BETWEEN:

UNIVERSAL BUTTON FASTENING & BUTTON CO. OF CANADA LIMITED ..... PLAINTIFF;

AND

PETER C. CHRISTENSEN ..... DEFENDANT.

1935
Dec. 3, 4, 5.
1936
Jun. 6.

Patents—Impeachment action—Patent invalid—Sec. 61 ss. (1)(a) of Patent Act not applicable where one party to action does not claim invention—Person interested.

Defendant is the grantee and owner of two patents; number 338,100 relates to the production of buttons and similar articles and more particularly to an improved method of producing such articles, preferably from a material which is composed principally of casein; and number 341,399 relates to an improved composite casein material peculiarly adapted for the production of buttons therefrom.

The plaintiff's action is to impeach both patents on the ground that the Letters Patent are and always have been null and void.

The Court found that the plaintiff is an "interested person" within the meaning of the Patent Act; that as to patent number 341,399 it lacked invention, since the composition was known and used previously by others, and what is described and claimed did not call for the exercise of the inventive faculty; that as to patent number 338,100, the method or methods described therein lacked subject-matter, that practically every step in the method was substantially known and practised by others, prior to any date claimed by the defendant; that the method described and claimed is a mere aggregation of known distinct and interdependent steps in the manufacture of buttons from casein; that the invention is a mere aggregation of methods, a series of distinct and different steps—not a combination—in the manufacture of buttons, each of which is carried out independently of the others, and none of which was invented by the defendant.

Held: That if a process of manufacture is known the industrialist must be free to use his skill in the art in working it and modifying it.

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

2. That if any variation of an existing process could be made the subject of a monopoly, merely because it had not been done before, patents would exist and be supported for innumerable trivial details and industrial effort would be hampered.

3. That s. 61 (1) (*a*) of the Patent Act is not applicable since the plaintiff lays no claim to invention, seeking instead to impeach two patents on the ground that they are and always were invalid and void. S. 61 presupposes that there are two inventions and two inventors, each of whom claims priority, and that a patent has issued to one only.

ACTION to impeach two Canadian Patents for Invention, numbers 338,100 and 341,399.

The action was tried before the Honourable Mr. Justice Maclean, President of the Court, at Ottawa.

O. M. Biggar, K.C., and *M. B. Gordon* for plaintiff.

S. M. Clark, K.C., and *Alastair MacDonald* for defendant.

The facts and questions of law raised are stated in the reasons for judgment.

THE PRESIDENT, now (June 6, 1936) delivered the following judgment:

In this action the plaintiff seeks to expunge two patents, granted to and owned by the defendant Christensen, on the ground that the Letters Patent are and always have been null and void, (1) because no invention was in fact made by Christensen having regard to the general common knowlege of the art prior to the alleged date of Christensen's inventions, (2) because the invention described in each patent was known and used by others before they were known to Christensen, and (3) before the date of the applications for said patents the same had been made available to the public. Upon the material before me, I think, the plaintiff is an "interested person" within the meaning of the Statute.

The first patent, no. 338,100, issued on December 26, 1933, on an application filed on June 10, 1933, This patent relates to the production of buttons and similar articles, and more particularly to an improved method of producing such articles, preferably from a material which is composed principally of casein. The second patent numbered 341,399 issued on May 8, 1934, on an application filed on June 10, 1933. This patent relates to an improved composite casein material and is said to be peculiarly adapted for the production of buttons therefrom.

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

I shall first refer to the last mentioned patent, no. 341,399. It will be sufficient to make reference to one paragraph only of the descriptive portion of the specification and which is as follows:

My improved material consists principally of casein, and in case the same is to be used for the production of buttons, is preferably formed of a suitable mixture of casein, water and alum. The casein employed may be any of those commercial forms known to the trade as rennet casein, hydrochloric acid casein and acetic acid casein but I find that where the material is to be used for buttons and similar articles, best results are obtained by using rennet casein. Also while I prefer to use alum in producing the mixture referred to, any one of a number of other materials including a weak solution of acetic acid, a weak solution of any of several acid salts such as aluminum ammonium sulphate, aluminum sodium sulphate, aluminum potassium sulphate and ammonium sulphate, and a weak solution of any of several alkalis such as sodium hydrate, potassium hydrate, sodium phosphate, sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and sodium tetraborate, may be employed to advantage instead of alum.

All the claims of this patent have been abandoned with the exception of claims numbered 5, 6, 9 and 10, and they are as follows:—

5. A composition of the character described comprising a mixture of casein, water and alum, the amount of water in the mixture, exclusive of that in the casein, being from 10 per cent. to 25 per cent. by weight of the casein, and the amount of alum in the mixture being from 1 per cent. to 5 per cent. by weight of the casein.

6. A composition of the character described comprising a mixture of casein, water and alum, the amount of water in the mixture, exclusive of that in the casein, being substantially 15 per cent by weight of the casein and the amount of alum in the mixture being substantially 2 per cent. by weight of the casein.

