thing in the specification and claim, and, in my opinion, in view of the state of the art, and Ewig's previous patent, could not rightly have been claimed. The defendant's hook, which is charged to be an infringement, is like the complainant's hook, except that it does not have the semicircular slot. It has an elliptical slot, which extends as far into the body of the metal as it does into the part which forms the hook; and while it permits the edges of the two layers of cloth to be stitched across, just as the old French hook did, it does not present to the stitching any bearing to resist the pull. It is urged that such an edge is presented by the ears on each side of the hook, and that they are the equivalent of the straight edge cut out in the center of the hook. It may be that on defendant's device the edge of the ears help to remedy the absence of the center straight edge, but it must be remembered that complainant's device, although it has proved highly successful, and has gone wonderfully into use by the trade, is not a pioneer invention. Haarvig's patent, No. 144,334, November 4, 1873, shows a waistband fastening for pantaloons, made of flat metal, attached by perforations in ears at each side; and the Weinberg patent, No. 60,600, December 18, 1866, exhibits a form of hook and eye fastener for the waistband of pantaloons; and Ewig's patent, No. 375,699, December 27, 1887, was a device for the same purpose. There was nothing, therefore, new in the substitution of a hook and eye device of any known form for buttons for this purpose. Patentable novelty was restricted to a new form of device, or an improvement on an old form, requiring invention. All forms had for their object to resist strain; to keep the device securely in place; to be sightly in appearance and moderate in cost. In the device now in suit, nothing distinguishes it from Ewig's prior patent but the semicircular slot made in the form, which remedies the difficulty which Ewig says he encountered when using a wide hook, viz. that the edges of the cloth were not sufficiently supported by the threads, and with the advantage, when used, that it resulted in the body plate of the hook being more securely held in place. This semicircular slot is all that I find that was patentable in complainant's device, and, treating the patent in suit as a good patent for that, I do not find that the defendant infringes; and the bill must be dismissed.

DODGE et al. v. FULTON PULLEY CO. et al.

(Circuit Court of Appeals, Second Circuit. December 7, 1898.)

No. 39.

PATENTS—INFRINGEMENT—SEPARABLE PULLEYS.

The Dodge and Philion patent, No. 260,462, for a separable pulley, designed to secure a larger surface of contact with the shaft, and a firmer adhesion thereto, when the separable halves are bolted together, is limited by the prior art to a pulley in which the parts, when placed together, come in contact at the rim while remaining separate at the hub, and is not infringed by a pulley so constructed that the meeting faces of the separate halves, when placed together, lie in the same plane and come in contact throughout their length.

Appeal from the Circuit Court of the United States for the Northern District of New York.

This cause comes here upon appeal from a preliminary injunction order of the circuit court, Northern district of New York, restraining defendants from infringing claims 1 and 3 of the patent sued upon until final hearing. The execution of such order was, by the circuit court, stayed pending this appeal. The patent declared upon is No. 260,462, to Dodge and Philion (July 4, 1882), for a separable pulley. The facts sufficiently appear in the opinion.

Edward Rector, for appellants.

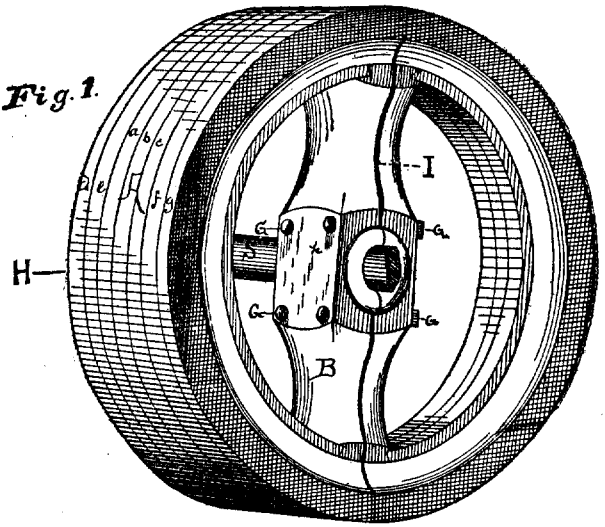
Lysander Hill, for appellees.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

