

No. 714,499.

Patented Nov. 25, 1902.

F. V. MATTON.  
APPARATUS FOR COALING SHIPS.

(Application filed Apr. 29, 1902.)

(No Model.)

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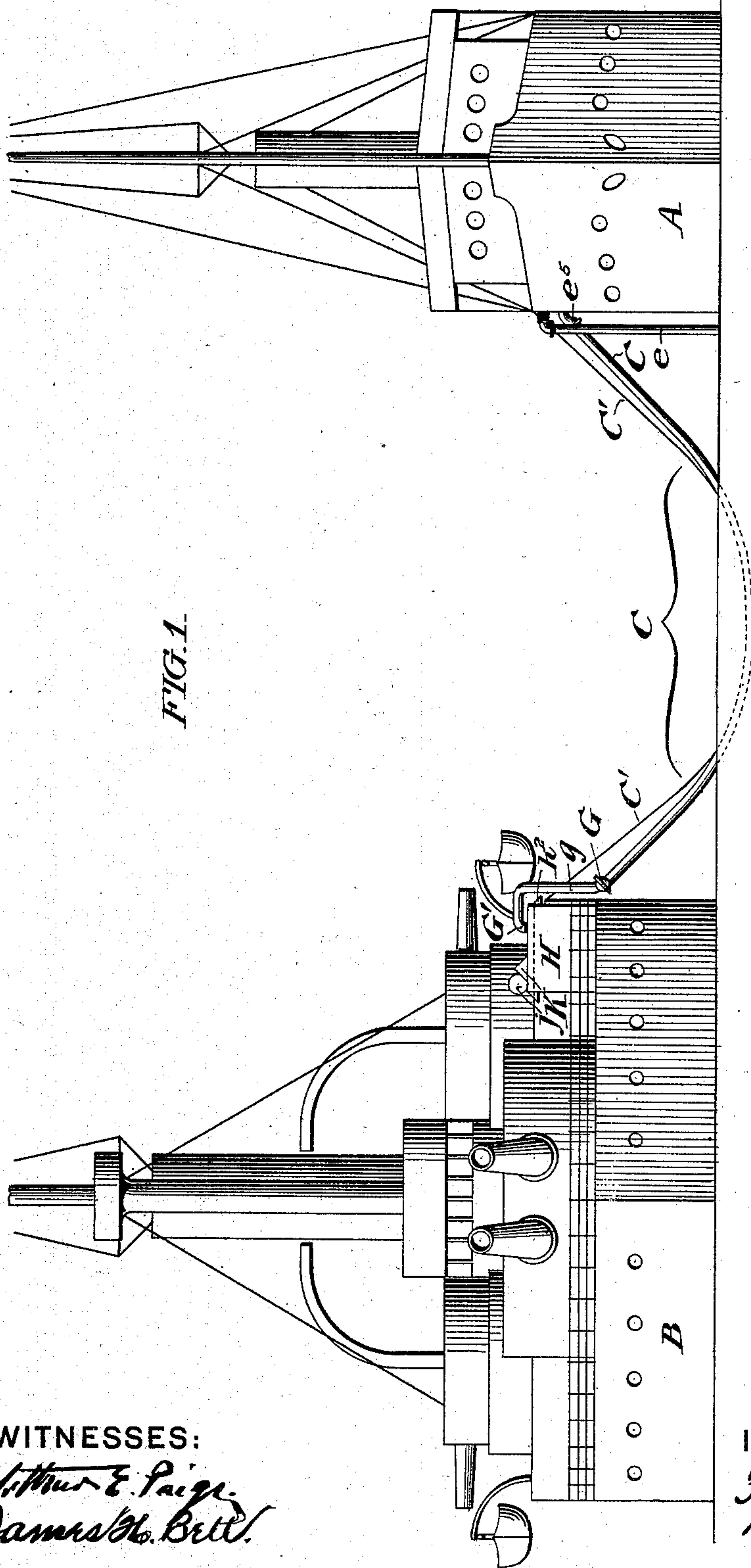


FIG. 1.

