

Case No. 2,345.

4FED.CAS.—72

CAMMEYER et al. v. NEWTON et al.

[12 Blatchf. 122;¹ 1 Ban. & A. 294; 5 O. G. 753.]

Circuit Court, S. D. New York.

June 10, 1874.²

PATENTS—”ADJUSTABLE WATER DAM”—CONSTRUCTION—INFRINGEMENT.

1. The specification of the letters patent granted to William H. Cammeyer, as assignee of Samuel Lewis, as inventor, July 28th, 1868, for an “improved portable and adjustable still-water dam,” describes a dam so constructed and arranged as to require to be suspended, at all times when it is used as a dam, from the main deck of the boat above it.

2. In the first claim of the patent, namely, “1. The construction and arrangement of a portable and adjustable dam in sliding or telescopic sections, in the manner and for the purposes herein described,” it is a necessary part of the manner of construction and arrangement of the dam in such sections, that it shall be suspended from the deck when in use, and such suspension is a necessary element of the claim.

3. In the second claim of the patent, namely, “2. The combination of the self-anchors, 3, with the dam, in the manner and for the purposes herein described,” the feature of self-adjustment, in the self-anchors, that is, freedom to slide in their sockets, with the rise and fall of the bottom section, so as to rest always on the bottom, whatever the position of the bottom section relatively to the bottom, is inseparable from the feature of the suspension of the telescopic dam from the boat.

4. The organization of the structure described in the patent proceeds on the principle that it is to be firmly attached to and suspended from a floating boat, and to be subject to all the movements of such boat, whether vertical, lateral, or undulatory. It does not suggest the idea that, when once put in place on the bottom, it is to remain there uninfluenced by the involuntary movements of a boat, nor the idea that the self-adjusting features of the self-anchors can be dispensed with, and that such self-anchors may be replaced by legs capable of being set at desired lengths, but then necessarily to be deprived of all capacity of self-adjustment.

5. A structure consisting of an iron dome, to be sunk on the rock, to protect drills and divers from the velocity of the current, and which, although lowered and raised from a

boat, is disconnected therefrom and uncontrolled thereby, when in position, and a series of drill-tubes rigidly affixed to and within the dome, in which tubes to work the drills, by dropping them by their own weight, and raising them by connection with the motive power on the boat, and having legs or spuds around the lower edge of the dome, which fall by gravity until they bear on the bottom in such manner as to insure the horizontality of such lower edge, and then are prevented from moving by self-acting cams which hold them permanently in place, the dome and the drill-tubes being unaffected by any motion in the boat, and the attachments to the drills being by loose connections, and no part of the dome being self-adjusting to varying depths of water, is not an infringement of the first and second claims of said patent.

6. The third claim of said patent, namely, “3. The combination of the boats, supports or floats with the dam, as above described, and the arrangement of anchors to hold such boats in position, in the manner and for the purposes described,” is not infringed by a structure in which there are no anchors connected with the dam by chains which also connect the dam with the boat.

7. The fourth claim of said patent, namely, “4. The combination of windlasses, chains and boats with the dam, as above described, so that, by the construction thereof, a series of drills may be operated within and enclosed by the dam, in the manner and for the purposes herein described,” is not infringed by an apparatus in which there are no chains combined with the dam, and in which the drills are not operated in the manner described in said patent, namely, in reference to the movements of the boat.

[See note at end of case.]

[In equity. Bill by William H. Cammeyer and Samuel Lewis against John Newton and others for the alleged infringement of letters patent No. 80,492.]

George Gilford and Thomas P. How, for plaintiffs.

Charles M. Keller and Henry E. Davies, Jr., for defendants.

BLATCHFORD, District Judge. This suit is brought on letters patent granted July 28th, 1868, to William H. Cammeyer, as assignee of Samuel Lewis, as inventor, for an “improved portable and adjustable still-water dam.” The specification states, that the invention is an “improved portable and adjustable dam for the purpose of producing still water in which to operate for the blasting and removal of obstructions in rivers and other water-courses.” It says: “It is a fact well known to practical men, that the work of blasting rocks under water is attended by many and great difficulties. Wherever such obstructions exist in a channel, they produce a throttling or contraction of the watercourse,