9. A composition of the character described comprising a mixture of materials including casein and alum, the casein being the predominating ingredient of the mixture and the amount of alum in the mixture being from 1 per cent. to 5 per cent. by weight of the casein.

10. A composition of the character described comprising a mixture of materials including casein and alum, the casein being the predominating ingredient of the mixture and the amount of alum in the mixture being about 2 per cent. by weight of the casein.

The invention described in patent no. 338,100, as already stated, relates more particularly to an improved method of producing buttons and other articles, preferably from a material which is composed principally of casein, which is the material described in the other patent in suit. The specification states that the material consists principally of casein, and is preferably a suitable mixture of casein, water and alum, although other mentioned substances may be used in place of alum. The specification states:—

In producing the composite material, the casein, water and alum or other substance instead of the alum, are merely all introduced into an

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

ordinary mixing machine and the latter is operated until these substances are thoroughly commingled and a uniform mixture is obtained. This usually takes from 5 to 10 minutes. If the buttons or other articles to be produced are to be of a single solid color, a suitable dyeing material, or where the finished articles are to be solid white, a white pigment may be advantageously added at this point to the casein and other substances and mixed therewith in the mixing machine. The mixing operation may be carried on at ordinary room temperature.

The mixture produced as just described, is in granular or rather coarse powder form, and is now preferably highly compressed in a suitable extrusion press into a solid coherent material. This solid material as extruded from the press, is of uniform cross section and is usually, though not necessarily, cylindrical. As it issues from the press the said material, which is fairly soft and flexible, is cut into rods of any desired length, usually a length of from three to four feet. The press may be adjusted to produce cylindrical rods of any diameter from 0·1″ up to 2·5″ which may be desired. The rods thus produced are immediately immersed in water which is at substantially room temperature, and left therein for about one-half an hour. They are then removed from the water and maintained in the open air at ordinary room temperature for a period of from twenty-four hours up to a month or more, depending on when it is desired to use the rods for the production of the buttons or other articles to be made therefrom. After being removed from the water, however, the rods should be kept where the air is of such humidity as to prevent the moisture in the rods from drying out to any appreciable extent. By the simple treatment just described, the material of the rods is hardened and stiffened somewhat but is still wholly uncured and relatively soft.

The specification then states that where buttons are to be made in accordance with the invention, the rods produced and treated as just described, and while still in what is called an uncured or unhardened condition, are usually each formed into a large number of blanks which substantially conform in size and shape to the button finished by a turning machine, which turning machine is preferably of the type disclosed in a patent to Emanuel Clemens, and which automatically faces, edges, backs and cuts off the blanks from the rod by successive operations. The button blanks when cut are next cured or hardened by subjecting them to the action of formaldehyde. After being cured the buttons are scoured by subjecting them to the action of a mixture of pumice and sawdust in a rotating drum; then the buttons are drilled to provide the desired number and arrangement of holes, and that is followed by a preliminary polishing treatment by drumming the buttons in the usual manner with a mixture of powdered chalk, sawdust and bran, or other suitable mixture. Next follows an additional polishing, either mechanically or chemically, according to the finish or appearance desired. If a chemical polishing

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

is desired the specification recommends the following procedure:

A solution for treating the buttons is made by thoroughly mixing about 50 parts by weight of water, one part by weight of chloride of lime, and one part by weight of any one of the following substances: carbonate of soda (soda ash), bicarbonate of soda or potassium carbonate. This solution is heated to a temperature which is preferably within the limits of 170 degrees and 212 degrees F.

the buttons are then introduced into this heated solution. The buttons are thereafter dyed, subjected to the action of a fixing bath, washed, dried and finished. I think this sufficiently sets forth the substance of the invention described in this patent.

The claims in this patent number 17, but all have been abandoned except claims numbered 3, 4, 7, 8, 11, 14, 15 and 16, and they are as follows:

3. The method which consists in forming a solid but uncured member consisting principally of casein, cutting a plurality of buttons or like articles substantially in their final shape directly from said member while still uncured, and curing the shaped articles.

4. The method which consists in intimately mixing casein, water and alum, pressing the resulting mixture into a solid uncured member of cylindrical form, successively cutting a plurality of buttons substantially in their final shape directly from said member while it is uncured, and then subjecting said buttons to the action of formaldehyde to cure the same.

7. The method which consists in forming buttons or like articles substantially in their final shape from uncured material consisting principally of casein, curing the shaped articles, and subjecting the cured articles to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate.

8. The method which consists in forming buttons or like articles substantially in their final shape from uncured material consisting principally of casein, curing the shaped articles, subjecting the cured articles to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate, and then dyeing said articles.

11. The method which consists in forming buttons or like articles substantially in their final shape from uncured material consisting principally of casein, curing the shaped articles, subjecting the cured articles to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate, then applying dye only to portions of the surface of said articles, then subjecting the articles to the action of a fixing solution, immersing the articles in a dye solution, and then again subjecting the articles to the action of a fixing solution.

