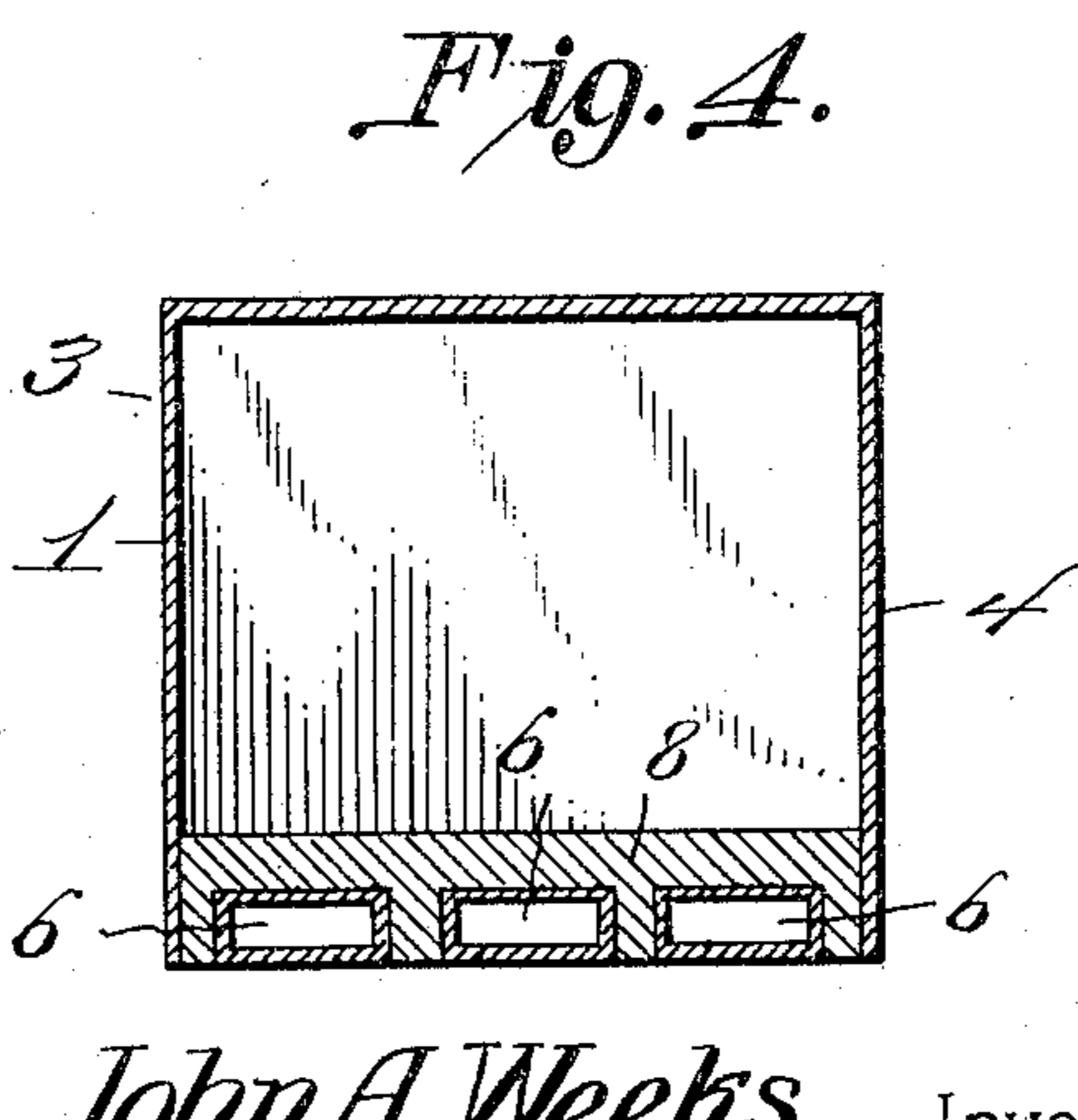