and a consequent, acceleration of the current or tidal flow, that renders any operation with a view to their removal next to impossible, except during two or three hours of the twenty-four of each day. Taking, as an example, Hell Gate, between the city of New York and Long Island, it has been found impracticable, owing to the intensity of the current, to work unintermittingly with any apparatus or process yet devised. On account of the nature of the bottom, a coffer dam was out of the question; the drilling by hand from the surface is equally impracticable, owing to the depth of the water and the difficulty already named; while the surface blasting of Maillefert was simply a criminal waste of explosives, which spent their force mainly upon the yielding water surrounding and overlying the blast or charge. Thus, in the absence of means to remove these subaqueous obstructions, some of our most important water thoroughfares are either partially or entirely closed to the commerce of the world, and vessels of light draft and small consequence to trade are the only users of channels which, with but little addition to the work of nature, might be converted into highways for the most magnificent vessels and the most precious freights that float, at once increasing the inducements, by extending the facilities, of commercial intercourse. In view of this most important desideratum, the present applicant has devised the apparatus herewith submitted, the main object of which he would premise to be the enabling of workmen (when necessary) to continue their operations during the entire day and night, without any reference to the strength or state of the tide, or the varying depth of the water, and, by using a number of drills simultaneously, to increase the amount of execution almost indefinitely. These results can be accomplished, it is believed, by the mechanism accompanying these presents, and illustrated in the drawings attached.” The difficulty of blasting rocks, under water, in a channel way such as Hell Gate, and the importance of devising an apparatus for doing the work, not only with facility, but continuously, are not overstated, in this language. To achieve success in such an undertaking was an object worthy of the efforts of any inventor or engineer. But, it is evident, from the language of the specification, that Lewis had not, before taking out his patent, put to any practical test or use the apparatus he describes. He says, that he believes his mechanism will accomplish the results desired. The description given, in the specification, of the apparatus of Lewis, is substantially this: Two boats are prepared, (double-enders, as shown,) on one or each of which is an engine of requisite power, with propeller and machinery complete for moving the boat, raising the anchors, varying the depth of the dam, and operating the drills. These boats, or hulls, are connected by a substantial deck. This deck has an opening in its centre, equal to the horizontal area of the dam, for the purposes of access and light to the diver, &c. From this deck is suspended the telescopic or sectional portion of the apparatus, with its chains and attachments all previously adjusted and ready to be drawn through their respective openings in the deck. The manner of constructing the telescopic portion is, to prepare a series of plates, of galvanized iron or any other proper material, of suitable thickness, and bend and fasten them into the form shown in the drawings, (which is that of an acute angled parallelogram, of greater length than width, there being a series of such parallelograms sliding vertically one within another,) so as to offer the least resistance to the tide or current, thereby easing the work of the anchors and contributing to the control of the apparatus generally. Each division of the dam is bent inwards at its upper edge, and, at its lower edge, has a strip fastened, so as to prevent the sections from separating.

Each section is likewise provided with four eyes or eyebolts, one at each side and one at each end, which serve as guides to the several sections while opening, the eyebolts on the bottom section being attached permanently to the chains through which the dam is operated. The bottom section is provided with four framed wheels or eyebolts for the side anchor chains to pass through. These side anchor chains are to be operated by windlasses, and extend from the boats above through the eyebolts on the bottom section, and then outward to the side anchors. There are also chains directly from the boats to the side anchors, and chains from the ends of the boats directly to end anchors. The dam is to be operated by windlasses. The drills work in tubes, the lower ends of the tubes being fastened into braces attached to the bottom section of the dam. The upper ends of the drill tubes play freely in a guide plate attached permanently to the boats, so as to enable them to slide up and down and adapt themselves to the depth of the dam. It is stated, however, that a full length tube is not deemed essential, as a section of sufficient height above the braces on the bottom section of the dam, to prevent the drill from being entirely withdrawn therefrom during a stroke, is, for some reasons, to be preferred; and that, if the stroke of the drill be twelve inches, a length of tube of fifteen inches, set with a rocking joint in the lower brace, would be all that is essential to guide the drill. The bottom section of the dam has attached to it, on the outside, sockets, in which move and play freely, in a vertical direction, by the force of gravity, what are called "self-anchors," 3 being bars of iron, shown to be of a length nearly equal to the height of the two lower sections of the dam, which, by virtue of their length and free play, adapt themselves to the irregularities of the bottom, and take a rigid and steady

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hold. They are to be connected with the deck, so as to be taken out of the way, when desirable. The telescopic apparatus is suspended from the deck by four links and bolts, and the several chains are drawn through their respective openings and attached to their proper windlasses. The boats, dam, and all appurtenances being complete, with the sliding sections closed, the machine is taken to the spot on which it is intended to begin work, the anchors are put out, and the dam is lowered. The various self-anchors find bearings, at various lengths, below the bottom edge of the bottom section, according to the inequalities of the rock. It is stated, that they will render any movement of the dam "very improbable, especially when assisted by the co-operative hold of the outside anchors," that is, the side anchors, chains from which run through the eyebolts on the bottom section of the dam, to the deck of the boats. The claims, four in number, are in these words: "1. The construction and arrangement of a portable and adjustable dam, in sliding or telescopic sections, in the manner and for the purposes herein described; 2. The combination of the self-anchors, 3, with the dam, in the manner and for the purposes herein described; 3. The combination of the boats, supports or floats with the dam, as above described, and the arrangement of anchors to hold such boats in position, in the manner and for the purposes described; 4. The combination and arrangement of windlasses, chains and boats with the dam, as above described, so that, by the construction thereof, a series of drills may be operated within, and enclosed by, the dam, in the manner and for the purposes herein described."