LACOMBE, Circuit Judge. The specification for the patent sets forth that:

"Heretofore separable pulleys have been made in parts fitted and bolted together prior to being bored and turned, and therefore they were fitted to the shaft and secured thereon in ordinary way. Such pulleys are not interchangeable as to shafts of different diameters. Our improvement obviates, first, the old and imperfect mode of fastening the pulley in place on the shaft; and, second, renders the same pulley readily applicable to shafts of different diameters, or as a fast or loose pulley. In addition to the above, we propose to make our pulleys of wood, and in a structural way which will greatly cheapen and add to their efficiency. We are aware that wooden pulleys have heretofore been made, and therefore do not claim such broadly, but only with relation to the structural methods hereinafter described."

Fig. 1.



Referring to the drawings, of which Fig. 1 is a perspective view of the pulley, the specification proceeds:

"A represents our pulley, and the mode of structure is as follows: We first form up of segments, a, b, c, a ring, the parts being glued and nailed or doweled together. This ring forms the central part of the pulley, and, after

being turned, it is cut in halves transversely. The spoke and hub bar, B, is prepared either by properly fashioning a wooden stick in the lathe, and afterwards slitting it in two, as shown, or by fitting together properly two separate bars. These parts are secured at their ends to the ends of the ring segments in some proper and efficient manner, and for this purpose we prefer the dovetail, as shown. The parts of the bar, B, are so placed in the ring segments that they will not touch each other at the axis or hub of the wheel when the ring segments are placed in position. The clamping bolts, G, G, are then inserted with pieces of thin wood or veneering, I, between the parts of the bar, B, to prevent them from springing together under the action of the bolts while being turned in the lathe. The exterior ring segments, d, e, f, g, are then applied and secured by glue, nails, or other suitable means, and cut transversely in line with the previous cut. After this is done, the pulley is turned on its face and edges, and the central part of the spoke arm or hub, h, is bored truly central. This bore may be adapted exactly to a shaft, S, of some definite size, and the pulley may be applied thereon, the pieces of veneering being removed, so that the bolts, G, may then draw the parts, B, forcibly upon the shaft, and thereby clamp the pulley hub against said shaft, and in that way obtain an adhesion due to area of surface in contact. This is a much stronger adhesion than is possible where the area of contact is confined to the point of a set screw on one side and a small segment of the hub on the opposite side. * * * It is sometimes extremely inconvenient to properly fit a pulley to a shaft for which it is not adapted. To obviate this difficulty, we employ removable thimbles, H, made also in halves, and these can be provided in sets or quantities adapted to shafts of various sizes. * * * The tension of the same bolts, G, G, fastens and clamps the pulley to the split thimble and the thimble to the shafts," etc.

The claims in controversy are:

"(1) A separable pulley, whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated, as described, combined with clamp bolts, G, whereby said hub is clamped upon the shaft, in the manner set forth."

"(3) A separable pulley, whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar are slightly separated, and the clamp bolts, G, combined with a separable split thimble, interposed between said shaft and pulley, substantially as set forth."

The patent was before the circuit court, Southern district of Ohio, Western division, in the case of Dodge v. Post, 76 Fed. 807, at final hearing on the merits. The state of the art was most exhaustively gone into by Judge Sage. In a record containing nearly 4,000 pages, 10 patents and 2 prior publications were set up as anticipations, and evidence was given of 29 instances of alleged prior use. The patent was sustained as to both claims. It was also considered in the following reported cases: Dodge v. Menasha Wood Split-Pulley Co. (preliminary injunction granted by circuit court, E. D. Wis., Seaman, D. J., Feb. 20, 1897); Pulley Co. v. Dodge, 29 C. C. A. 508, 85 Fed. 971 (a reversal of the above by circuit court of appeals, Seventh circuit, Oct., 1897, and rehearing denied, 30 C. C. A. 455, 86 Fed. 904); Dodge v. Prendergast Lumber Co.[1] (preliminary injunction granted by circuit court, N. D. Ohio, W. D., Aug. 29, 1898).

