

J. Bourne

2. Sheets, Sheet 1.

Car & Lock.

No. 38,222.

Patented Dec. 28. 1869.

Fig. 1.

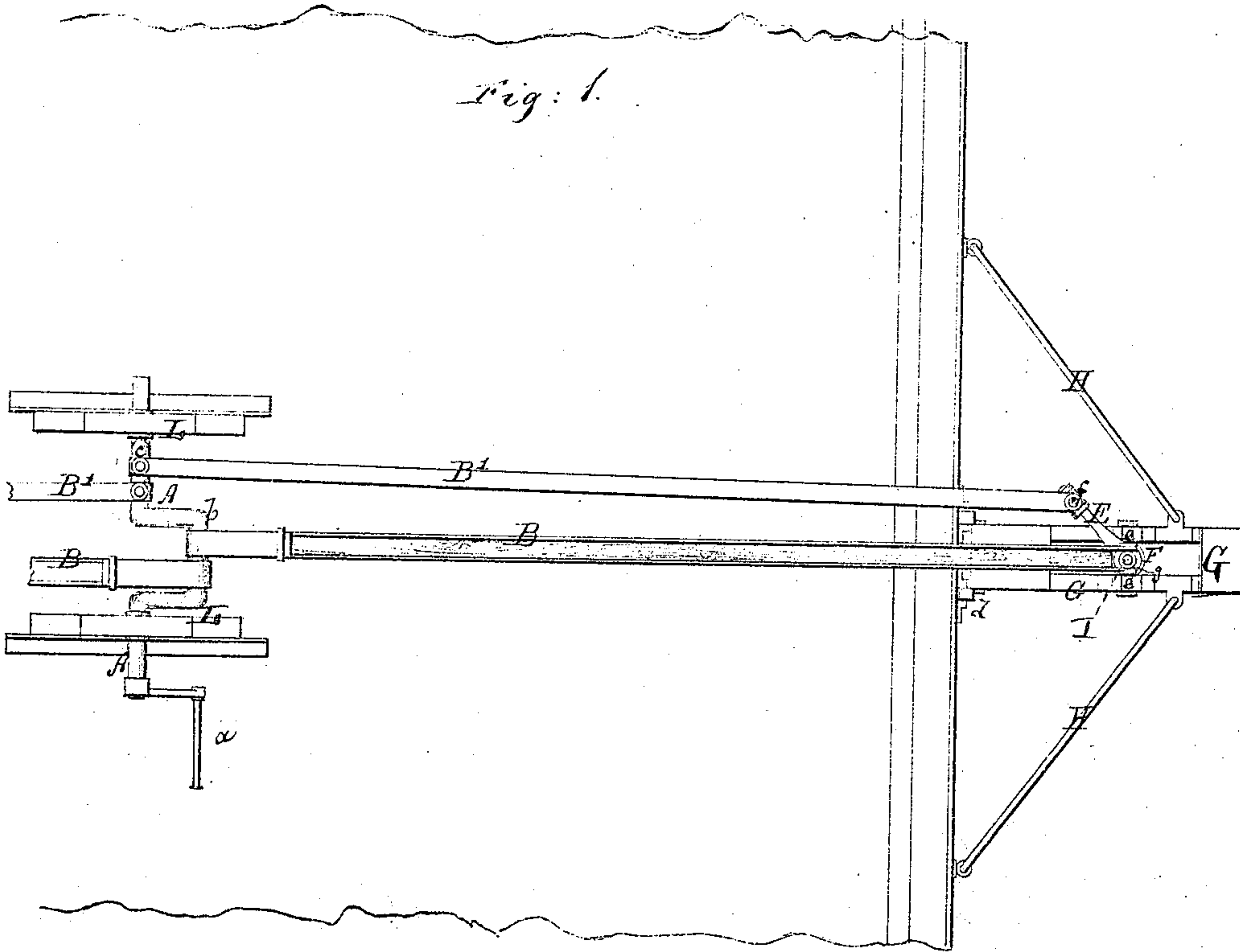


Fig. 3.

