

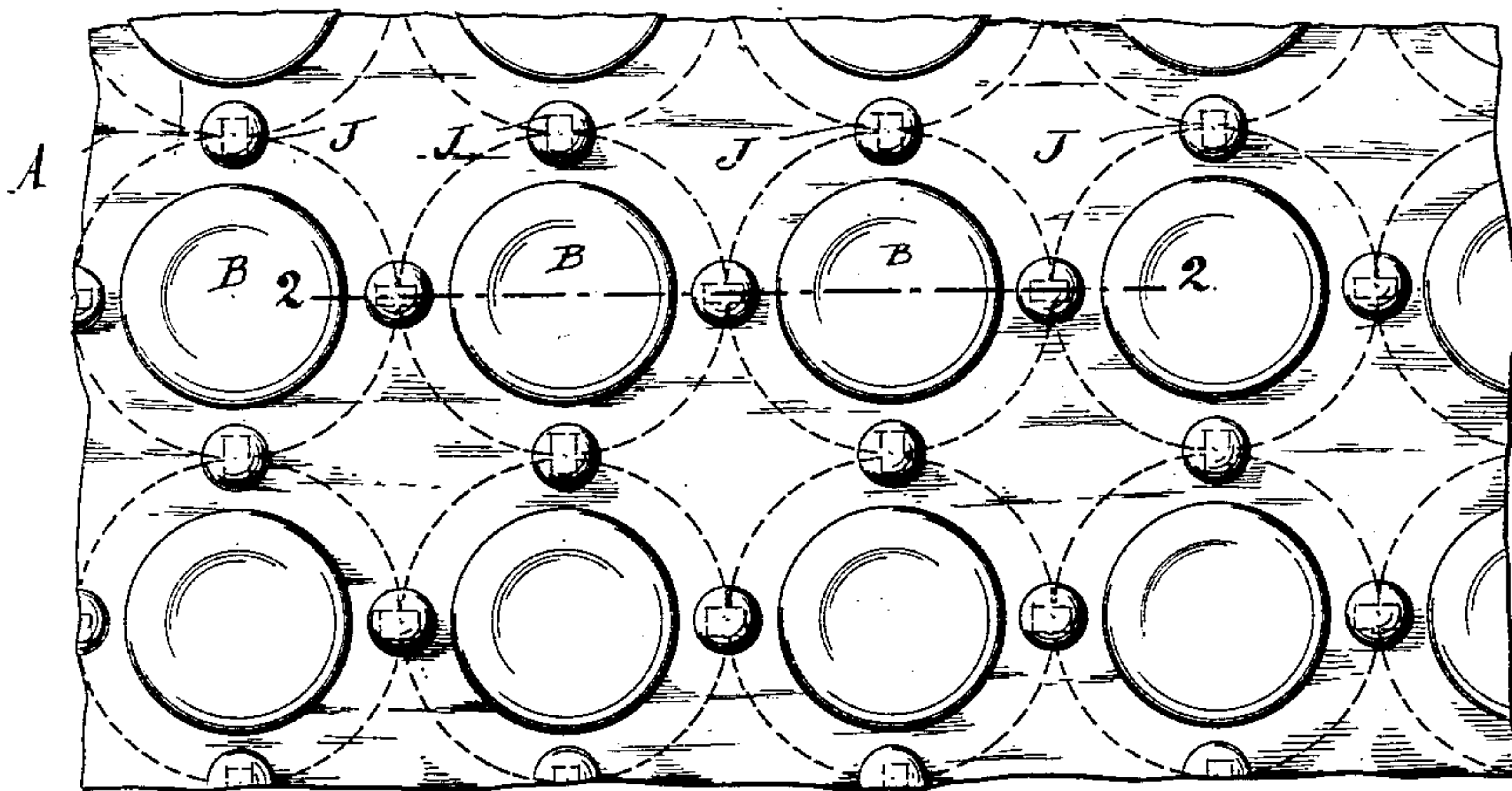
(No Model.)

