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and the acquisition by him of a *legal right as against other parties to be preferred in its purchase*, when the United States have determined to sell. It seems to us little less than absurd to say that a settler or any other person by acquiring a right to be preferred in the purchase of property, provided a sale is made by the owner, thereby acquires a right to compel the owner to sell, or such an interest in the property as to deprive the owner of the power to control its disposition.

The act of California, of February, 1868, attempting to grant the premises in controversy to the defendant is, by its own terms, inoperative until ratified by Congress. No such ratification has ever been made, and it is not believed that Congress will ever sanction such a perversion of the trust solemnly accepted by the State.

JUDGMENT AFFIRMED.

CANAL COMPANY v. HILL.

1. To ascertain the intent of the parties is the fundamental rule in the construction of agreements. When the substantial thing which they have in view can be gathered from the whole instrument, it will control mere formal provisions, which are intended only as a means of attaining the substance.
2. The state of things and surrounding circumstances in which an agreement is made will be looked at as a means of throwing light upon its meaning, especially for the purpose of ascertaining what is its true subject-matter.
3. A grant of a right to draw from a canal so much water as will pass through an aperture, of given size and given position in the side of the canal is substantially a grant of a right to take a certain quantity of water in bulk or weight. What that quantity is may be ascertained from the character and depth of the canal, the circumstances under which the water is to be drawn, and the state of things existing at the time the grant is made.
4. The grantee will be entitled to draw this quantity even though it may be necessary to have the aperture enlarged, if it can be done without injury to the grantor.

APPEAL from the Supreme Court of the District of Columbia; the case being thus:

The Chesapeake and Ohio Canal Company were the pro-

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prietors of a canal which, at its terminus in Georgetown, D. C., was much higher than the Potomac River, and so furnished by its surplus water a considerable water power. This power the company had for many years been in the habit of leasing out to the proprietors of various mills built not far from the side of the canal. The general form of lease used was that of a grant of the right, for a certain term of years, at a certain rent, and under certain restrictions, to draw from the canal so much water as would pass through an aperture of specified size (stated in square inches) in an iron plate fixed in the side of the canal. From this aperture the water was carried in a trunk, or forebay, to the premises of the lessee and discharged upon his water-wheel. The rent usually charged had been \$2.50 or \$3 per annum for every square inch contained in the aperture agreed upon.

In January, 1864, one Hill, proposing to build a paper-mill to be run by water from the canal, but not yet having built it, procured from the company a lease, by which they granted and agreed that he should have full right, for the term of twenty years from the first of July, 1864 (with privilege of renewal indefinitely), to draw off from the Chesapeake and Ohio Canal, at Georgetown, to be used at his property at the corner of Potomac and Water Streets (from the level between locks No. 4 and No. 5), so much water as would pass through an aperture of 200 square inches in an iron plate not exceeding half an inch in thickness, to be used solely for propelling the machinery of a paper-mill and appurtenant works; but on certain conditions, viz.: the aperture was to be of such height and length in the clear as to make just 200 square inches (which probably meant, as this court assumed, that it was to be rectangular); its lower edge not to be nearer the canal bottom than two feet; it was to be plain and square through the plate, with no attachment or contrivance to increase the quantity of water to be drawn, and to have a sliding gate in front, so that the water-power granted might be totally or partially stopped, as the provisions of the contract might require. The forebay, or trunk, for conducting the water through the canal-

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bank, from the aperture, was to be covered or bridged; and said forebay, aperture, and gate were to be so constructed as not to interfere with the navigation of the canal or use of the tow-path; and to be of good and substantial construction, so as not to occasion any leakage; and *to be constructed at the cost of the lessee, under the direction and superintendence, and subject to the approval of, the proper officer of the company;* and, at like cost and *under like superintendence, to be altered from time to time, as might be considered necessary by the company or its proper officer,* to prevent or lessen the inconvenience to the navigation of the canal and use of the tow-path. It was also stipulated that the officers and servants of the company should at all times have free access to the lessee's premises to examine and repair the embankments of the canal, and the lessee's fixtures and works connected with drawing off the water, for the purpose of seeing whether the water was wasted by leakage, or whether more water was drawn off than was granted. Hill agreed to pay for the use of the water leased an annual rent of \$500 for the first ten years, and \$600 for the last ten; and it was made a condition that if the rent should not be paid, or if the other stipulations should not be complied with, or if he should alter or enlarge the forebay, or trunk, or aperture, or apply the water to other uses, without the consent of the company, they might cut off the water until he should make amends or satisfaction. It was also agreed that if the water should at any time be found deficient for the uses of navigation (which was declared to be the primary purpose of the canal), the supply to the mill might be diminished or stopped, as might be requisite for meeting the deficiency.

