

The bill describes the defendant Lucius N. Littauer as a director and the treasurer of the defendant company. The court is unable to find any legal proof that Mr. Littauer was connected in any way with the infringement proved. As to him the bill must be dismissed. *Howard v. Plow Works*, 35 Fed. 743; *Boston Woven-Hose Co. v. Star Rubber Co.*, 40 Fed. 167.

It follows that the complainant is entitled to the usual decree against the defendant, the Columbian Fastener Company.

JACKSON et al. v. BIRMINGHAM BRASS CO.

(Circuit Court of Appeals, Second Circuit. February 23, 1897.)

1. PATENTS—CONSTRUCTION—DISCLAIMERS.

When a process patent contains an express declaration that there is some other process to which it does not apply, and in clear language gives the earmarks by which that process is to be distinguished from the process of the patent, the patentee is bound thereby, whatever may have been the transactions between him and the patent office before its issuance.

2. SAME—INFRINGEMENT.

A patent covering a process for converting smooth, seamless sheet-metal tubing into spheroidal bodies, by swaging and upsetting them by endwise compression between dies, is not infringed by a process of forming spheres from corrugated tubes by compressing them endwise in dies, where the changes of shape are made solely by the folding and unfolding, or, in some cases, by the buckling or doubling in of some of the corrugations, without any upsetting of the metal. 72 Fed. 269, affirmed.

3. SAME—PROCESS OF FORMING HOLLOW SPHEROIDAL BODIES.

The Burkhardt patent, No. 378,412, for a "method of forming hollow spheroidal bodies from sheet-metal tubes," construed, and held not infringed, as to claim 1. 72 Fed. 269, affirmed.

This is an appeal from a decree of the circuit court, district of Connecticut, dismissing the complainants' bill. The suit was brought for alleged infringement of United States patent No. 378,412, granted February 21, 1888, to John Burkhardt, assignor to complainants, for a "method of forming hollow spheroidal bodies from sheet-metal tubes."

Robert N. Kenyon and W. H. Kenyon, for appellants.

G. A. Fay and C. E. Mitchell, for appellee.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

LACOMBE, Circuit Judge. The specification sets forth that the patentee has "discovered a new and useful process for converting seamless metal tubing into concavo-convex oblate spheroidal figures, and impressing thereon ornamental figures or designs." The ornamentation of the spheroidal figures involves a process which defendant concededly does not use. It is covered by the second claim, which is not in controversy here. After stating that in the production of ornamental metal work, such as railings, balusters, fenders, and similar articles, it "has heretofore been the practice to make use of metal balls, either cast or spun of thin metal, to adorn such work," the specification proceeds:

"The object of my invention is to produce spheroidal concavo-convex ornaments from sections of tubing. I make use of dies of the desired forms and

sizes, in which a section of tubing of the proper length to form the hollow spheroidal body is placed to receive the action of a press. The dies may be made in two equal or unequal parts, and the upper one may be attached to the slide or plunger of a press, and the lower one may rest upon the platen or seat of the press. To produce these hollow spheroidal bodies of a shape and surface configuration, resembling such objects as the pineapple, the acorn, and other analogous forms, the shape and size of the two dies for forming these objects will be different. * * * The section of tubing to be used must be of large bore or orifice, as compared with the thickness of the metal which forms it, and will be placed in the lower die directly under the upper die that is attached to the side of the press, and the compressing will begin simultaneously at both ends thereof, and cause the metal to curve inwardly all around; and the dies will meet if the piece of tubing is of the proper length to form a globe, the dies of course being hemispherical for that purpose; but if the dies are of different forms or sizes, as would be necessary to form a body of the shape of the pineapple, the tube or blank will be proportionately longer, and the dies will meet at the line of the greatest diameter of the article produced.

"In forming these spheroidal bodies, a raised central girdle will be made around the article, by stopping the action of the dies before they have reached the line of the greatest diameter of the article. To form an aperture at the extremities of these ornamental hollow metal bodies, a stop at the base of the concavity of the dies may be used to limit the swaging, upsetting, and turning in of the metal at the ends of the section of tubing, whereby an aperture will be provided through or into which a rod, wire, or baluster may be inserted."