14. The method which consists in subjecting cured buttons or like articles formed of material consisting principally of casein, to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate, and then dyeing said articles.

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

15. The method which consists in subjecting cured buttons or like articles formed of material consisting principally of casein to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate.

16. The method which consists in subjecting cured buttons or like articles formed of material consisting principally of casein to the action of a solution of a mixture of chloride of lime and one of the group of materials consisting of carbonate of soda, bicarbonate of soda and potassium carbonate, then applying dye only to predetermined portions of the surfaces of said articles, then subjecting the articles to the action of a fixing solution, then applying dye to said articles over their entire surfaces, and then again subjecting the articles to the action of a fixing solution.

The point in issue in respect of patent no. 341,399 relates entirely to the employment of alum in a casein mixture. In the case of patent no. 338,100 the controversy largely revolves around the matter of the cutting of buttons from an uncured rod made from the casein mixture described in the other patent, and the liquid chemical solution used for the polishing of buttons. The issues for determination being largely questions of fact it is desirable to review at some length the evidence given in respect of both patents, particularly in respect of the points mentioned.

I will first refer to the evidence of Mr. Jaeger, presently, and since July or August, 1928, in charge of the manufacturing of casein plastics in the George H. Morrell Corporation, hereinafter to be referred to as Morrell, at Muskegon, Michigan, U.S.A. About that time Morrell, as I understand it, took over a concern known as the Kyloid Company, manufacturers of casein material in the shape of sheets, rods and button blanks, and this company had been in business, in Muskegon, at least four or five years prior to 1928; and about the same time Morrell took over George Morrell Inc., a company that had been manufacturing celluloid articles at Livingstone, Massachusetts, and buttons in a small way in New Jersey. Jaeger joined the latter company in May, 1925, and he entered the employ of Morrell when it acquired the business of Kyloid, in 1928. Kyloid manufactured button blanks, which were sliced or cut from the rod in an uncured state and which would be subsequently cured; they were then sold to button manufacturers who turned, drilled and finished them. There was in the Kyloid plant a hand machine for rounding uncured rods to the desired diameter, and also a machine for cutting button blanks from the uncured rods. Many of these

straight button blanks were capable of being used, and were used, as buttons after curing, drilling, dyeing and polishing the same. Kyloid had not on hand any machine for turning, that is for shaping and finishing cured casein buttons, nor did it have any drilling machine. In August, 1928, Morrell installed a drilling machine at Muskegon, and it also installed nine other machines, which would cut button blanks from cured or uncured rods, and which would also turn or pattern the buttons. These machines were known by the name of Syble Pandorf. As I understand Jaeger's evidence, shortly after August, 1928, Morrell was selling more finished buttons than they were selling button blanks.

When Jaeger went to Morrell the material used comprised casein, water, pigments and dyestuffs, and that practice continued till May, 1929, when Jaeger, through correspondence with friends of his in Germany, got in contact with a consulting casein expert who supplied him with a book of formulae, which formulae it was said were known, or were being used, in Germany at that time. This book, now in evidence, reached Jaeger in February or March, 1929. Three formulae contained in this book were particularly referred to. Formula no. 1 called for a mixture of rennet casein, alum, turkey red oil and water, no. 2 for a mixture of casein, water, glycerine, and alum, and no. 3 for a mixture of casein, glycerine, and alum. In each case the proportion of each constituent is mentioned but I need not refer to them except to say that the proportion of alum to be used in formula no. 1 is only a small part of one per cent, in no. 2 it is five per cent, and in no. 3 one-tenth of one per cent.

Morrell then obtained the services of a German chemist, a casein expert, to demonstrate these formulae, to Jaeger I assume. This casein expert, a Mr. Haupt, arrived at the Morrell plant towards the end of April, 1929, and he remained until the middle of October following. In May, Jaeger, under the direction of Haupt, commenced the use of alum in all their casein mixtures and that is established by the evidence. The percentage of alum used varied from one-half of one per cent to five per cent, according to the character of the alum which was bought in the open market. Jaeger stated that they found the alum to be of special

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

help in obtaining the proper plastification of the material and to obtain even extrusion of the plastic rods out of the machine. They found the material firmer and easier to cut, and afterwards to turn. The percentage of alum used in a given material was determined by a trial and error method; if the material did not extrude freely from the machine with one per cent it was immediately increased, but not more than five per cent was ever used; the usual proportion was one or two per cent, one per cent for one type of alum, and two per cent for another type. As I understand it some casein is more uniform than others and in that case the percentage of alum required was rather constant, whereas, for example, in the case of imported French casein, the proportion of alum had often to be varied. The quantity of water used in the mixture ranged between twenty and thirty per cent by weight, depending largely upon the moisture content of the casein, the size of the rod, and in some instances on the colours used.