The invention described in the specifications and set forth in the first claim of the patent is certainly quite clearly expressed in that document. Separable wood pulleys were old, and the patentee's improvement was devised to obviate the old and imperfect methods of fastening

[1] Not reported, by request of Hammond, J., who rendered the opinion of the court.

the pulley in place on the shaft. This end is accomplished by the peculiar structural method described. It is apparent that if the central hole in the spoke hub is drilled while both spokes are in contract, and is made exactly the size of the shaft, its interior surfaces will rest upon the shaft without exerting any grip thereon when the spokes are drawn together under the action of the clamping bolts. If the hole in the spoke hub be drilled while both spokes are in contact, and is made smaller in diameter than the shaft, although its interior surfaces may be made to grip the shaft when the clamping bolts bring the spokes together, it cannot contact firmly with the shaft except at comparatively small areas of such surfaces, and thus its grip will not be efficient. If, however, the hole in the spoke hub be drilled when the two parts are slightly separated (as they are shown in Fig. 1, when the inserted strip of veneering prevents them from springing together under the action of the clamping bolts), and be drilled exactly the size of the shaft, it will come to pass, when the pulley is subsequently placed upon the shaft, that the entire interior surface of the hole will be in contact with the surface of the shaft; and, since there is a space left between the two blocks of wood (spokes) in which these interior surfaces are located, there will be an opportunity afforded for the clamping bolts to bring them together with great force, and so as to exert an efficient grip on the shaft, or, as the specification expresses it, "obtain an adhesion due to area of surfaces in contact." To obtain the clearance necessary to enable the clamping bolts to bring these interior surfaces together, the hub or spokes must be so arranged that they will not themselves come in contact, and thus prevent any further inward movement under the strain of the clamping bolts. Finally, it is apparently desirable that the segmental rims of the pulley should be brought into close contact, under strong pressure, thus securing a rigidity of the contacting parts as closely akin as practicable to an integral structure; thus increasing the power of the rim to resist the strains to which it is exposed, notably the so-called "yield and recover," every time that the belt passes from one half rim to the other. And it is further apparent that, if the pulley is so constructed that, when the meeting ends of the two segmental rings are brought in contact by placing them in position on the shaft, or at the first compression of the clamps, there is still a clearance left between the spoke hubs, each turn of the clamping bolt which promotes the grip of the interior surfaces of the hub hole will at the same time increase the rigidity of the rim structure.

Referring again to the patent, we see that such a structure as is above described is shown and claimed: "Pieces of thin wood or veneering between the parts of the bar, B, * * * prevent them from springing together * * * while being turned in the lathe." "The central part of the spoke arm or hub is bored truly central. This bore may be adapted exactly to a shaft of some definite size." "The parts of the bar, B, are so placed in the ring segments that they will not touch each other at the axis or hub of the wheel when the ring segments are placed in position." "The bolts, G, may then draw the parts, B, forcibly upon the shaft, and thereby clamp the pulley shaft against said shaft." "What we claim as new is: (1) A separable pulley, whereof, when the meeting ends are in contact the meeting faces of

the spoke bar and hub are slightly separated, as described, combined with clamp bolts, G, whereby said hub is clamped upon the shaft, in the manner set forth." And the drawing indicates this feature of rim contact and hub separation, since the strip of veneering, I, apparently does not extend into the rim. When a central hole, "adapted exactly to a shaft," is bored with the spokes separated by veneering, and the meeting rims in contact, and the hub is subsequently placed upon the shaft without the veneering, it is manifest that by the time the central hole has come into position over the shaft, and even before it is made to grip under the pressure of the clamp bolts, the rim will be in contact.

The first question presented here is whether the circuit court, to which application was made for a preliminary injunction, should have construed the above-quoted first claim as covering a structure in which the meeting ends of the rims do not come in contact before the operation of tightening the clamp bolts which run through the "slightly separated" spoke bar causes the inner surfaces of the hub hole to grip the shaft. As was before stated, the patent was most carefully considered, in the light of an apparently exhaustive record, and was construed at final hearing in Dodge v. Post, supra.