After a description of the drawings, the existing state of the art is thus referred to:

"Having described my improved process of forming hollow spheroidal bodies, I would state that I am aware that very small articles, like beads, have heretofore been shaped by compressing the ends only of tubular sections into a rounded form, without shaping the periphery thereof, the tube being comparatively thick in relation to size of the article to be formed, so that sufficient body is provided in the tube to prevent crimping or doubling; and I am aware that larger hollow articles have been swaged into more or less rounded form from comparatively thin tubular metal by first casting a thick temporary lining of soft metal into the tube to give body thereto, and then shaping in one or more sets of rounded dies; but my invention differs from the former in making bodies of any desired size, without using tubing of a thickness increased as the diameter is enlarged, and also in not only swaging and upsetting the ends of the tube into a smaller diameter, but also enlarging the diameter of the middle part thereof; and it differs from the latter most essentially in not employing lining of soft metal or any other material, and it differs from both in that, whereas in those cases there is only a changing of the shape of the tube, there is no upsetting of the metal, making it thinner in some parts, and in others thicker. My process does thus greatly change the thickness of the metal in different places, and, so far as I am aware, I am the first to discover that comparatively thin tubes of large diameter can be swaged and upset into spheroidal form by dies, and that the metal can thereby be upset without crimping to receive the desired forms."

The claim relied upon is the first:

"(1) The process herein described, of forming hollow spheroidal bodies from thin sheet metal, oblate at their extremities, which consists in first forming the metal into a tube, then placing a short section of said tube between two dies having the form of the body to be made, and compressing the tube in the said dies."

This metal tubing may be either plain or corrugated. Corrugated tubing was well known long prior to 1886. All the drawings which accompany the specification exhibit plain tubing only, and the words "tube" or "tubing," wherever used in the patent, are unqualified by either adjective, "plain" or "corrugated." The process

by which defendant's articles are made has been set forth in a stipulation. It is substantially the process of the patent, defendant, however, using corrugated tubing only, with such resulting changes as the use of such tubing imports. The judge who heard the cause at circuit found that there was no infringement, and upon this appeal it will not be necessary to discuss any of the other questions presented on the record.

When a piece of plain, seamless tubing is corrugated, the metal composing it is bent inward and outward alternately, into a succession of what may be called incipient folds and creases. In the ordinary use of language, it may be said to be crimped. Under pressure tending to collapse it, such collapse will be effected by a folding in on one or more of these incipient creases. When pressure is applied, as in defendant's process and in the process of the patent, viz. by placing the section of tubing upright between two concave dies, and compressing axially, the collapsing pressure of the walls of the cavity into which the end is forced is uniform on the entire circumference of the tube, thus folding in the metal equally on every crease; and, as it is continued, the tube is crimped more and more, until every fold is laid down close upon its neighbor. If the middle portion of the tube before axial compression is of slightly less diameter than the concavity of the dies, or if the tube is so long that the dies are not brought into contact, such middle portion will expand by reducing the depth of the creases or crimps in that portion from what it was after corrugation. Examination of the exhibits of defendant's manufacture reveals another fact. In almost all the exhibits apertures are left at both ends. This has been effected by having in the bottom of each die a stud pin or projection of such diameter that it will check further folding in of the end of the tube, when the diameter of that end has been reduced to or a little short of the diameter left when the crimps have been folded together as close as possible. In one case, however, the stud or projection of one die has been of smaller diameter than that of the tube with all its crimps folded closely in. The tag giving exhibit number is misplaced, but it is a copper-colored girdled exhibit which has been cut open. It appears from this exhibit that, when the contracting tube end is not stopped by the stud or pin at the moment when the limit of contraction obtainable by folding in the crimps closely upon each other has been reached, further contraction simply forces some of the crimps bodily out of place, into the interior of the tube, producing a distortion which is quite noticeable even from the outside of the spheroids.