In 1928 and 1929, 25 per cent of Morrell's button production consisted of buttons that were never turned, that is to say, they were cut from the uncured rod and then pierced, dyed and polished. Of the balance only about 5 per cent would be turned uncured, this because it was found to be more economical to cure the blanks and turn the button out of the cured blank.

The only difficulty Morrell encountered in connection with the buttons turned out in 1928 and 1929 was not in the manufacture but in the selling of the same. Customers objected to a wax finish, that is to say, the buttons were finished with a wax in the tumbler. When garments to which these buttons were attached, were pressed in the ordinary steam presses in tailoring establishments, the flats of which are canvas covered, it was found that the heat would soften the wax and the canvas would absorb it, thus leaving the button with a dull surface. At that time German trade journals, which Jaeger was receiving, were advertising chemical finishing solutions, and he wrote to some of such advertisers. One of such journals, called Butonia, of date August 15, 1929, now in evidence, mentions in an article the existence of liquid polishing materials that are used in the casein industry, on buttons and other articles, and the following is a translation of that article.

Art Horn material (casein) can be polished and will accept a beautiful lustre without polishing wheel, without barrel or without lacquer by simply immersing it into a liquid composition which is still kept secret by the manufacturer. This simple procedure should be of special interest to fabricators of articles made of this composition material especially as this polishing liquid is suited advantageously for certain articles such as buckles, combs, buttons and beads made in quantity production.

The same journal on December 15, 1929, carried an advertisement of a Berlin firm, by the name of A. Troitzsch, advertising a liquid polishing material for certain articles. Another advertisement in that journal advertised a liquid polishing material under the trade name of Rotoxyl. As a result of the appearance of advertisements of this nature Jaeger went to Germany early in April, 1930, having previously had correspondence with concerns advertising such liquid polishing material; in fact, Jaeger had previously sent samples of Morrell buttons to Berlin, where they were polished by Troitzsch, and as I understand it, they were finished and returned to Morrell before Jaeger left for Germany. Jaeger took with him to Germany several pounds of Morrell buttons and there he experimented with several samples of liquid polishing materials advertised in Germany, such as Rotoxyl and Oxygenol, and buttons polished with such liquids in Germany are in evidence; a third sample, known to the trade as Alepolit, he did not use. A liquid was recommended to him by a fourth person, one Brandt, who gave him a formula of application and the source of supply, and this he then considered the most adaptable. Brandt finished some Morrell buttons with this liquid polishing solution in the presence of Jaeger, and some of such buttons are in evidence. Jaeger then entered into a written agreement with Brandt respecting the use of the liquid polishing material, and he bought some of the liquid, 10 kilogrammes, from a chemical supply house that made the solution for Brandt, and this Jaeger brought back to Muskegon. In this connection Jaeger agreed to pay Brandt $100, and Brandt agreed to assist Jaeger (Morrell) with suggestions in respect of any difficulties that might be encountered later on, in the application of this liquid polish, but not in securing supplies of the liquid because apparently it was not expected there would be any difficulty in obtaining such supplies.

On Jaeger's return to Muskegon a sample of this liquid procured through Brandt in Germany was sent to the

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

Miner Laboratories, consulting chemists, in Chicago, for an analysis of the same. The report from Miners Laboratories, dated June 11, 1930, was that on an analysis of the sample submitted, which they described as Javelle water, it was found to contain so much available chlorine and so much total alkalinity as sodium carbonate. The Miner Laboratories, following their analysis, prepared a sodium hypochlorite solution which they thought was sufficiently close to the German Javelle water to justify Morrell proceeding with its use in their plant.

The next step was that Morrell communicated with the Matheson Alkali Works, at the suggestion of the Miners Laboratories, in respect of supplies necessary for the making of the liquid polish and this concern sent two men to the Morrell plant to assist in making the first batches of the solution. In a letter dated June 16, 1930, they instructed Morrell as to the percentage of chlorine and caustic soda to use, and how to make the solution, and on that date they shipped Morrell a stated quantity of liquid chlorine and flake caustic soda; in a later letter they suggested using bleaching powder instead of liquid chlorine. The first batches of the solution made by Morrell consisted only of caustic soda and liquid chlorine. Later about July 1, 1930, soda ash, was added as a third ingredient to overcome certain difficulties experienced with the diffusion of the gas in the bath. A bleaching powder, known as H T H, containing a high percentage of free chlorine was experimentally added to the caustic solution. After further experimental work it was found more convenient to make the solution with chloride of lime instead of liquid chlorine gas, and caustic ash and caustic soda, and this solution was used for more than a year and a half, commencing September, 1930; now Morrell is back to the original formula of liquid chlorine gas and caustic flakes because a way had been found of diffusing them satisfactorily.