WITNESSES:

*Arthur E. Paige*  
*James H. Bell*

INVENTOR:

*F. V. Matton*  
*By Tracy & Paul,*  
*attorneys.*

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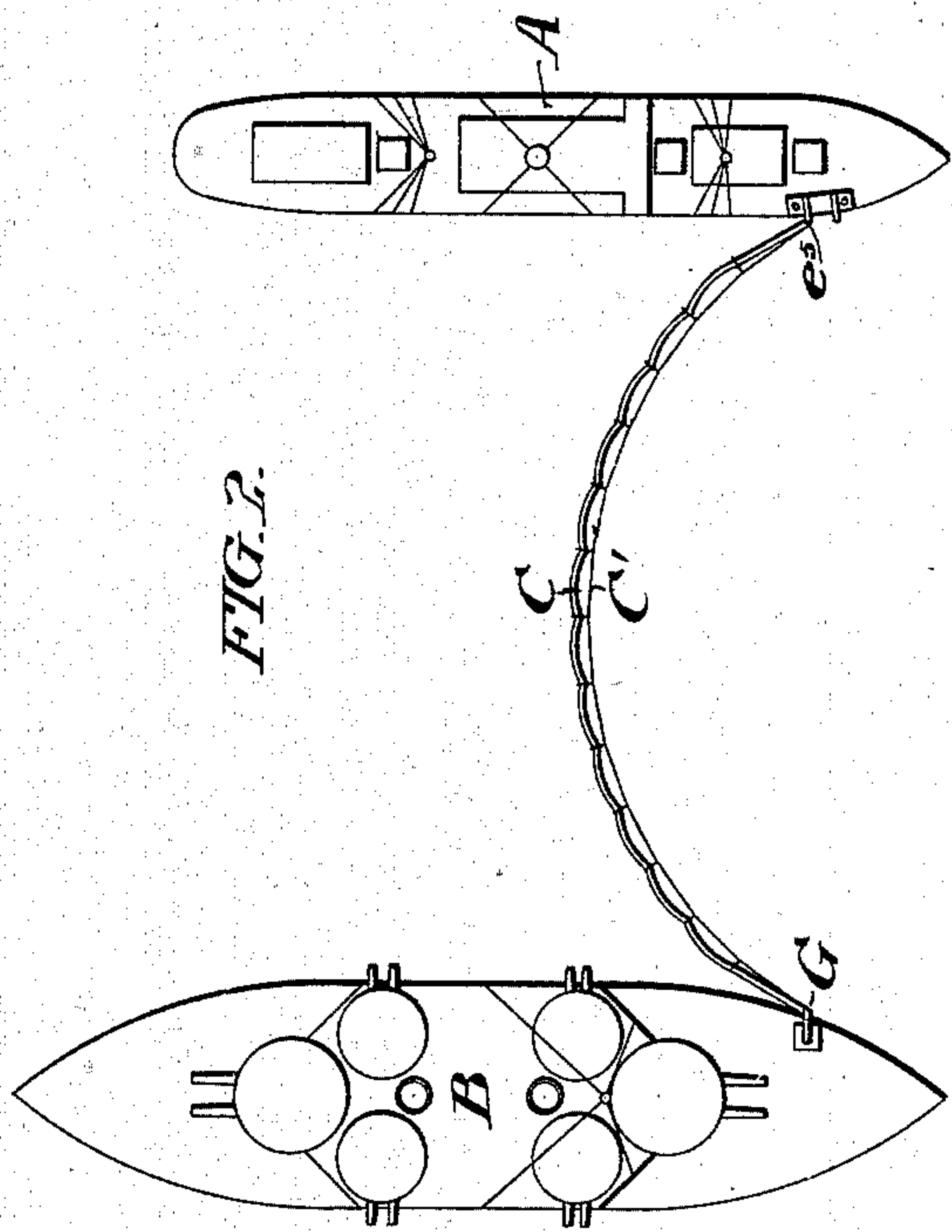
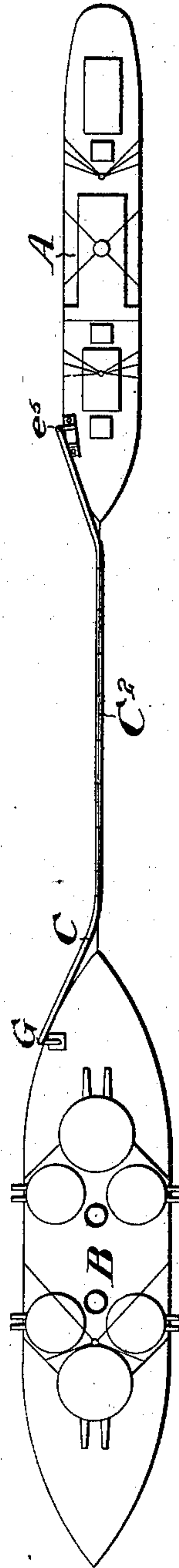


FIG. 3.



