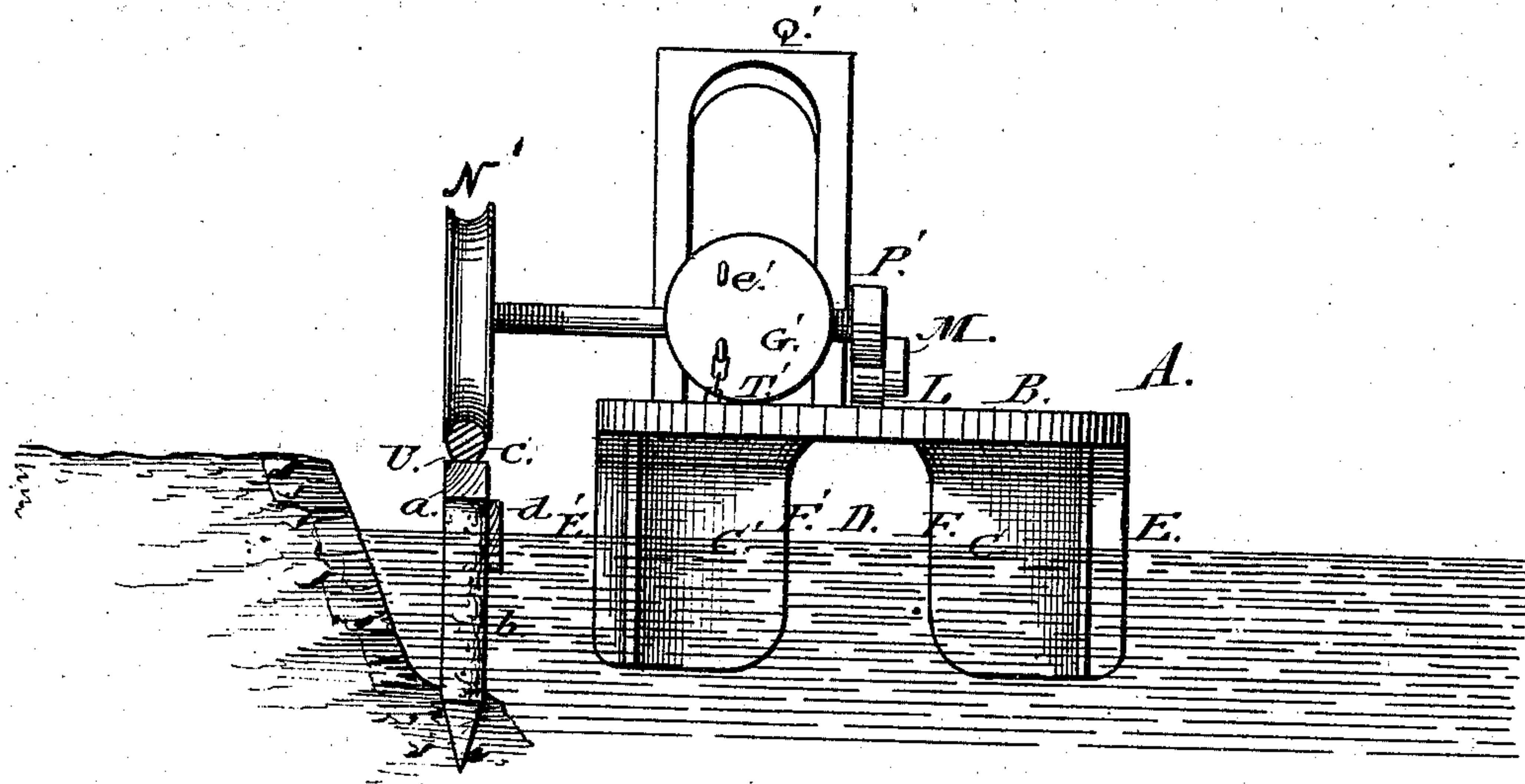