It will be remembered that in the specification reference is made to an upsetting of the metal as a distinguishing feature of the patented process. Among metal workers, "upsetting" is the term employed to describe a process of shortening and thickening. Thus, a bolt is headed by upsetting; the end portion being made shorter without removal of any portion of the metal, which therefore spreads out laterally. If a plain metal ring is reduced in diameter by upsetting, the ring will become thicker, there being apparently an inter-molecular rearrangement of the particles of the metal. One of the questions in dispute upon the record in this case is

whether in defendant's products there has been any such upsetting of the metal. Complainants' expert testified:

"If the section of tubing is corrugated, the degree of upsetting and thickening will not be so much, for the reason that the corrugations at the extremities will naturally be folded together before the upsetting would begin there. If, however, the tube is of sufficient length to be capable of filling up the central or middle portion of the dies, then, in my opinion, the swaging or upsetting of the ends would be produced to some extent. If a section of corrugated tubing, too short to completely fill the dies when finished, be used, the corrugations at the ends would be folded so as to approach each other, probably, without otherwise thickening the body of the article at the extremities. In the three exhibits representing defendant's production, to wit, complainants' Exhibits 1, 2, and 3, the reduction of the diameter at the extremities seems to have been mainly caused by folding the corrugations; but at the very outset there may have been some slight degree of upsetting. * * * During the first part of the process the axial compression of the tube would in some degree cause the metal to be upset while swaging it and turning it in, so as to be stopped by the pin from further closing of the opening; and, when so stopped, any additional compression in the dies which would occur if the tube is of sufficient length would increase the thickening or swaging of the metal around the opening retained by the pin. But if, however, the dies close together at the center of the article at the precise time that the ends of the tube are closed around the pin, no further compression could be effected, and consequently no additional upsetting or thickening of the metal at the ends would occur."

Subsequently, on rebuttal, referring again to the same exhibits, which are hollow spheroids exposing the thickness of the metal only at their apertures, and not susceptible of comparative measurement, he testified:

"The metal near the ends is upset and turned in, which necessarily thickens them at that locality, and near the central diameter the metal appears to be slightly thinned in Exhibits 2 and 3, and still more thinning is accomplished, as appears in Exhibit 1, which is encircled with a girdle, and shows distinctly that each one of the projecting corrugations has been stretched and thinned by the operation of forming."

Upon cross-examination he explains this statement as follows:

"It was entirely evident that the section of tube used for these three exhibits had been made as corrugated tube, the ridges and projections of which are uniform in projection and depth from end to end of such a tube. The shape and figure or thickness of this tube shows that its compression resulted in changing the uniformity of the corrugations, and also shows that the metal is greatly condensed and crowded together, and in some degree upset, which latter condition is apparent from the appearance of the openings at its ends; and it also shows a spreading out of the tube around its central portion, by opening or spreading the spaces between the projections of the corrugations; and this result is very distinctly shown in the Exhibit 1, referred to, which shows the corrugations have been converted or modified in their form by the stretching and thinning of the metal, as I explained in the answers to the questions referred to. * * * The thickening and thinning appear in each exhibit clearly, in my opinion."

These exhibits undoubtedly show plainly that in the equatorial portions there has been a spreading out of the tube, by opening or spreading the spaces between the projections of the corrugations; that the uniformity of the corrugations has been changed, being shallower at the equator, and growing deeper towards the poles; that at the poles the metal is in one sense condensed; certainly it is crowded together, the corrugations being pressed flat, and folded down upon each other, but to the unaided vision, and without opportunity for measurement, these exhibits do not show any up-

setting of the metal. The testimony of this witness is evidently largely theoretical. The patentee testified that, "when spheroidal metal ornaments are made from corrugated tubing by his process, the metal is thickened in parts, and thinned in parts"; that when pins are used at the base of the concavity of the dies—

"They resist the flow of the metal towards the center of the die, and, the more the compression is carried on, the stronger must be the resistance of the pins; and, where there are no pins, the metal will flow towards the center of the die until the compression has been compensated for by the metal having flown to where there was room for it in the die. Q. What effect has this on the thickening of the metal, when pins are used? A. To thicken or upset the metal."

