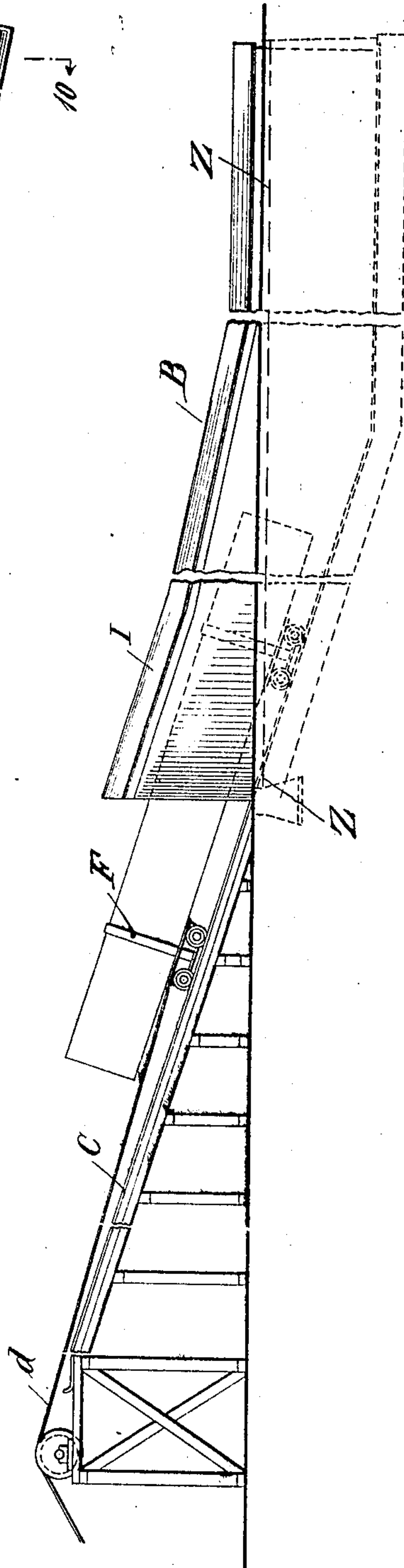
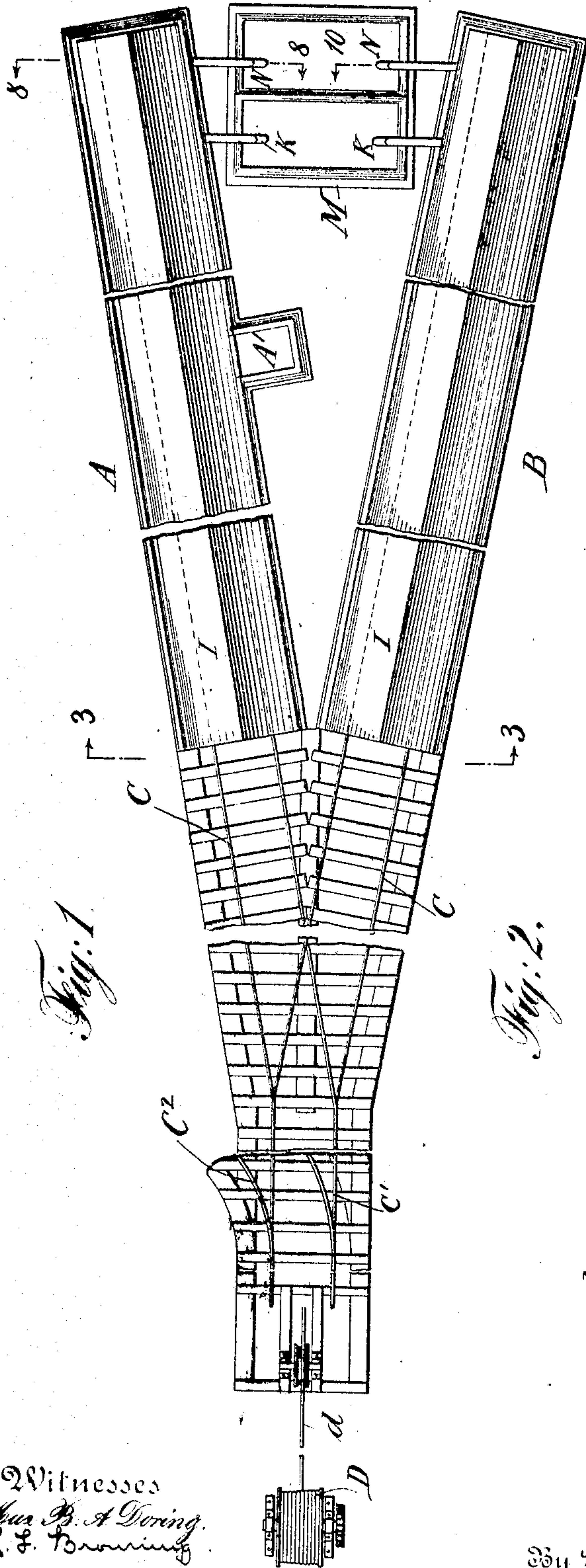


B. F. WATKINS.  
 APPARATUS FOR IMPREGNATION OF WOOD.  
 APPLICATION FILED MAR. 1, 1906.

913,593.

Patented Feb. 23, 1909.

8 SHEETS—SHEET 1.



Witnesses  
 H. B. A. Doring.  
 L. F. Browning.