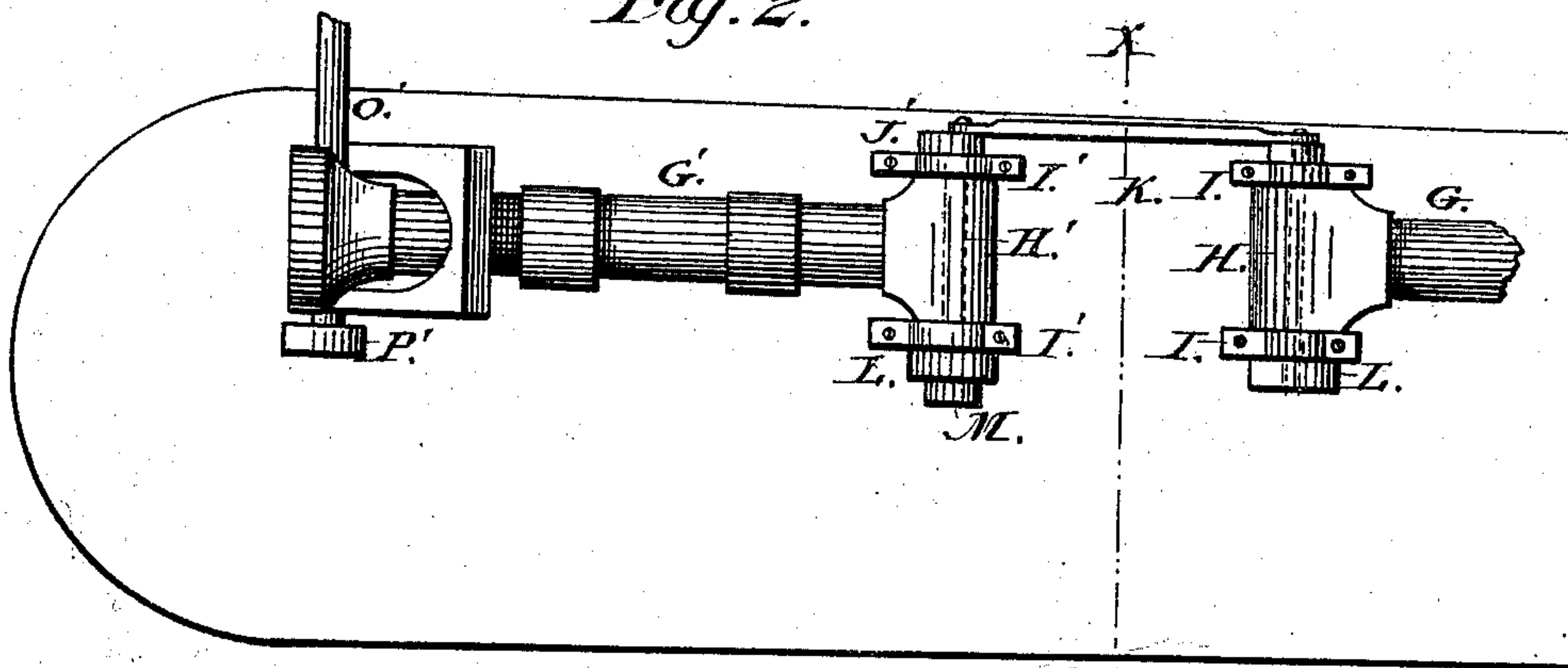