Certainly, none of the subsequent opinions referred to supra can be held to have extended or broadened the construction given to this claim in Dodge v. Post. Upon an application for preliminary injunction, it would be a most exceptional case which would warrant the court in expanding a claim beyond the limits fixed in an exhaustive opinion at final hearing. No such case is made out here. An examination of the opinion in Dodge v. Post, in which, as before stated, the prior art was so fully disclosed to the court, shows that the learned judge who construed the patent found it necessary to construe this claim narrowly, in order to avoid anticipations which the prior art contained. A single excerpt from Judge Sage's opinion is sufficient. He is discussing a prior use known as the "Erie Split Pulley":

"It appears from testimony of defendant's witnesses * * * that the pulley halves, held slightly apart, were bored with an auger the size of the shafts; that they would not come together on the shaft, but there would be an open space about an eighth of an inch wide between them throughout their entire diameter; * * * that the pulleys were fastened to their shafts by compression alone. * * * From complainant's evidence, it appears that it was the custom to use compression and set screws in combination. * * * The testimony for complainant is strongly fortified by the admitted fact that the pulleys were made with straight meeting edges, so that, if bored to the exact size, their halves would be in contact and no effective compression could take place. If bored smaller than the shaft, or when slightly separated from each other, their halves would not be in contact, either at rim or hub; and, even if compressed equally on each side of the shaft, they would not infringe complainant's patent, because the rims would still be separated. If compressed unequally,—that is, brought nearer together on one side than the other,—the rims on one side of the pulley might be in contact, but the rims on the other side would be correspondingly separated, and the result would be neither an infringement of complainant's patent nor an operative pulley. In short, the complainant's patented pulley is the only one shown in the record in which compression to the shaft to any required degree—a compression bringing the entire inner surface of the hub to bear upon the shaft, and so constructed that it may be increased whenever necessary by reason of change of shaft, or of wear, or of any other cause—is so

effected as to be superior to any other mode or means of fastening or attachment, and to impart to the pulley its greatest mechanical power, and yet leave it entirely separable into its own halves and from the shaft. To accomplish this result, there must be compression at the shaft, and contact at the rim, and the inner side of the divided spoke arm must be separated from rim to rim. Under such structural conditions, compression at the hub tightens the clamp upon the shaft, and at the same time makes firmer the contact at the rim; and the result is a union of pulley and shaft as nearly perfect as it can be made, the separated spoke bars acting in response to the action of the clamping bolts, not only without straining the pulley at any point, but actually making it firmer and stronger and more durable."

Referring to another alleged prior pulley, Judge Sage says:

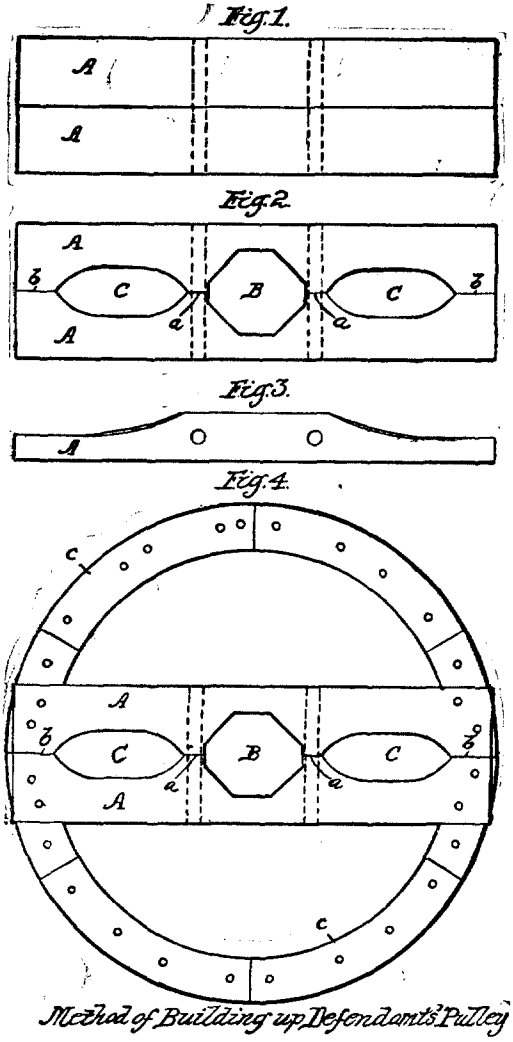
"Its meeting edges were intended to be parallel, and hence would be entirely—rim and hubs—in contact, or entirely out of contact, and not an anticipation of complainant's pulley."