It is very clear, that the construction and arrangement of the dam in the manner described in the specification requires that it shall be suspended from the main deck at all times when it is in use as a dam. The specification states, that figure 3 of the drawings shows “the manner of suspending the dam from the main deck.” Again, the specification says, that, from the deck “is suspended the telescopic or sectional portion of the apparatus,” and that “the telescopic apparatus, thus prepared, is then suspended from the deck.” When, therefore, the first claim of the patent claims “the construction and arrangement of a portable and adjustable dam in sliding or telescopic sections, in the manner and for the purposes herein described,” it is a necessary part of the manner of construction and arrangement of the dam in such sections, that it shall be suspended from the deck when in use, and such suspension is a necessary element of the claim. The sections are not only free to slide on one another, but, when the dam is in use, the sections are to adjust themselves to varying depths of water, such as are caused by the rise and fall of the tide, whereby the distance of the point of suspension of the dam from the bottom is varied. This requires that the top section shall be, at all times, connected with the boat by links and bolts, as stated in the specification, or by means equivalent, and that the bottom section shall be connected, or “attached permanently,” as stated, by chains, or by means equivalent, with a hoisting apparatus on the boat. If the top section is not connected with the boat, the letting down of the bottom section will cause all the other sections to go down with it, and they will not be opened out telescopically. If the top section is connected with the boat, and the bottom section is not connected with a hoisting apparatus on the boat, the dam cannot be lifted, and the bottom section will always rest on the bottom, or, in water deep enough, the sections will all of them remain extended to their full length. No dam constructed and arranged in sliding or telescopic sections can be constructed and arranged in the manner described in the patent, so as to be within the first claim thereof, unless the sections are free, at all times, when the dam is in operation, to slide on each other, and unless the top section is attached to and suspended from the boat, and the bottom section is connected with a hoisting apparatus on the boat.

The second claim of the patent is a claim for “the combination of the self-anchors, 3, with the dam, in the manner and for the purposes herein described.” As the dam, in its telescopic sections, was to be self-adjusting to tidal and other variations of depth, so the self-anchors must be free to slide in their sockets with the rise and fall of the bottom section, so as to rest always on the bottom, whatever the position of the bottom section relatively to the bottom. Unless the bottom section should be free to slide on the self-anchors, then, when, by reason of the depth of the water, the sections should be extended to their full length, a raising of the bottom section, by an increase in the depth of the water, would raise the lower ends of the self-anchors from the bottom, and not only would they not be self-anchors, but the losing of their hold on the bottom would very probably subject the dam to such movement as to clog or stop the working of the drills. The suspension of the dam from the boat introduced a difficulty which the self-acting or self-adjusting feature of the self-anchors, by their being thus free at all times from attachment to their sockets, was designed to overcome. This feature of self-adjustment in the self-anchors was necessary to maintain the connection of the dam with the bottom at all times, and the necessity for such feature grew out of the fact that the dam was

suspended from the boat, and the connection of the dam with the bottom was liable to be severed by the receding of the boat from the bottom as the tide should rise beyond a depth equal to the extreme extent of the sections. Therefore, the feature of self-adjustment in the self-anchors is inseparable from

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the feature of the suspension of the telescopic dam from the boat. The term "self-anchors," in the specification, and in the second claim, means, anchors capable of self-adjustment by having at all times free play, because not attached to their sockets, and so not moving with the movement of the bottom section to which the sockets are attached; and the term "the dam," in the second claim, means a dam suspended from the boat, with the resulting consequences, in its movement, in operation, before stated. A combination, to be within the second claim, must be a combination of such self-anchors with such a dam, and the combination must be made in the manner described, that is, so as to allow of such self-adjustment in the self-anchors.

The organization of the plaintiffs' structure proceeds on the principle that it is to be firmly attached to and suspended from a floating boat, and to be subject to all the movements of such boat, whether vertical, lateral, or undulatory. It does not suggest the idea that the structure is not to be fastened to a boat, and is not to be suspended from a boat, and is not to be subservient to the involuntary movements of a boat, but is, when once put in place on the bottom, to remain there uninfluenced by the involuntary movements of a boat. It does not suggest the idea that the self-adjusting feature of the self-anchors can be dispensed with, and that such self-anchors may be replaced by legs capable of being set at desired lengths, but then necessarily to be deprived of all capacity of self-adjustment.