No exhibits are produced nor experiments described, and it is uncertain how much of this testimony is fact, and how much theory. The clear weight of proof is against the proposition that there is any upsetting of the metal in defendant's products. Exhibits are produced, which have been cut open, and measured with a metal gauge. The witnesses who have conducted these experiments testify positively to the fact that the process of manufacture by axial compression from a section of corrugated tubing into a hollow spheroidal ball has not altered the thickness of the metal. The copper-colored exhibit above referred to controverts complainants' theory that, when the limit of contraction by folding down the corrugations has been reached, further contractions will be obtained by upsetting the metal. On the contrary, such further contraction seems to be effected by buckling, distortion, and crowding out of place of the crimps or corrugations themselves, not by any rearrangement of the molecules of the metal. The proof shows that corrugated seamless tubing is transformed into spheroidal hollow bodies by the process of axial compression, without any upsetting of the metal, and by first crimping the metal regularly, by folding together the corrugations, and, if carried on long enough, by crimping the metal irregularly; that is, by buckling or distortion. It is undoubtedly true that the tube is thickened at the poles, the measure of thickness of a corrugated tube being the difference between its exterior and its interior diameter. The process of crimping and folding down the crimps necessarily deepens the corrugations, and increases this difference at the ends, while the spreading out of the corrugations at the equator reduces it. Complainants contend that this is an equivalent of the "upsetting of the metal, making it thinner in some parts, and in others thicker," which is set forth in the patent. This contention calls for a construction of the patent.

The original application was for the article made, and not for the process of making. This claim was rejected, upon references to five patents. Thereupon a new specification was filed, claiming the process, instead of the article. The second specification, as filed, contained the following:

"Having described my improvement in the method of forming spheroidal ornamental bodies, I would state, for the purpose of defining the scope of my invention, that I am aware that metal beads have been finished by compressing the corners thereof by the use of dies; also, that the folding together of

the ends of sections of corrugated tubing for ornamental purposes is not new. But my invention relates to the conversion of seamless plain sections of tubing into ornamental hollow bodies, ready for use, to adorn metal work of artistic manufacture."

The first claim was amended to read:

"(1) And I claim as my invention the process described for converting sections of seamless plain tubing into concavo-convex oblate spheroidal bodies, by compression with dies for the purpose specified."

The patent office notified the applicant that claim 1 was anticipated by two patents, and that claim 3 was objectionable for reasons stated. Six months later he amended, by substituting, for the passage above quoted from the second specification, the longer, more-detailed, and elaborate statement as to the prior art which is found in the patent as issued, and amended the claim to its present form. Patent was thereupon allowed to issue. Complainants insist that the effect of these changes was to remove from the patent any limitation to sections of plain tubing, to extend it so as to cover any form of tubing; and that his action in this regard is conclusive, both as to his intention in taking the patent and as to the intention of the patent office in granting it, and so is controlling as to the scope that should be given to the claim as it now stands. Reference is made to *Morgan Envelope Co. v. Albany Perforated Wrapping Paper Co.*, 152 U. S. 425, 14 Sup. Ct. 627. In that case the applicant had originally claimed "a bundle of toilet paper * * * in a band * * * of oblong or oval shape," etc. The claim was rejected as indefinite and anticipated. The patentee amended the claim, by striking out the limitation that the band must be oblong or oval in shape, thereby broadening its terms so as to include a band of any shape. In a subsequent suit against an alleged infringer, he endeavored to save this claim as allowed, by insisting that, looking at the specification and drawing, it was obvious that the claim should be so limited to a band "of oblong or oval shape." The supreme court held that the "patentee having once presented his claim in that form, and the patent office having rejected it, and he having acquiesced in such rejection, he is now estopped to claim the benefit of his rejected claim, or such a construction of his present claim as would be equivalent thereto." Manifestly, that is not the point presented here.