It will be remembered that the chemical polishing solution described in patent no. 338,100 is made by mixing fifty parts by weight of water, one part by weight of chloride of lime, and one part by weight of carbonate of soda (soda ash), or bi-carbonate of soda, or potassium carbonate. Jaeger stated that either of these alkalis could be used in the compound instead of caustic flake or soda. I think

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

it may be assumed upon the evidence that the polishing mixture described by the defendant is the chemical equivalent of that used by Morrell, and so far as I can recall that was not contested by the defendant. The precise behaviour of these different chemical elements I have no doubt would be well known to chemists. The only real point in this connection is whether or not there was invention by Christensen in compounding his chemical polishing solution, or in introducing it into the method described by him. This will be determined later.

There are two methods of dyeing buttons. One is by mixing the dye or pigment in the original mixture which is extruded from the press, and the other is to surface dye them at some subsequent stage in their process of manufacture, and both methods have long been known. In surface dyeing operations buttons are exposed to a solution consisting of water, and natural dyes, wood dyes or aniline dyes, and in some cases acid, to obtain penetration. Morrell used its solution on its buttons regardless of colour, but inasmuch as the solution acts as a bleach on surface colours, the surface dyeing is done after treatment in the polishing solution. I do not propose commenting on the dyeing operations described by Christensen, or that practised by others. In my opinion it is not an element of importance in this controversy.

The evidence of Jaeger was confirmed in some important particulars by that of Renkenberger, an attorney at law, practising at Muskegon; he became legal adviser to Morrell some time after its organization. He also had a general knowledge of the Kyloid plant before it was taken over by Morrell. I do not think it necessary, however, to review the evidence of this witness.

Mr. Parsons of the American Plastics Corporation, of Bainbridge, N.Y., manufacturers of casein plastics, including button blanks, also gave evidence. He was employed by this corporation either as production manager, or assistant production manager, since 1925. The product of this company was sold in the shape of sheets, rods and tubes, until recent years when it commenced to make button blanks. In August, 1925, and continuously since that date, this company has been using a formula which it obtained from Erinoid Ltd. of Stroud, England, and this formula

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

directed the use of alum aluminum sulphate in casein mixtures, for the production of rods from an extruding press, in the proportion of one-half of one per cent of the casein. For reasons which I need not delay to explain this corporation experimented with larger proportions of alum, late in 1926, on the advice of a German casein expert, up to five per cent, but finding no advantage in the increased quantity they gradually reverted to the proportion of one-half of one per cent, and Parsons stated that with their casein that was all that was required. The inclusion of alum in the mixture would, Parsons stated, be known to employees in the plant of the corporation.

Mr. Dunham, a graduate chemist, one of the vice-presidents of the same corporation, also gave evidence. After the formula mentioned by Parsons was acquired Dunham, in 1924, spent several months in Stroud, England, with Erinoid Ltd., in order to become acquainted with the various processes and practices relating to the production of casein plastics, prior to erecting the plant of American Plastics Corporation at Bainbridge, N.Y. And he stated that one formula called for the use of alum, particularly for use in black material. He confirmed the evidence of Parsons that as satisfactory results were obtained by the use of one-half of one per cent of alum as with a greater quantity. His opinion as to the cause of this was that in the plant at Bainbridge, the milk was precipitated with rennet whereas in ordinary casein it was curdled with acids, which, he thought not a desirable practice. He gave further reasons why only a small percentage of alum was used by his company in casein mixtures, but it is hardly necessary that I should repeat the same. The fact is that this corporation has been using alum in casein mixtures since 1925, and the proportions are not, I think, of importance, because apparently for one reason or another this may vary, and Christensen would appear to concede this. Dunham visited the Morrell plant in September, 1930, when he observed the complete process employed there in the manufacture of buttons, just as described by Jaeger. He saw buttons put into what he was told was a hypochlorite solution, a polishing bath, and he stated that anyone would recognize that the solution contained chlorine because its presence was so evident about the plant.

Mr. Vawter, presently chief chemist of the American Plastics Corporation, between 1924 and 1931 was in the employ of the Karolith Corporation, manufacturers of casein plastics, at Long Island City, N.Y. Karolith at first made such articles as fountain pen stands, lamp shades, lamp stands, balls, etc., which were moulded and later cured and polished; later it cut button blanks from uncured casein rods. This witness stated that Karolith, in 1924, used alum for a very short period, to the extent of 2 per cent, in casein mixtures. Karolith had been using acetic acid but found it corroded their machines and so they experimented with alum but with the same result and the use of alum was abandoned; Karolith did not return to the use of acetic acid and apparently used casein and water only.