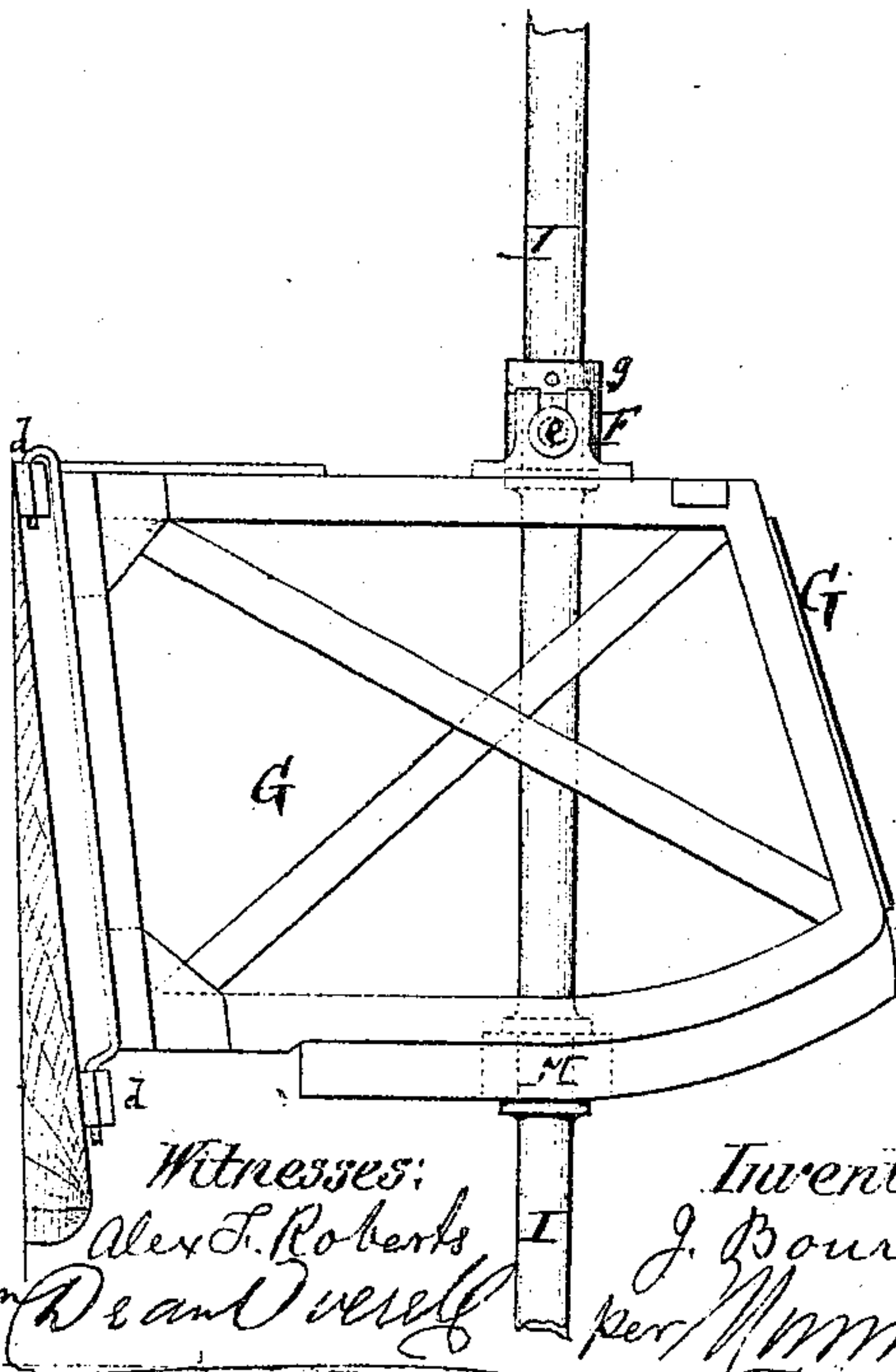