With this view of the plaintiffs' structure, we are prepared to consider what is alleged against the defendants. The principal defendant, General Newton, is an officer of the engineers in the army of the United States, who has, for several years past, been in charge of the operations for removing obstructions to navigation caused by rocks under water in the harbor of New York and in Hell Gate and its approaches. The other defendants have been subordinate to him, he and they being employed and paid by the government of the United States to do what they have done in respect to the matters alleged against them. Under the direction of General Newton, an apparatus has been used in drilling and blasting subaqueous rocks in the harbor of New York and in Hell Gate. The bill not only contains the usual averments that the use of this apparatus is an infringement of the plaintiffs' patent, and that General Newton caused such apparatus to be constructed and used, but also avers, that, in planning such apparatus, and in preparing to construct it, General Newton caused drawings to be made, without the knowledge or consent of the plaintiffs, from a model of the invention of Lewis, belonging to the plaintiffs, and that he, in like manner, and in initiating said infringement, caused another model to be constructed from the said model, embodying its principal features of construction, as set forth in the plaintiffs' patent, and that he obtained from the United States patent office, and in like manner used, a copy of the specification and drawings of said patent.

The answer of General Newton denies the infringement alleged, and avers that, during the year 1869, he invented an apparatus for use as a caisson, coffer-dam and diving bell, in excavating and taking out rock in the harbor of New York; that it was constructed by, and at the expense of, the United States, and has since been used exclusively by the United States, in the prosecution of the work undertaken by the United States, of improving the harbor of New York; that General Newton, being an officer of the United States, and a lieutenant colonel of engineers in the army of the United States, has been heretofore assigned to the duty of directing the said improvement of the harbor of New York, and, in pursuance of his aforesaid duty, and acting for the United States, has used the said apparatus; that the other defendants, during all the time they, or either of them, have had any connection with the use of the said apparatus, have been employed and paid by the United States, and have acted in connection therewith solely as employees and agents of the United States; that neither he nor any of the defendants have derived any profit or emolument from the construction or use of said apparatus; that, in the year 1867, in Boston harbor, Massachusetts, one George W. Townsend put in operation a method of drilling and blasting rock under water in a rapid tide-way, using therefor a drilling platform supported by anchors and adjustable legs, combined with a boat and a system of windlasses, anchors and chains, together with suitable machinery by means of which a system of drills might be operated, substantially like the apparatus claimed by the plaintiffs; that the apparatus and dam alleged to have been invented by Lewis was not in fact the invention of Lewis, but the same had been invented and described by the defendant Newton prior to its invention by Lewis; that such invention and a description thereof were printed and published in a letter from the secretary of war of the United States to the house of representatives in the congress of the United States, dated Washington, February 11th, 1867, containing a report made by the defendant Newton, which gave a full and complete description of said machine so invented by the defendant Newton, together with the mode of constructing and using the same, which said letter and report were, on the 14th of February, 1867, ordered by said house of representatives to be printed, and were printed and published at Washington, and are known as "Executive Document No. 90, House of Representatives, 2d Session, 39th Congress;" that the said apparatus alleged to have been invented by Lewis was in fact invented by the defendant Newton; and that Lewis unjustly and surreptitiously obtained a

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patent for the said apparatus which was in fact invented by said Newton, who was using reasonable diligence in adapting and perfecting the same.

The report of General Newton, thus referred to, is dated January 21st, 1867. It contains plans and estimates for operations to improve Hell Gate for purposes of navigation. After describing the results attained by blasting, by placing charges of powder in position on the rocks, without the use of diving bells or submarine armor, and exploding such charges, the report of General Newton proposes to prepare the surface of the rocks for ulterior operations, by blowing off the sharp points and projections by charges placed in position by divers, until the rock is reduced to a more uniform surface, then to blast the

