

(No Model.)

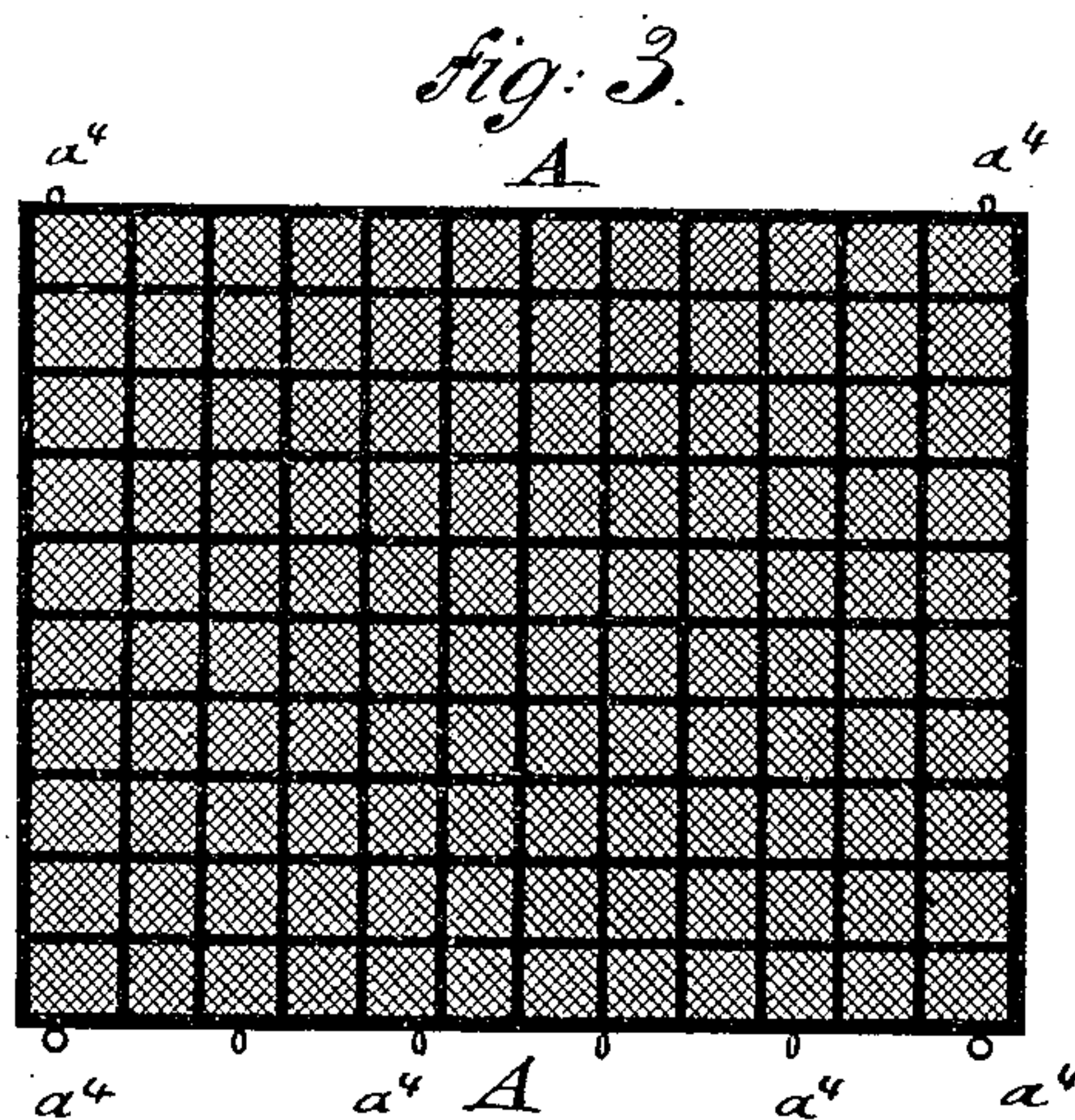