Inventor  
 Benjamin F. Watkins  
 By Mrs. E. D. Doring  
 Edward C. Doring

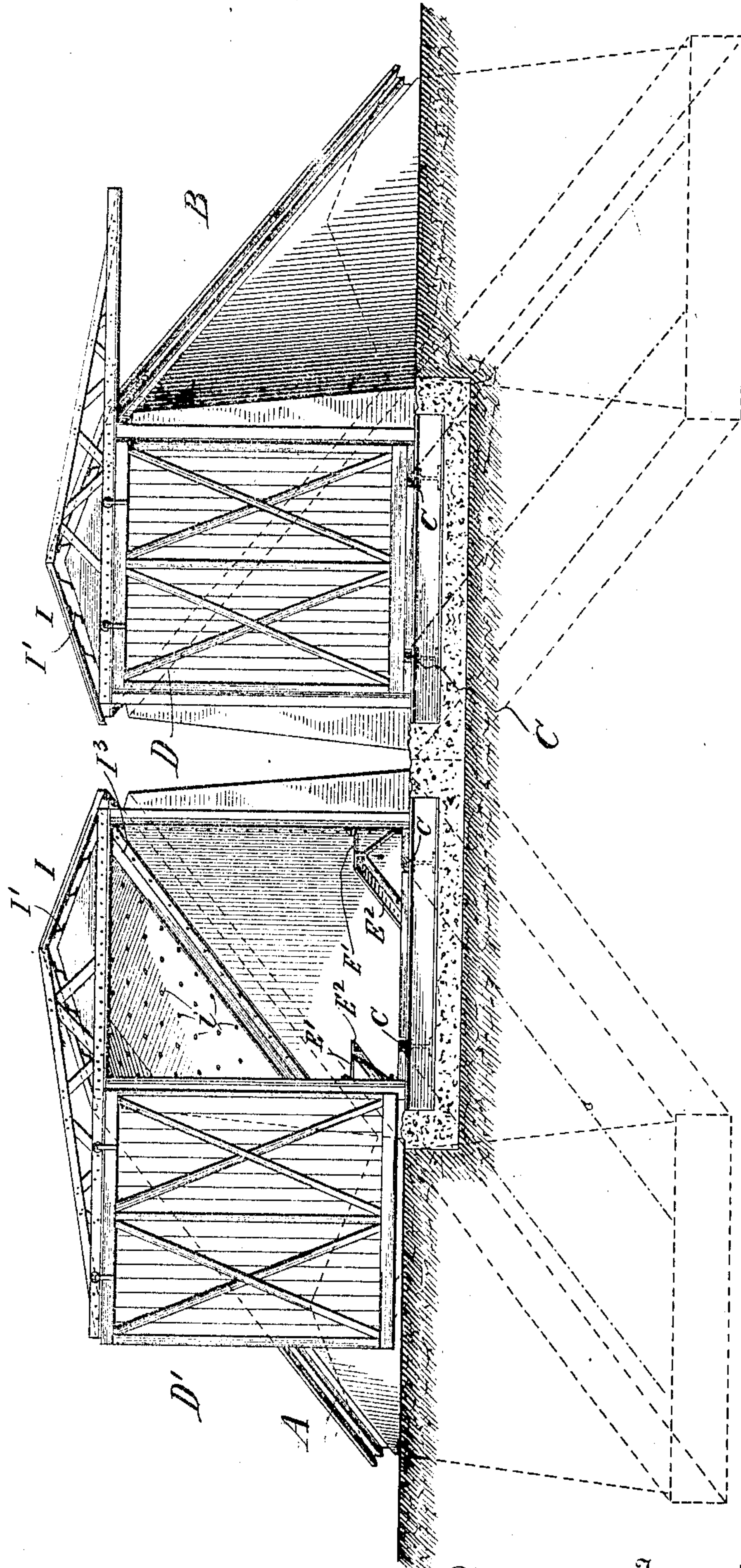
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8 SHEETS—SHEET 2.

*Fig. 3.*



Witnesses  
*Wm. F. A. Doring.*  
*L. E. Banning*

Inventor.  
*Benjamin F. Watkins*  
 By his Attorney  
*Edward C. Davidson*



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8 SHEETS—SHEET 3.