WITNESSES:

Arthur E. Paige  
James H. Bell

INVENTOR:

F. V. Matton,  
By Maly & Paul  
Attorneys

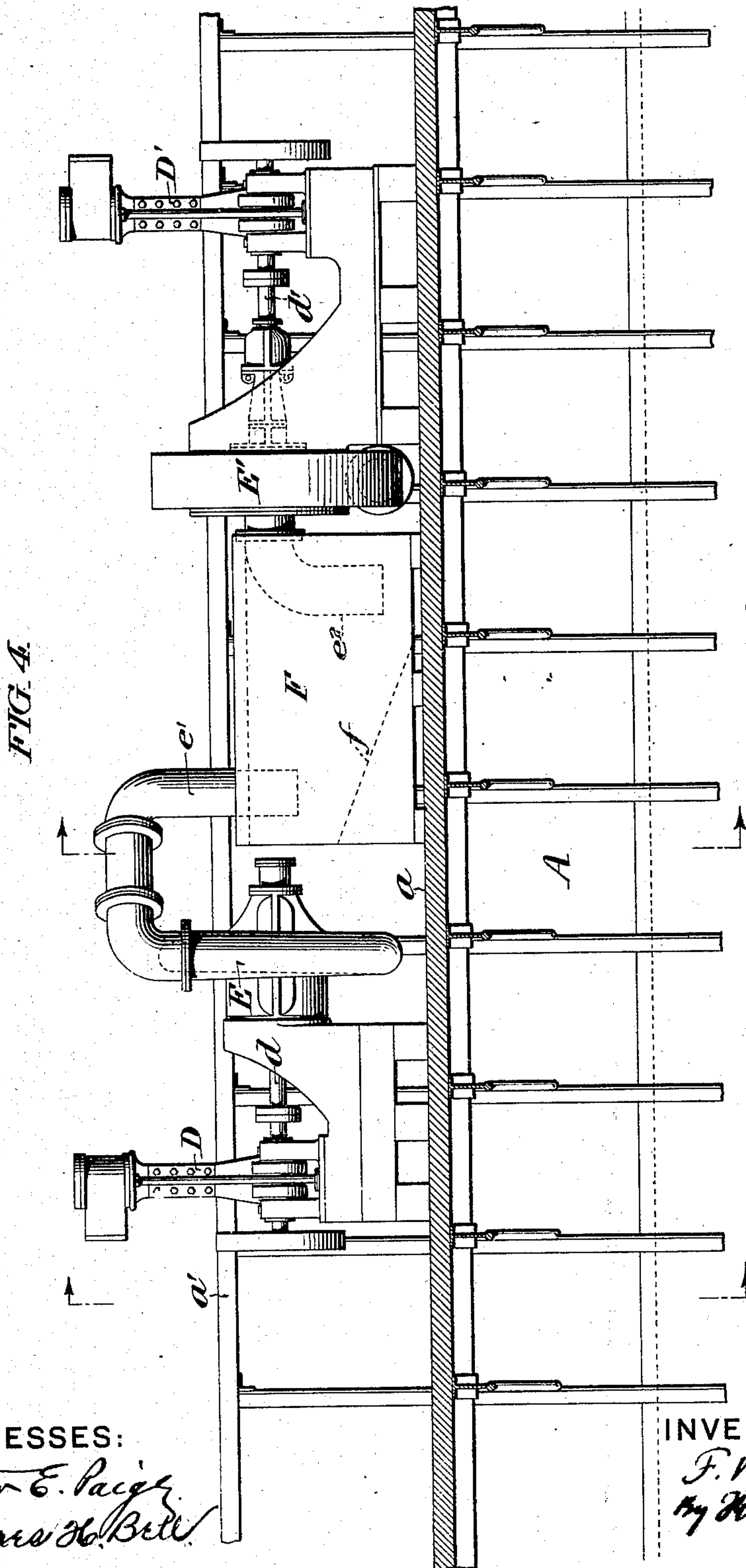


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WITNESSES:

*Arthur E. Paige*  
*James H. Bell*

INVENTOR:

*F. V. Matton*  
*By Kelly & Paul*  
*Attorneys*



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FIG. 6.