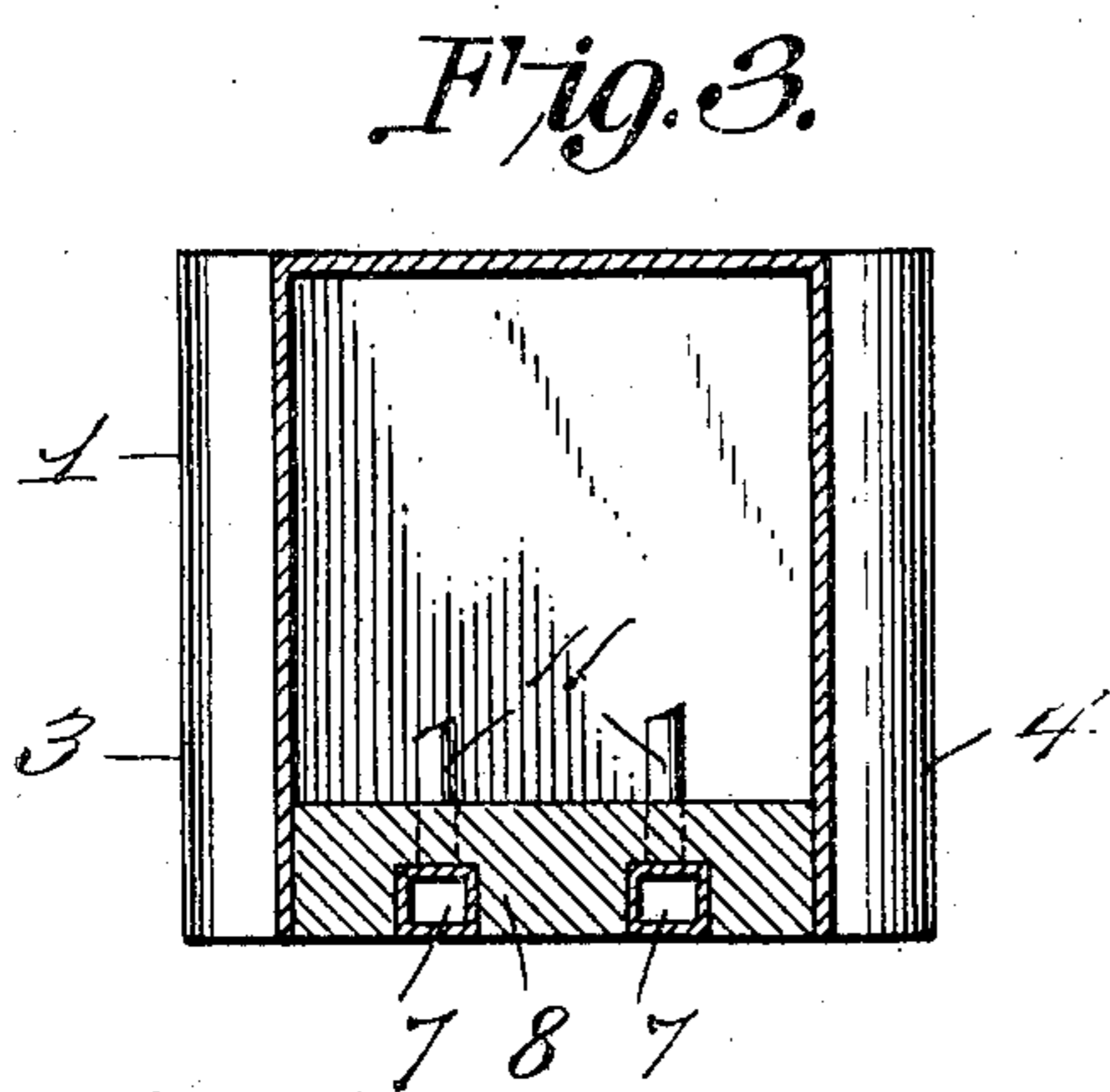
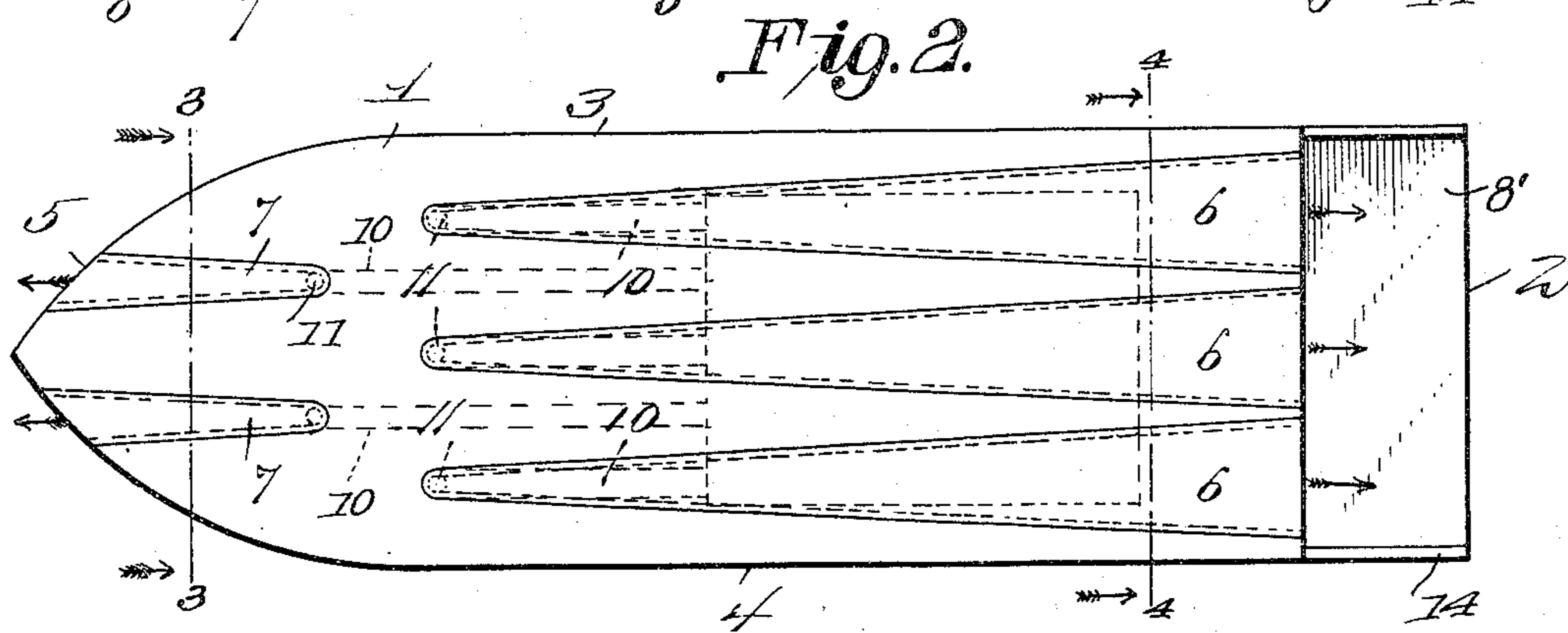