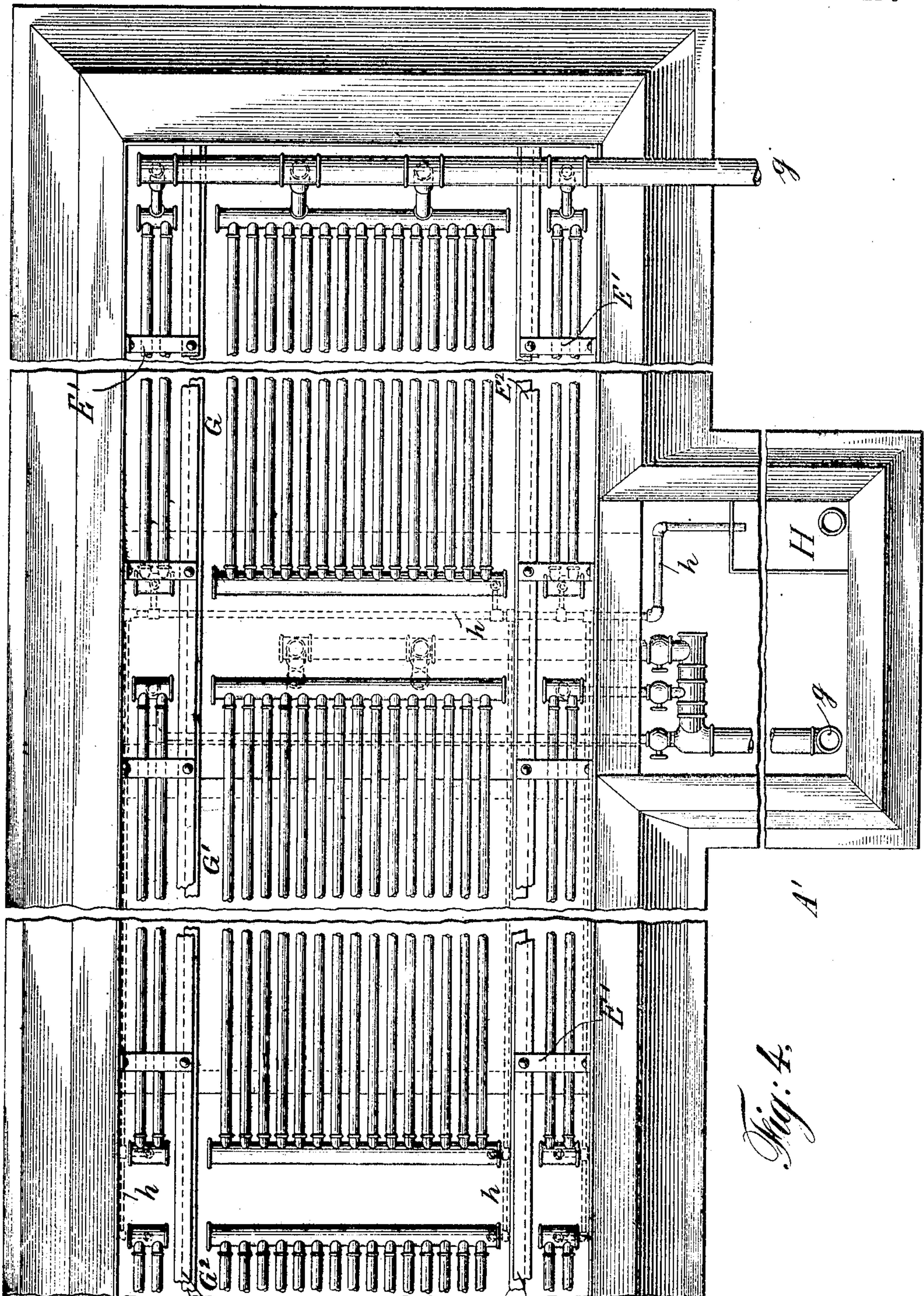


Fig. 4.

Witnesses  
 Max H. A. Doring  
 L. F. Browning  
 Benjamin F. Watkins  
 By his Attorney  
 Edmund C. Kewen



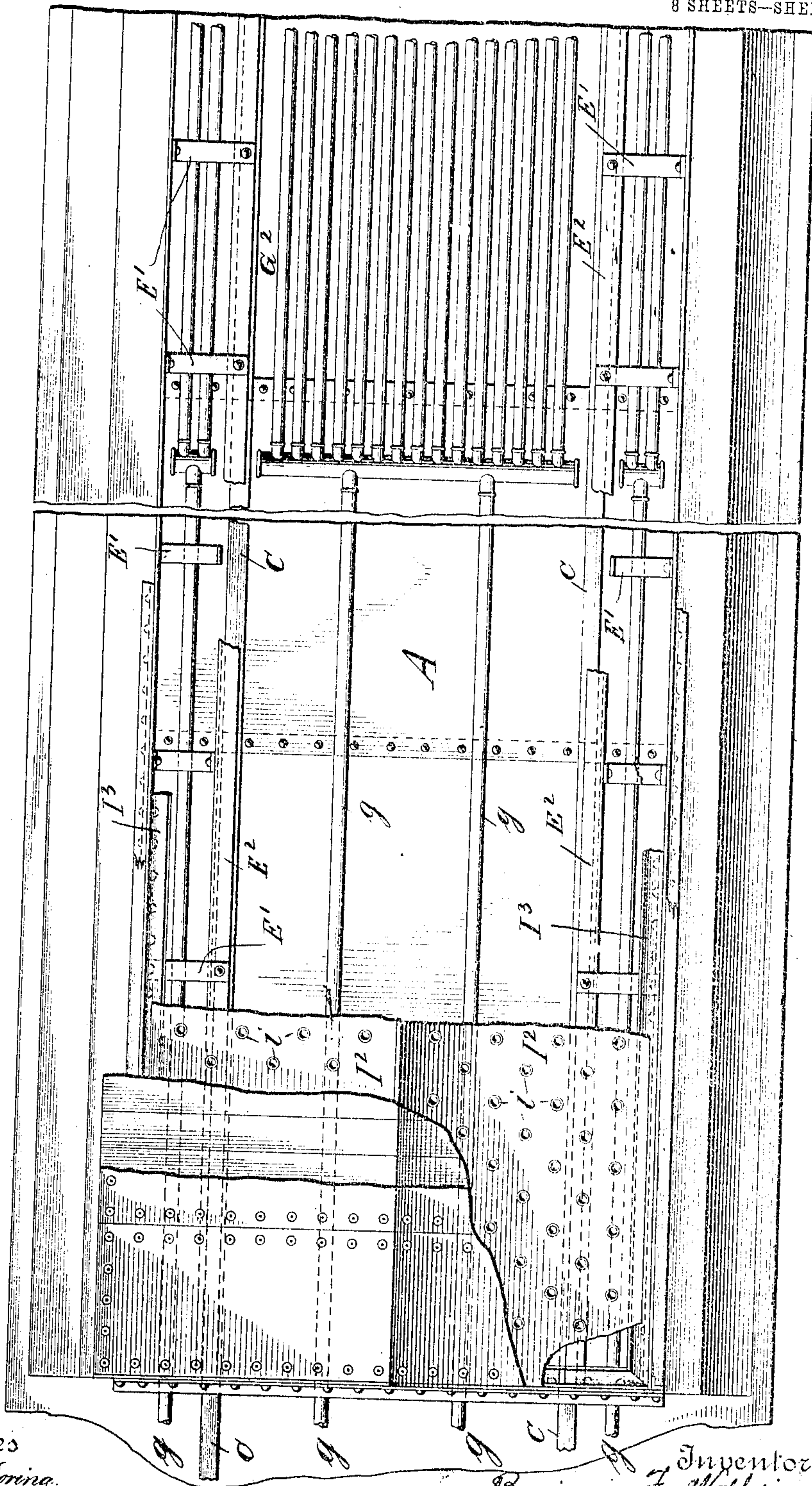
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8 SHEETS—SHEET 4.