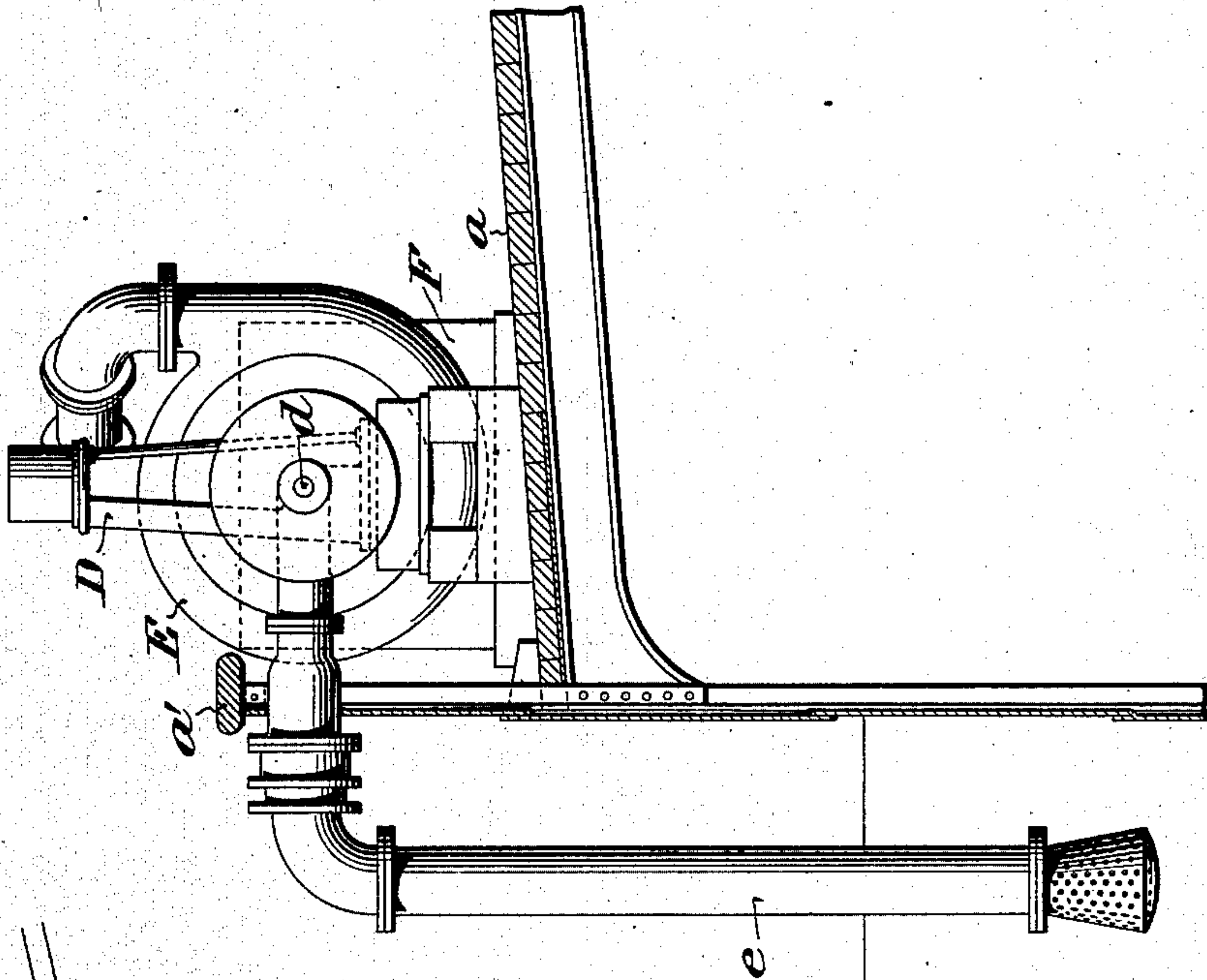