On the other hand, the defendant contends that the change in the form of the claim is of no importance, because the practical disclaimer, which set forth the state of art in the patent as finally allowed, was so much more full, clear, and specific that it would have been superfluous to say that he did not claim folding together the ends of corrugated tubing; that it was unnecessary to make any reference in terms to a process which involved no swaging and no upsetting, but simply consisted in folding down corrugations produced by suitable corrugating dies, which are neither mentioned, suggested, nor implied in any part of his specifications or drawings or claims. Whatever may have been the transactions between the applicant and the patent office, and whatever light may be thrown upon obscurities in the patent by the file wrapper and contents, it is the patent as issued by which the patentee's

right to a monopoly must be tested. When it expressly declares that there is some other process to which it does not apply, and in plain and unambiguous language gives the earmarks by which that other process is to be distinguished from the process of the patent, the public has the right to insist that the patentee shall abide by the disclaimer he has made and proclaimed.

Turning now to the patent, we find that the patentee refers to two other processes. The one is the manufacture of very small articles, like beads, by compressing the ends only of tubular sections into rounded form, the tube being comparatively thick in relation to the size of the article to be formed. The other is the swaging of larger hollow articles into more or less rounded form from comparatively thin tubular metal, by first casting a thick temporary lining of soft metal into the tube, to give it body. Neither of these processes is the one used by the defendant, viz. the folding down of the projections of a section of corrugated tube at the ends of such section, and the flattening out of such projections in the middle of the section. Such a process would be impossible with a lined tube, and the very thick tube used in bead making is too thick to fold or crimp. But, in differentiating his process from both of these, the patentee has defined it so clearly, so specifically, so exactly, that there can be no room for doubt as to what the process was which he actually did give to the world in exchange for the monopoly to practice it, whatever doubt there may be as to what he meant to give or the patent office meant to take. The patent proceeds:

"My invention differs from the former [the bead process] in making the bodies of any desired size, without using the tubing of a thickness increased as the diameter is enlarged; and also in not only swaging and upsetting the ends of the tube into a smaller diameter, but also enlarging the diameter of the middle part thereof."

So far there is no differentiation from defendant's process, for it will be remembered that the ends of the tube (as distinguished from the metal) are swaged or upset into a smaller diameter, and the diameter of the middle portion is enlarged. The patent proceeds:

"[My invention] differs from the latter [process above described] most essentially in not employing lining of soft metal or any other material, and it differs from both in that, whereas in those cases there is only a changing in the shape of the tube, there is no upsetting of the metal, making it thinner in some parts, and in others thicker, my process does thus [by upsetting] greatly change the thickness of the metal in different places; and, so far as I am aware, I am the first to discover that comparatively thin tubes of large diameter can be swaged and upset into spheroidal form of dies, and that the metal can thereby be upset without crimping to receive the desired forms."

If there is any force in words, the process of the patent is to be differentiated from one, earlier or later in time, where comparatively thin tubes of large diameter are swaged into spheroidal form of dies, thus receiving the desired forms, by folding down corrugations in such tubes upon each other without changing the thickness of the metal in any part. Despite the change in the form of his first claim, we are strongly of the opinion that the patentee all along supposed that what he had discovered was a property of

metals whereby, when compressed axially in suitable dies, there would be molecular rearrangement; that this would take place only in the tubes where there was nothing to hinder the molecular flow; that when a tube had been corrugated, and incipient creases thus formed, the projections would double in on each other, and fold down in the creases, thus reducing the diameter before molecular rearrangement could take place. He also probably thought, and evidently still thinks, that, if the diameter were further reduced, there would be molecular rearrangement without crimping. The evidence in this record, however, indicates that upon that point he is mistaken. But, whatever he thought, the language of his patent is plain, and will not apply to a process where the diameter of the end of a tube is reduced, and the metal composing it is closed in, not by molecular rearrangement, but by merely folding down and bringing together a series of crimps or corrugations, without any change in the thickness of the metal. Such a construction of this patent for changing sections of tubing into hollow balls or spheroidal bodies would, moreover, seem to be required by the state of the art.