Fig. 5.



Witnesses  
Max H. A. Doring.  
L. J. Browning.

Inventor  
Benjamin F. Watkins  
By his Attorney  
Edward C. Hardson

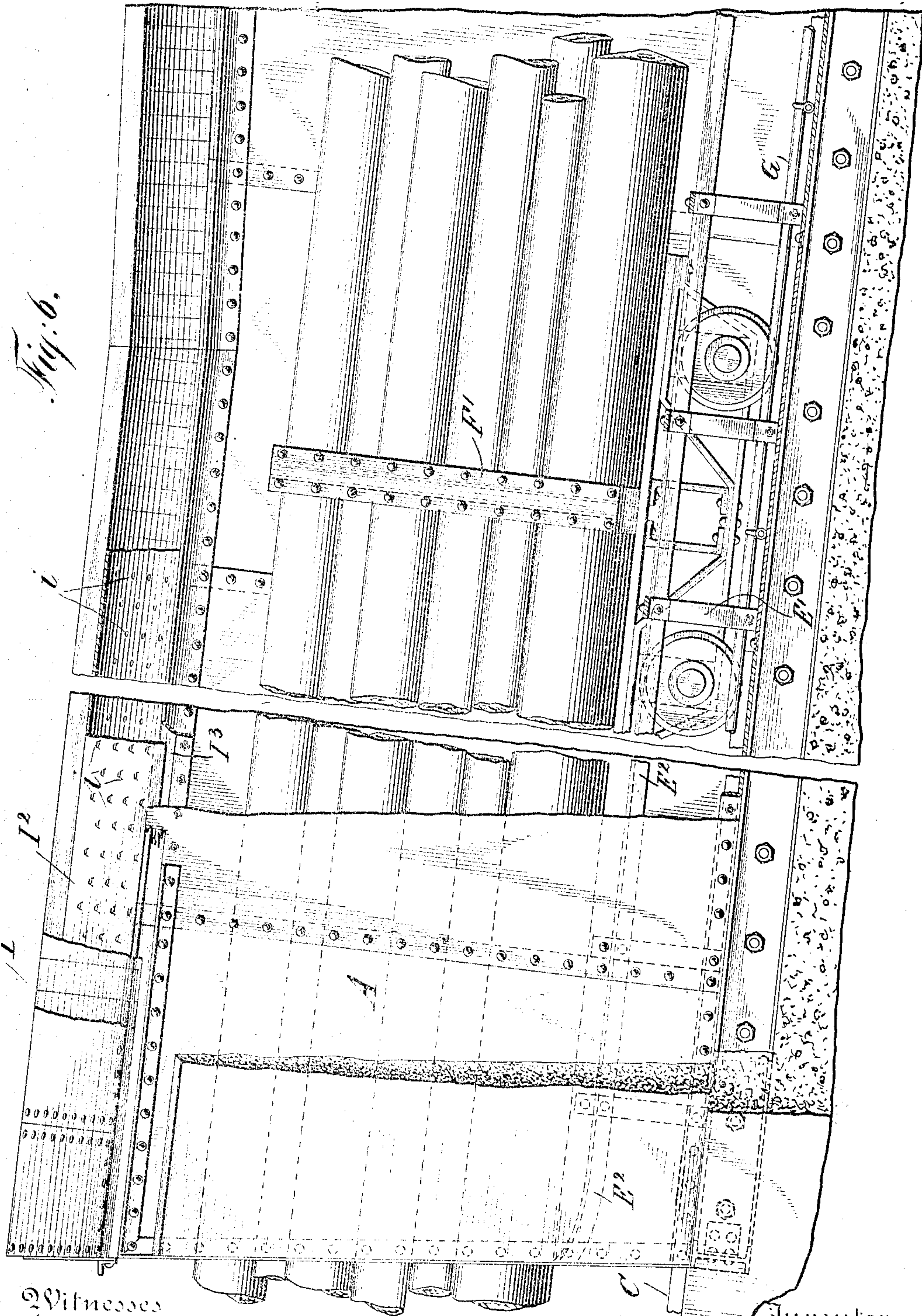


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8 SHEETS—SHEET 5.



Witnesses  
 Max B. Spring.  
 L. F. Browning.