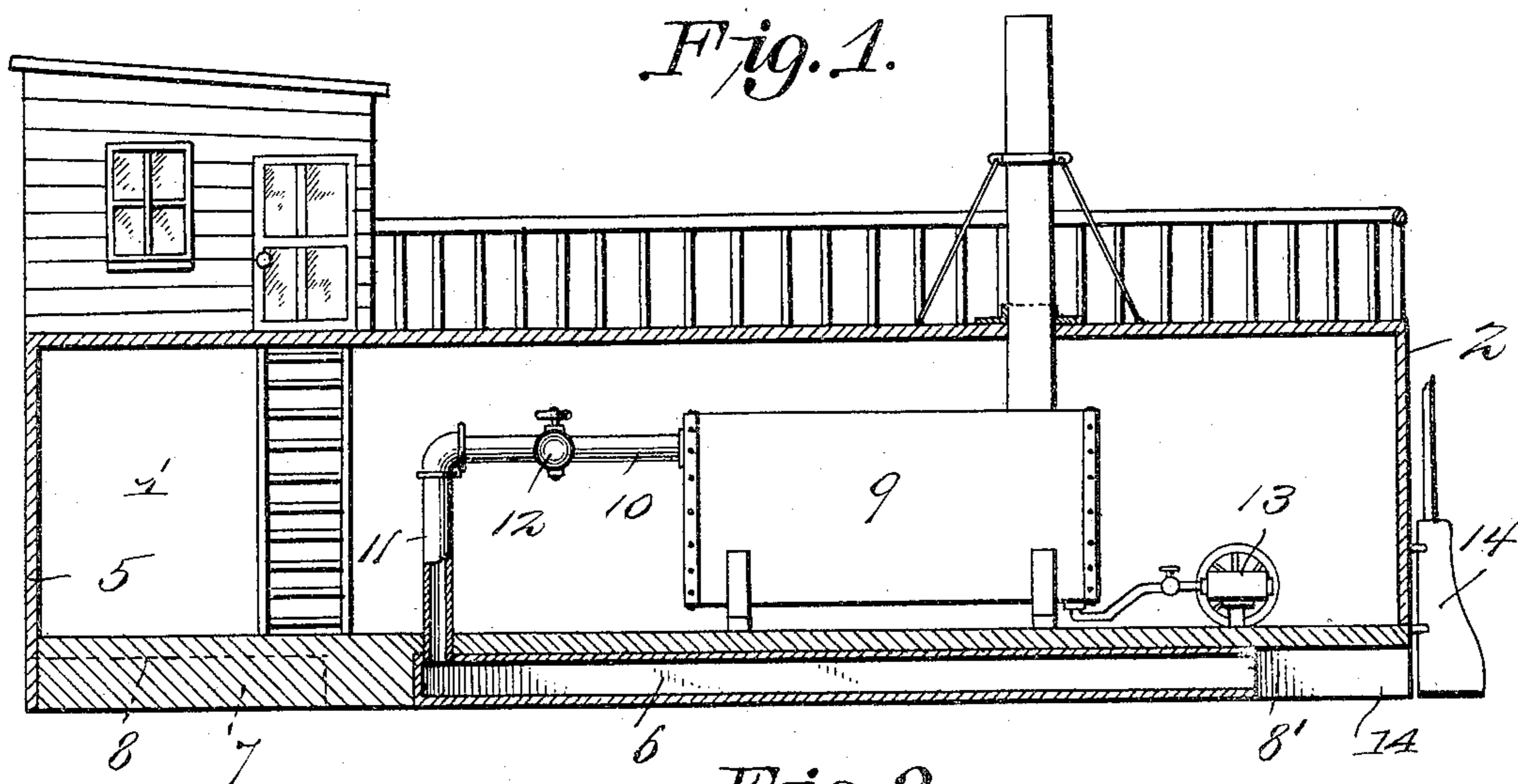