rock by introducing charges into drill holes made for the purpose, and to remove the debris by divers. The report then proceeds: "The current, which has a maximum velocity of 8.50 miles, limits the time of working under water to a little over two hours per day, during and about the time of slack water, and hence the time and expense, unless some means of shielding the divers and operators from the force of the current can be devised, would prove a serious objection. Even if the persons using the drill were protected from the current, the delay incident to this mode of operations," that is, drilling by divers, under water, "would be considerable; but if the drilling were conducted from the surface of a platform above the water, the same results would be reached as on dry land. A platform of suitable size, with vertical sliding supports, capable of being raised or lowered through a considerable height, is prepared and floated to its position, supported on the decks of two scows or other floats, one on each side. Arrived at the place, the floats are moored, the vertical supports of the platform let down to the bottom, securely fastened to the platform, and braced to each other, if necessary. This operation being done at the top of the tide, the scows are floated away when the water falls. The supports to the platform may be placed within ten feet of each other, and the weight of the platform, to insure steadiness and stability, fixed at any desirable standard. The supports may be lashed above and below the platform to other uprights placed for that purpose, and may be wedged also, to prevent working. To avoid the" interference of the currents with the drills, these may be made to work in hollow iron cylinders, reaching from the platform to the rock. A steam engine, or machine worked by hand, can then be applied to the drills, and the work pushed regardless of the currents. To remove the rock blasted, it will likewise be necessary to protect the persons of the divers from the force of the currents, and it is proposed to do this in the following or similar mode. Two cylindrical floats, of sufficient buoyancy, made of boiler iron, are placed say thirty feet from centre to centre. Towards their extremities they are inclined toward each other, until they meet, forming one float, say one hundred and sixty feet long and forty wide. Curtains of iron, extending along the whole outer line of the floats, are permanently fastened, at their upper lines, to these floats, the lower end of the curtain being attached by falls to davits or small derricks upon the floats, so as to be lowered or raised at will. These curtains are separated into lengths of about twenty feet, that each may be managed independently of the other. The curtains should be flexible, and may be made of plates of iron, say one foot wide and twenty long, connected with those in contact by hinge joints. The float being placed in position and moored securely, the curtains, by sections, are let down to the bottom, their extra depth allowing an extent of several plates to rest upon the rock. An interior space of one hundred and sixty feet by forty on the bottom is thus protected, where the divers can fill the buckets, which are afterwards raised and emptied into scows, with valve bottoms, lying alongside. The debris is then towed away and deposited where desirable. There is nothing in these expedients which suggests practical difficulties which skill could not surmount, and confidence is felt that these or similar contrivances can be relied upon to solve this problem. Before work is really undertaken, trials should be made and prosecuted until a good result is obtained. There is no doubt felt that the obstacle in the way, viz., the force of the current, can be neutralized, and it remains only to decide whether the object is worth the money it will cost, a question which it is the privilege of others to determine. Any reasonable hope of effecting this improvement depends upon

the rejection of misty and fanciful schemes, which cannot be brought within the rules of ordinary calculation. This report has attempted one method of solution, and it is hoped many better may be found. There is no doubt that a serious and well considered attempt to push the work, will be the means of stimulating mechanical inventions suited to this end, which, with the experience gained from day to day, will not only expedite progress, but also materially diminish the cost, especially in the large item of removing the rock.”

In February, 1868, General Newton was asked by the war department to revise his former estimate, with a view to reducing it, if possible, and he was inquired of, whether a much smaller sum than the amount asked for the first year's operations, \$900,000, “a large part of which was to be expended in costly machinery, such as current breakers, &c,” could not be usefully applied the first year in removing, by less expensive means, in whole or in part, the most dangerous of the rocks. In reply, General Newton, on the 11th of February, 1868, said, referring

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to his report of January, 1867: “The system adopted after much care, and the reasons therefor, have been very fully given in my report. The particular machines described by me were not relied upon as the sole, or even the best, means of effecting the object desired, as my report will show, but their design was to demonstrate that no insuperable difficulty intervened to prevent a practical consummation of the work, and to furnish data for its estimate. One thing became certain, that the boring should be conducted from a platform above water, but whether such platform should be supported upon tripods, or arranged as designed in the report, was a matter of small moment. It is quite likely that both systems can be advantageously employed in the same work, under different circumstances is likely that the ‘current breakers’ may be dispensed with, as I have been considering other means of removing the rock from the bottom, after blasting.”

The ideas thus developed by General Newton are very distinct. The drilling is to be conducted from the surface of a platform above the water, and such platform is not to be a floating platform, but is to be one rigidly connected with the rock to be drilled, and supported by such rock. It is to be substantially a platform drilling on dry land, with water instead of air interposed between the platform and the rock drilled, the platform being rigidly sustained by supports from the rock which is being drilled. Drill tubes are to extend from the platform to the rock. To protect divers while removing the blasted rock, a space is to be enclosed by a dam or current breaker, which is to be made by letting down curtains of iron from a float, the curtains being permanently fastened above to the float, and being raised and lowered by attachments to their lower extremity, they being made of plates in sections one above another, flexible by being hinged to each other by joints. There is no suggestion of fastening drill tubes to the curtains, or subjecting the operation of drilling to the caprice of a floating structure.

Lewis testifies, that, having read General Newton's reports from time to time, particularly the one of 1867, setting forth the difficulties of accomplishing anything in submarine

drilling in strong currents, he turned his attention to inventing a machine for that purpose. The patent sued on was taken out July 28th, 1868. It discards the idea of a rigid platform, supported from the rock, to hold the drill tubes, but adopts the idea of a dam in sections, suspended permanently from a float, and attaches the drill tubes to the dam. It is in direct antagonism to the ideas developed by General Newton. He proposed to work from the rock, in drilling, so as to work as on dry land. Lewis proposed to work from a float, in drilling. Newton proposed to use a dam merely to protect divers in removing blasted pieces of rock, and, for this purpose, a dam in flexible sections, deep enough to lie on the bottom, could well be suspended permanently from a float Lewis proposed to suspend a sectional dam from a float, and affix the drill tubes to the dam, and subject the drilling to the contingencies of the movements of the float.

