

fringed complainant's patent; that such proceedings were had in that case as that a decree was entered, finding the defendant in that case guilty of the infringement charged, and an injunction against such further infringement duly entered, (35 Fed. Rep. 299;) that the defendant in this case took the control and charge of the defense in that case, and by its own attorneys, and at its own expense, conducted such defense, and that, therefore, this defendant is estopped by the decree in that case.

The proofs fully sustain this allegation in the bill, and bring the case wholly within the rule laid down in the prior case of this complainant against the David Bradley Manufacturing Company. A decree will therefore be entered, finding that the defendant infringed, and for an injunction and accounting.

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KENNEDY *v.* CHICAGO CITY RY. Co. *et al.* SAME *v.* BOUTON FOUNDRY Co. *et al.* SAME *v.* TOBIN *et al.* SAME *v.* EXCELSIOR IRON WORKS *et al.* SAME *v.* BEE. SAME *v.* HAFFNER *et al.*

(Circuit Court, N. D. Illinois. May 2, 1892.)

**1. PATENTS FOR INVENTIONS—BOILERS—INFRINGEMENT.**

The third claim of letters patent No. 224,685, issued February 17, 1880, to Hazelton and Kennedy, for a new and improved sectional boiler, consisting of the combination of horizontal hot-water pipes and steam pipes set inside of a fire chamber, with vertical drums and mud drum set outside of the fire chamber, is not infringed by a device consisting of a "porcupine" boiler having a central standpipe in which numerous hollow tubes are inserted so as to radiate horizontally, and having three larger tubes riveted to the standpipe, and extending horizontally through the brick-work surrounding the fire chamber, since the said claim covers merely the particular combination described therein.

**2. SAME—BOILER DEFLECTORS—NOVELTY—PATENTABLE INVENTION.**

Letters patent No. 349,720, issued September 28, 1886, to Edward S. T. Kennedy for an improvement in boiler deflectors, consisting in the combination with a porcupine boiler and its jacket of horizontal flame deflectors of segmental form, placed within the combustion chamber in position for protecting the exposed ends of the tubes and deflecting the heated products of combustion towards the boiler cylinder, are void for want of patentable invention and novelty.

In Equity.

Bills by Edward S. T. Kennedy to restrain the alleged infringement of certain patents.

*Banning, Banning & Payson*, for complainant.

*Bond, Adams & Pickard*, for defendants.

GRESHAM, Circuit Judge. These suits for infringement of patents, No. 224,685, issued February 17, 1880, No. 247,910, issued October 4, 1881, and No. 349,720, issued September 28, 1886, were heard together. The complainant purchased a half interest in the two first inventions, the patents issued to him and the inventor jointly, and the latter assigned his interest in both patents to the complainant. The third patent issued to the complainant. All the defendants are charged with infringing the third claim of No. 224,685; and the Chicago City Railway Company, the Bouton Foundry Company, and Joseph Bee with infringing the 1st, 2d, 5th, and 6th claims of No. 349,720. It is not shown that any of

the defendants infringed No. 247,910, and no decree is asked on that patent.

The Hazelton patent, No. 224,685, is for a new and improved sectional boiler. The specifications show a stationary steam boiler, composed of hot-water, steam, feed-water, and air tubes laid horizontally, in coils or sections, one above another, in a brick fire chamber, with all the tubes, coupling, and connections outside the brickwork, so that they may be readily got at for examination or repair, and with steam and mud drums also entirely outside the brickwork. The hot-water tubes, which are set in the lower part of the fire chamber, all connect at one of their ends with the feed-water pipes, and at their other ends with vertical drums, which in turn connect with a mud drum below them. The feed-water pipes are provided with check valves which permit the water to flow into the tubes below them, but do not allow escape upward. The steam pipes, which are a mere continuation of the water pipes below them, have outside couplings terminating in a steam drum, from which steam is taken by a pipe for use. It is claimed by the complainant's counsel that the vertical outside drums are virtually the upper part of the mud drum, and that the placing of the latter "outside of the fire chamber," in a boiler having horizontal steam and water pipes inside the fire chamber is the novel and distinguishing feature of claim 3, which reads:

"(3) The horizontal hot-water pipes, B, B, and steam pipes, G, G, set inside of a fire chamber, in combination with the vertical drums, D, D, and mud drum, E, that are set outside of the fire-chamber, substantially as herein shown and described."

