section of the strip of the Boman patent are always at the same distance from the lead. Blaisdell has proved that self-sharpening pencils may be profitably manufactured, and thereupon Boman has invented another way of making them. Defendant thus profits by the Blaisdell invention, but I think he has not infringed it. Let the bill be dismissed.

CLINTON WIRE-CLOTH CO. v. HENDRICK MFG. CO., Limited.[1]

(Circuit Court of Appeals, Third Circuit. February 25, 1898.)

No. 1.

PATENTS—INVENTION—COAL SCREENS.

The Phillips patent, No. 500,508, for improvements in revoluble coal screens, consisting in providing the woven-wire segments with protector plates to connect them together and cover the joints,—the plates also having inwardly extended projections to form tumblers,—discloses patentable invention, and is infringed by a similar construction, though the latter omits the provision for fastening the protector plate to one of the two woven-wire segments. 78 Fed. 632, reversed.

Appeal from the Circuit Court of the United States for the Western District of Pennsylvania.

This was a suit in equity by the Clinton Wire-Cloth Company against the Hendrick Manufacturing Company, Limited, for alleged infringement of a patent for a revoluble coal screen. The circuit court dismissed the bill on the ground that the patent was void for want of invention (78 Fed. 632), and the complainant has appealed.

James H. Lange, for appellant.
Samuel O. Edmonds, for appellee.

Before ACHESON and DALLAS, Circuit Judges, and BRADFORD, District Judge.

DALLAS, Circuit Judge. This is an appeal from a decree of the circuit court for the Western district of Pennsylvania dismissing a bill filed by the Clinton Wire-Cloth Company, a corporation of the state of Massachusetts, against the Hendrick Manufacturing Company, Limited, of Pennsylvania, charging infringement of letters patent No. 500,508, for a revoluble coal screen, issued June 27, 1893, to the complainant, as assignee of David E. Phillips. The opinion filed by the learned judge of the court below furnishes us with a clear statement of the several methods which prior to the invention of Phillips had been employed for screening coal, and of the device which he designed to overcome objections to which they were subject, as follows:

"The case concerns the use of apparatus for screening anthracite coal. Such screens generally consist of a series of screen segments bolted to a revoluble circular framework built upon an inclined axle. The meshes or perforations of the segments increase in size from the upper, or inlet, to the lower, or outlet, end. By this means the smaller sizes of coal pass through the meshes at the upper end. The larger sizes pass on, and gradually leave the screen as their appropriate sized mesh is reached, until the larger sizes find exit at the lower

[1] Rehearing denied April 29, 1898.

end. Originally the screen segments used were of cast iron, but they were found objectionable for several reasons. Their great weight necessitated more powerful machinery. Where they did not correspond exactly to the contour of the framework, which was often the case, from difficulties of casting, they could not be sprung and clamped rigidly to the framework without risk of breaking. Consequently allowance for play was necessitated. When this was provided for, or the severe action of the mine water affected the bolts and segments to the extent of allowing such play, it is obvious that the slipping of these heavy segments in two different directions as the screen revolved had a tendency to increase the extent, and also the severity, of the play. The consequence was, the segments separated from each other, and allowed the coal to pass through the longitudinal openings thus made, instead of through the mesh interstices. Twenty or thirty years ago this imperfect screening was not material, for the smaller sizes of coal were not of commercial value, and passed to the culm pile. Of later years they have proved valuable, and the effort has been to effect their separation. For the reasons stated, cast-iron segments were not adapted to do this successfully. To meet these difficulties, wire-woven screen segments were introduced. These consisted of wire woven to the proper-sized mesh, and mounted on rigid segment framerods, sprung or bent to conform to the curvature of the framework, to which they were in turn securely fastened. Obviously, such segments possessed two desirable features lacking in the cast-iron pipe, viz. lightness, and a resiliency which permitted rigid clamping of the framework. They had two weak points, however. One was the rapid disintegrating effect on the individual wires of the sulphur water which in some regions had to be used to wash the coal, and the other was that by the continuous pounding action of the coal the wires were liable to be displaced. When such displacement once started, subsequent use of the screen served to still further separate the wires, the desired uniformity of mesh was lost, and imperfectly screened coal resulted. The objections to these two types of screen were overcome by the introduction of perforated steel segments. They united the excellencies of both the preceding forms. Their comparative lightness and resiliency gave them the desirable features of the wire-woven segments, while they preserved uniformity of mesh openings as well as cast iron. They had, however, two weak points which did not exist in the other two types. It is obvious that as a screen revolved the heavier pieces of coal would gather to and lie on the bottom, and thus be carried up and slide back, in the revolution of the screen, in the same position. The result was the mesh surface was thus covered, and the finer portions above, instead of passing through their proper mesh, were carried forward on the screen, and eventually passed out with sizes of coal much larger than themselves. This objection had been overcome in the cast-iron segments by a protuberance cast on the inner surface, which served the purpose of 'tumbling' or stirring up the mass as it was carried around, and prevented its merely sliding along in the way described. These protuberances were cast between the meshes, and did not lessen the screen surface. In wire segments this tumbling was done by the waving, undulating surface of the web itself, caused by the overlapping of the wires. This objection to the steel segment was overcome by the introduction of tumblers, but the pounding or action of the coal upon them, owing to their comparatively light weight, caused them to sag or dip at the joints, and cause openings through which the coal passed unscreened. Such objection was more particularly present in the earlier days of their introduction. The art was then such that small-sized holes could not be punched in heavy plates,—a difficulty overcome later. This objection was not found in the cast-iron or wire screens. While the former separated and caused longitudinal openings, as we have seen, they were too heavy to sag, and the segment frame of the wire-woven ones were so heavy and rigid they did not sag. It was to overcome these objections to the use of perforated steel segments that Phillips designed the device embodied in the patent in suit. He strengthened the segment joint and prevented sagging by bolting or riveting protector plates to the perforated abutting edges of the segments. These extended along the longitudinal edges of the segments, and covered the joints. To provide tumblers which should not cover the perforations of the segments, and thus reduce screen surface, he riveted a metallic strip upon the protector plates, or made it integral with the plates.

