



## LXX. Description of a lock designed for theRegent's Canal Company

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LXX. *Description of a Lock designed for the REGENT's Canal Company. By Mr. RICHARD HALL GOWER, of Ipswich\*.*

*Explanation.*

THE plan of a double lock, whereby *twice* the facility of transit is obtained, with only *half* the expenditure of water.

*Example.* A and B (Plate IV.) are locks having a communication by means of the sluices W and x in the middle pier. Now admitting lock A shall be full, and lock B empty, at the same time that two barges shall arrive, the one going down, and the other up the stream; the barge going down will naturally enter the lock A which is ready for her reception; while the other will enter B. The sluices and gates being now shut, let the middle pier sluices be opened, so that the water may flow from lock A into B (view the transverse section), whereby the barge in A will be lowered, and the barge in B raised, till both are on a level; at which time the barge in A will be half up, and the barge in B half down. Now shut the pier sluices W and x, and open the side sluices y and z, whereby lock A will continue to empty, and B to fill, till the water in each obtain the level of the lower and upper canal:—the gates C and D being then opened, each barge is at liberty to depart, the one up and the other down the stream; the time employed to pass them being no more than the time employed in passing *one* barge through a single lock; and to perform this double duty, only *one* full lock of water has been withdrawn from the upper level of the canal.

\* Mr. Gower (author of several works relative to Seamanship and Marine affairs) was one of the candidates for the reward of a hundred guineas offered by the Company for the best design of a lock, in an advertisement of which the following is a copy:

“REGENT'S CANAL.—To Architects, Engineers, &c. a reward of 100 guineas is offered for the best design of a double or single lock, to be constructed in the said canal. In these designs, part of the lock must be described and set forth. In judging of these designs, the saving of water, and the facility and expedition in passing the lock, will be objects of the greatest consideration; and any practicable suggestions for returning the water to the upper levels will have great weight in the decision. The length of the lock must be 86 feet, the breadth of each, in the clear, must be 14 feet 3 inches; the average fall of water of each lock 7 feet; the width of the canal 45 feet; the depth of the canal 5 feet.—Any person willing to execute his design, is requested to accompany it with an estimate of the lock complete, for so much each lock. The designs are to be submitted to three engineers or scientific men, and the premium given according to the decision of the majority of them; and to ensure perfect confidence in the decision, candidates are to send their designs, marked, to be returned unopened, if the design to which it refers is not approved, and should not obtain the premium. The designs to be sent to Messrs. Edwards and Lyon, Solicitors, Great Russell-street, Bloomsbury, on or before the 21st of September 1812.”

—*Times Newspaper*, 5th Sept. 1812.

