THE ROVER.
CHADWICK *ET AL. V.* DENNISTON *ET AL.*

District Court, S. D. New York. December 31, 1887.

1. SHIPPING—CARRIAGE OF GOODS—SEAWORTHINESS—PRESUMPTION.

A steamer, having a crank-shaft which was a fourth larger than required for a vessel of her size, and which had been in use in all kinds of weather for 11 years, broke the shaft in a violent gale and rough sea, amid much pitching and taking in of water. The freighters sued the owners for damage to the cargo resulting from the pitching, and alleged to have been caused by a defect in the shaft. *Held,* that the facts raised a presumption of her seaworthiness as to the shaft, to rebut which proof of a serious flaw in the shaft was required; the proof in this case *held* insufficient.

2. SAME—CRANK-SHAFT—SEAWORTHINESS—STIPULATIONS.

Stipulations in a charter-party that the vessel is not responsible for delivery of the cargo in bad condition, or for damage from perils of steam or machinery, do not absolve the owner from the duty of providing a seaworthy vessel, expressly provided for in the charter, and impliedly by the bill of lading.

3. SAME—CARRIAGE OF GOODS—SEAWORTHINESS—LATENT DEFECTS.

A recital in a charter that the vessel is "tight, staunch, strong, and in every way fitted for the service," is an express warranty of her seaworthiness as to latent defects.

In Admiralty. Libel for damages.

This is an action against the owners of the steam-ship Rover, to recover for the damages to a cargo of bananas on a voyage from Puerto

Cortez, Honduras, to Charleston, South Carolina, in December, 1885. The steamer sailed on the seventh December. On the 10th, while in the Florida straits, in a severe gale, the crank-shaft broke. After about 38 hours labor, the crank-shaft was temporarily strapped together, the aft-engine set in motion, and the steamer reached Charleston on the 15th. While the shaft was repairing, the steamer rolled heavily in the trough of the sea, and the bins which kept the bunches of bananas in place between-decks and in the hold were broken down, and the bananas thereby became more or less bruised and mashed, so as to be greatly damaged on arrival. The Rover was chartered under a charter of affreightment on the sixteenth of June, 1885, to the Merritt Fruit Company, and by that company subchartered to the libelants on the twenty-first of September, 1885; and she had made several previous trips under the charter and subcharter. The libelants contended that the shaft was so defective in construction as to constitute unseaworthiness in the ship. The respondents contended that there was no defect in the shaft amounting to unseaworthiness. Both charters contain the following written clause: "Steamer not responsible for delivery of cargo in bad condition." The subcharterers loaded the bananas on their own account, and took from the master a bill of lading therefor, such as had also been used on previous trips, which contained the following exceptions: "Loss or damages resulting from * * * any of the following perils excepted, (whether arising from the negligence of the master, or mariners, or others of the crew, or otherwise however,) viz., risk of craft, explosion, or fire, at sea or in craft, or on shore, *boilers, steam or machinery, or from the consequences of any damage or injury thereto, however such damage or injury may be caused,* collision, stranding, or other perils of the seas," etc.

Goodrich, Deady & Goodrich, for libelants.

E. B. Convers, for respondents.

BROWN, J. The charter and the subcharter were both in the same form, which described the Rover as being "tight, stanch, strong, and in every way fitted for the service." By this clause of the charter, as well as by the legal implication of the bill of lading, the owners warranted the seaworthiness of the vessel; that is, that she was reasonably fit for the service in which she was to engage. This warranty extends to latent defects not discoverable by prior examination. Either the ship or the freighter must bear such risks; under the warranty of seaworthiness, the law places this risk upon the ship and her owners. *Talcot* v. *Insurance Co.,* 2 Johns. 124, 128; *Work* v. *Leathers,* 97 U. S. 379; *The Lizzie* v. *Virden,* 19 Blatchf. 340; *Kopitoff* v. *Wilson,* 1 Q. B. Div. 380; *The Titania,* 19 Fed. Rep. 101,107; *The Regulus,* 18 Fed. Rep. 380; *Sumner* v. *Caswell,* 20 Fed. Rep. 249, 253. Exceptions in the bill of lading precisely similar to the exceptions in this case have been repeatedly held to apply only to matters arising upon the voyage, and not to override the express or implied warranty of seaworthiness, or to cover faults or defects, amounting

to unseaworthiness, existing before the commencement of the voyage. *Kopitoff* v. *Wilson*, *supra*; *Steel* v. *Steam-Ship Co.*, 3 App. Cas. 72;

