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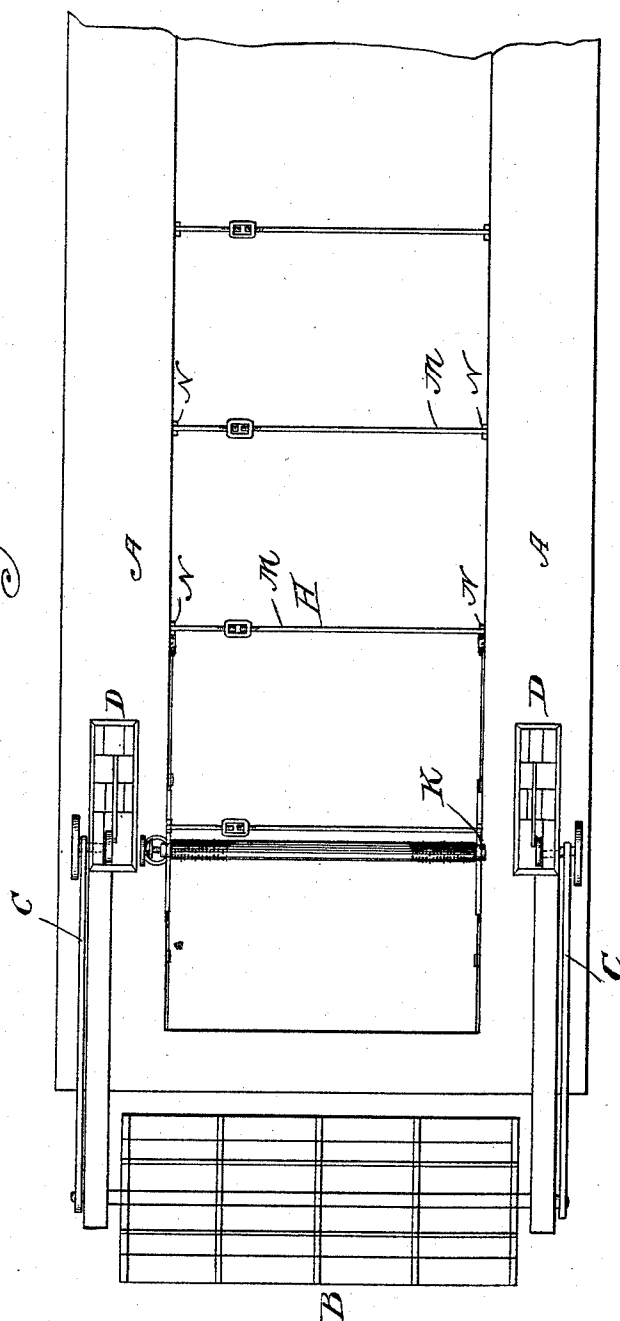
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A. K. McRAE.
FREIGHT BARGE.

No. 527,215.

Patented Oct. 9, 1894.

Fig. 1.



Witnesses,

J. E. Mann
F. C. Goodwin

Inventor,

Alexander K. McRae
By *Offield, Fowler & Luthman*
Atty's.

(No Model.)

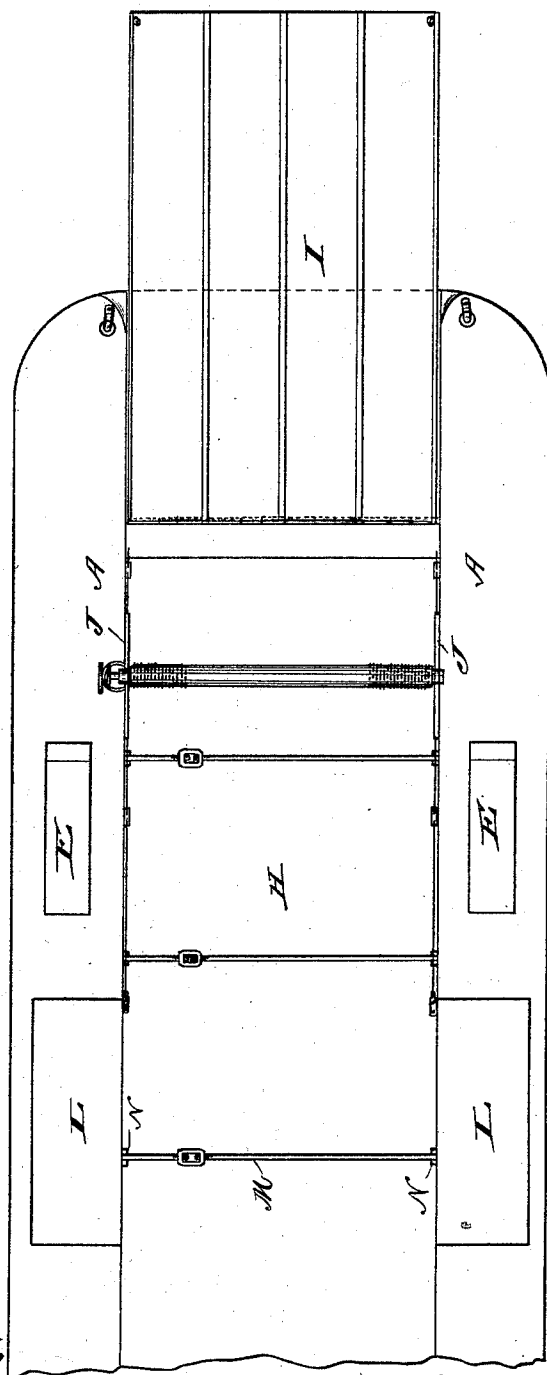
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A. K. McRAE.
FREIGHT BARGE.