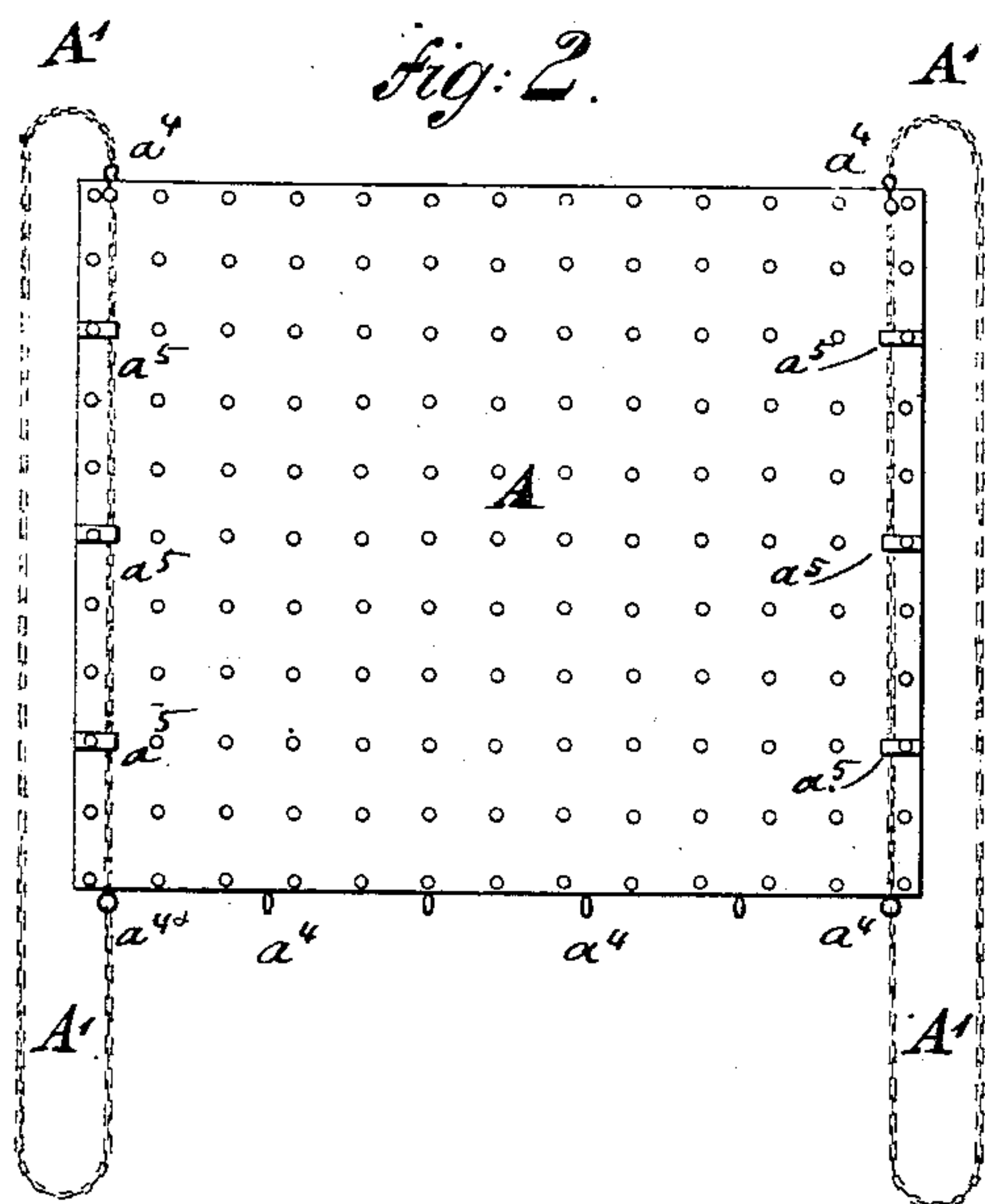