Tattersall v. *Steam-Ship Co.,* 12 Q. B. Div. 297; *Glen-fruin,* 10 Prob. Div. 103, 108; *The Hadji,* 16 Fed. Rep. 861; *The Brantford City,* 29 Fed. Rep. 381, 382; *Gleadell* v. *Thomson,* 56 N. Y. 194, 197. The clause of the charter, "Not responsible for delivery of cargo in bad condition," must be held subject to the same limitation; and in the absence of such further express provisions as existed in the case of *Cargo ex Laertes,* 12 Prob. Div. 187, does not absolve the charterer from the duty of providing a seaworthy vessel, or from liability for not doing so.

There is no convincing evidence of negligence on the part of the officers or crew in the management of the ship, nor on the part of the owners in her equipment. The opinion of the witness Whitton, that the shaft was out of line, and that that was the cause of the break, is insufficient as against the evidence of many other witnesses. The case must therefore turn, in my judgment, wholly upon the question whether the break in the shaft was caused by such defects in the crank-shaft as amounted to unseaworthiness. Upon this point the case has been prosecuted upon each side with the most painstaking thoroughness and ability. A great amount of testimony has been produced, the broken parts of the shaft exhibited, and numerous experts examined on each side. The experts on the part of the libelant, while they all agree in condemning the shaft, do not altogether agree as to the nature or extent of the defect to be inferred from the appearances which the different parts of the surfaces of the broken shaft now present. The rupture was a transverse one across the forward arm of the crank, beginning about two inches below the highest point of the fillet of the shaft. The rupture upon the opposite side is at about the same level, but it does not pass directly across in a straight line. The line of fracture, as it approaches the axis of the shaft, describes a curve upward on the one side and downward on the other, corresponding with a part of the circumference of the shaft, and sloping down at the side, so as to present upon one side of the fracture a part of the section of a cone, or crescent, or semi-cup-shaped form, as variously described. Some of the experts on the part of the libelant express the confident opinion from this feature that the shaft had been welded into the arm in the mode formerly practiced and called the "jumping on" process; by which the end of the shaft made conical in shape was welded into the concave surface of the arm. This crescent-shaped part of the ruptured surface, termed "Z," as it now appears, is pretty uniform as regards smoothness, and the apparent texture and fiber of the iron. Of the flat portions of the ruptured surface, the part along the edge which is in front of the line of motion, termed "W," is quite worn and smooth; while the part upon the opposite side, in rear of the line of motion, termed "Y," is quite rough and jagged, the part between being intermediate in character. From the form and present appearance of the ruptured surface, Z, the libelant's witnesses in general infer that there must have been an original flaw or defect in the welding, which gradually extended over nearly the whole surface, Z. The defendant's witnesses contend that no such inference is warranted.

The controversy turns mainly upon this question. The inferences that might fairly be drawn from the appearances of all the ruptured surfaces are much complicated by the fact that the ruptured parts were strapped together as firmly as possible after the accident, and were subjected to attrition through the subsequent working of the engine for 60 hours, by means of which the vessel was brought into port. As the ruptured surfaces could not be strapped together perfectly tight for this service, it is manifest that there must have been some play of the parts,—the engineer says there was much play between them,—and consequently there was some lifting and forward movement along the edge at Y, and much pressure and attrition at W. The respondents contended that this play and action of the ruptured parts was sufficient to account for the smoothness of, the crescent-shaped Z; while the libelants' witnesses considered this impossible, and attributed the somewhat smooth appearance of that surface to an imperfect union in the welding, arising from the formation of a "cinder," or from a "cold shut" at too low temperature. One eminent expert on the part of the libelant was also of the opinion that no combination of forces upon the crank-shaft could produce, in homogeneous iron without flaws, a break showing the crescent shape of Z; maintaining that the rupture would be in a line tangential to the fillet, or nearly so, as the weakest part and the line of least resistance. Quite as many witnesses for the respondents testify that ruptures of crankshafts in this region frequently show a crescent-shaped surface, like Z, and that the break upon these lines was along one of the paths of least resistance; and even the libelant's witness Whitton says that the shape of the break at Z is not uncommon, and would occur in homogeneous iron.