In the latter part of 1927, one of the Karolith corporation heard, while in Europe, of the use there of Javelle water by casein plastic manufacturers, as a chemical polishing bath. Karolith then purchased some Javelle water from a local drug store but the results were not particularly impressive. In 1929 rumours persisted that Javelle water was being successfully used in Europe. Then Vawter experimented with sodium carbonate and ordinary chloride of lime and mixed them together with water, and after allowing the mixture to settle, the clear solution was decanted. This solution, which Vawter stated was probably stronger and fresher than Javelle water, gave excellent results. This information was given to the sales department to be passed on to their customers, button manufacturers, Karolith itself not finishing buttons at that time. Vawter testified that his mixture of chloride of lime and sodium carbonate would be about the same as a mixture of chlorine gas and caustic soda except that caustic soda would be more convenient, and that it would be about the same as a mixture of chloride of lime, caustic soda and soda ash.

Mr. Brother, a chemical engineer, testified on behalf of the defendant. About eight or nine years ago he was associated with Karolith and prior thereto, along with Vawter, with Art Horn Product Corporation. Karolith, in 1923, took over Art Horn and with the transfer came certain secret formulae which the latter obtained from some German casein expert. Brother stated that some of the secret

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean, J.

formulae directed the use of alum in the casein mixture and that alum was used for a time by Karolith, but was abandoned because it seemed to produce no advantage; he also stated that alum was not necessary for the finished rods and sheets made by Karolith, and which were used in making the articles mentioned in the evidence of Vawter. He was of the opinion that the mere mixture of casein and water would not have sufficient body to hold up under a machine that would cut and turn a button from an uncured rod in one operation. In cross-examination he stated that if one wished to render the casein and water mixture softer, in putting it through the extrusion machine, you would include some softening agent such as glycerine, turkey red oil, or something of that nature, and if you wished to make the rod harder you would include alum, or some form of formaldehyde, which would give it more body or substance than the ordinary plastic casein rod would have. Brother seemed to make this statement as if it were common knowledge and within his own experience, and not something learned from the patents in suit. This witness apparently thought that alum stiffened the mixture in some degree, but not in the same degree as formaldehyde.

I shall now refer to the evidence of the defendant Christensen. In 1919 Christensen organized what was known as the Alladdinite Company to manufacture casein rods and sheets, starting first with sheets, then with rods, which when cured were sold to button manufacturers. The ingredients used in the casein mixture at this time were casein, water and some colouring. Christensen said it was the general practice in producing buttons from cured casein rods to first put the rods in an oil bath and soften them by heat, so as to avoid dulling the cutting tool; the blanks were then put into an automatic machine for facing, and another machine operation for backing, and that made a button; then there followed the drilling, polishing and dyeing operations. In the summer of 1929 Christensen learned that Clemens had developed a machine, the one referred to in the specification of patent no. 338,100, intended for the cutting of buttons from uncured rods. On seeing this machine and on being shown how it worked Christensen said he was led to believe that an uncured rod could be

used on that machine and that finished buttons could be cut from the uncured rod. He gave Clemens several uncured rods to try out on this machine and it was found that while the button had a perfect face the back was smeared and so the button was unsatisfactory. Christensen then proceeded to make other rods using chemicals of different hardness in the mixture so that it would have the proper firmness to withstand the operations of Clemens' machine and he states that he worked on that during the summer of 1929. These experiments ended with the use of alum in the casein mixture in the proportions mentioned in the material patent; but 2 per cent Christensen found to be the most satisfactory. He then produced uncured rods from this mixture, the first being made on December 12, 1929, and the next on January 9, 1930. In the result Christensen stated that he found that in one operation he could cut from the uncured rod a finished button with the Clemens machine, which, he claims, had never been done before. I am prepared to accept the date of December 12, 1929, as the time when Christensen made his first casein mixture containing alum. On discovery, he gave sometime in 1931 as the date, but I am satisfied he was confused about this and was unintentionally in error as to the proper date. He then commenced production in a small way and in about a year's time production was on a substantial scale. The button after being cut from the uncured rod was cured in a formaldehyde solution, then drilled, polished and dyed, as explained in the specification of the method patent. Just a word as to the chemical polishing liquid. Christensen claims to have discovered or invented, after about a month's experimental work, in August, 1931, his liquid polishing material which has already been described.

Now Christensen claims that with his casein-alum water mixture, the cutting and turning of buttons from uncured rods by the Clemens machine, by using his chemical polishing agent, and generally by following the directions set forth in the specification of the method patent, much time was saved in curing, dyeing and polishing buttons, and consequently much time was saved in producing the finished button. And it is also claimed that this method effected a reduction in waste material. All this it is claimed caused

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

a reduction in the cost of production of buttons with an ensuing reduced price to the public and increased sales. I do not think it is necessary to review the evidence of Christensen on these several points.