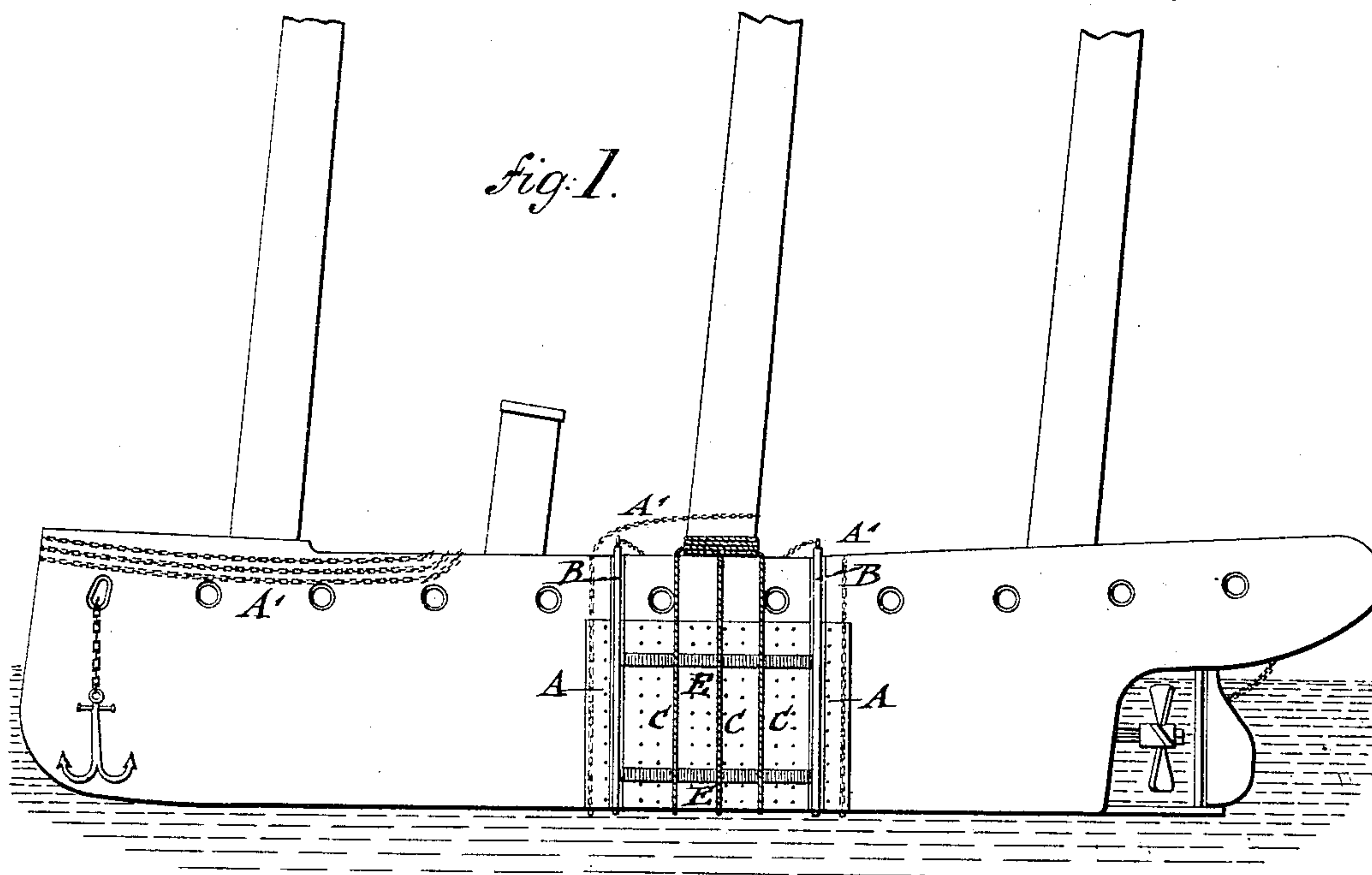
2 Sheets—Sheet 1.

