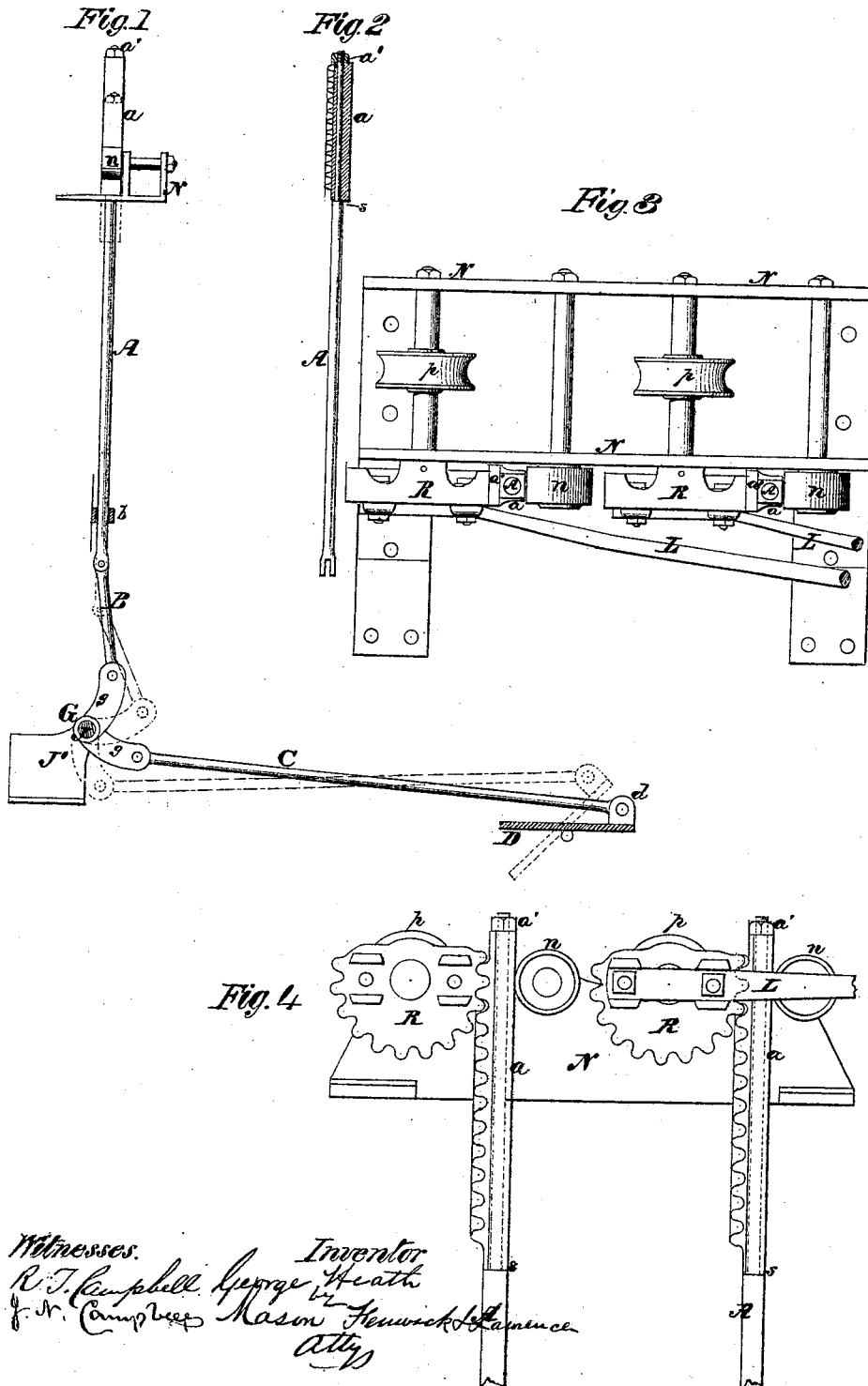
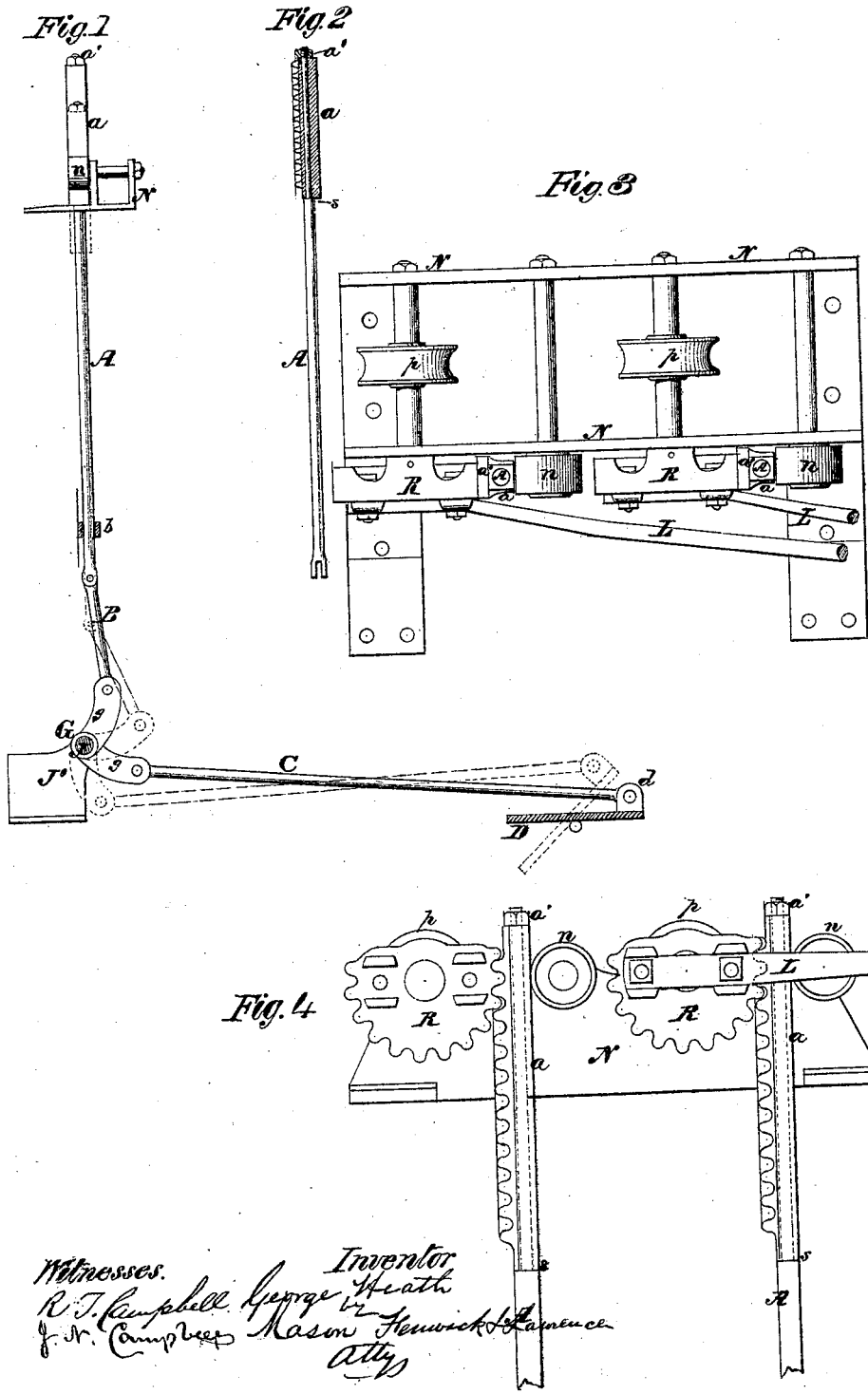