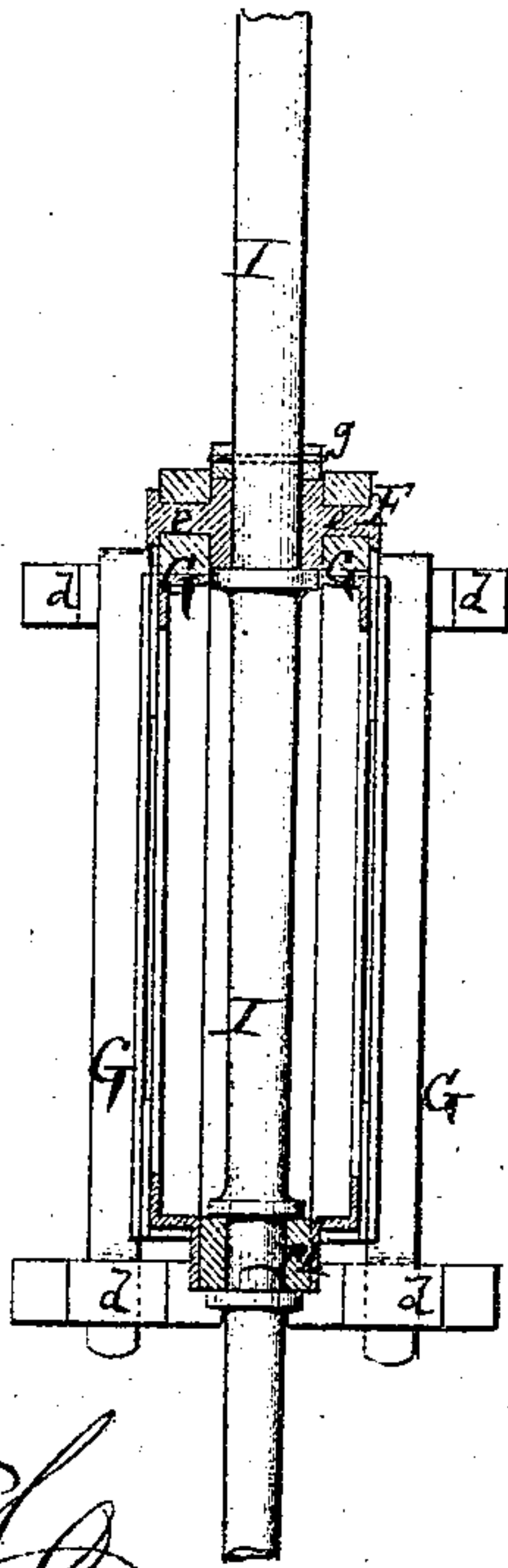