It is urged in support of the claim that by locating the vertical drums and mud drum outside the fire-chamber, thus removing them from the heat of the furnace, ebullition is prevented or very much lessened, and the sedimentary matter in the water is allowed to deposit in the mud drum, where it may be readily removed without letting down the fire or emptying the furnace, in the old way. The alleged infringing boiler is of the "porcupine" type, having a center upright tube or standpipe, with the lower end extending  $2\frac{1}{2}$  feet below the grate bars, and resting on the floor of the ash pit. Its diameter is uniform to a point five or six feet from the bottom, below which it is smaller. Above this lower smaller end, numerous hollow tubes, with their outer ends sealed or closed, are securely inserted in the shell of the standpipe, so that they stand out or radiate horizontally from it. Three tubes of larger diameter than those just mentioned are riveted or otherwise firmly inserted into the stand pipe just above the point where its diameter begins to diminish, and extend horizontally through the inclosing brickwork surrounding the fire chamber, with manhole plates bolted to their outer ends. From these three tubes, others of the same diameter extend at right angles through the wall of the brickwork to the level of the lower end or base of the standpipe. Two or more tubes, somewhat larger than the numerous radial tubes, are flanged or riveted to the standpipe at the water line, and extend outwardly at right angles. Three feet from the top

of the standpipe, and riveted to the inside of it, is an iron plate with three holes in it to separate the water from the steam. There is a hole in the head of the standpipe for steam connection, and other holes for connection with the water column and steam gauge. The standpipe just below the grate bars is tapped for feed and blow-off pipes and bottom connection of the water column. The water circulates freely through the standpipe, the horizontal and perpendicular pipes at the bottom, and the radial tubes. Further description of this boiler is not necessary for our present purpose. It is urged by the complainant's counsel that the numerous radial tubes and the three horizontal tubes or pipes near the base of the standpipe are equivalent to the hot-water pipes, B, B; that the upper radial pipes are equivalent to the steam pipes, G, G; that the three perpendicular pipes or legs standing like a tripod at the bottom are equivalent to the vertical drum, D, D; that their three lower hollow ends are equivalent to the mud drum, E, of the third claim; and that the difference between the defendants' boiler and the combination covered by the third claim is structural, and not functional.

The water in water-tube boilers circulates in the tubes, while in tubular boilers the heated products of combustion pass into or through the tubes. Hazelton did not invent water-tube boilers; and the difference between the combination covered by the third claim and prior combinations consists in locating the hot-water pipes and the steam pipes in the fire chamber,—that is, within the inclosing brickwork,—and the connecting pipes or drums and the mud drum entirely outside. The vertical drums which make the outside connection of the hot-water tubes are of greater capacity than any single tube, and the drums are themselves connected by the mud drum in a manner to produce circulation between the ends of all the water tubes and the mud drum; thus equalizing the water supply when the tubes in one section become hotter than the others. It is this water circulation, and the location of the vertical drums and the mud drum outside the brickwork "for convenience of examination and repairs," that was allowed as a real contribution to the prior art. The location of the hot-water pipes inside the masonry or brickwork, and the other parts outside, are described and claimed as essential parts of the invention. The Baker patent of 1863 shows a water-tube boiler arranged in sections, and a single horizontal pipe, outside the brickwork, at the line of connection between the water and steam tubes, instead of at the line of the lower tubes of each section; also, a pipe outside the brickwork, in connection with the ends of the bottom water tubes. These upper and lower pipes are connected by vertical pipes, thus securing connection between the upper and lower water tubes, but not between the intermediate ones, as in the combination of the third claim of the Hazelton patent. To the end of the lower pipe of the Baker boiler, which is one inch in diameter, and through which water is constantly supplied to the lower pipe of the bottom water coil, is attached a blow-off pipe. The chief superiority of the Hazelton boiler over this boiler consists in the intermediate connection. It is urged for the defendants that a mud drum is simply an enlarged pipe, and that,

by increasing the diameter of the lower pipe in the Baker boiler, its outside connection would make it an efficient mud drum. This boiler certainly narrows the scope of the third claim. The Lynde patent of 1873 shows a boiler composed of water tubes extending horizontally across the fire chamber, and a mud drum and vertical circulating pipes entirely outside the jacket. The specifications say:

"It is found that in a rapidly circulating boiler the sediment seeks and is deposited in the quietest place at the bottom of generator. To provide such a place, from which the deposit could be readily removed, the receiver, N, is placed so as to attach the blow-off pipe, O, at bottom, the feed pipe, P, to one side above the center, and on the opposite side, on the same line, the pipe, Q, connecting the receiver, N, with manifold, B. A pipe, R, is inserted at the top of N, connecting manifold, J, to the receiver, N. The pipes, Q and R, now are the blow-off pipes to the whole generator. By use of stopcocks, S and S', either part is blown off at will. The sediment first finds a semi-quiet place in J, from which a constant stream flows through pipe, R, to the receiver, N, carrying the sediment, and depositing it in the still water at bottom of N, from which it is easily blown off daily, or as required."

