Messrs. Prince & Co.'s banking house, Boston, a glass skylight of the old pattern which had just been fitted on by the insurance company in repairing the damage from fire by the electric lights, and replaced it with our glass in the form given above, and with the happiest results; in fact, to use a common expression, "the place is worth double the original rent."



## Extension Lights.

This is the form in which the extension of the Codman Building, Exchange Place and Kilby Street, Boston, is covered and glazed with Prismatic Glass. The space in the roof which would be occupied by an ordinary skylight, B, is pitched upward from the main wall, A, until within about three feet from the rear wall; from the top of this to the roof, B, is filled with Prismatic Glass at an angle of about  $45^{\circ}$ . The roof, B, might have a greater pitch and the rear wall raised higher with a better interior effect; as it is the light is perfect and the substantial character of a roof of this class cannot be questioned.



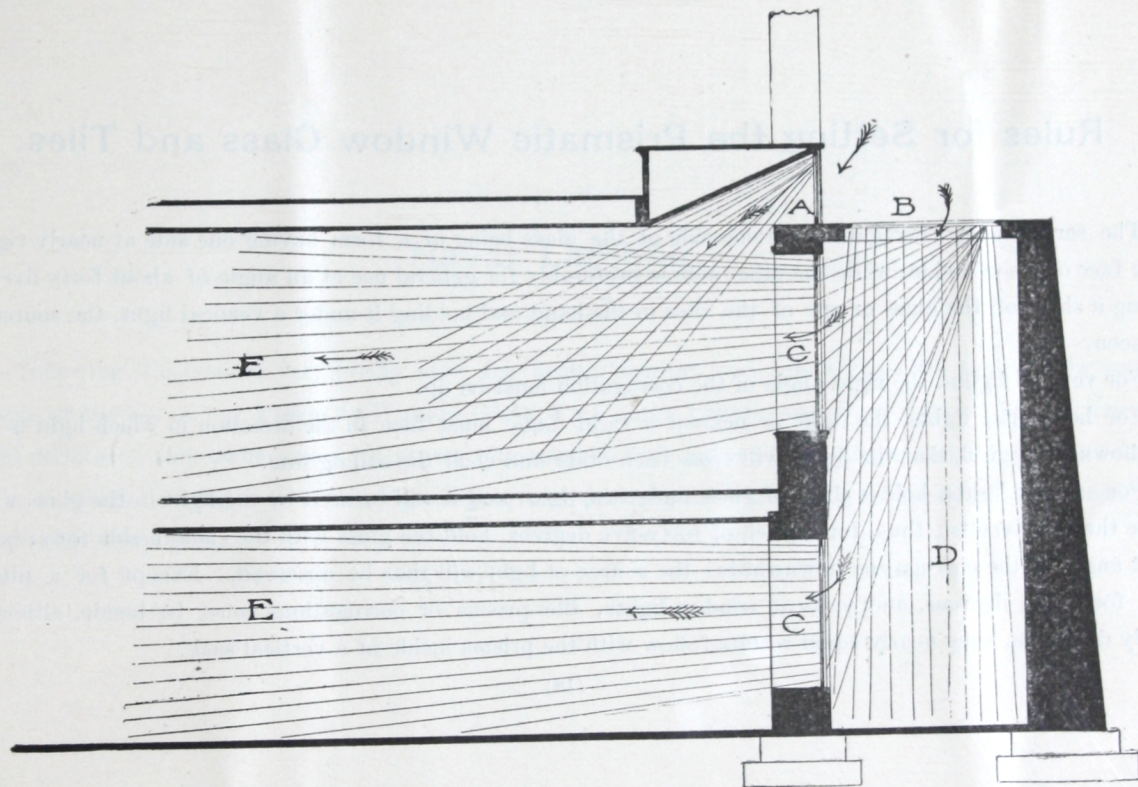


The adjoining illustration will be found of the utmost importance to architects, enabling them, by using the Prismatic Glass, to amply light cellars and sub-cellars without an open area, which only gives but a dribble of light.

B is the sidewalk fitted with our Prismatic Tiles. C C are vertical sashes, glazed with Prismatic Glass, throwing the light received from the tiles back into the cellars.

It may appear singular that we get more light through two thicknesses of glass than if there was an open area grating at B. This singular fact can be seen by test at our offices.