**H. STEVENSON.**  
**Self-Adjusting Traction-Wheels for Towing Canal-Boats.**  
 No. 150,441. Patented May 5, 1874.

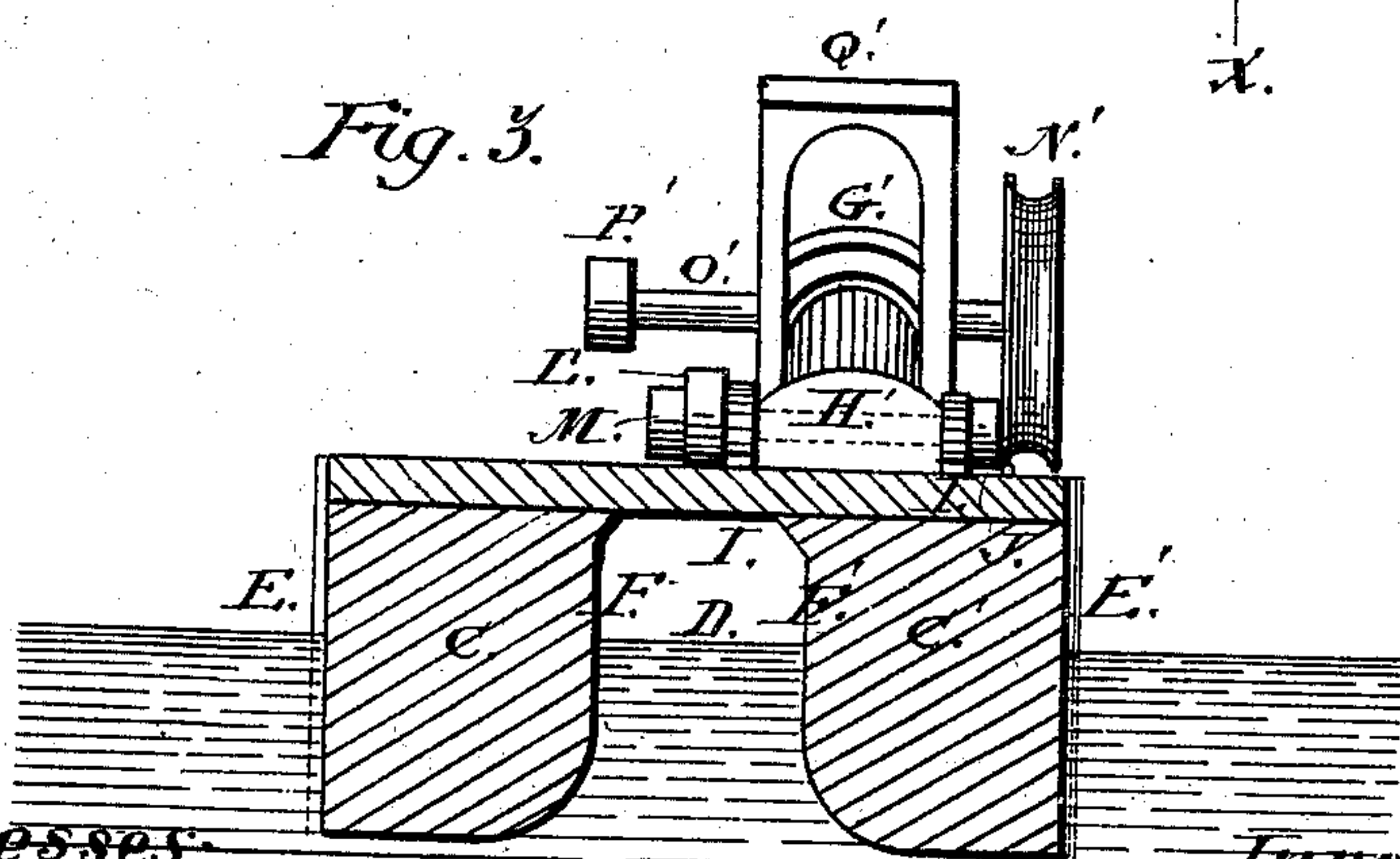
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*  
*Joseph Forrest*  
*A. L. Bailey.*

*Inventor:*  
*Hugh Stevenson,*  
*By Theodore Munger,*  
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# UNITED STATES PATENT OFFICE.

HUGH STEVENSON, OF OSHKOSH, WISCONSIN.

## IMPROVEMENT IN SELF-ADJUSTING TRACTION-WHEELS FOR TOWING CANAL-BOATS.

Specification forming part of Letters Patent No. **150,441**, dated May 5, 1874; application filed January 20, 1874.

*To all whom it may concern:*

Be it known that I, HUGH STEVENSON, of the city of Oshkosh, county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Boats and Machinery for Propelling Boats, Barges, &c., on Canals, &c.; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is an end elevation, showing the adjustable traction-wheels in place upon the track. Fig. 2 is a plan view of the boat and machinery; and Fig. 3 is a transverse vertical sectional view of the boat, and a rear elevation of one of the adjustable traction-wheels unshipped from the track.

This invention relates to certain improvements in boats and machinery for propelling boats, barges, &c., on canals, &c.; and consists in providing a boat with double-flanged traction-wheels adjustable laterally in bearings, which are adjustable vertically, arranged to be driven upon a track built at or near the side of the canal, &c., and operated for the purposes of propelling and guiding the boat, as will hereinafter more fully appear.