W. TOWLE.  
VAULT LIGHT.

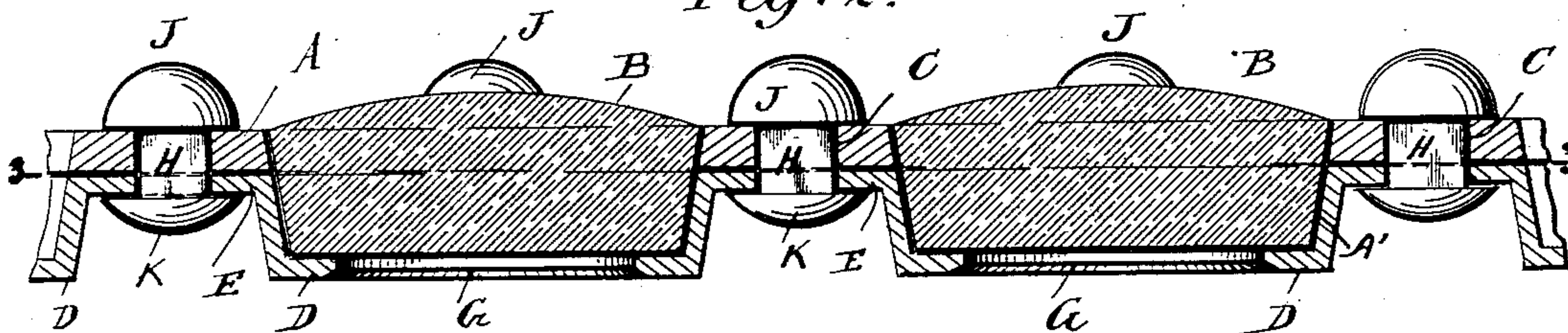
No. 546,365.

Patented Sept. 17, 1895.