Lewis testifies, that, in the latter part of July, or the first part of August, 1868, he explained his invention to General Newton, and showed him photographs of the four drawings which now form part of the patent, showing a plan of the telescopic dam, and also showed him a model of the dam and the adjustable anchors. General Newton testifies that he never gave any directions to any person to make drawings or sketches from Lewis' model, and that no person, to his knowledge or for his use, made any copies from any model or drawing of any invention of Lewis'.

In August, 1868, General Newton, in his official capacity, published an advertisement inviting proposals to be made for removing the Frying Pan and Pot Rock, in Hell Gate, with bids stating separately the sum asked for the removal of each, and stating that the contract would not necessarily be assigned to the lowest, or to any, bidder, and that the time which the bidder proposed to consume in performing the work, as well as the character of his proposed mode of operations, as to practicability, would likewise be considered, in assigning the contract. In response to this advertisement, the plaintiffs, in conjunction with another person, put in, in September, 1868, a proposal to remove each of the rocks named, for a specified sum, beginning the work April 1st, 1869, and finishing it in seven months, if their bid should be accepted on or before November 1st, 1868, but they did not set forth the character of their proposed mode of operations.

On the 5th of January, 1869, Lewis obtained a patent for an "improved subaqueous drilling machine." The specification of this patent says: "This invention consists in an apparatus designed to simplify the operation of drilling rock under water, as described in my present patent, whereby the telescopic still-water dam is dispensed with. I have already received letters patent of the United States for a 'portable and adjustable still-water dam,' issued on the 28th day of July, 1868, and, having continued my experiments upon subaqueous drilling and blasting apparatus, have come to the conclusion that, for some situations, at least, an apparatus far less costly than the subject of said patent can be constructed, without detriment to the efficiency of the mechanism. For instance, the telescopic dam described in said patent was designed mainly for the convenience of the diver, enabling him to descend and insert the charges, in all states of the tide. But, considering that not only a row of drills may be substituted for one,

but that a number of rows of drills may be used instead of a single row, the present applicant has concluded that the multiplied rows more than compensated for the absence of the telescopic dam, since, in the place of going down at any state of the tide, to insert one row of charges, the diver can descend at slack water, and insert a largely increased number, and all without the costly and comparatively difficult to operate dam described in the patent aforesaid, the tubes in the devices herewith submitted serving the purpose of the dam, so far as the protection of the drills from the force of the current is concerned, the object of the whole apparatus, as now presented, being the performance of the work contemplated, by greatly simplified means, as compared with the mechanism patented as aforesaid." The general character of the apparatus in the patent of 1869 is a raft or boat, from which spuds or vertical anchors are allowed to slide downward until they touch the bottom. The raft or boat is then, by mechanism, raised above the water on the spuds, and secured. Drill tubes are then let down until they rest on the rock. In each tube is a drill, which is allowed to sink to the same depth.

Lewis testifies, that the last interview he had with General Newton respecting the use of his invention, was in the summer of 1869, and that at that time he showed to General Newton a model of an apparatus with the dam left off, and embodying what is shown in Lewis' patent of 1869, and asked General Newton to adopt it.

Contracts had been made for the removal of some of the channel rocks, and, on the 9th of June, 1869, General Newton made a report to the war department, in which he said: "I propose, in view of ultimate want of success on the part of the contractor and others in the removal of the channel rocks—a contingency which at least is possible—to construct a boat and machine for the government, the boat to be about 120 feet long and 50 feet beam, in the shape of a scow, with a deck two to two and one-half feet thick, projecting four feet beyond the hull, and furnished on the edge with iron plating, say two inches thick. This "construction, to stand the shock of collisions, and a well of about 30 feet wide by 40 feet long in the boat, through which to raise and lower the caisson from and to the bottom, constitute the features of the boat. The caisson to be constructed thus." Then follows a drawing of the caisson, which is represented as dome-shaped, with a conical funnel rising from its top. The report proceeds: "A caisson of the shape of a frustum of a cone, to oppose the same resistance to overthrow, would require to have a base of greater diameter in proportion to height—the above construction being designed so that the ultimate pressure of the water running with great velocity, which is normal to the surface, and falling within the area of the base, will not actually tend to overthrow the machine. The drilling machines are separate from the caisson, and may be changed at will. Of course, I do not pretend to say there is not much yet to be learned, but this will never be done unless I set to work."