In 1867 a patent (No. 71,042) was granted to D. T. Munger, for an improved machine for making ball chain; that is to say, chain formed from hollow balls, the several balls being united so as to form a flexible chain. The invention consists "in swaging the balls so as to close around the neck of a double-headed rivet, then a second ball around the same rivet, and so on. * * * A piece of metal of the proper size, as in Fig. 6, is bent in cylindrical form, as in Fig. 7, and the two edges united. I prefer to use corrugated metal, but this is not essential. * * * Then the cylinder is placed in proper dies, and its two ends contracted so as to close around the neck of the rivet." The specification shows that these "proper dies" compress the cylindrical form axially. The lower die is single; the upper die in two parts, which can be laterally separated, so as to allow the balls, after they have been linked together, to be removed vertically. But these two parts are brought together before pressure is applied to the cylindrical form, so that the axial compression is in fact between two concave dies; the result being that "the form of the combined dies will contract the blank, and close one end around the rivet." In what way a corrugated cylindrical form is "contracted," and its "end closed around" a rivet or pin when it is compressed axially between two concave dies, the evidence in this case abundantly discloses. The complainants contend that the cylindrical form is not a tube, properly speaking,—that is, not a seamless tube,—but is a cylindrical blank, with a longitudinal slit or opening, and that the effect of the compression would be to overlap the metal at the ends. That this would be the effect, we very much doubt. It is difficult to see how corrugated metal would be thus lapped over itself, twice or three times, as it must be to secure a diameter small enough to hold the rivet. But, even if it would, the patent does not indicate that the cylindrical form is slit open. Complainants' experts refer to the drawings, showing four balls of the completed chain, and the same in section, as supporting their contention, insisting

that certain lines on these drawings represent the corrugations, and indicate that, when completed, there is an elliptical opening on the side of the ball. This is very unsatisfactory evidence, especially as the markings on all four balls of Fig. 8 are not alike; and, if on one or two of them they might seem to indicate an opening on the others, they quite as plainly indicate a metal corrugation at the same place. Moreover, the lines on Fig. 9, which shows the balls in section, would, by the same reasoning, be taken to indicate that there was an opening on the other side as well, which is absurd. Moreover, the drawings most certainly do not indicate any overlapping at the ends, but, on the contrary, a folding together of the corrugations. In the face of the express statement of the Munger patent that "a piece of metal of the proper size is bent into cylindrical form [thus giving a cylindrical blank], and the two edges united," we are unable to assent to the proposition that Munger's process is to be limited to a section of tube slit open longitudinally.

In view of all these facts, we concur with the circuit court in the conclusion that defendant's process, which produces the spheroidal bodies from corrugated tubing solely by folding and unfolding the corrugations, or, if extreme contraction of diameter is required, by buckling or doubling in some of the corrugations, and which does not upset the metal, nor make it thicker in some parts and thinner in others, is not an infringement of complainants' patent. The decree of the circuit court is affirmed, with costs.

THE MARACAIBO.

HEALEY v. THE MARACAIBO.

(District Court, S. D. New York. November 5, 1896.)

SEAMEN'S WAGES—OFFSET—ALLEGED SMUGGLING—FINE—SETTLEMENT BEFORE CONSUL.

Upon a seaman's discharge before the consul at Maracaibo and a settlement of his wages with a month's extra wages included in a written order given to the seaman upon the owners in New York for the payment of the balance due and on suit by the seaman for the nonpayment, a claim to an offset was interposed for an alleged fine of \$300, imposed upon the ship for the seaman's alleged smuggling; but the facts, whatever they were, being known to the master prior to the settlement before the consul, and the order for the extra wages being unqualified, and the proofs as to the fine or any payment thereof being doubtful; *held* that the offset should not be allowed.

(Syllabus by the Court.)

Cowen, Wing, Putnam & Burlingham, for libelant.
Coudert Bros., for claimant.

BROWN, District Judge. The settlement made by the master and the agents of the steamship with the libelant at Maracaibo, as regards the wages then due him, the discharge of the libelant by the consul at that port as a part of that settlement, the allowance of a month's extra wages, and the delivery to the seaman of a written order for the amount due him, including the extra wages, and the consul's assurance to the libelant, as testified to,