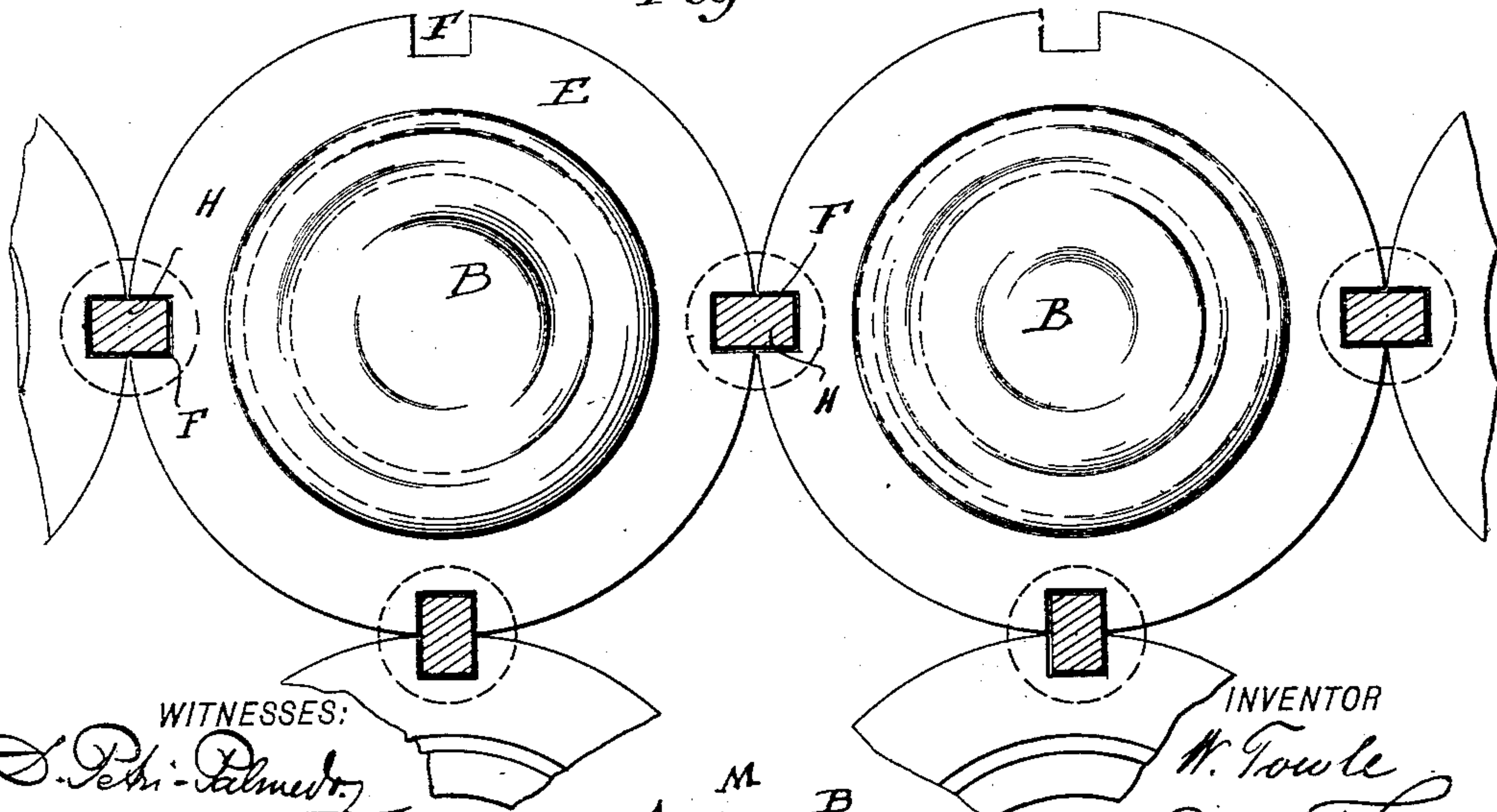
*Fig: 1.*



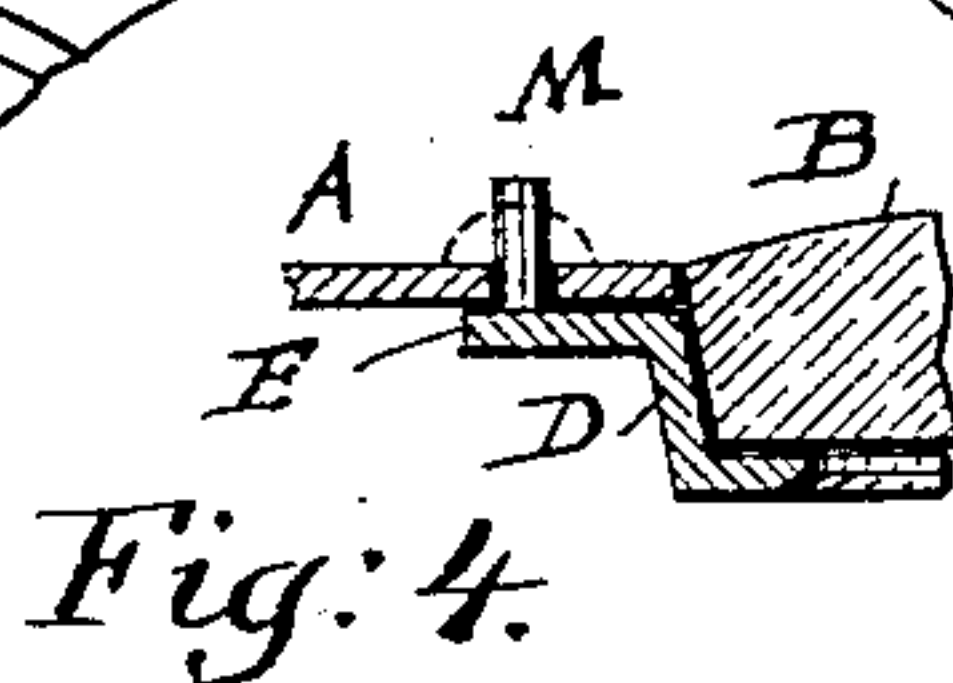
*Fig: 2.*



*Fig: 3.*



WITNESSES:  
*S. P. Palmer*  
*J. Hubert Roeken*



INVENTOR  
*W. Towle*  
BY *Oscar F. Gunn*  
his. ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM TOWLE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO  
HENRY HELD, OF SAME PLACE.

## VAULT-LIGHT.

SPECIFICATION forming part of Letters Patent No. 546,365, dated September 17, 1895.

Application filed June 21, 1895. Serial No. 553,557. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM TOWLE, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State  
5 of New York, have invented certain new and useful Improvements in Vault-Lights, of which the following is a specification.

This invention relates to improvements in vault-lights that are used for covering openings in sidewalks, floors, &c., without excluding the light.