I. MEISLER.

LEAK STOPPER FOR VESSELS.

No. 353,800.

Patented Dec. 7, 1886.



WITNESSES:  
*A. Schehl.*  
*Martin Petry.*

*Fig. 4.*

INVENTOR  
*Ignatz Meisler*  
BY  
*Lopez Raegen*  
ATTORNEYS.

(No Model.)

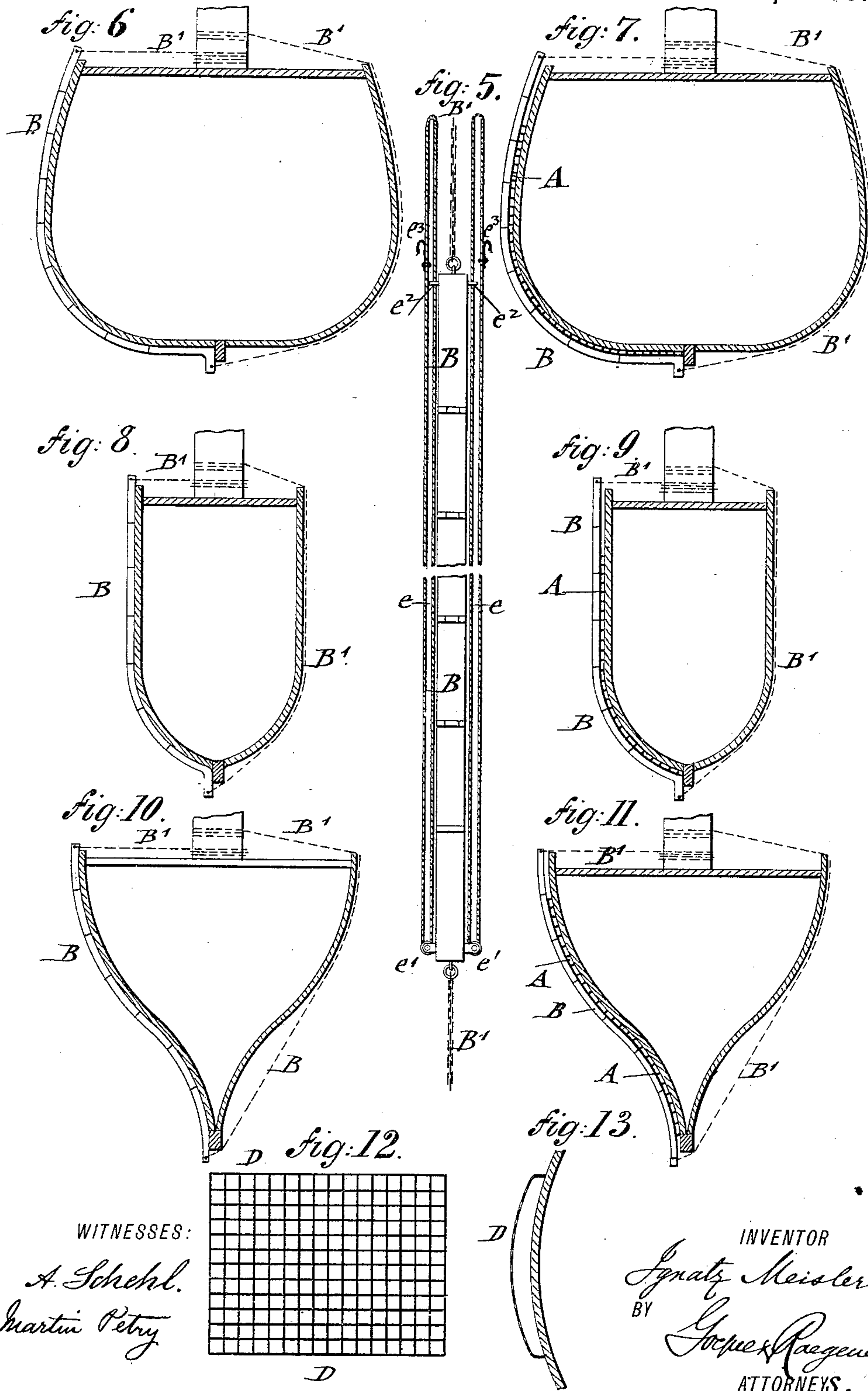
2 Sheets—Sheet 2.

I. MEISLER.

LEAK STOPPER FOR VESSELS.

No. 353,800.

Patented Dec. 7, 1886.



WITNESSES:

A. Schehl.  
Martin Petry

INVENTOR

Ignatz Meisler  
BY  
G. P. & R. G.  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

IGNATZ MEISLER, OF NEW YORK, N. Y.

## LEAK-STOPPER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 353,800, dated December 7, 1886.

Application filed July 1, 1886. Serial No. 206,796. (No model.)

*To all whom it may concern:*

Be it known that I, IGNATZ MEISLER, of the city, county, and State of New York, have invented certain new and useful Improvements in Methods of Closing Leaks in Vessels, of which the following is a specification.