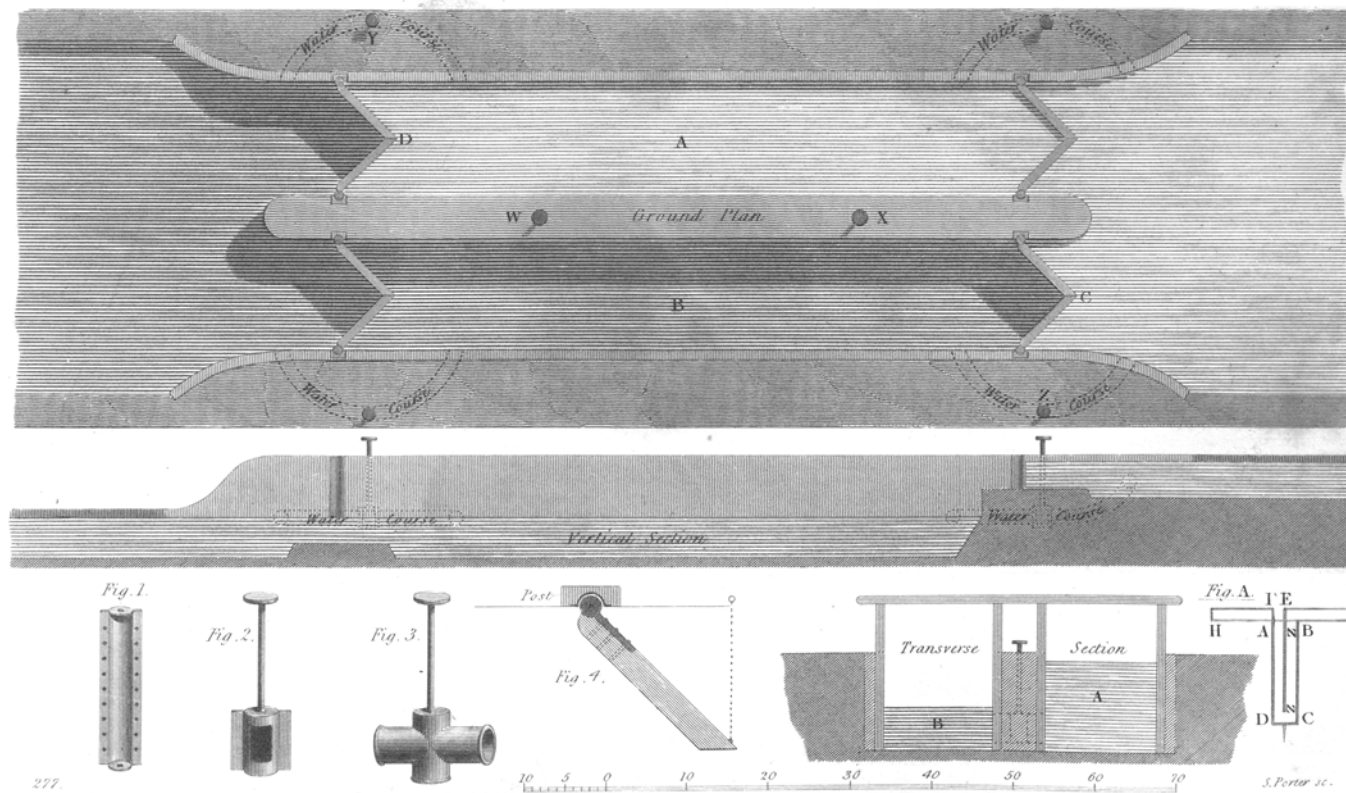
Vol. 57. No. 278. June 1821.

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Plan of a Lock, designed by R.H. Gower, for the Regents Canal Company, to save Water, and give facility to the passage of Vessels.

Phil. Mag., Vol. LVII. Pt. 1.



S. Porter sc.

The sluice gates for this lock may be formed in the usual way; but as the old plan is liable to much leakage, and is frequently disordered by obstructions; as for instance, by ice in frosty weather: the inventor proposes to obviate these imperfections by the following contrivances.

Fig. 1 is a cast-iron half-circular groove with flanges. This is let flush into the gate-post, and there secured by nails through its flanges, and into the groove is swung a cast-iron spindles by pivots in the centre of each end. To this spindle the gate is secured, as represented by the section fig. 4.

Fig. 2 is a cast-iron cock, which, being set into a brick water-course, is intended to serve the purpose of a sluice.

Fig. 3 also is a cock for the same purpose, but so formed that it may be united in the centre of a cast-iron cylindrical water-course.

By the introduction of these contrivances, it must be evident that the inconveniences arising from leakage, and obstructions, will be removed in a very material degree; and were the whole lock and its contrivances well executed, with the introduction of cast-iron water-courses, there is no reason for saying that a lock of this description may not last for a series of years. The cocks are to be turned by levers set into their respective drum-heads, which are fixed breast-high above ground; and as the cocks are situated in the centres of the several water-courses, it is presumed they are not liable to be set fast by frost.

Signed R. F. C., a candidate for the reward of 100 guineas offered by the Regent's Canal Company, for the best design of a double or single lock to produce a *saving* of water, and *facility* to the passage of vessels.

This design is accompanied by a sealed letter; and if the above plan is not approved, R. F. C. presumes that it will be returned to him on his applying to Messrs. Edwards and Lyon.

Dated September 14, 1812, and addressed to Messrs. Edwards and Lyon, Solicitors to the Regent's Canal Company, Great Russell-street, Bloomsbury.

N. B. The foregoing explanation was written on the same sheet of paper which contained the drawing of the lock, to a scale of one-eighth of an inch to a foot.