Inventor  
 Benjamin F. Watkins  
 By his Attorney  
 Edward C. Davidson

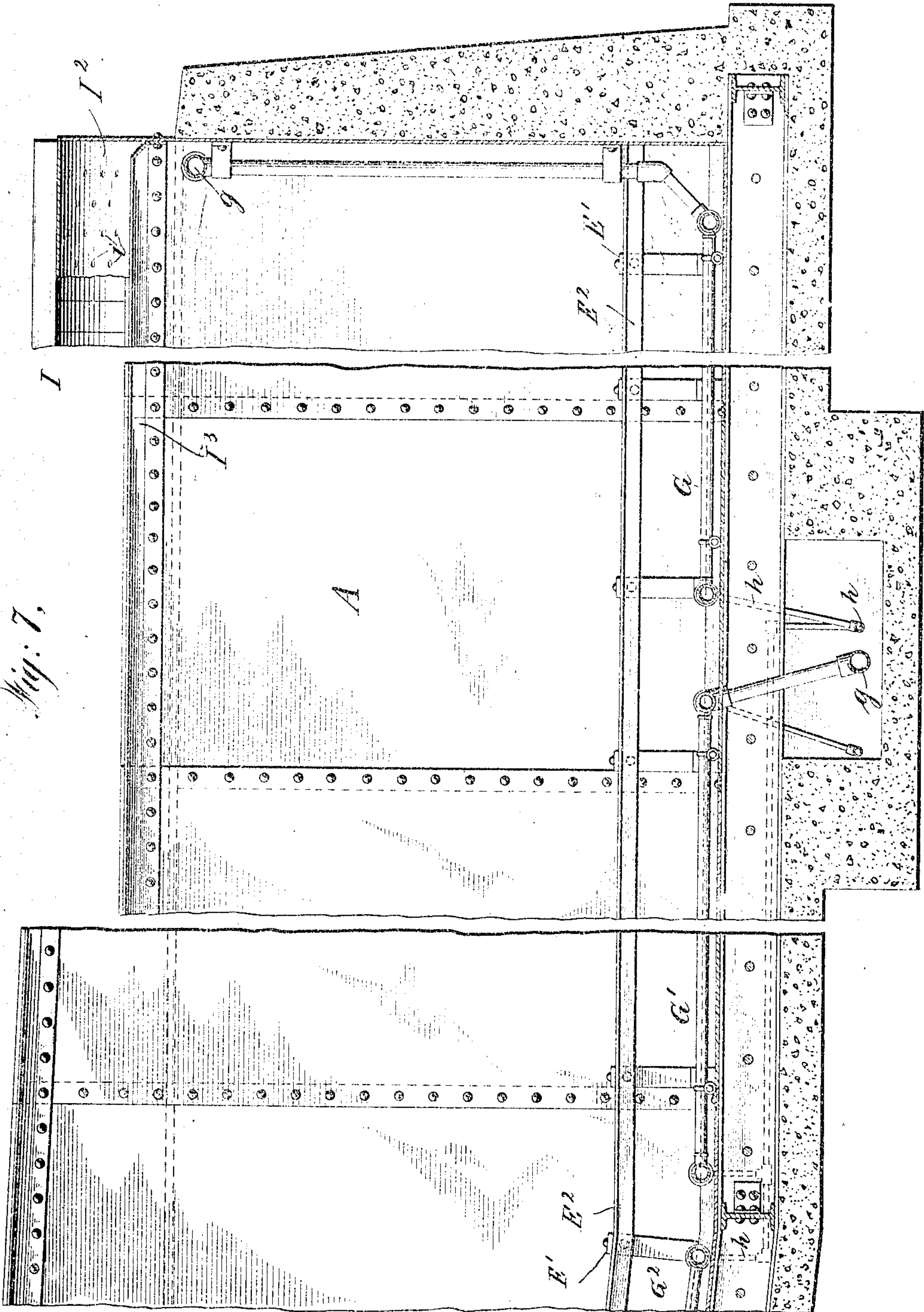


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8 SHEETS—SHEET 6.