Fig. 4.



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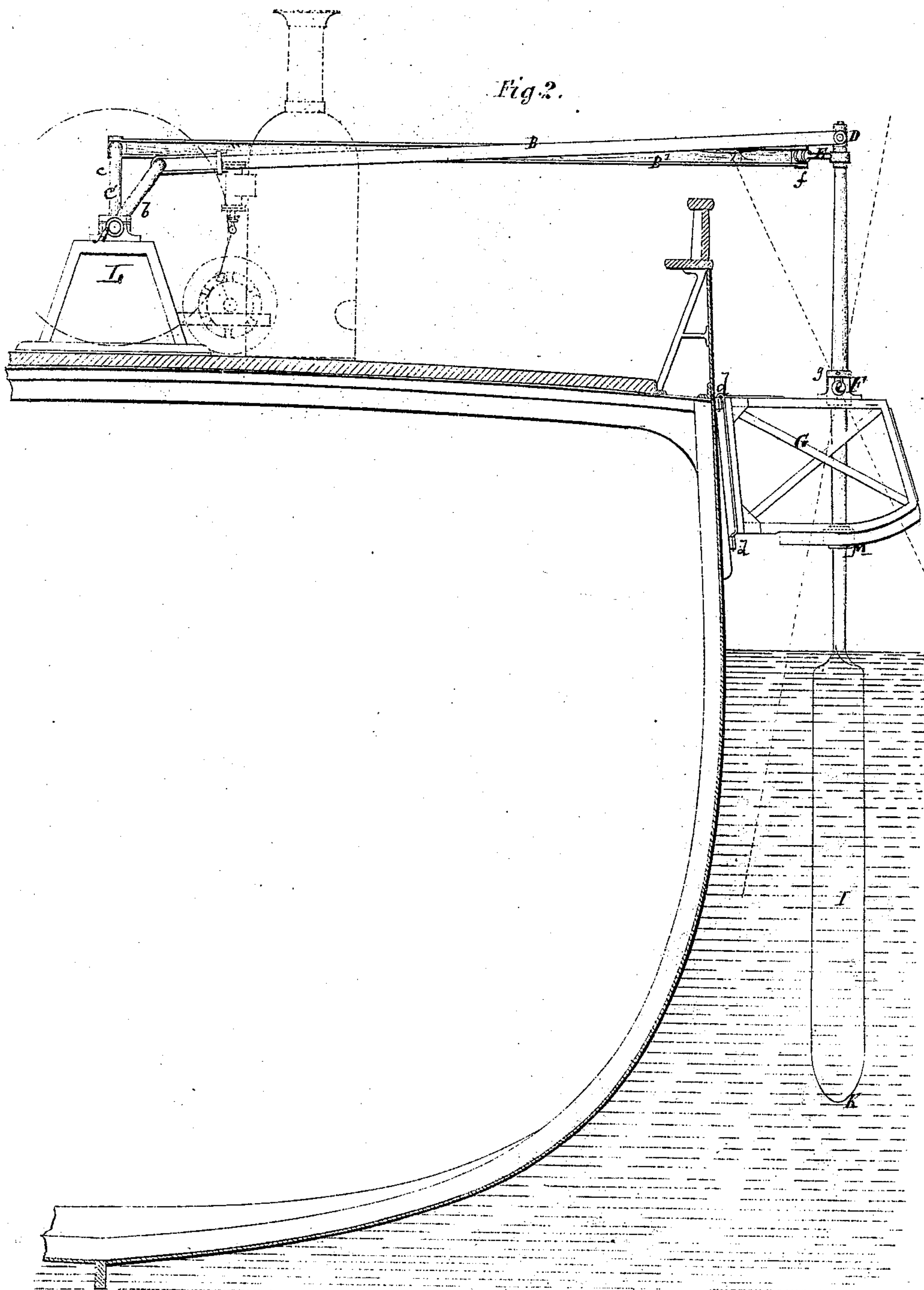
*J. Bourne,*

*2. Sheets, Sheet 2.*

*Oar & Lock.*

*No. 98,222.*

*Patented Dec. 28. 1869.*



*Witnesses:*  
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# United States Patent Office.

JOHN BOURNE, OF NO. 1 NORTHUMBERLAND TERRACE, REGENT'S PARK ROAD, ENGLAND.

Letters Patent No. 98,222, dated December 28, 1869.

## IMPROVEMENT IN PROPELLING-APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN BOURNE, of No. 1 Northumberland Terrace, Regent's Park Road, in the county of Middlesex, England, have invented a new and useful Improvement in Auxiliary Propulsion of Vessels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to the propulsion of vessels by means of oars operated by mechanism, which will be hereinafter described.

The use of oars, moved by a steam-engine set within the vessel, has been proposed, but such an arrangement virtually converts the vessel into a steamer, and the special advantages of the application are thereby lost.

In my arrangement, the oars are moved by any suitable power applied on the deck of the vessel, which may be the force of men at a winch-handle, or other suitable purchase, or it may be a steam-engine or engines, such as those employed to give motion to the winches for hoisting the cargo and pumping the ship, while the steam may be condensed into fresh water for drinking-purposes. There is thus no interference with the holds, which remain intact as in common sailing-ships. The oars are suspended from the sides, and they are made capable of being easily lifted out of the water when not required.

The manner in which I carry my invention into effect, is shown in the accompanying sheets of drawings—

Figure 1, Sheet I, being a plan or top view of a portion of the deck of a ship, showing one oar in place, and the means of working it connected therewith.

Figure 2, Sheet II, is a partial transverse vertical section of the ship, showing also the manner of applying steam-power to the working of the propeller.

Figure 3, Sheet I, is a side view of one of the brackets in which the oars are mounted, and

Figure 4 is a transverse section of the same.

Similar letters of reference indicate corresponding parts.