These excerpts sufficiently show that the construction of this first claim, to be followed by the circuit court on motion for preliminary injunction upon ex parte affidavits, was the one naturally suggested by the specification and drawings, and quite clearly expressed in the language of the claim itself.

The method of making the defendants' pulleys is illuminative upon the question of infringement.

Method of Building up Defendants' Pulley.

The first step is to form the two parallel spoke arms or bars, A, A, shown in Fig. 1, their adjacent faces abutting closely against each other throughout their entire length. The bolt holes are bored through the bars as indicated by the dotted lines. The next step is to cut out the central polygonal opening, B, which forms the shaft hole of the pulley, and the two side openings, C, C, which are cut out merely to lighten by removing surplus material. After these three openings are formed in the spoke arms, it will be seen that the arms abut closely together, both at a, a, adjacent to the shaft opening, and at b, b, adjacent to their ends. Each of the bars is then tapered off upon its sides, and at opposite sides of the shaft hole, as indicated by the edge view of the bar in Fig. 3. This completes the two bars ready for insertion in the rim of the pulley as the latter is being built up,—an operation which is sufficiently indicated by Fig. 4. During all this time the pulley is being built up the spoke arms abut closely together at both the points, a, a, adjacent to the shaft hole, and at the points, b, b. adjacent to the rim, and continue so to abut when the pulley is completed. As a necessity of this method of construction, it happens that in each half pulley the meeting faces of the hub, x, and of the ring segments, lie in the same plane; and when both halves are assembled, whether in the shop, or on a shaft of a diameter smaller than the shaft hole, hubs and rims will be both in contact. It will be observed that defendants' shaft hole is octagonal, and of course could not be secured directly to the shaft. Defendants therefore use a "bushing" or "thimble" or "interchangeable center," the exterior surface of which contacts with the inner surface of the octagonal shaft hole, and the inner surface of which contacts with the shaft it is made to fit. In order to secure a grip, this bushing is apparently so arranged that when it is adjusted



on the shaft it will hold the hub spokes slightly separated, so as to afford clearance for the action of the clamp bolts, effecting compression of the bushing upon the shaft. What may be the extent of this clearance is most sharply disputed in the record, defendants insisting that it is only sufficient to steady the pulley in place, and that it is held to the shaft by set screws; complainants, on the other hand, insisting that the set screws are a sham, and that the pulley is really held in place on the shaft solely by compression thereon, such compression being induced by the clamp bolts and promoted by hub separation, such as is described in the patent. Whichever of these two contentions be correct, it is manifest, from the nature of the structure above described, that when the bushing operates to slightly separate the hubs it must

operate to separate the meeting faces of the ring segments to an equal extent. Therefore, when the clamping operation begins, the ring segments are not in contact, and when, under the clamping operation, the hubs come into contact, the ring segments come into contact at substantially the same time. In other words, we at no time find the relation of parts specified in the claim by the phrase, "When the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated." The defendants' pulley, therefore, when made as above described, does not infringe the first claim of the patent as above construed.