Witnesses  
 Max B. Doring  
 L. F. Browning

By *Benjamin F. Watkins* Inventor  
*Edward C. Davidson* Attorney

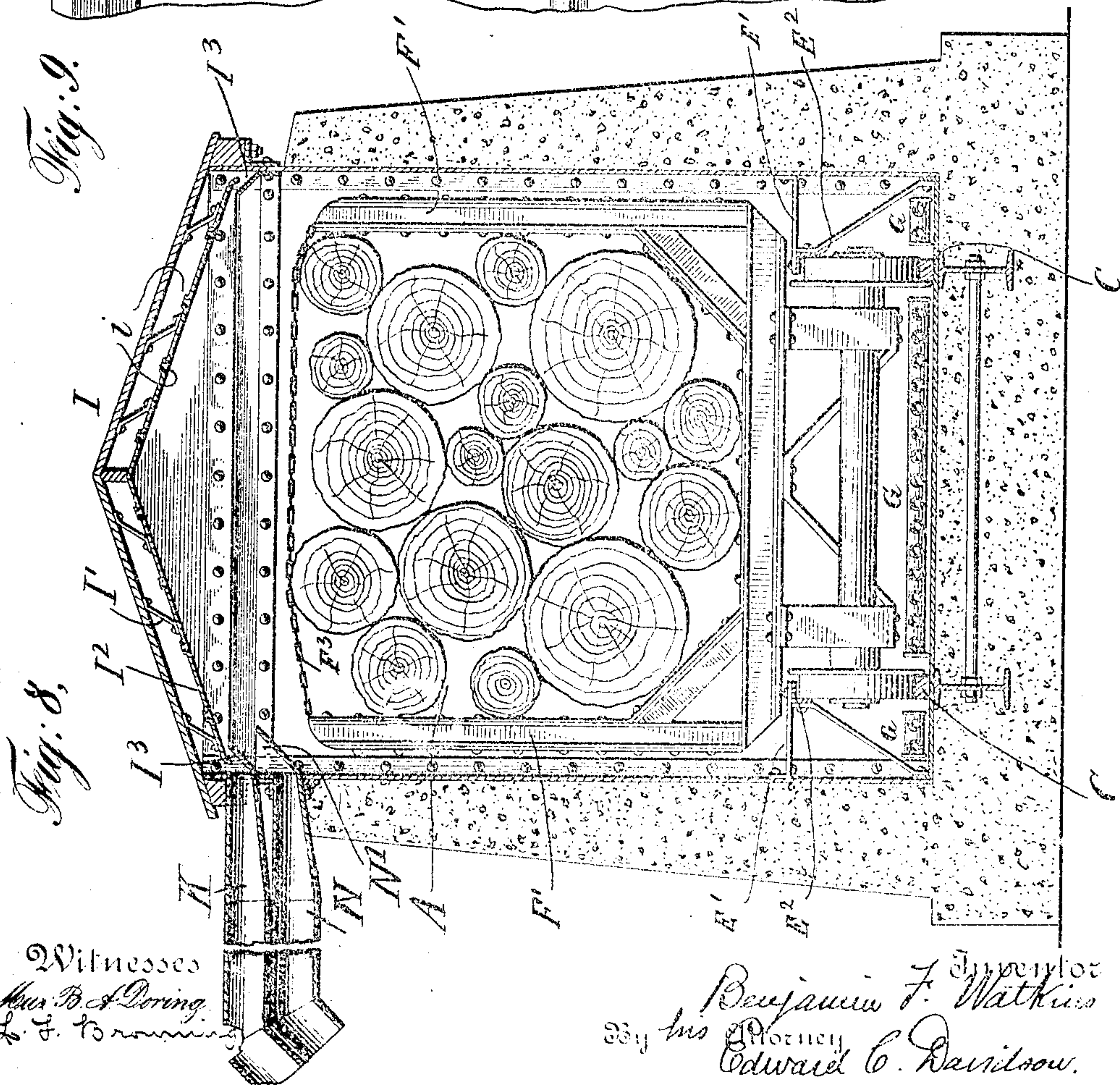
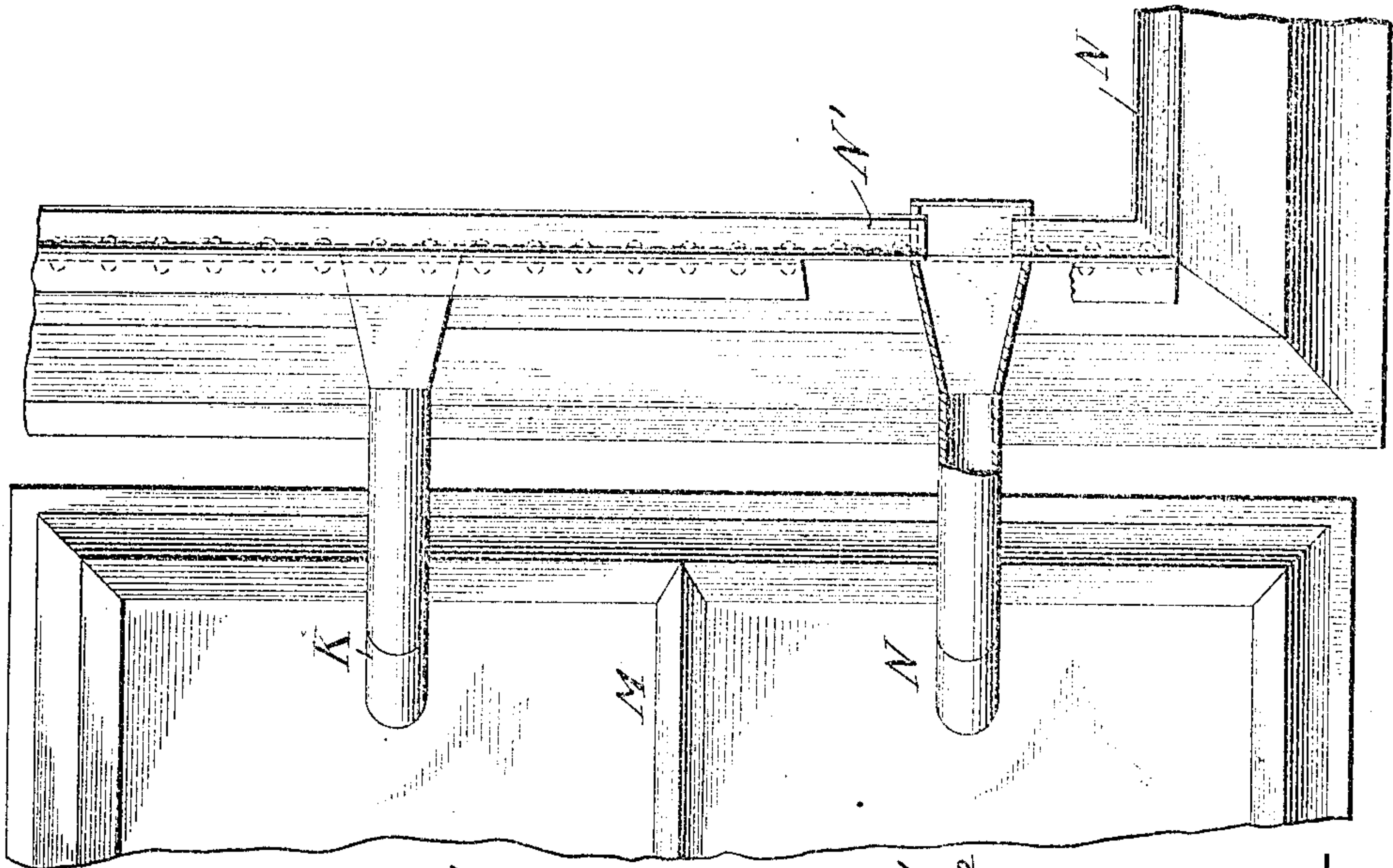


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8 SHEETS—SHEET 7.



Witnesses  
 Alex. B. Doring.  
 L. F. Doring.

Benjamin F. Watkins  
 By his Attorney  
 Edward C. Davidson.