In the accompanying drawing, A is a boat, which, below its deck-frame B, is constructed in two parts, C C', having a water-space, D, between them. The outer side surfaces E E' of the parts C C' are perpendicular, and each slightly concave from the stem to the stern of the boat. The inner side surfaces F F' of the same are convex from stem to stern, and curved or rounded from top to bottom, the bottom surfaces being flat. The surfaces F F' are very similar to the surface that would bound one side of that portion of a side-wheel steamer below the water-mark were the bottom of the latter flat, as are the bottom surfaces of the parts C C'. The shafts G G' are either heavy wrought-iron tubular shafts or solid cast-iron shafts articulating vertically upon shafts H H' working in bearings I I' I'. The shafts H H' are provided at one end with crank-wheels J J', connected with each other by a pitman-rod, K. The shafts H H' are provided at the other ends with band-wheels L L', and the shaft H is also provided with a crank-

wheel, M, with which the engine for driving the boat is connected. Double-flanged traction-wheels N N' are fixed upon one end of the shafts O O', which have their bearings in the ends of the shafts G G'. Band-wheels P P' are keyed to the ends of the shafts O O', opposite to the traction-wheels N N', in such a manner as to move longitudinally on the shafts. Guide-frames Q Q' prevent the shafts G G' from moving laterally, and also limit the distance to which they may be elevated vertically. The shafts O O' can be shifted laterally in their bearings as far as the traction-wheels N N' and the keyed band-wheels P P' will permit, for the purpose of shifting the traction-wheels N N' upon the track U, and unshifting it from the same, when necessary, as in passing through locks. The band-wheels L L' are connected with the band-wheels P P' by endless belts or chains. Chains T T' are attached to the ends of the shafts G G', by which weights are secured to said shafts G G', to give traction to the wheels N N' when upon the track U. The track U consists of a sleeper, a, secured to piles b, (when piles can be driven, and arranged in any other suitable manner when piles cannot be driven,) and provided with a light iron rail, c. Planks d are secured to the piles (or a wall may be constructed where piles cannot be driven) in such a manner as to extend both above and below the surface of the water, to prevent the latter from washing the banks when disturbed by the boats. The traction-wheels N N' have sufficient vertical play to permit them to be driven upon a track that is quite uneven.

The parts of the machinery above described for attaching the boat to the track are duplicated, one set being placed forward and the other aft, in order that the boat may be guided or steered without the employment of a helmsman. The double-flanged traction-wheels N N' cannot be moved laterally upon the track, and as one wheel is placed near each end of the boat neither end can sway from the track; consequently the boat is guided as well as propelled by the traction-wheels. Hooks e e', to which chains from the engine may be attached for raising the wheels N N' from the track, are secured in the ends of the shafts G G'. A track, U, should be placed at each side of the



canal, as two boats cannot pass upon the same track.

The boat and machinery above described is intended for towing a line of boats or barges, &c.; consequently this only need be supplied with an engine or engines, but the others should be each provided with traction-wheels N N', &c., for steering them. The boat, if to be used in harbors, &c., should be provided with a screw-wheel for propelling it, which may be drawn out of the water when the boat is to be used with the track.

The operation of the improvements is obvious. Owing to the configuration of the boat, the outer side surfaces E E' being slightly concave, the outside lines cut the water clean, and the wave created by the inner sides of the bow is thrown to the center or space D, where the boat passes over it and in a great measure destroys it, thereby preventing the disturbed water from washing the banks of the canal. The traction-wheels run upon the track U, and by traction thrown upon them from the boat

when they are operated propel and guide the boat, thus dispensing with the use of a rudder and the employment of a helmsman. The traction-wheels can be shifted on board by the engine when passing through locks, and they have sufficient play vertically to run upon a track that is quite uneven.

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

In combination, the laterally-adjustable double-flanged traction-wheel N' O' P', guide-frame Q', and shaft G', articulating vertically upon the shaft H', substantially as and for the purposes set forth.

In testimony that I claim the foregoing inventions and improvements, as above described, I have hereto set my hand and seal this 13th day of January, 1874.

HUGH STEVENSON. [L. S.]

Witnesses:

A. G. RANDALL,

D. G. WALKER.