Coming now to the question of the validity of patent no. 341,399. It is not necessary, I think, to discuss the individual claims relied upon. It is plain that the invention claimed in this patent rests on the inclusion of alum in the casein mixture, or, to use the words of the claims "a composition * * * comprising a mixture of water, alum and * * * casein"; the proportion of each ingredient is not of importance because that would be a matter to be adjusted according to requirements, or according to the character or behaviour of the casein and the alum. When Christensen became acquainted with the Clemens machine he was making rods from a mixture of casein and water. He stated that this machine could not satisfactorily work on such rods and his problem was to produce a casein composition from which uncured rods might be produced and which would stand the cutting and turning operations of the Clemens machine. To solve that problem he claims to have invented his casein-alum composition. He states in his specification:

> Also while I prefer to use alum in producing the mixture referred to, any one of a number of other materials including a weak solution of acetic acid, a weak solution of any of several acid salts such as aluminum ammonium sulphate, aluminum sodium sulphate, aluminum potassium sulphate and ammonium sulphate, and a weak solution of any of several alkalis such as sodium hydrate, potassium hydrate, sodium phosphate, sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and sodium tetra-borate, may be employed to advantage instead of alum.

Christensen was examined on discovery by Mr. Biggar and I wish to make a very brief reference to that examination, by quoting a few questions and answers, and they are as follows:

127. Q. So you had to get a different kind of rod?
A. Exactly.
128. Q. And you knew, because you were familiar with the business, that you would get a different kind of rod by adding alum, or one of these other things that you suggest in your patent specification?
A. I expected to.
129. Q. That was because of the character of the materials?
A. Yes.
130. Q. And, therefore, you just took the obvious material, alum, and tried it?
A. Yes, sir.

131. Q. And that material gave you a rod which did stand up properly under the operation of Mr. Clemens' cutting machine?

A. So much so that formerly we could only make buttons for twenty-two line—just what you have on your vest is twenty-four line—now we can make them—the rods—two inches in diameter and cut them—a finished button out of a rod—which was quite absolutely impossible in the other way.

132. Q. And you knew you could get that kind of result not only from alum but also by using these other materials that are set out in your specification?

A. Yes.

Question 130 may appear to have been put in a way calculated to trap the witness, but I do not think that this is so, particularly when one reads the next fifteen or twenty questions and answers concerning the alternatives of alum. It is not perfectly clear from the evidence, but I think Christensen is a trained chemist. He worked for twelve years in the Edison Laboratories in West Orange, New Jersey, on mechanical and chemical problems. When Christensen found that a casein-water uncured rod would not meet his problem he almost immediately turned to alum, and a dozen or more alternative substances, which he says could be used instead of alum. From the very first he expected to get from either of these substances the results later obtained. It is said that one of these materials might corrode the cutting tools of the machine, that one had a tendency to affect the colour if too great a quantity were used, that some were more expensive than alum, but any one of them would produce the effect Christensen desired, that is, they each would, if in the mixture, produce an uncured rod sufficiently plastic, but firm enough, to stand the cutting and turning operations of Clemens' machine; that is the merit which Christensen claims for his alleged invention. The fact remains that alum and the alternative substances would make firmer the uncured rod if Christensen is accurate in his statement concerning them, in his specification and evidence. Jaeger's evidence was the most satisfactory evidence regarding the effect of alum in a casein mixture. He said that he found "alum to be of special help in obtaining the proper plastification of the material and to obtain even extrusion of the plastic rods out of the machine. We find the material firmer and easier to cut or turn afterwards." That would closely correspond to what Christensen expected from the use of alum in a casein mixture.

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

From the evidence it would seem to have been generally known by those interested in the manufacture of casein material for the manufacture of buttons, that alum was more or less used, or talked about, as a useful ingredient. With so many concerns in the industry in the United States, using or experimenting with alum, with German formulae in the hands of so many concerns directing the use of alum and available apparently to anybody at a price, I find it difficult to believe that Christensen should not in some way have known or heard of the use of alum in a casein mixture, and if alum were useful its equivalents would be known, at least to chemists. Christensen immediately turned to alum and its alternatives or equivalents to solve his problem, and he then hoped to get the results later obtained and claimed as invention.

Mr. Brother, a witness for the defendant, used alum in casein mixtures, when with the Art Horn Company, but this was abandoned because it seemed to perform no useful function. He also stated that if you wished to make a casein-water mixture harder "you would include alum or some good form of formaldehyde." I understand this to mean that years ago he understood the reaction of alum in a casein mixture. When Brother speaks of alum hardening the mixture I assume he only means that it is made "firmer," just as Jaeger spoke of it; if it were actually made hard it would not pass through the extrusion machine. Hardening, as understood in this art, is accomplished by a formaldehyde solution. When Brother and Vawter were together in the employ of Karolith, in 1924, they used alum to the extent of 2 per cent in their casein mixture. They had been using acetic acid in their casein mixture and it was found that this corroded the cutting machines so they resorted to the use of alum, but this did not avoid corrosion and apparently they abandoned the use of both alum and acetic acid. Brother stated that alum was not necessary for the sheets and rods made by Karolith and from which were made such articles as fountain pen stands, lamp shades, balls, etc., and that may be correct. This only shows that the use of alum was abandoned because the alum in the mixture was believed to corrode the cutting machine, and because, in the case of Karolith products, it was thought not to be necessary. I might here add that Brother suggested that the German formulae were useless