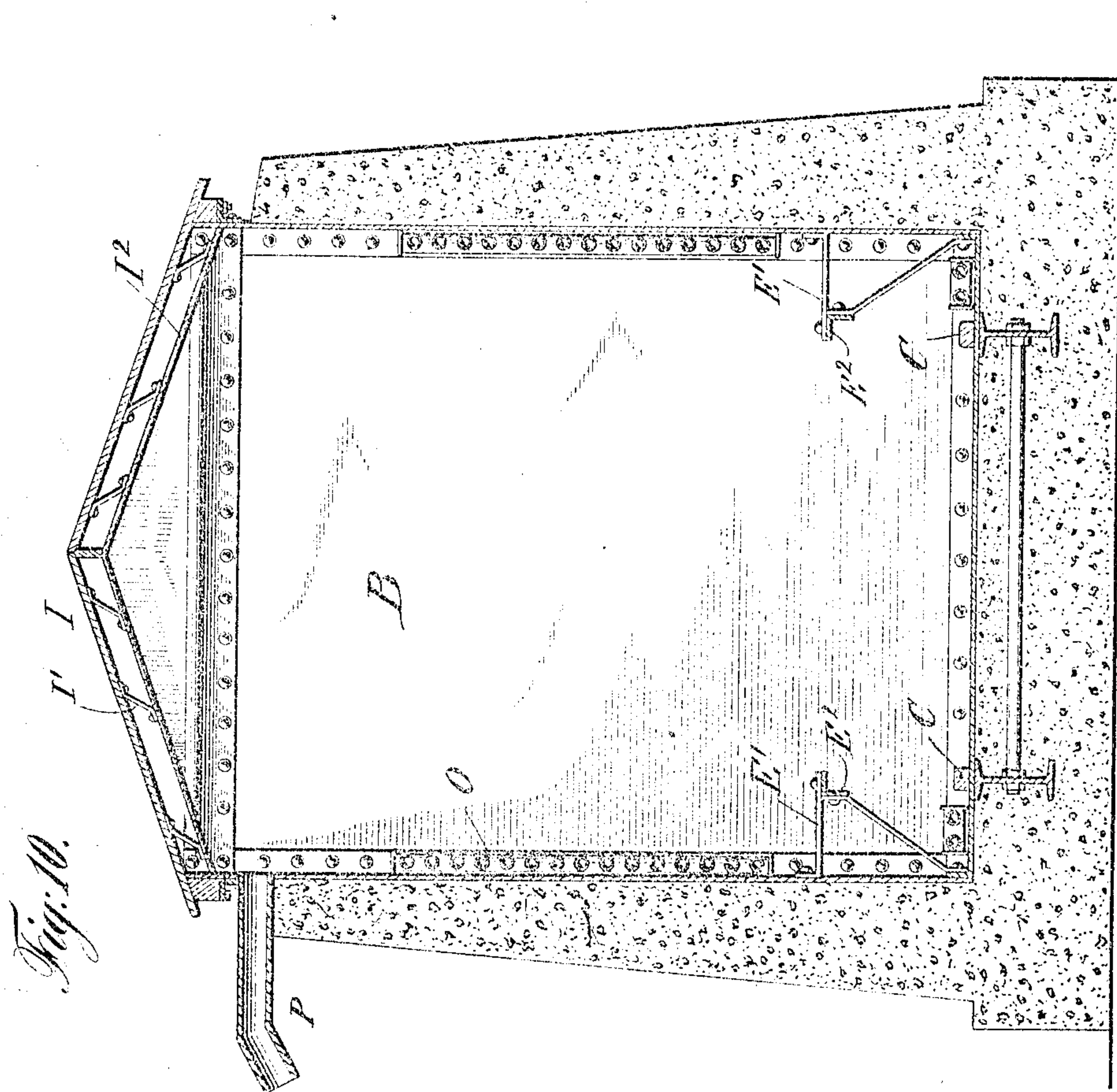


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Patented Feb. 23, 1909.

8 SHEETS—SHEET 8.



Witnesses  
 Geo. B. F. Davis  
 L. J. Brouncker

Inventor  
 Benjamin F. Watkins  
 By his Attorney  
 Edward C. Davidson



# UNITED STATES PATENT OFFICE.

BENJAMIN F. WATKINS, OF RYE, NEW YORK, ASSIGNOR TO CONSOLIDATED CROSS TIE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## APPARATUS FOR IMPREGNATION OF WOOD.

No. 213,593.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed March 1, 1906. Serial No. 303,635.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. WATKINS, a citizen of the United States of America, residing in Rye, county of Westchester, State of New York, have invented certain new and useful Improvements in Apparatus for Impregnation of Wood, of which the following is a specification.

This invention comprises an organization employing two tanks containing different baths and apparatus by which timber immersed in one tank may be readily withdrawn and immersed in the other tank. Impregnation of wood by the solution in the tanks may be either for preservation or fire proofing.

The apparatus is primarily designed for practicing the impregnation process set out in U. S. Letters Patent to Tomaso Giussani No. 707,224 dated August 19, 1902.

In the accompanying drawings: Figure 1 is a plan view: Fig. 2, a side elevation: Fig. 3, a transverse section on line 3, 3, of Fig. 1: Fig. 4, a plan view of the rear part of the hot tank with the roof removed: Fig. 5, a plan view of the front part of the hot tank with the roof broken away: Fig. 6, a side elevation of the hot tank with the side wall broken away: Fig. 7, a central longitudinal section of the rear part of the hot tank: Fig. 8, a cross section through the hot tank on line 8, 8, of Fig. 1: Fig. 9, a detail view showing the condensed vapor discharge spouts of the hot tank: and Fig. 10, a cross section of the cold tank on line 10, 10 of Fig. 1.

The hot tank A and cold tank B as viewed in plan (Fig. 1) are elongated chambers, constructed and equipped as hereinafter described or in such other appropriate way to carry out the intended purposes, and are placed preferably at an acute angle to each other. They are respectively equipped with car tracks C, C that converge upon a switch and run out into a common track section C', equipped with a turn-out switch C<sup>2</sup>. A power driven drum or windlass D is provided with a cable *d* by means of which loaded trucks may at will, be allowed to run into either the hot or cold tank and at will withdrawn. Viewed in side elevation Fig. 2, the tracks and front portions of the tanks are inclined and at the rear horizontal. The entrances of both tanks are provided with appropriately constructed inclosures capable of ready manipulation, sliding doors D' being

shown, Fig. 3. Suitable dimensions for a practicable plant are as follows: The rear horizontal portion of each tank may be ninety-five feet in length, and the front portion, having an inclination of say eight per cent., may be one hundred feet long. If the tank A is charged to proper depth with a bath heated to desired temperature by steam pipes, or otherwise, and the tank B is charged with a cold bath, cooled, if need be, by circulation of refrigerating medium in a suitable pipe system, a truck loaded with piles, telegraph poles, railroad cross ties or other timber, may by means of the windlass D be allowed to run into the hot tank and suitable provision being made for holding the load in place upon the truck and for preventing rise of the latter because of the buoyant energy of the timber, the latter may remain submerged in the hot bath as long as desired, and then the truck may be withdrawn, switched to the cold bath track and allowed to run into the cold tank in the bath in which it will remain submerged and from which it may be withdrawn. The system may be operated with three trucks one of which is unloaded and loaded in the yard while one is immersed in the solution of the hot tank and the other is immersed in the solution of the cold tank.