In fig. 1, I have shown a winch-handle, *a*, applied to the crank-shaft A, for working the oars, and in fig. 2, I have shown, in dotted lines, the position of a boiler, to which an inverted steam-engine is affixed, for working the crank-shaft A. This engine drives a pinion-shaft gearing with a large spur-wheel carried by the shaft A, which has two cranks, *b* and *c*, from which connecting-rods B B' B' B' proceed to each side of the ship, to give motion to the oars.

The crank-shaft is hung in suitable standards L, projecting from the deck of the vessel.

The oars I are carried by brackets G G, hung to the sides of the ship, or, in lieu thereof, swivelling-cranes may be employed. These brackets G G, when not in use, may be lifted off their supports *d*, and stowed-away, or when hung as cranes, they may be swung out of the way against the sides of the vessel.

The oar-shank is fitted through a tube, F, which has projecting trunnions *e e*, that have their bearings in the bracket G. A shoulder, *g*, on the shank of each oar, suspends the same from the said tube F. The oar is thus swivelled in the tube, and can turn in the same, to be feathered, and swing with the same on the trunnions *e e*, to be worked toward and away from the ship.

The rod B is connected with, that is, pivoted to the upper end of the oar-shank, and works the oar to and from the side of the ship, while the other connecting-rod B', deriving its motion from the crank *c*, works a short handle or tiller, E, which projects from the upper part of the oar-shank, and swings the latter therefore on its own axis.

The throw of the two cranks, *b c*, is the same, but one being set a certain distance in advance of the other, it follows that when both are in action, a sculling-motion is imparted to the oar, one of the cranks impelling the oar, and the other feathering it.

The same engine which works the oars may be made to work the winches at the several hatchways, by means of pitch-chains, or a steam-winch, with two cylinders of the usual construction, may be employed for this purpose, and also for giving motion to the oars.

In fig. 2, Sheet II, the position of the cranks, relatively with one another, is shown at *b c*, B B' being the connecting-rods, as before, one of which is pivoted to pins D, projecting from the top of the oar, and the other, by pins *f*, to the short feathering-arm or tiller E.

F is the fulcrum-sleeve, on which the oar oscillates, and in which it turns.

The oar-shank is fitted through this short tube or cylindrical socket F, and is supported upon the edge of the socket by the collar or shoulder *g*, as aforesaid.

The fulcrum-sleeve is carried by the bracket G, which is braced by rods H, to keep it in position when the oar is in use.

The blade of the oar is shown at I, and a chain or rope may be affixed thereto at the point K, to take the forward thrust, and also to assist in hauling the oar out of the water when it is no longer required.

The oar-shank may also be provided with a slide, M, guided in the lower part of the bracket G.

When an engine is employed, the engine-shaft is fitted with a pinion, which gears into a large spur-wheel on the crank-shaft, connected with the oars. This arrangement will enable the engine to work at



its proper speed while the oars move only at the slow speed which is proper for the small amount of speed intended to be imparted to the ship.

Having now described the nature of my invention, and explained the manner in which it may be put into operation, I will add that I do not claim as new, the use of sculling-oars set at the sides or any other parts of the ship, as in the ancient galleys; nor do I claim as new, the working of such oars by an engine set within the ship, such application having been before proposed, but involves the serious objection of perforating the sides, and of occupying the hold with machinery which is only to give an occasional benefit, and has the further defect of offering difficulties in detaching and raising out of the water the oars when not required for use; but

I claim as new, and desire to secure by Letters Patent—

1. The oar I, provided with the pivoted sleeve F,

in combination with the bracket G, crank E, rods B and B', and crank-shaft *b c*, when said parts are arranged, with relation to the deck and stern of the vessel, and to operate as shown and described.

2. The pivoted sleeve F and slide M, in combination with the removable bracket G and oar I, provided with collars, and all constructed and arranged as shown and described.

3. The bracket G, arranged on the side of a ship, so as to be easily removed or swung out of the way, and for the purpose of sustaining an oar or oars to be operated by machinery for propelling vessels in calms, as set forth.

The above specification of my invention signed by me, this 4th day of September, 1868.

JOHN BOURNE.

Witnesses:

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