It is also quite plainly apparent that a very slight change will transform the noninfringing into an infringing structure. If the faces of the spoke hub adjacent the shaft hole are cut away, and a suitable bushing used, the mere placing of the two halves of the pulley upon the shaft, or a very slight tightening of the clamping bolts, will bring the rims into contact, while there is still hub separation, and the operation of the parts will be substantially that of the patent. From the affidavits presented by complainant, it appears that one of defendants' pulleys was purchased from a dealer in Boston, which, upon examination, was "found to be open at its hub members and closed at the rim before being placed on the shaft, and also found to be open at its hub members and closed at the rim when placed upon the shaft ready for operation." That another of defendants' pulleys, which was found in use in an office in Buffalo, was so constructed that when placed upon the shaft "the faces of the hub will not and cannot meet until after the clamping bolts passing through the hub have been tightened. * * * Such tightening brings the faces of the rim together before the faces of the hub meet at the shaft;" but affiant does not state how long before, nor whether there was any substantial difference between the two periods of contact. Another affiant swears that at the salesroom of a corporation at Niagara Falls, which deals in defendants' pulleys, he purchased one of said pulleys and inspected others, and that in some cases when on the shaft the edges of the hub did not quite come together while the faces of the rim met. We are unable, however, to see in those affidavits sufficient to discredit the direct, positive, exhaustive, and apparently frank affidavits presented by defendants, and showing precisely how their pulleys are made, when it is manifestly so easy for the purchaser or intermediate seller, with a few strokes of chisel or plane, to effect the structural change necessary to bring them within the scope of the claim. There is no evidence to show that the pulleys, as sold by defendants, present the characteristics of hub separation and rim contact. Indeed, one of complainants' affiants, who visited the salesroom of a dealer in defendants' pulleys, admits that as offered for sale—off the shaft—they met both at hub and rim.

The third claim of the patent calls for no discussion. It is simply the separable pulley, constructed in the manner already described, with the addition of "a separable split thimble interposed between said shaft and pulley." If the pulley itself be structurally different from the pulley of the first claim, it cannot be held to infringe the third claim, solely because it contains the single additional element of that claim. We are of opinion, therefore, that complainants did not make

out a case of infringement by defendants sufficiently strong to entitle them to a preliminary injunction. The order of the circuit court is therefore reversed.

SMITH v. MERIDEN BRITANNIA CO.

(Circuit Court, D. Connecticut. February 20, 1899.)

No. 982.

1. DESIGN PATENTS—PRELIMINARY INJUNCTION—PUBLIC ACQUIESCENCE.
   The rule that public acquiescence must be shown when the patent sued on has not been adjudicated applies to the case of design patents as well as machine and other patents.
2. SAME—DESIGN FOR VESSEL.
   A preliminary injunction against infringement of patent No. 29,571 for a design for a vessel denied, in the absence of any prior adjudication, or of proof of public acquiescence.

This was a suit in equity by Frank W. Smith against the Meriden Britannia Company for alleged infringement of a patent for a design for a vessel. The cause was heard on a motion for a preliminary injunction.

William Maynadier, for complainant.
Mitchell, Bartlett & Brownell and George A. Fay, for defendant.

TOWNSEND, District Judge. On January 3, 1898, complainant applied for, and on November 1, 1898, received, the patent in suit (No. 29,571), for a design for a vessel. The elements thereof claimed to be new and material were modified forms of what is known as the old "panel" or "colonial flute" design, ornamented by a scroll of elongated beads, constituting what is known as a "Rococo" border. The panels are in two double sets; the larger set being united near the middle of said vessel, and so disposed as to form the body thereof, while the smaller set furnishes a flaring base. Each of said panels curves inwardly, except possibly the lower panel of the base. The whole design is graceful in outline and harmonious in proportions. It appears from complainant's affidavits that he is a manufacturer of solid-silver ware; that he produced this design, and commenced the manufacture of vessels embodying the same in December, 1896, and offered them for sale in January, 1897; that he has been put to great expense in making said articles; that the defendant has manufactured plated ware which is practically identical in design with the drawings of the patent in suit; that this plated ware was extensively advertised by defendant in December, 1898, and is now on sale at various retail stores; that, inasmuch as it is practically impossible to sell this class of solid-silver goods when the same design is made in plated ware, the complainant will suffer irreparable loss, unless he can obtain the relief of a temporary injunction.

The vessels manufactured by defendant infringe complainant's patent. It appears from its affidavits that it commenced their manufacture about March 1, 1897, and their sale shortly thereafter; that it never had any notice of complainant's claim of right until Novem-