The object of my invention is to provide a new and improved vault-light which is simple in construction, strong and durable, can easily  
15 be repaired, and in which the individual lenses are well protected.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts in all  
20 the figures, Figure 1 is a plan view of a section of my improved vault-light. Fig. 2 is a vertical longitudinal sectional view on the line 22 of Fig. 1, on an enlarged scale. Fig. 3  
25 is a horizontal sectional view on the line 3 3 of Fig. 2, also on an enlarged scale. Fig. 4 is a detail sectional view of parts, showing a modified construction.

The vault-light is composed of a cast or wrought iron plate A, provided with a series  
30 of circular holes A', which are arranged equidistant from each other in all directions.

The circular edges of the holes A' are inclined inward and downward to conform to the bevels of the circular edges of the glass  
35 lenses B, which fit snugly in the holes in such a manner that the upper edges of said lenses are flush with the upper surface of the plate A, the upper surfaces of the lenses being shaped convexly, so as to project above the  
40 upper surface of the plate A.

On lines crossing each other at right angles quadrilateral holes C are formed in the plate A equidistant from each other, so that  
45 four such holes are arranged around each hole A', the holes C being a quarter-circle from each other, and the holes C being midway between the holes A' in directions at right angles to each other.

A cast-metal cup D, provided at its upper  
50 edge with an exterior flange E, is placed against the under side of each glass lens B,

the cups each having a circular bottom opening G of almost the size of the bottom of the cup, so as not to obstruct the light.

The flanges E of the cups D are of such  
55 diameter that the edges of the several flanges E come in contact when the cups are placed against the bottoms of the lenses, as shown in full lines in Fig. 3 and in dotted lines in Fig. 1. The flanges E are provided with four notches  
60 F in the outer edges, which notches are a quarter of a circle from each other, so that the notches in the flanges of the cups D, applied on two adjacent lenses, register and form aper-  
65 tures of the same size as and registering with the holes C, in rows equidistant from each other and at right angles to each other.

Rivets H, having rounded top heads U, are passed through the holes C and through the apertures registering with said holes and  
70 formed by the registering-notches F of two adjacent flanges E, and then heads K are formed on the lower ends of the rivets H and against the under sides of the flanges E, each  
75 rivet holding two cups in place in conjunction with other rivets. Thereby the cups D are held securely against the bottoms of the lenses B, and the flanges E of the cups are held se-  
80 curely against the under side of the plate A.

The upper heads J of the rivets H project  
80 above the highest points of the convex tops of the lenses B and protect the same from injury, and also afford a firm foothold for pedestrians.

In case any one lens breaks or the joints  
85 thereof become leaky, the cup D of the corresponding lens is removed after the rivets holding the same have been removed, and the lens is replaced by a new lens, or the original lens is carefully reset, so as to make the joints  
90 tight and secure.

As shown in Fig. 4, the pins M, of malleable or wrought iron, may be secured on the flanges and are passed through holes in the plate A, and the upper ends of said pins are hammered  
95 down to form heads, as shown in dotted lines in Fig. 4.

Having thus described my invention, what I claim as new, and desire to secure by Letters  
100 Patent, is—

1. In a vault light, the combination with a plate having apertures arranged equidistant

from each other in lines at right angles to each other, of a lens placed in each hole, an apertured cup placed against the bottom of each lens, which cups each have an exterior flange, 5 said flanges being of such size that the flanges of the cups on adjacent lenses come in contact and the flanges having notches, a quarter circle from each other and rivets passing through registering slots of two adjacent flanges and 10 through the plate, substantially as herein shown and described.

2. In a vault light, the combination with a plate having holes arranged equidistant from each other in rows at right angles to each other 15 and serving to receive glass lenses, said plate also having smaller holes between the lens receiving holes, and on lines equidistant from

each other and on lines at right angles to each other, an apertured flanged cup placed against the bottom of each lens, which flanges have 20 notches in the edges, said notches registering to form apertures below the smaller holes in the plate and rivets passed through the smaller holes in the plate and through the registering notches in the flanges, substantially as herein 25 shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 8th day of June, 1895.

WILLIAM TOWLE.

Witnesses:

OSCAR F. GUNZ,  
HENRY HELD.