On the 19th of July, 1869, General Newton filed, in the patent office, a caveat, sworn to by him on the 14th of July, 1869, for what he called therein "improvements in the mode of constructing a caisson, coffer-dam and diving bell, for the purpose of conducting

operations in waters with rapid currents.” It says: “The invention consists in making a caisson, coffer-dam or diving bell of the forms exhibited in figs. 1, 2, 3 and 4 of drawing sent herewith, or of other forms readily suggested. The exterior surface may be generated by the revolution of a straight or curved line, or a combination of the two, about one or more axes. The point specially claimed is, so to form the surface of the machine, that the pressure of the current of moving water upon it, being necessarily normal to the surface, shall so fall within the base, as to hold the machine to the bottom, unaided, or only partially aided, by the weight thereof. The machine can be used to create still water within the space inclosed, in which divers may with facility work, or may be used as a diving bell, or, finally, by closing the space between the bottom of the machine and the bed of the river or sheet of water, and pumping out, may be used as a coffer-dam. When the bed is hard and uneven, movable legs, placed near the bottom of the machine, are let go by the run, and are kept to their bearings by self-acting cams. The use of the cams is not, however, claimed. When necessary, or when the depth of water may require additional height to the machine, connection may be made with the surface of the water by a funnel or pipe, through which to ascend or descend, or convey materials; and this funnel may be fixed to the machine or detached therefrom, and capable of being moved in or out of place. The short curbing represented on the top of the variously formed machines is necessary to prevent the current shooting into the inside and creating disturbance there.”

General Newton, with the authority of the war department, proceeded to construct an apparatus embodying the arrangements set forth in said caveat and in said reports, namely, an iron dome to be sunk on the rock to protect the drills and the divers from the velocity of the current, and, although lowered and raised from a boat, yet disconnected therefrom and uncontrolled thereby, when in position, and a series of drill tubes affixed to and within the dome, in which tubes to work the drills by dropping them by their own weight and raising them by connection with motive power on the

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boat. The apparatus was first put to experimental use in November, 1870, and was found to work successfully, and has since been in constant use, effectually accomplishing its object. It is this apparatus, the use of which is alleged to infringe the plaintiff's patent.

In General Newton's apparatus the dome is let down through the well-hole in the boat. If the bottom is uneven, legs or spuds around the lower edge of the dome fall by gravity until they bear on the bottom in such manner as to insure the horizontality of such lower edge, and then are prevented from moving by self-acting cams which hold them permanently in place. The dome is then detached from the lowering apparatus, and becomes a structure erected on and from the bottom of the river, having no suspension from any boat or float above. The drill tubes are rigidly fixed within and to the dome, and the drills are raised by lifting engines on the boat, and dropped to their work by their own gravity, working truly and vertically, because of the immobility and horizontality of the dome. The dome and the drill tubes are unaffected by any motion in the boat, and, the

attachments to the drills being by loose connections, the action of the drills is practically unaffected by such motion, within the range to which it is limited by careful anchorage and by allowing sufficient play between the face of the well-hole and the side of the funnel which projects up from the centre of the dome. The arrangement of General Newton's apparatus is not that of the plaintiffs', because the dome is not, when in position for work, suspended from the float; and because, although General Newton's dome, as originally constructed, had its funnel capable of being adjusted at different heights, it never had its funnel self-adjusting to varying depths of water; and because it has no self-anchors free to slide at all times while the apparatus is in use, and self-adjusting at all times. In all the features heretofore indicated as characterizing the plaintiffs' arrangement, and forming, according to his first and second claims, necessary features in it, the apparatus of General Newton is essentially different, and does not possess such features. Nor does the plaintiffs' apparatus possess the features which make General Newton's apparatus valuable and successful. Each of them has an enclosure, and drill-tubes and drills within it. But there the resemblance ceases. The structures start on different theories, and are constructed on different principles. No apparatus such as the plaintiffs' patent shows has ever been made or used. The evidence is satisfactory to show that the plaintiffs' apparatus would, in use, be entirely worthless. In addition to the suspension of their apparatus from the float, and the subjection of the dam and of the drill tubes to the movements of the float, the mode of anchoring the dam would, by the leverage of the chain which passes at a right angle through an attachment to the bottom section of the dam, make it impossible to work the drills with useful effect.

So far as suspending an enclosure from a float, to protect divers, is concerned, General Newton advanced the idea before Lewis did, as has been shown. But General Newton never suggested that it would answer, in practice, to attach drill tubes to anything controlled by a float. As regards resting a structure under water on legs extending to the bottom, and working drills through such structure, as a guide, that principle existed and was successfully developed in the drilling apparatus shown to have been used by Townsend, in drilling rocks in Boston harbor, in July, 1867. A drill-stand under water was supported by legs which rested on the rock. The legs had a sliding adjustment, so as to be fixed to suit the uneven surface of rock. The drill-stand consisted of two horizontal plates, about four feet apart, to the lower one of which the legs were attached. The drills passed through holes in the two plates, which holes served as guides, and the drills fell by gravity, and were raised by power. General Newton adopted the idea developed in this Townsend apparatus, of working from the rock. By using an enclosure to break the force of the current, and making that enclosure carry the drill-guides, he reduced the length of the legs, and made the structure more stable, and placed the drill-guides near the bottom, and yet made them rigid, and severed the apparatus from connection with a boat, and, by the shape he gave to his enclosure, he made the force of the current aid in keeping the enclosure down to its place.