This invention is designed to furnish for vessels an improved device for closing leaks caused by collision, the device being capable of quick application and adapted to tightly close the leak, so as to prevent the sinking of the vessel; and the invention consists of a flexible cover that is composed of an exterior layer of rubber, one or more layers of canvas, and interior intercrossing strips, which are attached to the layers of canvas by rivets. The cover is provided at both sides with retaining-hooks for the fastening-chains, that extend around the hull of the vessel. A guard frame or grating is first placed over the leak and the cover over the grating, the cover being rigidly secured in position by the chains and by means of rails that correspond to the shape of the vessel at the middle part, stern, and bow of the same, the rails being also tightly secured by chains attached to the ends of the rails and extended around the hull of the vessel. Intermediate chains or ropes and transverse re-enforcing planks, that are placed in position by belts and pulleys of the rails, serve as additional means for holding the cover in position over the leak of the vessel, as will more fully appear hereinafter, and finally be pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of a vessel with my improved device for closing leaks applied to the middle part of the vessel. Figs. 2 and 3 are an outside and inside elevation of the flexible cover that is placed over the leak, drawn on a larger scale. Fig. 4 is a detail horizontal section of a portion of the flexible cover. Fig. 5 is a front elevation of one of the rails by which the cover is retained in position. Figs. 6, 7, 8, 9, 10, and 11 are vertical transverse sections of the vessel, showing the rail and cover attached to different parts of the hull; and Figs. 12 and 13 are a side view and a vertical transverse section of the guard frame or grating that is placed over the leak before applying the flexible cover.

Similar letters of reference indicate corresponding parts.

The essential elements of my method of closing leaks consist of a flexible cover, A, fastening-rails B B, a guard frame or grating, C, and chains A' and B', by which the flexible cover A and rails B are applied to the hull of the vessel. The cover A is constructed of a stout exterior layer, *a*, of soft rubber, one or more intermediate layers, *a'*, of stout canvas, and intercrossing strips of rubber, *a''*, that are applied to the inner side of the cover and attached to the layers *a a'* by means of rivets *a'''* at the points of intersection of the rubber strips. The intercrossing rubber strips *a''* form at the under side of the cover cells or sections of square or oblong shape, which, when they are tightly pressed on the hull of the vessel, produce the tight fitting of the cover to the same.

The cover A is provided near the upper and lower corners with rings *a<sup>4</sup>* and along the sides with retaining-hooks *a<sup>5</sup>* for the chains or ropes A', by which the cover A is applied to the hull. The chains A' extend entirely around the hull of the vessel, and are attached to the masts or other suitable points of support, so as to hold the cover in close contact with the hull of the vessel. The cover A is made of sufficient size to extend from a point below the air-ports down to the keel, as shown in Figs. 1, 7, 9, and 11. When not in use, it is stored away on deck, so as to be conveniently within reach.

The chains A', by which the cover is applied to the leak, are preferably arranged at the bow of the vessel, as shown in Fig. 1, and dropped below the keel when required for use. They are applied to rings and hooks of the cover in the manner shown in Fig. 2, and hold the cover in position over the leak. For leaks of very large size in iron ships, and in case of leaks in wooden vessels, a guard frame or grating, D, is employed, which is first placed in position over the leak, and which serves to support the cover and to prevent it from interfering with the splintered portion of the hull, and to neutralize the suction and pressure of the water on the cover when applying the same. When the chains A' are applied to the sides of the cover, the latter can be readily



placed in proper position on the hull by regulating the length of the chains A', which is readily accomplished, as the same extend entirely around the hull. When the cover is in position, two or more iron rails, B, are placed over the cover, said rails being made either in one piece or of a number of sections, which are hinged together, as shown in Fig. 7. When made of one piece, different shapes of rails B have to be provided, that fit the different curves of the hull at the bow, the middle part, and stern. The rails B are either stored away on deck or retained in position along the sides of the hull by the chains B', which are attached to rings at the upper and lower ends of the rails, and extended around the keel and opposite side of the hull to suitable points of support on deck, as shown in Figs. 6, 8, and 10. When the rails are to be applied over the cover, the chains B' are loosened, so that the rails have sufficient play to pass over the cover A, after which they are tightly applied to the same, as shown in Figs. 7, 9, and 11. Two rails are preferably used, which are applied near the sides of the cover, as shown in Fig. 7. In addition to the rails, the cover A is attached by intermediate chains or ropes, C, as shown in Fig. 1, which, like the fastening-chains A and B of the cover and rails, extend around the entire hull.