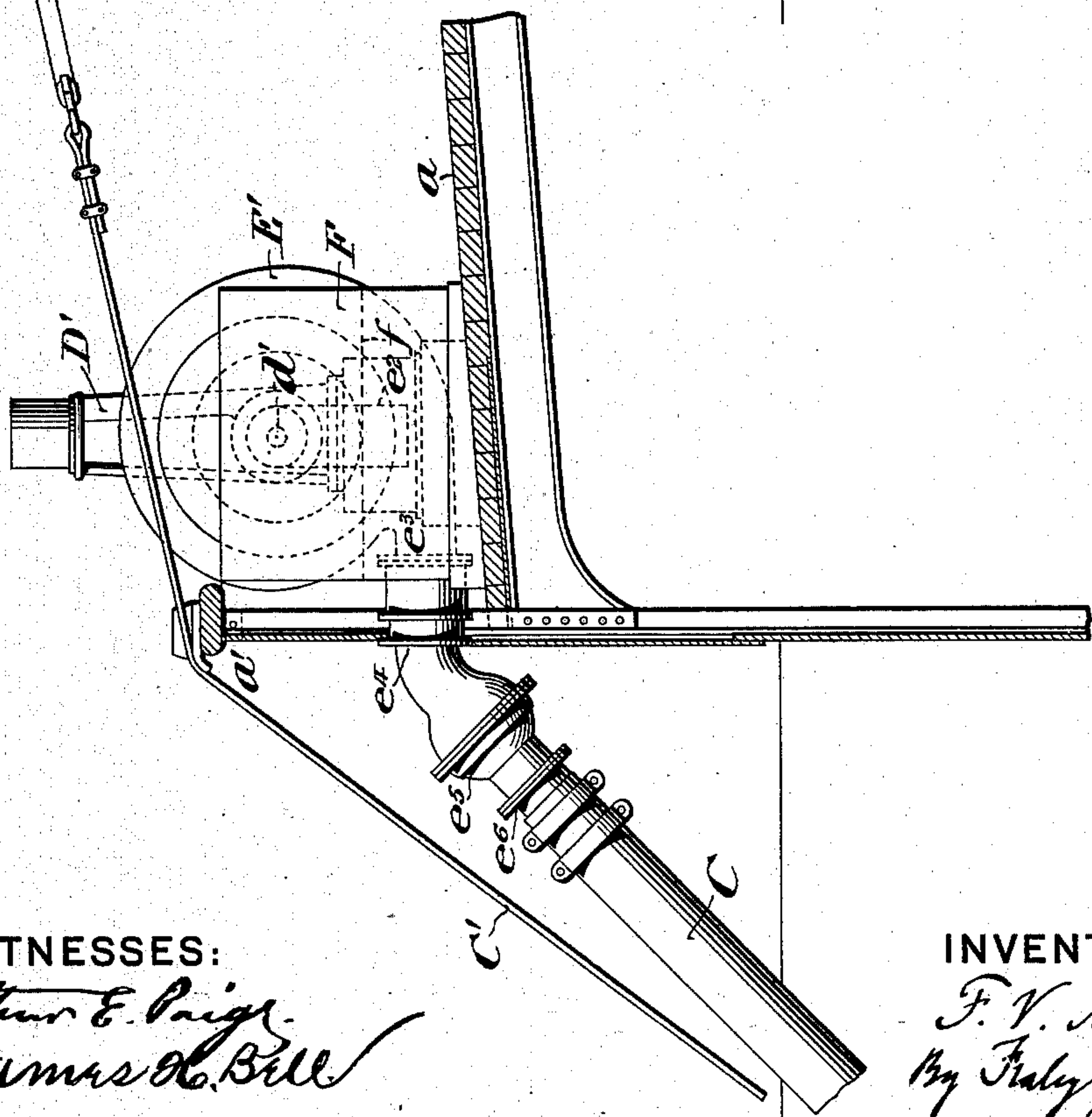