No. 527,215.

Patented Oct. 9, 1894.

Fig. 1a.



Witnesses,
J. M. Mann
G. B. Goodwin

Inventor,
Alexander K. McRae
By *Offield, Fowler & Hutchinson*
Attys.

(No Model.)

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A. K. McRAE.
FREIGHT BARGE.

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Fig. 2.

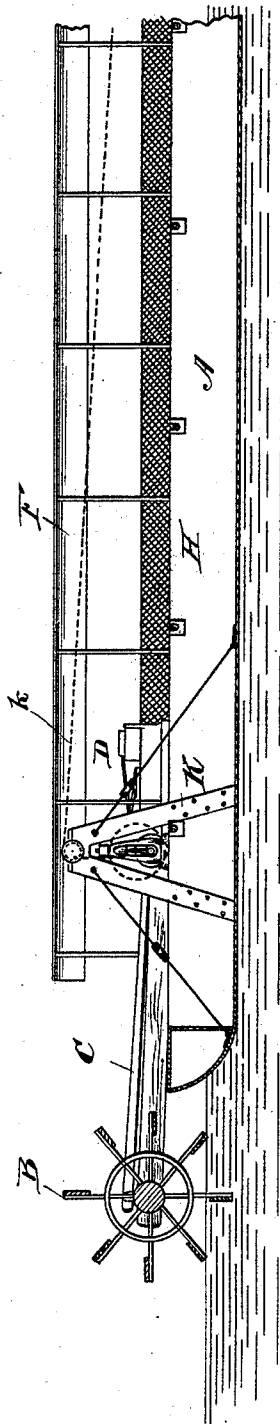
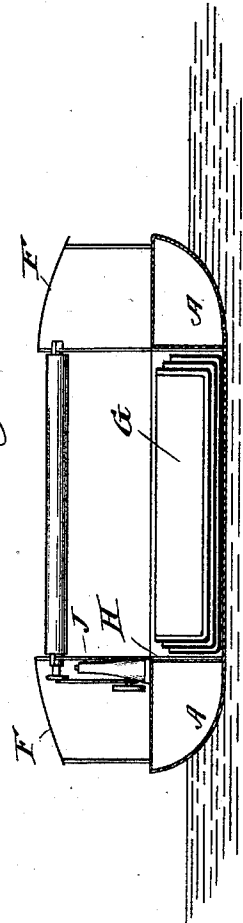


Fig. 3.



Witnesses,
J. S. Mann
F. C. Goodrum

Inventor,
Alexander K. McRae

Per Offield, Fowler & Lathrop
Attys.