*G. Heath,*  
*Canal Lock*  
*No. 110,459.*      *Patented Dec. 27. 1870.*



*Witnesses.*      *Inventor*  
*R. T. Campbell*      *George Heath*  
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# United States Patent Office.

GEORGE HEATH, OF ANNAPOLIS, MARYLAND.

Letters Patent No. 110,459, dated December 27, 1870.

## IMPROVEMENT IN CANAL-LOCK MECHANISMS.

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, GEORGE HEATH, of Annapolis, in the county of Anne Arundel and State of Maryland, have invented a new and improved Valve Mechanism for Canal Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a cross-section through a canal-lock valve, showing the improved mechanism for operating it.

Figure 2 is a view of the vertically-movable rod, having a rack applied to its upper part.

Figures 3 and 4 are, respectively, top and side views, showing the manner of guiding and operating the vertical rod.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to improvements of mechanism for operating canal-lock valves.

The nature of my invention consists in a hollow rack, fitted and confined by a nut or stop upon the reduced portion of the vertical rod which forms a part of the mechanism employed for opening and closing the valves of a canal-lock gate.

The object of my improvement is to relieve the rack of strain other than that which results from compression.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawing—

A represents a wrought-metal rod, the upper portion of which is reduced in diameter and passes through a hole made longitudinally through a cast-metal toothed rack, *a*.

By means of the nut *a'*, on the upper end of the rod A, the rack is secured firmly in place on this rod.

B is a pitman or link, which connects the lower end

of the rod A to one of the arms *g* of an oscillating "crab" or lever G, the other arm of which is connected to a rod, C, which is pivoted to a lug, *d*, on the valve D, as shown in fig. 1.

The crab G is applied on a shaft, J, which is supported by a bearing, J'.

At *b* the lower part of rod A is guided by a bracket or staple, and above this guide *b* rod A passes through a sill-beam on top of the canal-wall, and rises above the latter alongside of a standard-bearing, N.

This bearing N is permanently secured down to the sill-beam, and affords support to the shaft of a toothed segment, R, and an anti-friction wheel, *n*, between which the rack *a* on rod A is held and guided, as shown in figs. 3 and 4.

To the toothed segment R a hand-lever, L, is secured, by vibrating which the rod A will be moved vertically up and down and valve D opened and shut.

It will be seen that by my mode of applying the rack *a* to the rod A, the only strain which this rack will be subjected to will be that of compression, which will not be liable to break this rack, even when it is subjected to very rough use.

I do not claim under this application valves which are applied to a horizontal platform; nor do I claim the crab G, as this device is described in an application for Letters Patent marked case A, and bearing even date with the filing of this.

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

The hollow rack *a*, fitted and confined by a nut or stop upon the reduced portion of a vertical rod A, which serves as part of the mechanism for opening and closing canal-lock valves, substantially as and for the purpose described.

GEO. HEATH.

Witnesses:

J. N. CAMPBELL,  
EDM. F. BROWN.