

269 U.S. 177

46 S.Ct. 42

70 L.Ed. 222

CONCRETE APPLIANCES CO. et al.

v.

GOMERY et al.

*No. 44.*

*Argued Oct. 14-15, 1925.*

*Decided Nov. 16, 1925.*

Mr. Stephen J. Cox, of New York City, for petitioners.

Mr. George Bayard Jones, of Chicago, Ill., for respondents.

Mr. Justice STONE delivered the opinion of the Court.

1

In an earlier suit petitioners sought to enjoin an infringement of the Callahan patent, No. 948,719, and the Circuit Court of Appeals for the Sixth Circuit held the patent valid. Concrete Appliances Co. v. Meinken, 262 F. 958. Later the present suit was brought in the District Court for the Eastern District of Pennsylvania to enjoin an infringement of the same patent by the respondents. The District Court expressed the opinion that the claims of the patent did not involve invention, but, in deference to the determination in the Sixth Circuit, dismissed the petitioners' bill on the ground of noninfringement. 284 F. 518. On appeal, the Circuit Court of Appeals for the Third Circuit held that the patent was invalid for want of invention. 291 F. 486. In view of the conflict of decision, the writ of certiorari was granted by this court (264 U. S. 578, 44 S. Ct. 404, 68 L. Ed. 858) to review the determination in the Third Circuit. Thomson Co. v. Ford Motor Co., 265 U. S. 445, 44 S. Ct. 533, 68 L. Ed. 1098. Both suits involved claims numbered 1, 2, 5, and 13 of the Callahan patent for 'material transferring apparatus' designed for use in transferring concrete or other plastic materials from a suitable source of supply to working points desired on a building or other structure, in the course of construction.

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In principle, the device concerned calls into operation gravity, in conveying mobile substances from an elevated central point to varying working points in building operations. The claims made by the patentee, which relate to a combination embraced in the apparatus described, when paraphrased and separated into their constituent elements, comprise: (1) A tower; (2) a boom oscillatory or swinging horizontally, adjustably connected with the tower and adapted to be arranged at various points in its height; (3) a conduit carried by the boom, extending laterally from the tower, connected to it and adjustable vertically at varying heights in the tower; (4) a means for raising plastic material to the height desired in the tower; and (5) a means for receiving the plastic material from the raising means and conducting it to the conduit, both the raising means and the receiving means being adjustable vertically at varying heights in the tower.

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The apparatus described in the letters patent is capable of use in conveying 'wet' or 'mush' concrete from the point where it is prepared for use and distributing it to points where it is incorporated into a building in process of construction. When the mixed concrete is in readiness to be placed in the forms or molds in which it is allowed to 'set' or harden into an integral part of the structure, it is elevated by the 'raising means,' usually a bucket, skip, or other suitable conveyor, to the 'receiving means,' a hopper, in which the concrete is deposited. From thence it flows by gravity into the conduit, and through it to the form or mold, which may be in any part of the structure at a suitable level below the base of the hopper. As the building progresses, the conveyor, the hopper, and the attached conduit may be progressively raised within the tower, so that gravity may carry the flowing concrete to any desired point at lower levels in the structure.

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The several elements in the petitioners' claims which we have enumerated embrace familiar devices long in common use, separately or in smaller groups, both in this and in kindred mechanical arts. It is not argued that there is any novelty in such units or groups, and the only serious question presented is whether in combination in the apparatus described, they constitute an invention. That the combination embodied in the described apparatus produces a useful result in the mechanical arts, and in modified form is widely used in building operations, is established. Our inquiry, therefore, must be addressed to the question whether the combination is novel, and whether it passes the line, sometimes tenuous and difficult of ascertainment, which separates mechanical skill from invention. The pursuit of this inquiry involves a consideration of the state of the art prior to Callahan's application, of which elaborate proof was made in the trial court.