Having got his lease, Hill went to work and, at a cost of about \$40,000, erected his mill; placing it at a distance of 350 or 450 feet away from the canal; a greater distance than were the other mills. This required a long forebay. Such a one he built, of solid masonry, giving to it, however, both less capacity and less pitch than marked those of the other mills, and adopting in his mill a turbine wheel instead of the ordinary overshot. The result of the whole was that

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he received about half the quantity of water which commonly came to the other mills, through an aperture in the canal of 200 square inches.

In this state of things, Hill agreed with the company, in May and June, 1866, that he should have a lease for such additional quantity of *water-power* as was required for his mill, upon the usual terms, on payment of a bonus of \$5 per inch for such additional quantity. Hereupon the engineer of the company and the superintendent of Hill's mill went to work to ascertain by actual experiment how much additional water was required. Their mode of operation was to *raise* the slide in the side of the canal through which the water flowed to the mill until a sufficient quantity to propel it flowed through. The mode in which the forebay to Hill's mill had been constructed allowed them no other mode. Accordingly, the head of water being weak, as the gauge was lifted *upwards* and the water flowed from towards the *top* of the canal, the operation brought the slide to a point only five inches below the surface of the canal, and no sufficiency of water could be had until an aperture of 700 inches—an aperture therefore of 500 inches more than the one originally agreed on—was made. This aperture was accordingly left, and the water that went through it was used by Hill.

At the next quarter-day the company required him to pay the bonus and quarter's rent upon the additional 500 inches, which he refused to do. They then were about to shut off the water when Hill filed this bill in the court below for an injunction. After answer, the court referred it to Mr. W. R. Hutton, engineer of the company, to report as a commissioner and expert upon certain matters concerning this and the other mills.

Mr. Hutton reported that the other mills discharged about $6\frac{2}{3}$ cubic feet per second for every 100 inches of aperture, while Hill's 200 discharged at only the rate of $6\frac{1}{2}$; though, with allowance for the location of the mill and other circumstances, he ought, through his 200 inches, to have received at least 11 cubic feet per second.

Argument for the canal company.

This question, also, was referred to him :

“How many square inches of aperture, situated at the distance of *two feet from the bottom of the canal*, and of the width of complainant's forebay, would furnish a flow of water equivalent in power and effect to the additional water received by the complainant under his new contract, over and above his original grant?”

Mr. Hutton reported that the additional 500 inches provided for by the contract were the equivalent of but 217 inches drawn *two feet from the bottom, and under the conditions of the lease*.

The court accordingly made the injunction perpetual, so long as Hill should pay rent on 217 inches.

From that decree it was that the company now appealed.

Mr. W. S. Cox, for the Company, appellant in the case :

The error of the decree is that it makes a new contract for the parties. As to the original contract, the canal company did not stipulate to furnish a certain quantity of water—so many inches of water—but so much water as will pass through an aperture of 200 square inches. It is obvious that the quantity that will pass through such an aperture will vary with different conditions. But the shape and location of the aperture itself were left entirely to the judgment and discretion of the lessee, with the single condition that the lower edge of the aperture be not nearer than two feet to the canal bottom. In this case Hill has the whole benefit of his grant. He could not, with an aperture of 200 square inches, receive water through the forebay constructed by himself under more favorable conditions than at present.

Then, in regard to the new contract. As to this, Hill pretends that in ascertaining the quantity of water, or the size of aperture necessary, the company's officers ought to have enlarged the aperture *horizontally*, more than *perpendicularly*, on the principle that the greater pressure at the lower depth would have made a smaller number of additional inches sufficient for a given work than would have to be

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added perpendicularly. And this is the sole answer to their claim, that he was bound to pay according to the number of inches of aperture. But it was his own act that made the mode of measurement adopted the only one practicable. The forebay was of his own construction. The lease contemplated a construction of the forebay by the lessee, subject only to the approval of the officer of the company. The forebay, of course, was always constructed of such width as to be adapted to the machinery. It would not, for instance, be wider than the mill-wheel, for, as to the excess of width, the stream of water paid for would simply be wasted. Hill had made his forebay of solid stone, and in his lease stipulated that it should not be enlarged without the written consent of the company. It is not pretended that he ever applied for that consent, much less that it was granted. On the contrary, he expected to get the additional water by a vertical addition to the column of water, and his own foreman assisted in making the measurement in that way; nor did he ever dissent from it.

The only hardship in this case is the result of the appellee's own miscalculation. He obtained his water-grant first and then erected his mill, with such machinery that the water leased by him was insufficient to propel it. He then obtained all the water that he needed, on the same terms that were usual in all water leases, and found that those terms were onerous because his peculiar machinery required a more extended grant than usual, and therefore seeks to change the terms of his contract by the authority of the court.

Mr. W. D. Davidge, contra.

Mr. Justice BRADLEY delivered the opinion of the court.