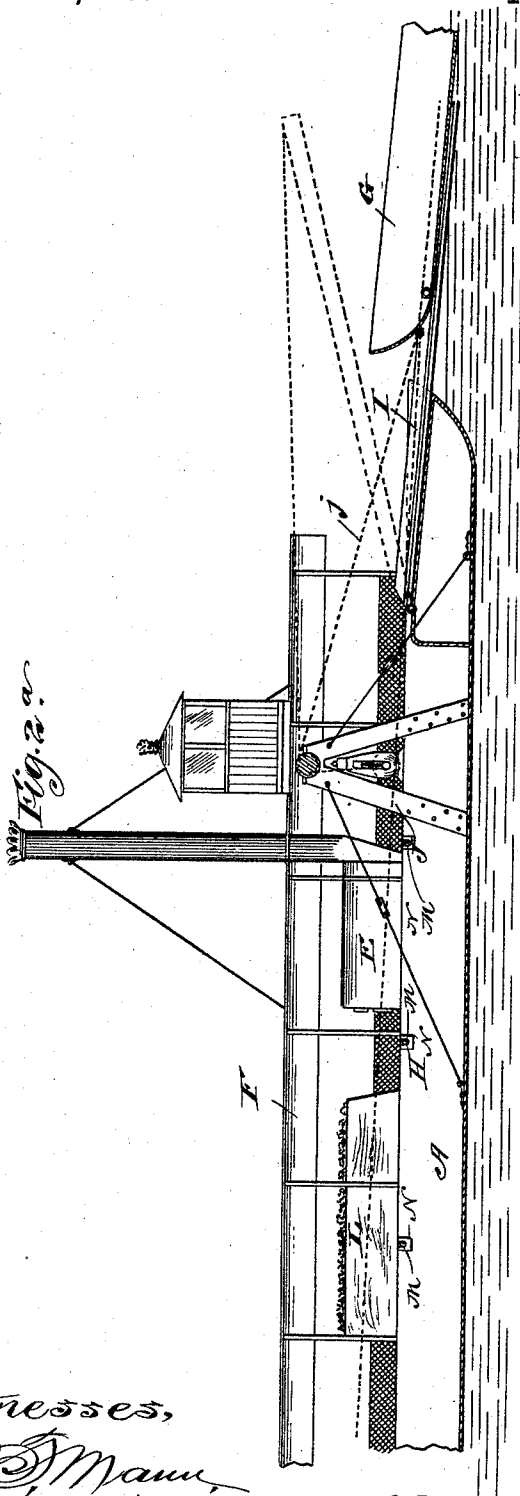
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A. K. McRAE.
FREIGHT BARGE.

No. 527,215.

Patented Oct. 9, 1894.



Witnesses,
J. S. Mann
F. B. Goodwin

Inventor,
Alexander K. McRae
By Offield Towle & Luthin, Attys.

UNITED STATES PATENT OFFICE.

ALEXANDER K. McRAE, OF CHICAGO, ILLINOIS, ASSIGNOR TO FLORENCE N. OLIVER McRAE, OF SAME PLACE.

FREIGHT-BARGE.

SPECIFICATION forming part of Letters Patent No. 527,215, dated October 9, 1894.

Application filed November 20, 1893. Serial No. 491,487. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER K. McRAE, of Chicago, Illinois, have invented certain new and useful Improvements in Freight-Barges, of which the following is a specification.

This invention relates to certain improvements in the construction of barges for handling freight and is particularly intended for use in the transportation of coal on shallow rivers.

In some portions of the United States the coal carrying trade by way of shallow rivers is enormous in tonnage and of great commercial importance. The common method of transporting coal upon rivers, for example over the Ohio river and its tributaries, is by the employment of stern wheeled steam boats which are made to push barges lashed together and often numbering ten and over. These barges as usually constructed are of wood, and of course must be made substantial in order that they shall not break up under their load, and they are usually returned to the starting point by being pushed up stream empty; or when they have been carried over a considerable distance they are frequently destroyed because the cost of bringing them back empty exceeds their initial cost of construction. This river trade is almost entirely dependent upon the stage of water and is practicable only when there is three feet or more of water, and the return trip is slow and difficult owing to the current and is more expensive to the operator than the down trip with the load.

It is the object of my invention to provide means whereby this river traffic may be economically carried on at low water and at a great saving in time and fuel and by which the market may be supplied with coal at all seasons.

To this end my invention consists in a steam boat adapted for river traffic and which is so constructed that it may be employed to carry on the return trip the barges which it has moved down stream with their loads; and my invention also consists in the construction of these barges in series of varying size whereby they may be conveniently and readily loaded upon the steam boat and nested or placed in

compact form therein so that their bulk shall not render their carriage up stream impracticable.

In carrying out my invention I construct a steam boat on substantially the lines of the river type of steamers, having a paddle wheel at its stern and a flat bottom to enable it to pass over sand bars and other obstructions in the bed of the stream; but I modify the construction of this steam boat by omitting the central deck and providing upon the interior of the boat a large open space to receive the barges. The boilers, engines and coal bunkers are arranged along the sides of this space and the side walls of the boat are suitably tied or anchored together by removable truss rods to compensate for the omission of the usual transverse deck sills. This interior space may be utilized for the carrying of coal or other freight on the down trip. I provide suitable appliances, such as windlass tackle, &c., for loading and unloading the barges upon the boat, and the barges themselves I prefer to construct of a light steel frame and steel shell such as boiler plate, and these barges I construct in series of slightly different size so that they may be nested together compactly and the entire fleet carried by the vessel on the return trip.

In the accompanying drawings, Figures 1 and 1^a, read together, show a deck plan of the steam boat. Figs. 2 and 2^a, similarly read, show the steam boat and the front end of one of the barges in longitudinal sectional elevation. Fig. 3 is a transverse section through the boat forward of the smoke stack.