The principle and plan of this lock being now established throughout the line of the Regent's Canal, from Paddington, round the back of London, to Limehouse, in its simplest form; that is, without the several cast-iron contrivances to save leakage and avoid obstructions; induced the inventor to feel that he was entitled to the offered reward of 100 guineas; which gave rise to the following correspondence, whereby it will appear, that with-  
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out the comfort even of an explanation, he is simply told that the premium of 100 guineas was not adjudged to him.

*Letter addressed by Mr. GOWER to the REGENT's Canal Company.*

Nova Scotia, Ipswich, Oct. 19, 1820.

GENTLEMEN,—On the 5th of September 1812, observing an advertisement in the Times Newspaper, from the Regent's Canal Company, offering a reward of 100 guineas for the best design of a lock to *save* water, and give *facility* to passage, a copy of which is annexed, I was induced to become a candidate.

A design was accordingly prepared, *similar to the one which accompanies this letter*, being dated the 14th of September 1812; and feeling, from the wording of the advertisement, that I might rely with perfect confidence upon the good faith and honour of the parties to whose inspection the designs were to be submitted, it was delivered at the office of Messrs. Edwards and Lyon, Solicitors, Great Russell-street, Bloomsbury, by my brother Dr. Gower, of Old Burlington-street. A fair time having elapsed without receiving any intimation relative to the design, from the tenor of the advertisement, I had reason to conclude it was not approved; and in consequence requested Dr. Gower would have the goodness to withdraw it. He made his application accordingly, at the office of Messrs. Edwards and Lyon, which enabled him to procure the design from the Regent's Canal Office, Queen Ann's-street West, now Foley-place.

The return of the design released me from dubiety. It was the signal of dismissal, that gave me clearly to understand I was not the successful candidate. How great then was my surprise, when on the 24th of April last, as travelling from Ipswich to London, on the outside of the coach, I observed a double lock, similar to my design, constructed on the Regent's Canal where it crosses the Mile-end Road! This was afterwards found to be one only of a number. From the facts here stated, and with the Company's advertisement before me, I cannot but feel that I have a claim upon their honour, and that I am entitled to the reward for which I laboured to become a candidate; I therefore trust, gentlemen, notwithstanding the time elapsed since the 14th of September 1812, that you will do me the justice to consider this statement; and should it be necessary for Dr. Gower to prove the delivery of the drawing, he will with pleasure attend with the original design.

I remain, gentlemen,

Your obedient servant,

R. H. GOWER.

*Reply of the Regent's Canal Company to the foregoing Application.*

Regent's Canal Office, 103, Great Russell-street, Oct. 26, 1820.

SIR,—I am directed to acknowledge the receipt of your letter of the 19th instant, stating that the locks on the Regent's Canal had been constructed according to the design sent in by you, in the year 1812, and claiming the premium of 100 guineas offered for the best design for a lock; and in reply I am desired to acquaint you, that the engineers to whom the several designs were referred, did not adjudge the design sent in by you to be entitled to the premium above mentioned; and that no reference was had to your plans, on the adoption of the lock which the Company determined to construct upon the Regent's Canal.

I am, sir,

Your obedient servant,

EDM. L. SNEE.

P. S. — The plan which accompanied your letter, will be delivered to any person bringing a note from you desiring the return of the same.

LXXI. *On the atmospherical Refraction.* By JAMES IVORY,  
M.A. F.R.S.

*To the Editor.*

SIR, — I HAVE to acknowledge the favour done me by your inserting in your last publication, my formula for the astronomical Refractions; and I shall now add some more observations on the same subject. In examining the hypothesis relating to the constitution of the atmosphere, on which is founded the solution of the problem of refractions published in the *Mécanique Céleste*, I was naturally led to take the calculation, given in that work itself, of the depression of the thermometer for the great height of 3817 fathoms ascended by Gay-Lussac in a balloon; which comes out at the rate of 82 fathoms to a centesimal degree. But the gradation of heat in this supposed atmosphere ought to agree with observation not only at great elevations, but likewise at the surface of the earth. Now, if the calculation be actually made, the height at the earth's surface necessary to depress the thermometer one degree, will be found no more than 61 fathoms, about two-thirds of the observed quantity, and considerably less than in my formula.

We are indebted for the most correct Table of Refractions that has yet been produced, to the science of Laplace, and the skill and diligence of the able men who assisted his labours by furnishing