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Because of an evident difference in the state of the proof in the two cases, the adjudications of this patent by the two Circuit Courts of Appeals are, we think, only apparently conflicting. It is clear from an examination of the two records, the earlier of which is an exhibit in this suit, as well as from the opinion of the court in the Sixth Circuit, that that court did not have before it the detailed history of the practical development of the art, which was elaborately proved in the present case and which convinced both the District Judge and the Circuit Court of Appeals in the Third Circuit that the plaintiff's appliance did not embody an invention. The question thus presented is one of fact, but notwithstanding the agreement of the two courts below, on this aspect of the case, the difference in result reached by the two Circuit Courts of Appeals leads us to review the salient features of the state of the art at about January, 1908, when, according to petitioners, Callahan conceived the combination covered by the claims in his patent. See *Thompson Co. v. Ford Motor Co.*, supra, 447 (44 S. Ct. 533).

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It is a fact of which we may take judicial notice (*King v. Gallun*, 109 U. S. 99, 3 S. Ct. 85, 27 L. Ed. 870) that the principle of conveying and distributing a mobile substance by gravity has found exemplification for centuries, in apparatus for lifting water by power, in buckets or other convenient form of conveyor to a central reservoir from which its flow is induced by gravity, through suitable conduits to fixed points or through movable pipes or hose to varying selected points. Long prior to the Callahan application the principle had been applied to other substances capable of flow under the action of gravity, such as grain, coal, crushed stone, sand, and iron ore. The proof is abundant that by 1905 it was common practice in the erection and use of grain

elevators to provide for raising the grain by endless belt or other conveyor to the top of the elevator; then to discharge it into a receptacle, called a garner or hopper, from which it flowed by gravity through pipes or spouts having a swivel connection with the hopper and swinging laterally, so that the lower end of the spout was movable in the arc of a circle. These spouts were capable of extension, variable at will by attaching additional sections appropriately swiveled, to the end of the section of the spout connecting with the hopper. The conduit or spout was supported, according to need and convenience, by an inclined cable attached at a suitable point above to the elevator tower, or by pivoted boom or gaff attached to the tower of the elevator and capable of being raised or lowered at its outer end. Apparatus of this type was commonly and successfully used for the unloading and storage of grain, and for loading it from storage on to ships or cars in varying positions and distances from the elevator tower; sectional or telescopic spouts, attached to the tower and to each other, being used to secure the delivery of the grain in the desired direction, and at desired distances, the spout being raised or lowered and given direction by the use of boom and tackle. On occasion there was duplication of the apparatus on board ship by the use of a supplemental hopper and supplemental conduit or chute supported and controlled by boom and tackle located on the ship.

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Similar apparatus was in use for the moving of coal by gravity through chutes so constructed as to be moved either vertically or horizontally and supported by cable or boom.

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Before 1904-5 it was common practice for architects' specifications to require that concrete used in building operations be mixed 'dry'; that is, of a consistency which would not admit of its ready flow by gravity. This practice was resisted by engineers and contractors, because it was cheaper and easier to use 'wet' concrete, which could be conveniently distributed through chutes and conduits. For reasons which need not now be inquired into in detail, the increasing use in earlier years of 'wet' concrete in all types of structural work had become the established practice by 1905. Contemporaneously with this increasing use, and, as the proofs show, an active agency in inducing it, was the practical adaptation of the apparatus, used in moving and distributing grain and other substances of similar mobility, to all the requirements for the convenient handling and distribution of concrete by gravity in building operations. Without attempting to refer to all of the numerous instances of that adaptation it will be sufficient to indicate some of the more significant examples which mark its progress.

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As early as 1902-3 in the construction of the Ingalls Building in Cincinnati, an apparatus was used for elevating concrete to a hopper, from which it was discharged through movable metal chutes supported by horses, to varying required points on the floor area of a building in process of erection. This apparatus was described in the Engineering News of July 30, 1903.

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In 1906 a like apparatus was used in the construction of a reinforced concrete building in Norfolk, Va. Concrete was elevated in a tower to a hopper, which was capable of being elevated from story to story as the work progressed. The chute attached to the mouth of the hopper by swivel was capable of lateral movement, and supported by block and tackle attached to the top of the tower.