No. 789,641.

PATENTED MAY 9, 1905.

J. A. WEEKS.
BOAT PROPELLING MECHANISM.
APPLICATION FILED MAY 17, 1904.



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BOAT PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 789,641, dated May 9, 1905.

Application filed May 17, 1904. Serial No. 208,427.

To all whom it may concern:

Be it known that I, JOHN A. WEEKS, a citizen of the United States, residing at Tulsa, in the Creek Nation, Indian Territory, have invented a new and useful Boat Propelling Mechanism, of which the following is a specification.

This invention relates to boat propelling mechanism.

The object of the invention is in a ready, simple, and thoroughly-practical manner to dispense with the employment of an engine and propellers as driving agents for a boat and by a novel and economical use of steam or steam and air combined to effect propulsion in either direction; furthermore, to obviate the formation of swirls or eddies in the water, such as are always present where propellers or paddle-wheels are used, thereby particularly adapting the device for use on canal-boats, where it is essential to obviate any washing away of the canal-banks; furthermore, to adapt the propelling mechanism to assist in steering the boat—that is, to cause its rapid turning in either direction when necessary.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a boat propelling mechanism, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in vertical longitudinal section through a boat having combined therewith the propelling mechanism of the present invention. Fig. 2 is an

inverted plan view of the boat. Fig. 3 is a transverse sectional view taken on the line 3 3, Fig. 2, and looking in the direction of the arrow thereon. Fig. 4 is a transverse section taken on the line 4 4, Fig. 2, and looking in the direction of the arrow thereon.

Referring to the drawings, 1 designates the boat, which, as shown in Fig. 2, has a straight stern 2, straight sides 3 and 4, and a sharp bow 5, this form of boat being adapted for use on canals or for inland waters. The bottom is in this instance shown flat and devoid of a keel, this for allowing the boat to travel in shallow water; but it is within the latitude of the invention to include a keel if found necessary or desirable, and as this will be readily understood detailed illustration thereof is deemed unnecessary. While the boat herein shown or substantially like it is one that will generally be employed in connection with the propelling mechanism forming this invention, it is to be understood that the invention is not to be limited thereto, as a boat having bulged sides and round bottom may be employed and still be within the scope of the invention.

The propelling mechanism embodies in part a plurality of ducts 6—in this instance three in number—for propelling the boat, and a plurality of ducts 7—in this instance two—for backing the boat. These ducts, as shown in Figs. 3 and 4, are rectangular in cross-section and are tapered, the widest ends of the ducts 6 being disposed at the stern of the boat and the widest ends of the ducts 7 being disposed at the bow of the boat. The ducts 6 terminate a short distance from the stern; but the ducts 7 are preferably projected entirely to the bow on each side of the center thereof. The ducts are arranged in channels provided in the bottom 8 for the purpose, and the bottom in rear of the discharge ends of the ducts 6 is cut away, as shown at 8', to permit uninterrupted discharge of the steam from the ducts backward beyond the boat. As shown in Fig.