Upon this device two claims were granted, as follows: '(1) In a revoluble screen, a series of screen segments combined with a flat protector plate, secured to and to connect the contiguous longitudinal edges of adjacent segments, and covering the joints between them, and an inwardly extended projection on said plate to form a tumbler, substantially as described. (2) In a revoluble screen, a series of screen segments having imperforate edge portions of and to cover the abutting longitudinal edges of adjacent segments, and inturned projections extended along and secured to each plate to form a series of tumblers for the screen, substantially as described.' "

The bill charges infringement of both claims. The court below did not pass upon the question of infringement, but, being of opinion that the patent was invalid, dismissed the bill upon that ground alone. The purpose which Phillips set himself to accomplish was undoubtedly a very desirable one, and the means he devised certainly did accomplish it. His construction proved to be satisfactory and passed into extensive use. It remedied the very serious defects which had existed in all prior contrivances, and thus supplied a want which, though it had been acutely felt, had never before been adequately provided for. The merit due to an artisan who thus promotes a useful art, the court below accorded to Phillips; but yet the learned judge, being of opinion that what he did "was purely mechanical," held that he was not entitled to be ranked as an inventor. This conclusion was founded upon the prior state of the art, as disclosed by the statements of the patentee himself, and by the testimony of complainant's witnesses, only; but we, upon examination of the entire record, find nothing to show that anything more had been previously done than is indicated in the opinion of the circuit court:

"The idea of tumbling coal, or of means for doing it, was not original with Phillips; nor was he the first to show strengthening or closing of the segmental joints of coal screens, or means for doing the same. He found these things in the art before, but in what might be called an awkward and unhandy way. This was the necessary result of the methods employed. The segments were furnished by the manufacturer to the colliery, and the tumbler and joint closing or protecting devices were supplied and attached by the colliery mechanics in such a way as the means at hand allowed. The result was more or less imperfect appliances, insufficient methods of attachment, tumblers made of wood because it was handy, or, if of angle iron, it was of such size as was found in the scrap heap; and when a segment was changed the work of putting in tumbler or connecting joints had to be done again."

Without pausing to explain, by describing the method and appliances here referred to, how very unsatisfactory and imperfect they were, we proceed to consider what it was that Phillips in fact did to improve upon them, and find that by the adoption of the means he substituted the former method was radically changed, and the old appliances entirely superseded. He created a device—a composite structure—by which all need of the former awkward and unhandy makeshift appliances was completely obviated. As was said by the court below:

"To the economic or business mind it is obvious that if these parts could be assembled in a manufactory, and the segment with a tumbler and a connecting joint plate brought to the colliery in a completed and combined shape, and if they were so constructed with reference to the frame rim and the next adjoining segments as to permit speedy attachment when new, and as rapid displacement when worn, it would be a much more desirable practice than the old method,