## Rules for Setting the Prismatic Window Glass and Tiles.

---

The serrations or corrugations on one side of the glass being of a form having one side at nearly right angles with the face or smooth side, while the other side is preferably for general use at an angle of about forty-five degrees. By taking a sheet of the glass or one of the tiles in the hand and holding it under a vertical light, the source of light can be seen.

For vertical lights, the right angle of the corrugation must be up.

For horizontal lights, the right or nearest a right angle must face in the direction in which light is required. Set as shown on page 6, that the lights will cross each other and clear the ceiling line.

For angular lights, hold a sheet of glass under the light, and it will be seen by the light in the glass what pitch will give the best results; thus, for a pitch of forty-five degrees, hold the glass with the smooth side towards you and the right angle of the corrugation downwards; the source of light will thus be observed. Except for a pitched-roof light at forty-five degrees, and vertical window lights, the prisms or corrugations must be inside, although when especially desirable, very nearly equal results follow with the prisms inside of a vertical sash.

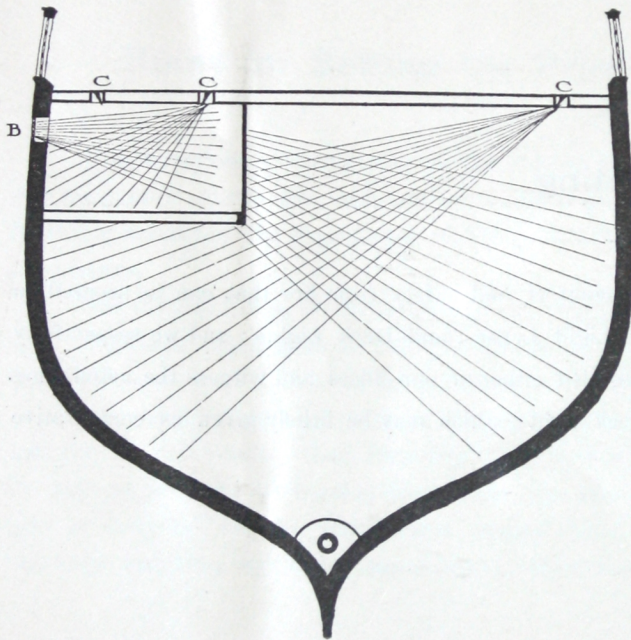


## Naval Lighting.

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The following illustrations very briefly show the health, comfort, and safety from fire that can be secured on board vessels by the use of our Prismatic Window Glass, Port Light Lenses, and Deck Lights; and we respectfully invite naval architects, ship owners, and all others interested to visit either of our offices and witness the astounding effects of a thorough test against ordinary glass port and deck lights, which may be briefly given as comparative darkness to perfect daylight.





This illustration of a vertical section of a freight ship shows the effect of using our Deck Lights set in the deck near the scuppers, thus securing perfect daylight in every corner of the hold without the necessity or risk of using artificial light.

The cabin or state-rooms can be equally lighted *without even the necessity of a skylight*, thus giving a flush deck, ventilation being cared for otherwise. See our Catalogue on Ventilation.

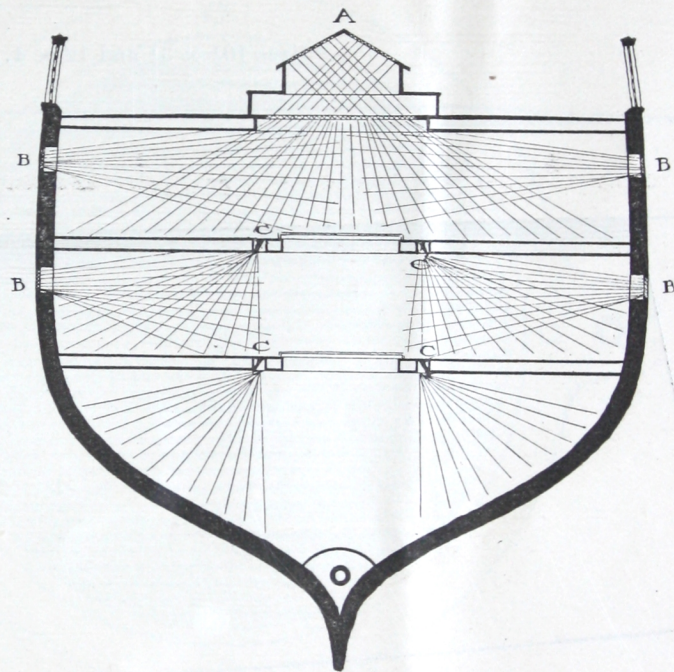


The annexed illustration of a vertical section of a passenger steamer shows the various ways of using the window glass Port Lights and Deck Lights to enhance the natural light within the vessel.