Although the manifold, B, with which the outside receiver, N, is connected, is located in the wall of the furnace, with one side somewhat exposed to the heat, the receiver and its co-opening manifold and pipe operate as a mud drum. If the defendants' boiler is covered by the third claim of the Hazelton patent, that claim is anticipated by the Lynde patent. The defendants' boiler shows no pipes extending across the fire chamber provided with connections like Hazelton's pipes, B, B, and G, G; it shows no vertical or other drums connecting the ends of the pipes outside the fire chamber, as do Hazelton's drums, D, D; and it shows no drum or pipe corresponding to drum, E, of his third claim. The vertical drums of that claim connect the horizontal pipes, but the three pipes near the base of the defendants' boiler perform no such office. Hazelton was a mere improver, and not a pioneer, and the third claim covers a combination, not of any pipes and drums, but of the pipes and drums arranged as shown and described; and thus limited the claim is not infringed.

Kennedy patent, No. 349,720, is for an improvement in boiler deflectors. It shows a vertical standpipe with tubes connecting with and radiating from it, and segmental or annular plates so applied to the tubes as to deflect the flames from a direct course, all inclosed within a casing or jacket. "The object of this invention," says the specification, "is to provide an improvement especially applicable to vertical cylindrical boilers having radiating tubes,—boilers of the so-called 'porcupine' type,—the improvement being designed to effect very considerable economies of fuel and steam; to assure the quick 'getting up' of steam; to prevent undue heating of the boiler jacket; to insure a better circulation of water in this type of boiler; to prevent priming, and also to prevent the burning of the outer ends of the tubes, and consequently to increase the durability of the boiler, and reduce the frequency and cost of repairs. The invention consists, in combination with the boiler and its jacket, of horizontal flame deflectors of segmental form, placed or fixed within the

boiler combustion chamber, in position for protecting or shielding, as far as may be desirable, the exposed ends of the tubes, and at the same time deflecting the heated products of combustion chiefly towards the boiler cylinder, all of which will be hereinafter fully set forth." The four claims which it is charged are infringed read:

"(1) The combination with a boiler having a vertical cylinder with radiating tubes of a segmental or annular deflector, adapted or arranged to deflect the products of combustion from one part of the combustion chamber to another, substantially as herein shown and described. (2) As a means for protecting the exposed ends of the radiating water tubes of a vertical boiler, of the character herein shown and described, a horizontal segmental or annular deflector arranged in place by being laid on the tubes, as set forth." "(5) As a means for protecting the exposed ends of the radiating water tubes of a vertical boiler, of the character substantially as herein shown and described, a segmental or annular deflector, riveted to the boiler jacket, and extending horizontally therefrom, as set forth. (6) As a means for protecting the exposed ends of the radiating water tubes of a vertical boiler, of the character substantially as herein shown and described, and directing the flame to the boiler cylinder, a segmental or annular deflector built into and extending horizontally from the brick boiler jacket, substantially as set forth."

The third claim shows a deflector suspended from the tubes, and the fourth a deflector riveted to the boiler cylinder. Clark, the complainant's principal expert, first testified that the combination covered by one of the claims was the equivalent of all the others, but, on being recalled, stated that he did not think a deflector secured to the central cylinder or standpipe was the full equivalent of a deflector projecting inwardly from the jacket or boiler casing; that the effect of one was somewhat different from the other; and that the plates shown in the patents set up in the answer were unlike the Kennedy deflectors, because those patents were not for boilers containing a water cylinder and radial tubes. The supposed invention consists, not in the elements of the combination separately considered, for they were old, but in the combination of segmental or annular deflectors with a Porcupine boiler, admitted by the patent to be old. Kennedy testified it was only after repeated experiments that he ascertained the proper proportion, form, and width of deflectors to secure the requisite draft and distribution of heat; and yet the patent is silent as to width of the plates, and their special arrangement with reference to the flue space. Did it require invention to change the form of the deflectors in use "under boilers of various types," and apply them to a boiler of a particular but well-known type? It would seem that by the exercise of skill and judgment alone an engineer familiar with deflecting plates and their use would have understood how to change their form, and adapt them to use in a boiler of the Porcupine type. It is not clear from the evidence that Hallett, one of Kennedy's employes, did not make the improvements for which the patent issued; but, assuming that Kennedy made them, he simply changed and adapted an old device to an old and well-known boiler. He applied old deflecting plates to an analogous, if not the same, use.