The advantages of Mr. Phillips' device in this regard are well summed up by Mr. Livermore, complainant's expert, who says: 'By the construction and arrangement of the protector plate and tumbler bar with relation to the screen segment, said plate and bar are wholly independent of the spiders or main frame of the machine, by which the screen segments are carried; and, as there is one plate and bar for each screen segment, it can be securely and substantially, permanently fastened to one edge of a screen segment, the other edge of which is adapted to be fastened to the edge of the protector plate belonging to the next segment; and consequently when a worn segment has to be removed, and replaced by a new one, it is necessary only to unbolt the worn segment from the spiders, and disconnect its protector plate from the adjoining segment at one side, and disconnect it from the protector plate of the adjoining segment of the other side, and substitute the new segment by making the corresponding connections with the spiders and adjoining segments, when the screen will again be ready for use, with the joints between the segments properly connected, strengthened, and covered, and the tumbler bar in place, ready to perform its function of agitating the coal. This construction and arrangement of the protector plate and tumbler bar, wherein they are secured to the edges of the screen segments, and become a part of the screen wall, as distinguished from the frame of the machine by which the screen surface is supported and operated, is, as I understand, the essential feature of novelty of the structure shown and described in the Phillips patent.' "

It may be that upon this showing Mr. Phillips does not appear to have been a pioneer; but, in our opinion, his claim to invention cannot be justly denied, nor the patent which was issued in affirmance of that claim be properly annulled. He substituted for the different crude and imperfect expedients which had formerly been applied by the colliery workmen a convenient and perfect arrangement, "in a completed and combined shape"; and in doing this it seems to us to be clear that he exercised, not merely the mechanic's skill, but that higher faculty of creation which is the peculiar attribute of the inventor. We cannot agree that he simply rearranged and assembled old parts. He devised an implement which both covers and strengthens the joint and tumbles the coal. It is true that it is the plate portion only which directly covers the joint, and that the inturned projections are mainly, if not solely, concerned in effecting the desired tumbling; and it may also be conceded that both of these things had previously been defectively done,—as, for instance, by the use of two angle irons placed back to back. Yet the fact remains that the device which Phillips gave to the art was, in its entirety, new, and was not only more convenient in its adaptation for use than any appliance which had preceded it, but also performed its twofold function so as in both respects to produce much better results than had ever before been attained. Both in the character of the means which he employed, and in the improvement in operation which he achieved, there is evidence of origination; and therefore we cannot assent to the suggestion that his performance amounted to nothing but ingenious aggregation of the varied, offhand, and inefficient contrivances which it was his declared object to supplant.

Upon the question of infringement we have experienced no difficulty. The stipulation and evidence contained in this record leave, we think, no room for reasonable doubt upon that subject. If, in view of the admissions of the officers and servants of the defendant company, it

could be supposed that it had not manufactured any device having means for securing the protector plate to both of the adjacent segments, yet it would not follow that infringement had been avoided. It is obvious that, even with provision for fastening to one of the two segments omitted, the gist and substance of the Phillips construction would still be present in that of the defendant,—it would still effect the same object, and by means not essentially different. The decree of the circuit court is reversed, and the cause will be remanded to the circuit court of the United States for the Western district of Pennsylvania, with direction to enter a decree in favor of the plaintiff.

EPPLER WELT MACH. CO. v. CAMPBELL MACH. CO.[1]

(Circuit Court of Appeals, First Circuit. February 19, 1898.)

No. 236.

WAX-THREAD SEWING MACHINES.

The Campbell patent, No. 253,156, for improvements in wax-thread sewing machines, construed, and limited as to claim 19, covering a combination of a hook needle, a thread arm, a thread eye, and operating mechanism for the arm and eye. 83 Fed. 208, reversed.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

This was a suit in equity by the Campbell Machine Company against the Eppler Welt Machine Company for alleged infringement of the nineteenth claim of letters patent No. 253,156, granted January 31, 1882, and of the first claim of patent No. 374,936, granted January 31, 1882, both to the complainant, as assignee of D. H. Campbell, for improvements in wax-thread sewing machines. The circuit court found that the first-mentioned patent was valid, and had been infringed by defendant as to the claim in issue, and that the first claim of the second patent was invalid. 83 Fed. 208. From this decree the defendant has appealed.

Frederick P. Fish and James J. Storrow, for appellant.

James E. Maynadier, for appellee.

Before PUTNAM, Circuit Judge, and ALDRICH and LOWELL, District Judges.

PUTNAM, Circuit Judge. The patent in suit relates to "improvements" in wax-thread sewing machines, and contains 29 claims. It is, consequently, necessary in the present case, where, for some reason unknown to the court, the complainant limited its suit to one claim out of the many in the patent, to make sure that the claim in issue does not receive improper color or breadth from those not in issue.

The claim in issue is as follows:

"(19) The combination, substantially as hereinbefore described, of a hook needle, a thread arm, a thread eye, and operating mechanism for the arm

[1] Rehearing denied April 28, 1898.