The apparatus is to be constructed, as indicated, upon suitable foundations, and the details of construction of the respective tanks may be as follows: Upon the floors thereof are laid the tracks C upon which trucks F run. Above, the tracks supported by appropriate brackets E' are angular guards E<sup>2</sup> beneath which the wheels of the trucks travel and which act to resist the buoyant energy of the load. The trucks may each have, as indicated, two sets of running gears and an appropriate body mounted thereon as usual. Vertical standards F' carried by the sides of the truck body retain the load in position and the latter may be prevented from floating by restraining chains F<sup>3</sup> (Fig. 8). The sides of the tank may be constructed of iron inclosed by concrete walls as indicated for instance in Figs. 6 and 8. The hot tank A, see particularly Figs. 4, 5 and 7, is equipped with a system of steam pipes G, G', G<sup>2</sup>, *g*, representing the various steam inlets. Water of condensation is led off by small pipes *h*, shown in dotted lines, for instance, in Fig. 4 and discharged at one or more points. In



Fig. 4, the condensed water pipe is shown as discharging into a well H, formed in an enlargement or lateral extension A' of the hot tank from whence it may be pumped. The heating pipes are shown as arranged upon the bottom. This location is immaterial, as is any special system of steam or hot water heating. It is sufficient that by appropriate means the solution within the tank be raised to and maintained at desired temperature. Detailed description of the heating system is therefore quite unnecessary. To the peaked or reversely inclined roof I which is constructed of any appropriate materials, is suspended by means of brackets I' an interior hood or roof I<sup>2</sup>, preferably formed of metal and having perforations i around each of which on the upper side the metal is elevated. Liquid condensation of vapors formed on the upper surface of the hood I<sup>2</sup> will run into troughs I<sup>3</sup> which, being appropriately inclined, will direct the liquid to a discharge spout K by which it is delivered to one of the compartments of an outside receiving tank M. Another spout N connected with a similar system of troughs N' (Figs. 8 and 9) delivers liquid of condensation to another compartment of the exterior tank M. This arrangement is adapted because the solution in tank A may be of such character that the condensed liquid formed above the hood I<sup>2</sup> will have different constituents from that formed below the hood. Both of them may contain some of the solution evaporated at the temperature employed but one, *i. e.* that liquid formed above the hood may contain a larger percentage of water or vaporizable constituents of the timber, and it is deemed desirable that they should be separated. The cold tank B is generally of the same construction as the hot tank. The coils O for circulation, when desired, of a refrigerating medium are placed upon the side walls of the tank. There are no perforations in the inner roof or hood I<sup>2</sup> and the discharge spout P opens directly to the tank there being no system of gutters. In both tanks, however, the discharge spout may perform the function of discharging the solution and so relieve pressure upon the walls of the tank should the loaded truck be permitted to enter the tank with too great velocity.

Two tanks only have been shown as contemplated in the practice of Giussani patented process. The invention is, however, not limited to the use of two tanks, but I do not claim to be the inventor of a three tank process irrespective of the general organization or arrangement herein described.

I claim as my invention:

1. Apparatus for impregnating timber by immersion, comprising two tanks, having

downwardly inclined bottoms, closed at their lower ends and at their upper ends adapted for the admission of a truck, car-tracks laid therein to receive a truck, a suitable switch at which such tracks meet, and means within the tanks for preventing flotation of a truck when immersed in the baths contained in the lower levels or parts of the tanks.

2. Apparatus for impregnation of timber by immersion, comprising two tanks placed at an acute angle to each other, each tank having a rear portion the floor of which is horizontal and a front portion having an upwardly inclined floor, tracks adapted to receive a truck extending into each tank and meeting at an appropriate switch, and means contained within the tanks for preventing flotation of a truck when immersed in the baths contained in the lower levels or parts of the tanks.

3. Apparatus for impregnation of timber by immersion comprising two tanks, having downwardly inclined bottoms, closed at their lower ends and at their upper ends adapted for the admission of a truck, and each adapted to contain a bath, tracks adapted to receive a truck entering the respective tanks, a switch at which the tracks meet, means for heating the bath in one tank, and means contained within the tanks for preventing flotation of a truck when immersed in the baths contained in the lower levels or parts of the tanks.

4. Apparatus for impregnation of timber by immersion comprising two inclosed tanks having downwardly inclined bottoms, closed at their lower ends and at their upper ends adapted for the admission of a truck and arranged at an acute angle to each other, tracks entering each tank and adapted to receive a truck, a switch at which the tracks meet, means for heating a bath contained in one tank and means for cooling a bath contained in the other tank.

5. Apparatus for impregnation of timber by immersion comprising two tanks arranged at an angle to each other, the front portion of each tank being inclined, tracks entering the tanks and adapted to receive a truck, a switch at which the tracks meet, means for heating the bath contained in one tank, means for cooling the bath contained in the other one, and means contained within each of the tanks for preventing flotation of a truck when immersed in the baths in the tanks.

In testimony whereof, I have hereunto subscribed my name.

BENJAMIN F. WATKINS.

Witnesses:

L. F. BROWNING,  
EDWARD C. DAVIDSON