It is difficult and embarrassing to determine the cause of this break amid such a conflict of opinion between eminent scientific and practical men. So far, however, as I am able to understand the action of mechanical forces, considering the fact that no material is absolutely perfect, or absolutely homogeneous, I do not think that the fact that the break commenced below the upper line of the fillet is proof of a faulty construction. The libelant's witness says, as I understand, that the maximum strain is at about the middle of the fillet, and it is near that point that this rupture began. If the arm of the shaft was supposed to be placed in a horizontal position, and the shaft were made immovably fast, and a weight were then placed upon the end of the crank, and increased until the arm must break somewhere, the greater leverage power exerted a little below the upper line of the fillet might well, as it seems to me, cause the break to occur there, near where Whitton puts the maximum strain—that is, below what Burr says is the weakest point; and in that case, the additional metal in the line of the immovable shaft would form a kind of supporting fulcrum, sufficient to turn the line of the rupturing surfaces in the direction it took; so that through the torsional and transverse strains together, the cleavage might naturally present the crescent shape of Z as the line of least resistance, which the defendant's witnesses testify to, and Whitton says is not uncommon. And a very slight

difference in the fiber, or homogeneousness of the iron, not amounting to any flaw, would be sufficient to determine where the cleavage should begin, and its path, as shown in this instance. In consequence of the unequal action and force of the steam upon the piston and crank-shaft during each semi-revolution, there would necessarily arise between the strapped surfaces not only some elevation, more or less, at Y, but also some forward and back movement across the line of fracture. These motions combined must, as it seems to me, necessarily affect the whole surface of Z, and produce some attrition there; though manifestly less than at W, where the most constant pressure and wear would be exerted during the 60 hours that the parts were at work. There must consequently have been some wearing of the surface of Z; and in this movement back and forward the wearing would, as it seems to me, be nearly as much on the part of Z towards Y, as on the part of Z near W, as it now actually appears. By the lifting above the ragged edges of Y, those edges would escape, but Z would not escape, abrasion. The whole surface of Z, however, must have been, at the time of the original break, much smoother than any part of Y; but it does not differ much from the middle portion of the flat surface between W and Y. This circumstance could be at least partly accounted for by the familiar fact that a slow break is more ragged than a quick one; and there can be no doubt that this break began at Y, at the corner opposite Z; and when that had given way slowly, forming jagged ridges, the rest, in the jerk of the heavy seas, or possible racing, or at the bite of the maximum force, would naturally be wrenched off suddenly, and form the much smoother surfaces on the remaining parts as now seen.

The crescent, or partly conical, shape of Z is, however, so even, that it very strongly suggests the "jumping-on" process, which Mr. Haswell and others so confidently affirmed must have been the mode in which the shaft was made; and I should have been disposed to concur in that view, were it not for the direct evidence on that point. I cannot disregard, however, the positive testimony of the respondent's witnesses, who testify concerning the manufacture of the shaft, and show just how it was made. I do not see any sufficient reason to reject this commission. The testimony is as direct and positive as could possibly be expected in regard to the forging of a shaft 13 years ago. The witnesses state in detail the precise mode in which all the shafts were welded, which shows that the "jumping-on" process was not used in any shaft made at that time. Kennedy says expressly that "there was no welding to make the angle formed by the arm of the journal," and the method given in detail shows that the arms of the crank were made by slotting them out of ingots welded together solid.

It is urged that the identity of the shaft broken with that built for the Rover in 1874 was not proved; and that the shaft broken might have been some other shaft put in since, and not the shaft testified to by the Glasgow witnesses. Neither side, it is true, put the

precise question to any of the witnesses, whether the shaft broken was the identical shaft originally put into the Rover; nor is there any proof that the Rover herself,

of which the same witnesses speak, is the same vessel for which the shaft was manufactured by the Glasgow witnesses. It might possibly have been a different vessel by the name of the Rover; and so the owners of the Rover, for whom the shaft was made, might by possibility have been other owners, and another firm of the same name. All such suggestions of mere possibilities come too late when they are first urged in argument, and no attention was drawn to such points at the time when the witnesses were being examined. Any inquiries of that kind, thought necessary on either side, could then easily have been answered. In the absence of any inquiry, the natural meaning and import of the testimony should be followed, and the identity of the vessel, of the persons, and of the shaft be inferred, when there is nowhere in the case any intimation to the contrary.