1, both series of ducts lie flush with the under surface of the bottom of the boat, and this arrangement not only prevents the ducts from presenting obstructive surfaces, which would tend to impede the progress of the boat, but also shields the ducts from liability to damage. Of course, if preferred, the ducts could be set inward some distance beyond the lower surface of the bottom of the boat; but generally the arrangement shown will be preferred.

Arranged within the boat-body is a boiler 9, preferably of the high-pressure type, and connecting with the boiler in any preferred manner is a series of pipes 10, one of each of which connects with one of a series of branch pipes 11, communicating with the ducts, each supply-pipe 10 being provided with a valve 12, by which to control the passage of steam to the duct with which it communicates. Generally steam will be relied upon as the propelling agent; but, if preferred, air may be mixed with the steam, the air being supplied by a pump 13, of any preferred construction, and by the employment of an admixture of air and steam the latter is conserved, as condensation will largely be prevented, so that the maximum amount of energy will result from a given power.

One of the salient features of this invention and that which differentiates it from apparatus of this character heretofore employed is that the impact and expansive force of the steam are utilized. It will be apparent by reference to Fig. 2 that the steam passing through the pipes 11 will first impact with the water in the ducts (the latter of course being initially filled with water) and will exert a propulsive force thereon which tends to force the water in the ducts outward, and as the water is gradually forced out the steam will expand in direct proportion to the increase of the diameter of the ducts, and thus practically all the energy of the steam will be utilized, the same being true when an admixture of steam and air is employed. The steam escaping from the ducts 6 is projected rearward in straight lines and in a sheet or body approximately equal to the width of the hull, and by this means any swirling or eddying of the water is prevented, thus overcoming any tendency of the water to move laterally, which where the boat is used upon a canal would result in the washing away of the banks. Furthermore, as no water is picked up, as with propellers or paddle-wheels, the formation of dead water will be prevented. The same principle present in the operation of the ducts 6 also obtains with regard to the ducts 7.

In the forward propulsion of the boat one or all the after ducts 6 may be employed, according to the speed that it may be desired to

maintain, and, as pointed out, the regulation of the power may be controlled through the valves 12, this principle also holding good with relation to the forward ducts 7. Should it be desired to turn the boat in a very short circuit—say to the right—the left-hand duct 6 would have steam supplied to it and the remaining after ducts would be rendered inoperative, and the right-hand forward duct 7 would likewise be rendered inoperative while steam would be supplied to the left-hand forward duct, and the force of the steam, together with the rudder 14, which may be operated in any preferred manner, will effect the rapid turning of the boat.

Where merely steam is relied upon for propelling the boat, the pump 13 may be of the kind to pump water to the boiler; but where air and steam are relied upon the pump 13, as before stated, will be an air-pump, and an inspirator or injector will be employed for supplying water to the boiler.

The sides or sheathing of the boat at the cut-away portion 8' form depending flanges 14, that operate to cause the steam, or steam, water, and air to be discharged rearward in straight lines and in a zone bounded approximately by the width of the hull, and this feature of construction is that which obviates the formation of swirls and eddies at the rear of the boat, which cause the washing away of the canal-banks.

It will be seen from the foregoing description that although the apparatus of this invention is exceedingly simple in construction it will be found thoroughly efficient and durable in use for the purpose designed and may be operated without the necessity of employment of skilled labor.

Having thus fully described my invention, what I claim is—

1. In a boat propelling mechanism a plurality of horizontally-tapered and disconnected rectangular ducts having their larger ends disposed, respectively, at the bow and stern of the boat, and means for supplying a fluid under pressure to the ducts.

2. A boat propelling mechanism comprising a plurality of horizontally-tapered and disconnected rectangular ducts carried by the bottom of the boat and lying flush with the under side thereof and having their larger ends discharging, respectively, at the bow and stern of the boat, means for supplying fluid under pressure to the ducts, and means for controlling the supply to the ducts.

3. A boat propelling mechanism comprising a plurality of tapered ducts terminating short of the stern of the boat, the larger ends of which constitute the discharge, means for supplying a fluid under pressure to the smaller ends of the ducts, and depending flanges forming a continuation of the side of the boat and

extending to the stern for directing the fluid in lines approximately parallel with the sides of the boat.

5 4. In a boat propelling mechanism a plurality of disconnected tapered ducts having their larger ends disposed, respectively, at the bow and stern of the boat, and means for supplying a fluid under pressure to the ducts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 10 the presence of two witnesses.

JOHN A. WEEKS.

Witnesses:

ANDY C. STOKES,
ANDREW ARTHUR.