The large investment of capital made by the appellee in sole reliance on the water-power which the lease secures, with the full knowledge which the appellants had of this reliance and intended investment, renders it necessary that we should look carefully to the substance of the original

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agreement, of January, 1864, as contradistinguished from its mere form, in order that we may give it a fair and just construction, and ascertain the substantial intent of the parties, which is the fundamental rule in the construction of all agreements. It is not to be presumed that they intended to provide for a certain aperture in the canal without respect to the amount of water it would discharge and the purpose which that water was to accomplish. What the appellee sought was *water-power* to drive the machinery of an expensive mill. The appellants knew this to be his object, and the thing leased or granted was intended to be, and in fact was, *water*, as the means of creating such power. It was not only water, but a *certain quantity* of water, namely (in the words of the lease), "so much water as will pass through an aperture of two hundred square inches," under certain conditions specified. The parties clearly had in view a fixed quantity of water to be received in a given time. In ascertaining their mutual rights under the lease, it is important to know how much this quantity was. When we know that, we know the substance of the agreement.

Now, in speaking of a certain quantity of water, we always have reference to its cubical contents, its bulk or weight. We mean so many gallons, or hogsheads, or cubic feet of water. We have no reference to surface or sectional measurement. A square foot, or a square inch of water, expresses no quantity at all. But when we speak of the quantity which will *pass through* a square foot, or square inch of aperture, in a certain time, then our words have meaning. The size and position of the aperture so carefully prescribed in the lease were intended merely as a means of measurement of the real thing granted, namely, that certain quantity of water per second, or per hour, which the parties had in mind, and about which they were dealing. If we can ascertain this, we can easily adjust the mutual rights of the parties. Can it be ascertained from the terms of the lease, aided by the light derived from the evidence in the cause? We think it can. And in making this inquiry we have a right to examine into the state of things existing at the time

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and the circumstances in which the lease was made. This kind of evidence is especially pertinent when the inquiry is as to the subject-matter of the agreement.

The amount of water which will be discharged through an aperture of a given size will depend upon the form of the aperture, the head under which the water is drawn, and the freedom from obstruction with which it is permitted to flow away.

In this case the lessee is not restricted as to the form of the aperture, except, perhaps, that it shall be rectangular. So that it contains only the content of two hundred square inches he is at liberty to construct it of such relative dimensions as he sees fit. Of course it is his interest to give it the greatest length and the least height consistent with a free flow. Such a form gives the greatest head of water above the aperture and increases the discharge. The right of superintending and directing the construction of the works, reserved to the lessors, cannot be construed to restrict this discretion of the lessee. That right has more particular reference to the manner of the construction, and the solidity and safety of the work, in reference to the structure and uses of the canal. It cannot be allowed to annul the substantial rights of the lessee without becoming repugnant to the grant.

In the next place, as to the head of water under which the leased water is to be drawn, the only restriction imposed upon the lessee in this regard is that the lower edge of the aperture shall not be nearer to the canal bottom than two feet. Of course he is entitled to draw under the entire head of water above this two feet. What that head shall be will depend upon the usual depth or height of water in the canal. It is to be presumed that the parties contracted in reference to that. The lessors do not guarantee any particular head; but any alteration of their canal which would materially and permanently reduce it would abstract from the lessee a portion of the water, which he must be presumed to have stipulated for. The contract was made in reference to the state of things existing at the time it was made.

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In the third place, as to the freedom from obstruction with which the water shall be permitted to flow off and be discharged: the lease imposes no restrictions upon the lessee on this point, except that he shall not affix to the aperture any attachments or contrivances for increasing the flow beyond what it would otherwise be. This restriction relates to the well-known law of practical hydraulics that an adjustment or nozzle attached to the outside of an aperture prevents the vein of water from contracting and increases the aggregate discharge. With this exception, however, the lessee is entitled to draw off from the canal as much water as the two-hundred-inch aperture will discharge when it flows free from any obstruction except that which may arise from the ordinary use of the water in milling operations. This is a very important and essential right of the lessee, and one of which the lessors cannot deprive him under any pretence of regulating and directing the mode of constructing his forebay and its appendages. If the water is discharged under a four-feet head (which is about what the evidence shows to be the fact), the practical rules of hydraulics determine exactly how much water will issue in each second of time from a rectangular aperture of two hundred square inches, provided it meets with no obstruction outside, as where it falls out freely into open space. Mr. Hutton, the commissioner, to whom, as an expert, certain important questions in the cause were referred by the court below, says that the other mills discharge about six and two-thirds cubic feet per second for every one hundred inches of aperture. This is probably a little less than the discharge would be in the open air, because there is undoubtedly some obstruction to the flow arising from the passage of the water through the flumes.

This rate of flow would give to the appellee, through his aperture of two hundred square inches, a discharge of thirteen and one-third cubic feet per second. Something like this amount of actual water must be considered as within the intent of the parties to give and receive.