For the purpose of re-enforcing the cover and enabling it to resist the pressure of water, planks E are used, which extend from rail to rail, and are placed in position by means of ropes *e e*, which pass over pulleys *e'* at the lower ends of the rails B, and through rings *e''* at the upper ends of the rails, as shown in Fig. 7. The ropes *e e* are provided with hooks *e'''*, which are applied to the upper edge of the plank, so that by moving the ropes *e e* the plank is moved along the cover to its proper position. The ropes *e e* are then moved in opposite direction over the pulleys and the hooks applied to the next plank, and the same placed in position, and so on until all the planks are in position.

The planks are retained in position by the rails B and intermediate chains or ropes, C, as shown in Fig. 1. The rails B, intermediate ropes, C, and planks E serve to press the flexible cover A tightly over the leak of the hull, so that a water-proof sealing is obtained, which is greatly assisted by the tight fitting of the interior rubber strips on the hull, as they divide the inner surface of the cover into cells and prevent the entrance of water from one cell to the other, even if some of the strips should not tightly hug the hull. The rubber strips check to some extent the entrance of water, as they fill up the joints and adapt themselves in a higher degree to the irregularities and uneven portions of the hull than the exterior body of the cover. The rails B abut by their lower angular ends against the keel, which latter serves as an abutment for holding the rails in proper position. The upper ends of the rails extend above the hull, so

as to facilitate their attachment to the mast or other point of support.

In case the vessel ships a leak by collision or otherwise, the location of the leak is first ascertained, and then the guard frame or grating lowered by means of chains and placed over the leak. The flexible water-proof cover A is then placed over the grating by means of its chains by being lowered and tightly applied to the hull and the keel, and finally firmly secured on the deck. The cover checks to some extent the influx of water. The rails are next placed in position over the cover and tightly secured by their chains, by which the tight closing of the cover at the sides is obtained. A number of longitudinal planks are then applied to the cover by means of the guide-ropes of the rails, whereby the bulging of the cover at its middle part is prevented. The intermediate chains or ropes are finally applied over the cover and planks, and thereby the cover bound up securely, so as to stop the leak in a reliable and effective manner.

My improved device for closing leaks is also of special advantage to sailing vessels built of wood, in which the exact location of the leak can only be determined with some difficulty, and in which the water enters also through the partial opening of the joints at some distance away from the real leak, as the cover is large enough to extend sufficiently in all directions from the leak and over the open joints and leaking portions, so that a direct water-proof closing of the leak is obtained. By proper practice and handling of the cover it can be applied easily in from eight to twelve minutes, after which the water that has entered through the leak can be pumped out with great facility, and thereby the vessel kept afloat, with less danger to the lives of the passengers and loss of vessel and cargo.

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

1. A flexible cover for closing leaks in vessels, consisting of an exterior layer of rubber, one or more re-enforcing layers of canvas, and interior intercrossing strips of rubber that are riveted to the layers of rubber and canvas, substantially as set forth.

2. The combination, with the hull of a vessel, of a flexible cover having interior intercrossing rubberstrip and side hooks and rings, with endless chains that extend around the hull for tightly fastening the cover, substantially as set forth.

3. The combination, with the hull of a vessel, of a flexible cover for closing the leak, chains for fastening said cover to the hull, rails corresponding to the exterior shape of the hull, said rails passing over the cover, and chains for attaching the rails to the hull, substantially as set forth.

4. The combination, with the hull of a vessel, of a guard frame or grating placed over a leak, chains for lowering the grating, a flexible cover, endless chains applied to the cover placed over the guard frame or grating, and



rails corresponding to the shape of the hull and attached over the cover by chains, and intermediate chains or ropes, substantially as set forth.

5 5. The combination, with the hull, of a flexible cover, chains for attaching said cover to the hull, rails corresponding to the shape of the hull, chains for attaching said rails to the hull, longitudinal planks placed over the cover,  
10 and endless ropes passing over pulleys and rings of the rails, and having hooks for placing the planks in position, substantially as set forth.

6. The combination, with the hull of a ves-

sel, a flexible cover, chains for attaching said 15 cover to the hull, rails corresponding to the shape of the hull, chains for fastening said rails to the hull, longitudinal planks extending over the cover, and intermediate chains or ropes for holding the planks and cover in 20 position, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

IGNATZ MEISLER.

Witnesses:

PAUL GOEPEL,  
MARTIN PETRY.