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There is proof of the use at San Francisco harbor in 1906, in concrete construction, of substantially similar apparatus placed on a scow. It involved the use of a chute moved into different positions by a supporting boom.

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In June, 1907, a similar apparatus was used in the construction of a steel-framed concrete building in St. Louis, although sketches, prepared at the time, called for a swinging boom for the support of a conduit, the boom was in practice dispensed with, as the steel skeleton of the building afforded a means of supporting the conduit.

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In the summer of 1908 an appliance of the same sort was used in the construction of a concrete building at St. Joseph, Mo.; the hopper being capable of elevation within the tower as required, and the movable chute being supported by cables radiating from the top of the tower.

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In 1906 the Great Lakes Dredge & Dock Company built at Gary, Ind., a concrete cofferdam, using a mixer placed on a car running on a trestle, with a wooden hopper beneath the mouth of the mixer, and a movable steel chute extending from the hopper into the cofferdam; the chute being secured by ropes or wires extending to the bracing.

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In 1907, in connection with this same construction, the apparatus was modified by the addition of a mast, to which was attached a swinging boom from which the movable steel chute was suspended. This was in successful operation several months, and was constructed by a man who had never seen concrete handled in this manner, but who was familiar with grain elevator practice.

16

In July, 1908, five months prior to the filing of the Callahan application, an apparatus comprising the elements enumerated in the claims in suit was used successfully in constructing a concrete building in St. Louis. The hopper was vertically adjustable, but the boom was mounted at the top of the tower, so that there was no necessity for change of its location vertically as the building progressed. The use of a swinging boom, attached to a building in process of erection or to a construction tower, which boom was in practice raised from time to time as convenience of operation required, was then a well-known device.

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In this state of the art, Callahan and several others, in the period 1909, applied for patents on combinations for the conveying of wet concrete through spouts or chutes; their applications resulting in interferences.

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Without more extensive examination of the record, this state of the proof leads us irresistibly to the conclusion that the combination described in the Callahan application does not constitute an invention.

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The observations of common experience in the mechanical arts would lead one to expect that, once the feasibility of using 'wet' concrete in building operations was established, the mechanical skill of those familiar with engineering and building problems would seek to make use of known methods and appliances for the convenient handling of this new building material.

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To say nothing of the universally known methods and appliances for raising and distributing water, there were ready at hand widely used and generally understood appliances for the elevation and distribution of mobile substances, such as grain and coal, which involved, both in principle and in practical detail, all the elements described in the Callahan claims. Failure to make use of these obviously applicable methods and appliances in combination, suitable to the particular work in hand, in dealing with a new, plastic material capable of similar treatment, would, we think, have evidenced a want of ordinary mechanical skill and of familiarity with construction problems and methods. The adaptation independently made by engineers and builders of these familiar appliances to the movement and distribution of concrete cement in building operations and the independent patent applications, within a comparatively short space of time, for devices for that purpose are in themselves persuasive evidence that this use, in combination of well known mechanical elements was the product only of ordinary mechanical or engineering skill and not of inventive genius. *Atlantic Works v. Brady*, 107 U. S. 192, 2 S. Ct. 225, 27 L. Ed. 438. It is but 'the suggestion of that common experience, which arose spontaneously and by a necessity of human reasoning, in the minds of those who had become acquainted with the circumstances with which they had to deal.' *Hollister v. Benedict Manufacturing Co.*, 113 U. S. 59, 72, 5 S. Ct. 717, 724 (28 L. Ed. 901). This progressive adaptation, much of which preceded and some of which was contemporaneous with the Callahan adaptation, of well-known devices to new but similar uses, 'is but the display of the expected skill of the calling, and involves only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the facility of manipulation which results from its habitual and intelligent practice.' *Hollister v. Benedict Manufacturing Co.*, supra, at page 73 (5 S. Ct. 724). No novel elements were used by Callahan in his device. We are unable to find that their use in combination in it was more than the application to them of mechanical skill in the course of a natural development and expansion of the art. The decree of the court below is

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Affirmed.