But the fact became developed that, by the faulty con-

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struction of the appellee's forebay or flume, arising from its small capacity, its great length, and its want of pitch or slope, he does not get but about one-half of the amount of water which is due to the aperture in the canal, and which he ought to receive. This fact is established beyond a question by the evidence.

Now, certainly, it is not equitable, even if it be in accordance with the strict letter of the lease, that the appellee should be compelled to pay full rent for half the quantity of water, which, according to the real intent of the parties, he stipulated for. True it may be said that it was his own fault, to construct the forebay in the disadvantageous manner which he has done, and that if he wants the full benefit of his lease he should tear it down and reconstruct it differently. This would require a great sacrifice on his part, and would not benefit the appellants. Surely, a court of equity cannot be compelled to consign a party to such a clumsy and ruinous remedy as this. The appellants can sustain no injury by allowing the lessee to take so much water as he supposed he was getting and as they supposed they were granting. This would be in accordance with the substance of the agreement. It would carry out the intent of the parties as gathered from the whole instrument and the state of affairs existing at the time it was made, and would save the lessee from a ruinous expenditure for alterations rendered necessary by his mistake.

It may be said that the location of the appellee's mill at a distance of 350 or 400 feet from the canal was a circumstance which the lessors had a right to take into account, and that by having to conduct the water such a long distance it could not be supposed that the lessee would be able to draw as much water through a given aperture as if his mill had been located nearer. This is true; and whatever is due to that circumstance the appellants are entitled to insist upon. But Mr. Hutton, the commissioner, says in his report that, making all allowance for the particular circumstances and location of the appellee's mill, he still ought to receive at least eleven cubic feet per second through the aperture named in

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the lease; whereas, in fact, he receives only twenty-three cubic feet through an aperture of seven hundred inches, or at the rate of only about six and a half cubic feet per second for an aperture of two hundred inches.

But if the appellee should receive eleven cubic feet of water per second, to which his lease may justly entitle him, this is not sufficient to drive his mill; and the question then arises as to the additional quantity which he requires, and which, according to the witnesses, is about twelve cubic feet per second. It appears from the case that the appellants agreed to furnish him the additional amount required for his mill on the usual terms; and that the appellee accepted the offer; but, in consequence of the controversy which arose about the measurement of the water and his refusal to comply with their demands, they declined to carry out the agreement. Had the appellants been right in the position they assumed, they would have been justified in making this refusal. But we think that they were not right, and, therefore, that they are bound to carry the agreement into effect, and that the appellee is entitled to receive the additional amount required, at the same rate, and on the same terms at which he was to have the original two hundred square inches. And as eleven cubic feet of water per second are due to the original aperture named, the additional twelve cubic feet per second would require, according to the report of the commissioner, a corresponding aperture of two hundred and seventeen square inches. For this additional amount of aperture the appellee should be charged, making the total amount four hundred and seventeen square inches. But to get the water to which it entitles him, as his forebay and apparatus are at present constructed, he is obliged to have, in reality, at the canal, an aperture of seven hundred square inches. The appellants were willing that he should have this aperture by increasing the height of the original aperture, but insisted that he should pay for seven hundred inches, according to the terms of the lease. Under the peculiar exigencies of the case, obstructed as the flow now is, we think that for the aperture named he should be charged

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for only four hundred and seventeen square inches. This is precisely the view on which the decree below is based, and we think it is correct. But as the difficulty between the parties originated from the mistake made by the appellee himself in the construction of his forebay and works, he ought not to recover any costs from the appellants, either in this court or the court below.

The result is that the decree must be

AFFIRMED, BUT WITHOUT COSTS IN EITHER COURT.

Mr. Justice STRONG, with whom concurred Mr. Justice DAVIS, dissenting:

I dissent from the judgment given in this case. In my opinion, it practically makes a new contract for the parties; a contract to which they never agreed. It holds that what, at most, was an expectation of results amounts to a binding obligation that they shall follow. To this I cannot agree.

MORGAN'S ASSIGNEES v. SHINN.

1. A bill of sale of a vessel, absolute in its terms, may be shown by parol evidence to be only a mortgage.
2. The facts that the bill of sale was recorded; that the vessel was re-enrolled in the name of the transferee; that a policy of insurance was taken out in his name as owner, and that no note or bond was taken by him, will not overcome positive evidence that the bill was taken as a mere security for a loan.
3. A mortgagee of an interest in a vessel, not in his possession, is under no obligation to contribute for repairs which he did not order. The ship's agents are not his agents, and they act under no authority from him. And it makes no difference though the vessel be registered in his name.

APPEAL from the Supreme Court of the District of Columbia; the case being thus:

The assignees of Morgan, Rhinehart & Co. filed a bill in the court below against one Shinn, to enforce contribution to the repayment of advances made by their assignors for