FIG. 5.



WITNESSES:

*Arthur E. Paige*  
*James O. Bell*

INVENTOR:

*F. V. Matton*  
*By F. V. Matton*  
*Attorneys*



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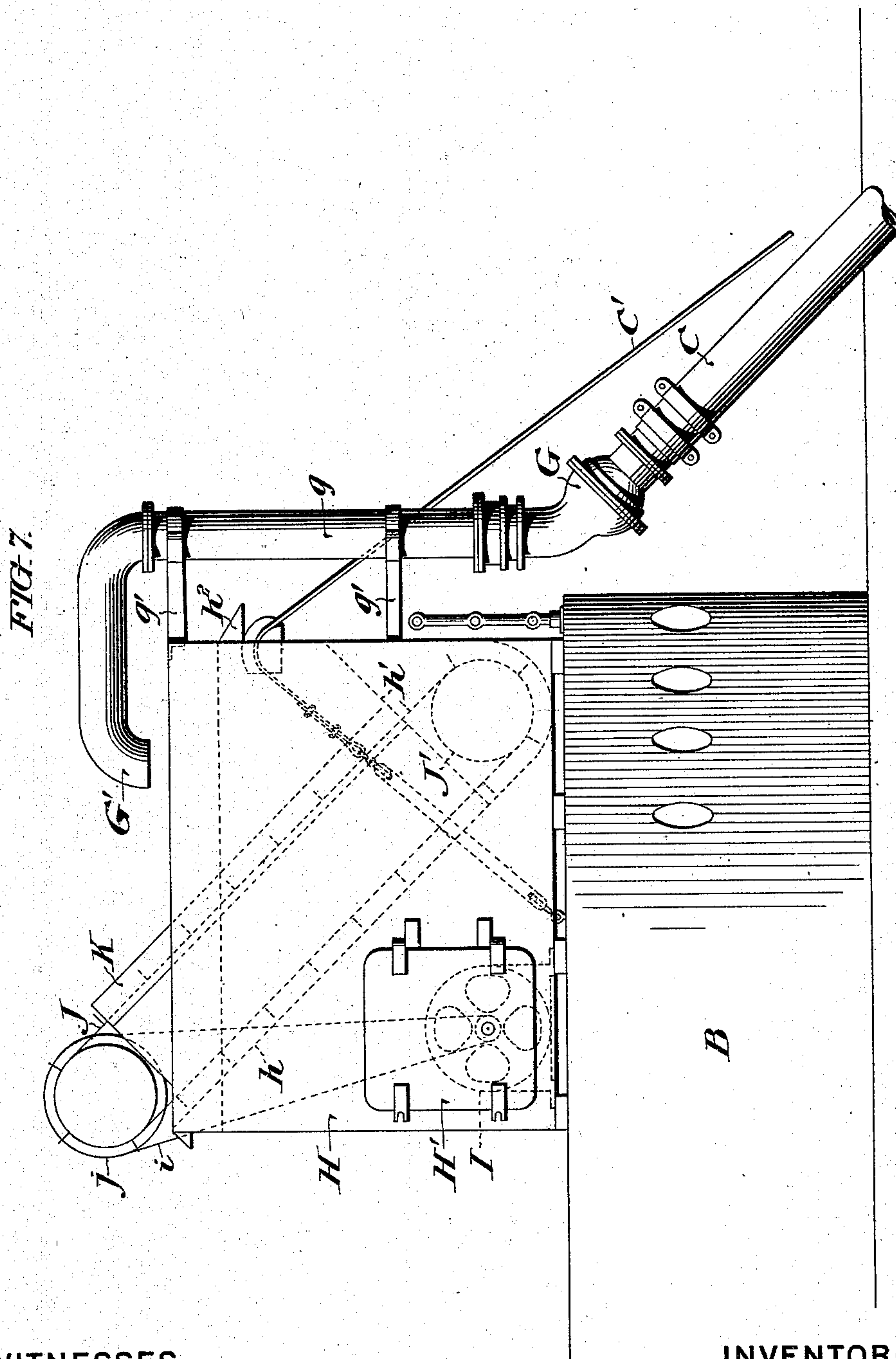
**F. V. MATTON.**

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(No Model.)