As to third claim of the plaintiffs' patent, General Newton's apparatus has no anchors connected with his dome by chains which also connect the dome with the boat. This is an essential feature of the combination in the third claim. That claim is, "the combination of

the boats, supports or floats with the dam, as above described, and the arrangement of anchors to hold such boats in position, in the manner and for the purposes described.” In order to make the dam a member of the combination, the anchors which are connected with the boat by chains passing through eye bolts on the bottom section of the dam, must be included. Such an arrangement of anchors and chains is inconsistent with the principle of General Newton's apparatus, but is consistent with that of Lewis.

The fourth claim is, “the combination of windlasses, chains, and boats with the dam, as above described, so that, by the construction thereof, a series of drills may be operated within, and enclosed by, the dam, in the manner and for the purposes herein described.” Here, again, General Newton has no chains combined with his dome, nor does he operate his drills in the manner described by Lewis. Lewis' drill guides are connected below with the bottom section of

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the dam, and that is connected with the boat by chains and a hoisting apparatus, and the Tipper section of the dam is fixed to the boat, with the other sections hanging from it. This determines that the drills shall be operated in reference to the movements of the boat on the contrary, General Newton operates his drills in reference to the immovable rock.

The allegations of the bill, so far as they assert that General Newton proceeded, in constructing his apparatus, in intentional imitation of Lewis, are not sustained, either as to the intention or the imitation. General Newton appears to have considered Lewis' plan, and to have deliberately rejected it, and to have proceeded on one directly opposite. The latter has proved successful. General Newton, in all he has done, that is complained of in this suit, has acted as an officer of the government, in its service and for its interest, judiciously, carefully, and without failure. He has not used Lewis' invention. He has done nothing for his own profit. There is nothing developed in the evidence to warrant the suggestions contained in one of the arguments submitted on the part of the plaintiffs, that General Newton put forth a snare to entrap the unwary, by inviting Lewis to invent an apparatus; that he announced to Lewis his intention of taking and using any patented invention which it might suit his purpose to use in the work; that he did not intend to waste any sentimentality on nice points in relation to the rights of patentees, so long as his own purposes were served, or to allow any scruples to interfere with his taking other people's property for the accomplishment of his own ends; that the infringement complained of was a matter of deliberate intention from the beginning; that General Newton has been robbing a poor man; and that the court has never had occasion to deal with a more unscrupulous, wanton, and cruel infringement. Some ideas are found in Lewis' patent, which, if worked out in such a manner as to produce a successful practical result, are valuable—a current-breaker, enclosing the working drills, and drill-guides near the rock, affixed to the current-breaker. But these ideas are so hampered in construction as to make the drill-guides dependent on the boat. General Newton took up, as any inventor had a right to do, the completed invention of Lewis, and, on examining it, found that it proceeded on an entirely wrong principle, if designed to accomplish the result of

having a dam to act at the same time as a current-breaker and a fixed support for drill-guides near the rock, and he reorganized it on a new principle. He took up the apparatus where Lewis left it, and discarded Lewis' arrangement. These views are sustained by the experts for the defendants, General Tower and Professor Peck, and by the other evidence in the case.

A decree will be entered dismissing the bill, with costs.

[NOTE. Complainant appealed from the decree dismissing the bill, and the supreme court, in affirming the circuit court decree, held that the apparatus used by respondent was substantially different from that of complainant, for the following reasons: “(1) Because the dome, when in position for work, is not suspended from the boat, or any other floating structure; (2) because the funnel of the dome in the respondent's apparatus, though it is capable of being adjusted at different heights, is not, and never was, self-adjusting to varying depths of water; (3) because it has no self-anchors, free to slide, and self-adjusting at all times, while the apparatus is in use.” *Cammeyer v. Newton*, 94 U. S. 225.]

[Patent No. 80,492 was granted to S. Lewis, July 28, 1868; reissued January 26, 1875 (No. 6,249). For another case involving this patent. See Case No. 2,344. Patent No. 85,598 was granted to S. Lewis, January 5, 1869.]

¹ [Reported by Hon. Samuel Blatchford, District Judge, and here reprinted by permission.]

² [Affirmed in *Cammeyer v. Newton*, 94 U. S. 225.]

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