In the drawings let A represent the body of the boat which will be of any desired dimensions—say, one hundred and seventy-five feet in length by forty-five feet beam and with a depth of—say—six feet. This boat may be constructed with a steel frame and steel shell, but the material of its construction is not important to my invention. In the traffic for which it is designed there is preferably employed a paddle wheel B at the stern which is driven by the rods C from the engines located at D, D, respectively, on opposite sides of the boat near the stern.

The boilers are represented at E and are

located respectively on opposite sides of the boat and toward the bow, and the boilers and engines may be covered by the decks F extending from end to end of the boat but leaving its interior or middle open. This interior or open space H is intended to be used on the down trip for carrying coal or other freight and on the return trip for carrying the barges.

The barges are marked G and they are preferably constructed with metal frames and metal shells. The dimensions of these barges may vary according to the circumstances under which they are used or the pleasure of the builder. I have contemplated making them of an extreme length of—say one hundred and sixty feet and of a width of twenty-five feet with a depth of—say—five feet. By referring to Fig. 3 it will be understood how these barges may be nested together. To enable this no two in the series are constructed of exactly the same size, the largest barge being adapted to practically fill the interior or open space H of the boat, while the next smaller in size is adapted to fit within the first and so on throughout the series. In order to handle these barges I have provided at the bow of the boat a gang plank or marine skid, which is preferably hinged at its inner end and adapted to project over the bow of the boat and into the water. When not in use it is elevated out of the water, as shown by the dotted lines in Fig. 2^a, or it may be taken on board.

To load and unload the barges I employ, preferably, two windlasses with their appurtenant tackle, these windlasses being marked J, K, and located before and aft the boat as shown. Both of these may be used in loading and unloading, and for this purpose the barges are provided at one or both ends with hooks or rings to receive the ends of the cables *j*, *k*. In drawing the barges into place the rope *j* may be hitched to the front of the boat and as low down as practicable so as to elevate the forward end as it is drawn up over the gang way. When the front end of the barge is drawn back to the windlass J, the rope *j* will be disconnected from the front end of the barge and hitched toward its rear and preferably on the inside of the barge when the two windlasses may be operated in unison to draw the barge back into place.

In unloading, the windlass at the bow will be used first to elevate the front end of the barge and the rope from the windlass at the stern will be carried forward over a suitable snatch block and made fast to the barge near its rear so as to draw it forward when it will be discharged into the water over the gang plank or marine skid the same as in loading. These windlasses may be used to steady the barge in its passage over the skid and to restrain it in launching.

I have provided bunkers L for the coal necessary to run the boilers, and the machinery and bunkers are so distributed and disposed over the vessel as to hold it on an even keel

and without any tendency to buckle or break it across its middle.

I prefer to use removable truss rods M, which are preferably provided with a turn-buckle and have their ends engaged with sockets N on the sides of the boat. These may be dropped in after the barges are nested on the return trip and may also be used to tie or stay the vessel on the down trip.

In loading the barges, the truss rods toward the bow may be removed and the ends of the barges passed under those remaining in place. The barges themselves when nested strengthen the boat and prevent breaking or buckling either longitudinally or transversely.

With the construction and appliances above described I am enabled to transport coal or other freight on rivers at a lower stage of water than would be practicable with the present form of barges and boats. The barges may be made so light that they will not draw as much as the wooden barges which are now employed; but the principal advantage of the apparatus is that the barges may be returned empty in less time, with less cost, and at a lower stage of water than is possible with the wooded barges.

I claim—

1. The herein-described improvement in means for transporting freight upon shallow waters, comprising a steam boat having an open interior and its engines and boilers located at the sides of said open interior and a series of barges of progressively varying external dimensions contained within said boat whereby they are adapted to be nested within the open interior, substantially as described.

2. In means for transporting freight upon shallow waters, the combination with a steam boat having a paddle wheel at its stern, an open interior and open bow, a marine skid hinged at its inner end within the opening at the bow and adapted to be lowered to project into the water, windlasses located fore and aft of the boat, and a series of barges of progressively varying sizes, said windlasses being adapted for connection with the skid and with the barges, whereby the latter may be drawn into the interior space of the boat and nested together for carriage when empty, substantially as described.

3. A boat of the class described having its interior open, a series of removable truss rods having their ends socketed into the frame of the boat along the sides of the open interior and provided with turn-buckles and a series of barges of progressively varying external dimensions adapted to be nested within the boat and to support its bottom when the truss rods are removed, substantially as described.

ALEXANDER K. McRAE.

Witnesses:

C. C. LINTHICUM,
L. F. MCCREA.