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**WITNESSES:**

Arthur E. Paige  
James H. Bell

**INVENTOR:**

F. V. Mutton,  
By Tracy & Paul,  
Attorneys



# UNITED STATES PATENT OFFICE.

FREDERICK V. MATTON, OF CAMDEN, NEW JERSEY.

## APPARATUS FOR COALING SHIPS.

SPECIFICATION forming part of Letters Patent No. 714,499, dated November 25, 1902.

Application filed April 29, 1902. Serial No. 105,152. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK V. MATTON, a subject of the King of Sweden and Norway, residing at No. 517 Cooper street, in the city of Camden, State of New Jersey, have invented certain new and useful Apparatus for Coal-  
ing Ships, whereof the following is a specification, reference being had to the accompanying drawings.

The most obvious field of usefulness of my invention is the coaling of war-ships at sea from a collier consort, and I have therefore selected for conventional illustration such an application of my invention; but it must be understood that I do not, therefore, limit my claims to such method of use, since the device may be advantageously employed under many other circumstances.

In the drawings, Figure 1 represents, conventionally, in elevation a battle-ship and a collier abreast of one another with the apparatus arranged for coaling. Fig. 2 is a diagrammatic view showing in plan the arrangement which is depicted in Fig. 1. Fig. 3 is a diagrammatic view illustrating a collier in tow of a war vessel with an arrangement of the coaling devices adapted to this situation. Fig. 4 is an enlarged view showing, partly in elevation and partly in vertical section, certain members of the group of devices at the transmitting end of the system—i. e., on board the collier. Figs. 5 and 6 are views, partly in elevation and partly in vertical section, of members of the transmitting group supplementing those members which are shown in Fig. 4. Fig. 7 is a view in elevation of the devices at the receiving end of the system—i. e., on board the battle-ship.

The characteristic feature of my invention is the transmission of coal by means of a stream of water, the principle of operation being in some respects analogous to the conveyance of solid material by powerful dredging apparatus.

For purposes of illustration I have shown the apparatus as provided with special or individual engines for supplying the requisite power; but it will be of course obvious that the same result could be obtained by employing the ordinary auxiliary engines or motors of any character with which the collier or other supplying agent may be equipped. I

have also indicated a type of apparatus at the receiving end of the line of such character that it may be conveniently carried by the collier and floated across to the war vessel when the latter is about to be coaled; but it is obvious that this adjunct might form a portion of the regular equipment of the receiving vessel.

Referring now to the general views shown in Figs. 1 and 2, A indicates a collier, and B a war vessel, which are placed in communication by means of a flexible hose C, suspended between them upon a rope or chain C' of sufficient strength to sustain the weight of the parts and also the strain due to the motion of the vessels if they are moving abreast, which is the position indicated in these two figures.

In Fig. 3 the hose C is represented as suspended upon a hawser C<sup>2</sup>, which forms the tow-line connecting the two vessels.

Referring now to the devices at the transmitting end of the line, Fig. 4 represents a pair of engines D and D', whose shafts *d* and *d'* are adapted to drive, respectively, the centrifugal pumps E and E', conveniently mounted upon the deck *a* of the collier adjacent to the rail *a'*. The pump E is provided with an intake *e*, which extends overboard into the water, as shown in Fig. 6, and the delivery-pipe *e'* of said pump leads to a tank F, resting upon the deck of the vessel between the pumps E and E', said tank having an inclined bottom, as indicated by the dotted line *f*, sloping toward the end opposite to that at which the delivery-pipe *e'* is situated. The outboard side of said tank (shown in dotted lines in Fig. 4) is somewhat lower than the other three sides in order that the surplus water of the tank may conveniently be discharged overboard. The intake-pipe *e*<sup>2</sup> of the pump E' leads from the lower portion of the tank F at the end toward which the bottom *f* slopes. The delivery-orifice *e*<sup>3</sup> of the pump E' leads to a swiveled connection *e*<sup>4</sup>, having a universal joint, as indicated at *e*<sup>5</sup>, and is connected at *e*<sup>6</sup> with the hose C. At the receiving end of the line said hose terminates in a similar universal joint and swivel connection G, from which a delivery-pipe *g*, secured to the side of the vessel or tank by brackets *g'*, leads inboard,



terminating in an overhanging discharge G'. Beneath said discharge is a tank H, having a double-inclined bottom, as shown at  $h$   $h'$  in dotted lines, and an overflow  $h^2$  on the out-  
 5 board side. This tank may conveniently be provided with a water-tight door H', leading to that portion which is beneath the inclined bottom  $h$ , where space is afforded for an electric motor I, which may thus be conveniently  
 10 contained within the tank.