A is a pitched skylight glazed with the window glass; the skylight may be flat, or nearly so, with equal results.

B shows the advantages of our Port Light Lenses.

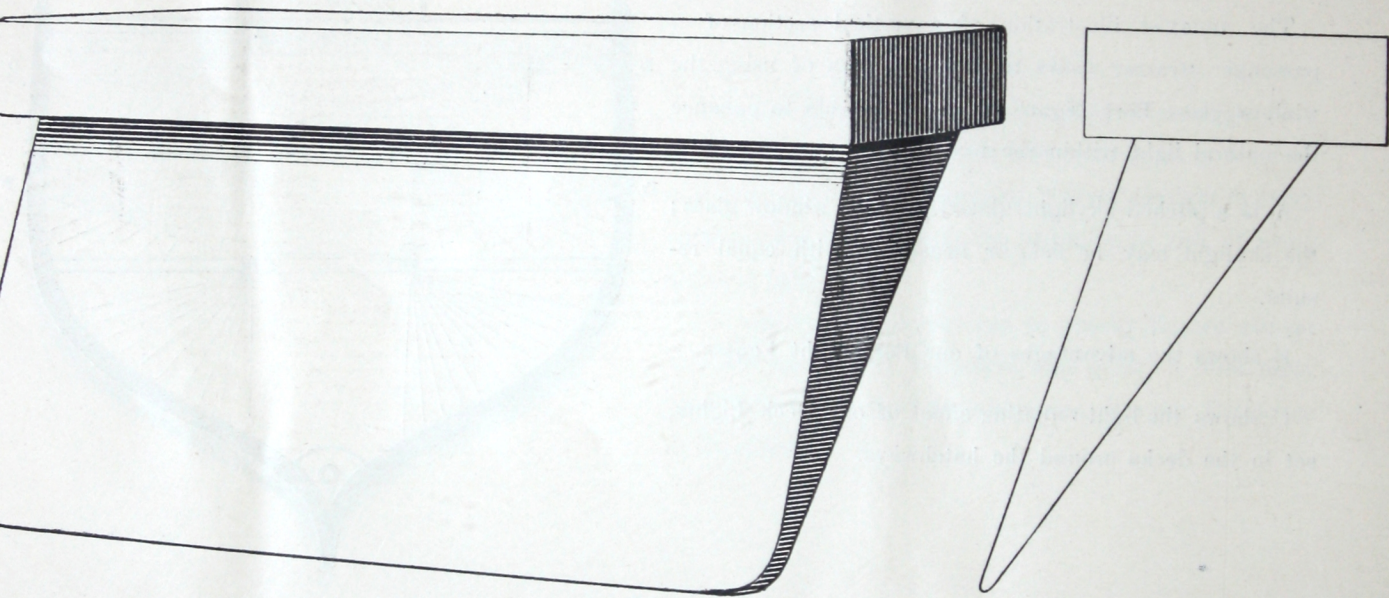
C shows the light-radiating effect of our Deck Lights, set in the decks around the hatchways.





## Naval Deck Lights.

Sizes  $10\frac{1}{2} \times 3\frac{1}{2}$  and  $12 \times 4$ . Other sizes made to order.