Upon the testimony of the manufacturers, I must, therefore, hold it established that the "jumping-on" process was not used in the manufacture of this shaft; and consequently that the theory of some of the chief witnesses for the libelants cannot be sustained. The credit due to others also of the libelants' experts is to some extent weakened by their evident error as to the place where the break commenced, and as to the line of fracture. The small perpendicular cleavages shown near Y, and in the interior edge of Z, are too slight to be regarded as flaws materially affecting the strength or sufficiency of the shaft.

At the time of this accident, the vessel had been 11 years in service, and in all kinds of weather. This break occurred in the Florida straits, a rough region, and in a violent gale, amid much pitching, and when the vessel was taking on board a good deal of water. The shaft was 25 per cent, larger than was required by the rules for a vessel of the small size of the Rover. A good shaft does not deteriorate with use. In a case of this kind, therefore, it is manifest that a shaft that has done good service for 11 years is presumably reasonably fit for service. Upon such proof, the presumption of fact is in favor of the shaft, and of the seaworthiness of the vessel in that respect; and when the break-down is shown to have occurred in a violent gale, and in a heavy sea, the presumption must still remain in favor of the ship, and the breakage ascribed to the perils of the seas, unless the fact, not merely of some trifling defect, but of some material and serious flaw, is fairly established by the preponderance of proof as the cause of the accident. *Lunt* v. *Insurance Co.,* 6 Fed. Rep. 562, 568, and cases there cited.

In the case of *The Glenfruin,* 10 Prob. Div. 103, the shaft broke down on a voyage on which "the ship had met with no more than ordinary weather," and the break, it was found, was caused "by a very serious flaw," and the ship was consequently held liable.

Taking all the evidence in this case together, I do not think the preponderance of proof establishes any material or serious flaw in this journal. Not only the testimony, but the shaft itself, proves careful inspection. Upon the journal attached to the opposite arm of the crank, a slight external flaw had been carefully examined and proved not to extend inward. Where the break occurred there was no external sign of

flaw, and the engineer of the ship, the only competent man who examined the ruptured surfaces before they were affected by the subsequent attrition, says that there was no evidence of flaw on either ruptured surface before the parts were strapped together. Seaworthiness does not require perfection in machinery, more than in anything else. Perfection is unattainable. Only a reasonable fitness for the service designed is required. *Gibson* v. *Small,* 4 H. L. Cas. 353; *Readhead* v. *Midland Ry. Co.,* L. R. 2 Q. B. 412, 440; *Burges* v. *Wickham,* 3 Best & S. 669, 692. In the case of *The Tilania,* 19 Fed. Rep. 101,107, in reference to latent defects, it was said: "The ship should be deemed seaworthy if, all the circumstances being known, she would still be deemed by competent persons, according to the existing knowledge and usage, seaworthy and reasonably fit for the voyage, although subsequent experience might recommend additional precautions." The rule as respects latent defects doubtless operates harshly upon ship-owners. It cannot justly be pressed, as it seems to me, beyond the limitations above indicated; and the first condition of the application of the rule must be proof, with a reasonable degree of Certainty, of the fact that such defects did exist as, if known, would have been deemed to render the ship, as respects the defective subject-matter, not reasonably fit for the service designed.

Considering, on the one hand, the doubtful and inconclusive result of all the evidence as to the fact of any such material and substantial defects in the welding as to make this shaft not reasonably fit for service; and, on the other hand, the long period of 11 years during which it had been in constant use, and the severe weather and the trying circumstances under Which it finally broke, I must hold that the presumption in favor of the sufficiency of the shaft arising from this long use still remains, and that the break resulted from the perils of the sea, rather than from unseaworthiness of the shaft.

The libel must, therefore, be dismissed, with costs.