The purpose of the water-tight door H' is to permit the floating of the tank and its contents across from one vessel to the other if, as above stated, said tank is to form part of  
 15 the equipment of the collier as distinguished from being permanently on board the receiving vessel. Said motor drives, by means of a belt  $i$  and pulley  $j$ , an endless traveling conveyer J, which extends down into the tank  
 20 H and is adapted to remove coal therefrom. The incoming portion of the conveyer may conveniently be led through an inclosed channel K, so as to prevent interference with the action of the conveyer by the coal falling  
 25 upon it from above, the blades or scoops of the conveyer taking up the material upon the sloping bottom  $h$  and jamming being prevented at the lower pulley J' by the shield which the sloping bottom  $h'$  affords.

The operation of the device is as follows: The two vessels having been placed in communication by means of the hose C, the pump E is actuated and continuously forces a  
 30 stream of water into the tank F at the transmitting end of the line, and coal is also continuously fed into said tank at such a rate as is appropriate to the capacity of the pump E'. The coal falls upon the sloping bottom  
 35  $f$  and is forced toward the intake  $e^2$  both by gravity and by the descending stream of water from the delivery-pipe  $e'$ , so that the mingled coal and water are taken up by the suction of the pump E' and forced through the hose to the receiving end of the line,  
 40 where the coal is discharged into the tank H and is thence removed from said tank by the conveyer J. I have not attempted to indicate the method of disposal of the coal upon its reaching the deck of the receiving vessel,  
 45 since obvious methods of handling may be employed.

The above apparatus affords means for rapidly coaling vessels without the difficulties which are attendant upon those of the over-  
 55 head conveying apparatus heretofore employed for coaling at sea. The troubles due to rolling, pitching, or change of the relative position of the two vessels are minimized by the use of the improvements which I have  
 60 above described, the organization being such

that little or no interference will be occasioned through these causes. The rapidity and continuity of the action which I am able to attain much more than compensates for  
 65 such slight disadvantage as may follow from the wetting of the coal, and the organization is simple, not liable to disarrangement, and vastly superior to the class of overhead appliances.

As before intimated, I have described what  
 70 I believe to be an obvious embodiment of the invention; but my claims are not to be taken as limited by the use of incidental language appropriate to the embodiment. Thus, for instance, in speaking of the "supplying vessel"  
 75 and "receiving-vessel," I mean to comprehend any structures, nautical or otherwise, from which and to which, respectively, the coal is transmitted. So, also, in mentioning the "actuating mechanism," which in the above specification is illustrated as individualized, I do  
 80 not mean to exclude the use of other devices for supplying power, and in using the term "hose" I mean to comprehend any conduit adapted to lead from the transmitting to the  
 85 receiving system and capable of acting as a channel of communication between the two.

In using the term "tank" to indicate the member which directly contains the coal I mean to comprehend any receptacle situated  
 90 on the intake side of the pump which is adapted to perform such function.

I claim—

1. The combination, of a supplying vessel; a coal-supply tank located thereon; a water-  
 95 discharging device leading into said tank; a suction-pump having its intake connected with said tank; a hose connected with the outlet of said suction-pump; actuating mechanism for said water-supplying device and  
 100 said pump; and a discharging device at the receiving vessel, substantially as described.

2. The combination, of a supplying vessel; a coal-supply tank located thereon and having a sloping bottom; a pipe arranged to deliver water to said tank; a suction-pump  
 105 leading from said tank; a hose having a jointed connection with the delivery-orifice of said pump; a discharge-pipe for said hose located at the receiving vessel; a receiving-  
 110 tank adjacent to said discharge-pipe; and a conveyer arranged within said receiving-tank, substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of April, A. D. 1902. 115

FREDERICK V. MATTON.

Witnesses:

JAMES H. BELL,  
 C. BRADFORD FRALEY.