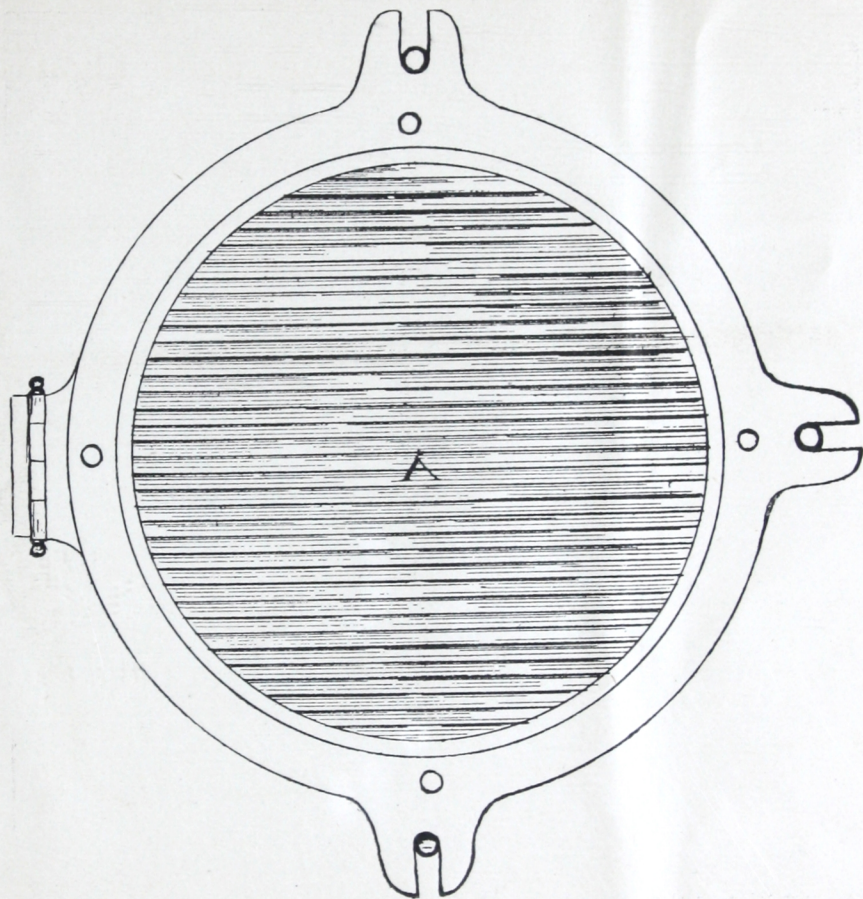
Naval Port Light

FITTED WITH

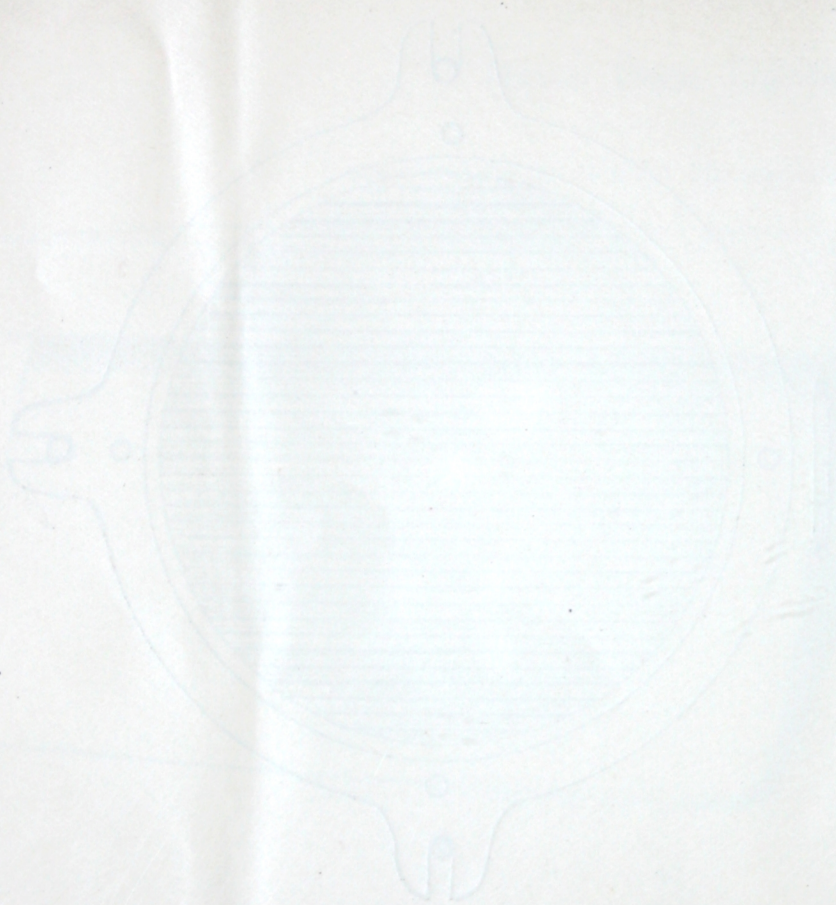
PRISMATIC GLASS.