But there are objections to the validity of the patent other than those

appearing upon its face. While the Wren patent of 1880 does not show a central water standpipe and radial tubes, it describes a boiler composed of hollow steam-generating rings, one some distance above the other, but all connected. Annular deflectors are attached to and project inwardly from the jacket or casing between each two rings, and deflect the products of combustion, and cause them to follow the surface of the rings. It is true this boiler is not of the Porcupine type, but that type is admitted to have been old, and the jacket and deflectors could be applied to other boilers found in the prior art, and the deflectors operate as the Kennedy deflectors. The Ahrens patent of 1883 is for an improvement in steam fire engines. It shows a boiler, composed of tubes arranged within a shell, their ends connected, and cylindrical and annular deflectors attached to and extending horizontally inward from the shell, as in the 1st, 5th, and 6th claims of the Kennedy patent. It also shows an annular deflector at the bottom of the combustion chamber, just above the fire, corresponding in position to the brick deflector in the drawings of the Kennedy patent. The tubes in this patent are not arranged as in a porcupine boiler, but the jacket and the tubes could be substituted for the Kennedy tubes and jacket without change in mode of operation or function. The English Newton patent of 1871 describes a vertical boiler with annular deflectors built into the jacket and extending horizontally inward, but it does not show the Kennedy radial tubes. It would not require invention, however, to add such tubes. The English Brooman patent of 1865 shows a vertical boiler with fixed deflectors at one side, and movable deflectors laid on the tubes on the other side. Other patents in evidence show that it was common to vary the form of deflectors to adjust them to particular uses. The tracing in the record, taken from a practical treatise on boilers and boiler making by N. P. Burgh, and published in London and New York in 1873, shows baffle plates in boilers operated substantially as the Kennedy deflecting plates. Kennedy's lower brick deflector, "built into and extending from the brick boiler jacket for the purpose of deflecting the flame towards the boiler cylinder," is not materially unlike the construction shown in the prior Harris patent and the Baker patent. The lower brick deflector covered by Kennedy's sixth claim is the equivalent of the other deflectors sued on, and the Harris patent shows a Porcupine boiler with a furnace throat extending inwardly beyond the ends of the tubes, and protecting them, substantially as in the Kennedy patent. If Kennedy understood that the chief merit and distinguishing feature of his invention consisted in the protection afforded to the outer ends of his radial tubes by deflecting the heat from them inwardly upon the standpipe, why did he show in his patent, and illustrate in his drawings, plates riveted to the cylinder, deflecting the heat to the circumference and upon the exposed ends of his radial tubes? The bills are dismissed for want of equity.

LEE *et al.* v. NORTHWESTERN STOVE REPAIR Co. *et al.*

(Circuit Court, N. D. Illinois. May 3, 1892.)

1. PATENTS FOR INVENTIONS—STOVE FIXTURES—NOVELTY.

Letters patent No. 289,802, issued December 11, 1883, to Philo D. Beckwith, for improvements in a heating stove designed to convert a wood-burning stove into a coal burner, and consisting of a flaring ring cast in two sections, which fit into the top of the fire pot, in which the coal basket, cast integral, is suspended, the ring having legs which rest on an annular flange at the base of the fire pot, and having holes in its periphery, into which pintles, cast on the underside of the coal basket, pass, so as to hold the ring together, are not void for want of novelty.

2. SAME—INFRINGEMENT.

It is an infringement of said patent to sell the different fixtures included in said patented device, although a complete set of the fixtures is not sold to any one person, and no stove is sold with them.

In Equity. Bill by Fred E. Lee and William G. Howard against the Northwestern Stove Repair Company and others to restrain the infringement of a patent.

*Howard & Roos* and *Banning*, *Banning & Payson*, for complainants.  
*Offield*, *Towle & Linthicum*, for defendants.

BLODGETT, District Judge. An injunction and accounting is sought for by the bill in this case for the alleged infringement of patent No. 289,802, granted December 11, 1883, to Philo D. Beckwith, for a "heating stove." The patentee, Beckwith, several years before the granting of this patent, obtained three or more patents, under which he manufactured a heating stove which obtained a wide reputation and sale as a wood burner, by the name of "Round Oak Stove." It consisted of a vertical sheet-iron cylinder, mounted on a cast-iron base and fire pot supported by legs, in the usual manner, the fire pot resting on the base, and a door above the fire pot for putting in the fuel, with an ash pit and a shaking grate at the bottom of the fire pot, and the usual air inlets for a draught up through the grate and fire pot. In April, 1874, he obtained a patent on a modification of his stove to convert it into a coal burner; but, however well this may have operated as a soft-coal burner, it was not, as the proof shows, well adapted to the burning of hard coal, and the purpose of the device now in question was to change his form of stove into a hard-coal burner. The patent in question is upon a set of fixtures which, being inserted in the cylinder of a Round Oak stove, change it from a wood or soft-coal burner to a hard-coal burner. The patentee says in regard to his device:

"My present invention consists in the arrangement of a basket, a shaking grate, and the means employed for supporting the parts within the fire pot of the stove; also, in the construction of the parts that enables me to use a coal basket cast integral, one that may be readily inserted or taken out through the ordinary stove door, as set forth in the following specification."

"This invention is designed as an improvement upon my letters patent dated April 28, 1874, No. 150,277, and is designed for burning hard and soft coal."