—

Sizes to order.







Naval Port Light  
PATENTED  
JANUARY 1880  
U.S. PATENT OFFICE

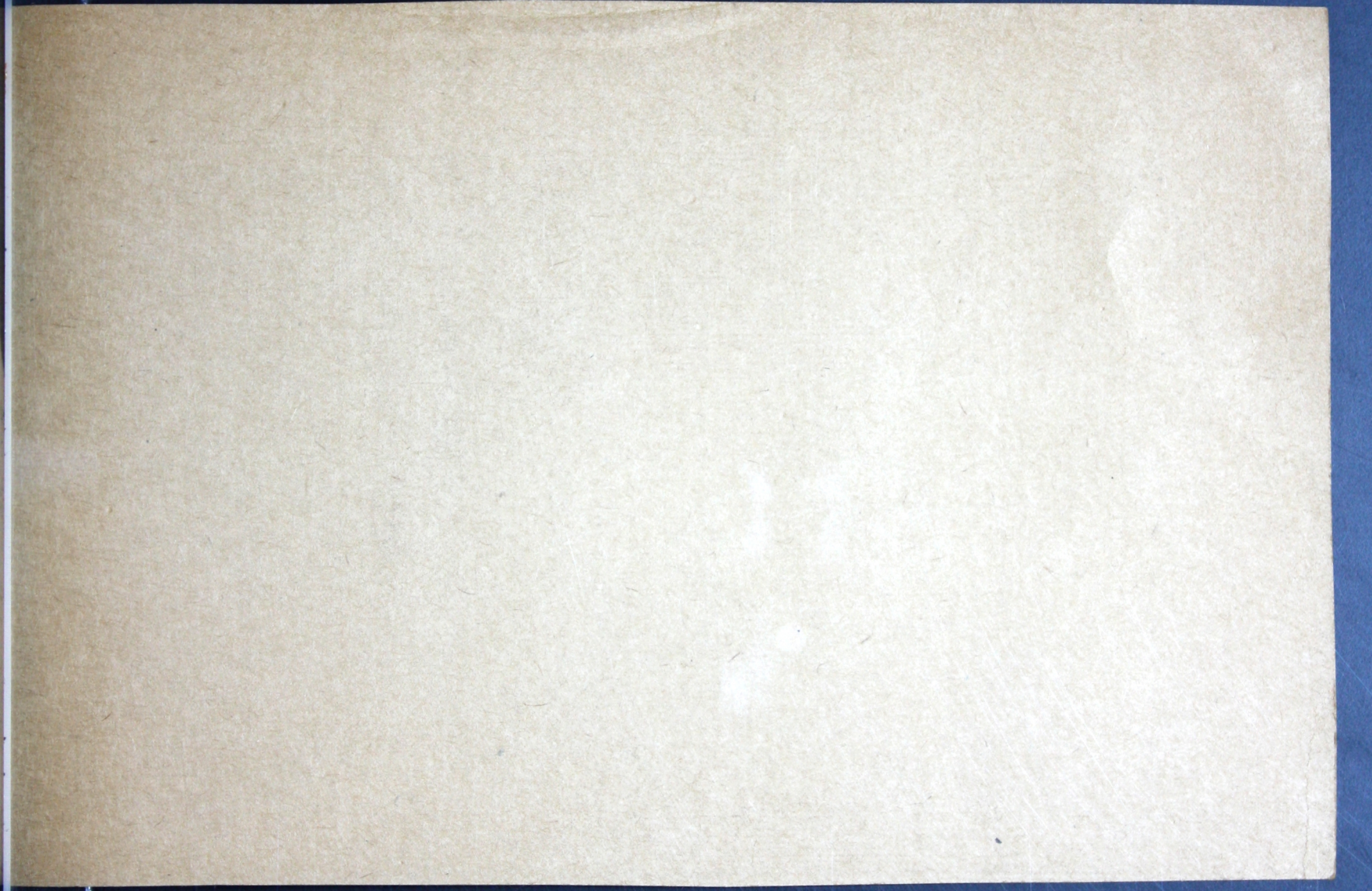














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