and deceptive, because they would in some instances suggest the use of one ingredient which would be neutralized by the effect of another mentioned ingredient, for example, he said that either turkey red oil, or glycerine, would neutralize the effect of alum in a mixture. I understood Vawter and Dunham to dispute this suggestion; at any rate the suggestion was not established to my satisfaction and the point is probably not of importance. Jaeger commenced using alum in casein mixtures in the Morrell plant in May, 1929, and its use has been continued there since. Apparently no difficulty was encountered by Morrell through any corrosive qualities inherent in alum, and apparently that is the experience of Christensen. Then the American Plastics Corporation have used since 1925 the English Erinoid formula which required the use of one-half of one per cent of alum aluminum sulphate in a casein mixture, and that is the same as alum.

Upon the evidence I must hold there is no invention in this patent of Christensen and, I think, it should be expunged. The composition claimed was known and used previously by others, and in my opinion what is described and claimed did not call for the exercise of the inventive faculty.

Turning now to patent no. 388,100. Invention is claimed chiefly because of the casein composition, the liquid polishing material, and the cutting and turning of the finished button in one operation from an uncured rod by a machine such as Clemens, all of which are claimed to be new. In these three steps really rests the claim to invention. I think it will be sufficient to discuss this patent in a general way, and without reference to the individual claims relied upon. What I have said concerning the use of alum in a casein composition in the other patent is applicable here; that step in the method was not new and of itself contributes nothing to the subject-matter here. The same thing may be said of the polishing solution composed of chloride of lime with carbonate of soda, or bicarbonate of soda, or potassium carbonate. The same solution had been used by others prior to any date which Christensen could claim. It was used by Jaeger in Germany; Jaeger had the same solution, or its equivalent, made up at Muskegon, in June, 1929, and it has been continuously used since by Morrell;

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

Vawter discovered the same properties in Javelle water for Karolith and this concern used the solution; Miners Laboratories and the Matheson Alkali Works suggested the same composition, or its equivalent, to Morrell, and all this was prior to any date which Christensen claims.

Some of the claims refer to the "cutting" of buttons from uncured rods, but Christensen admitted that the cutting of button blanks from uncured rods was known prior to his alleged invention; and further he makes no claim for the "turning" of buttons. Several of the claims state that the buttons are cut from uncured rods substantially in their final shape; and quantities of button blanks, after being drilled, were sold in this state long before Christensen. The words "substantially in their final shape" refer to button blanks cut from uncured rods. In the paragraph of the specification which refers to Clemens' machine we find the words: "blanks * * * which substantially conform in size and shape to the finished buttons by a turning machine * * *" This can only refer to button blanks. As to the turning machine to be employed the patentee merely expresses a preference for that of Clemens but that is the invention of Clemens, if invention there be. The method or methods claimed for dyeing buttons had long been practised in substance, whether or not alum was in the material, whether or not any chemical solution was used for the polishing of buttons, and whether the buttons were cut from a cured or uncured rod.

I do not think that the method or methods described and claimed by Christensen contain subject-matter; I think that every step in what is described as a method, with the exception of the use of the Clemens machine, was substantially known and practised by others, prior to any date claimed by Christensen. If there is anything new in Christensen's method it is in the Clemens machine which apparently cuts and turns the button in one operation whereas the usual practice, I think, was to employ one machine for cutting the button blank and another for turning the button. Making casein rods and sheets from a mixture of casein, water and alum, was practised prior to Christensen's claim to invention. Means were known for the cutting of button blanks from uncured rods, and also for turning them in a cured or uncured state. Curing buttons by

a formaldehyde solution was known; and the method for dyeing buttons, and polishing them mechanically or chemically was known. There may be slight variations between Christensen's described method and what was previously practised, but the difference does not spell invention. If a process of manufacture is known the industrialist must be free to use his skill in the art in working it and modifying it. If a person could monopolize any variation of an existing process, merely because it had not been done before, industrial effort would be intolerably hampered since patents would exist and be supported for innumerable trivial details.

It seems to me that the method described and claimed is a mere aggregation of known distinct and independent steps in the manufacture of buttons from casein. The making of casein material is the first step, the making of rods, the curing of rods or buttons by formaldehyde, the cutting of blanks from the cured or uncured rod by a cutting machine, the turning of buttons by another machine, the drilling, the polishing, and the dyeing, are other distinct steps in the manufacture of buttons from casein, but all were known. The Clemens machine performs an old function, but perhaps in an improved way, because it both cuts and turns buttons directly from the rod in one operation; but that is the only function it performs, and so with formaldehyde, and with the polishing solution. That each step I have mentioned is distinct from the others is exemplified by the fact that some concerns make only casein, others casein rods or sheets, others button blanks, and others do the drilling, turning, polishing and dyeing; and it would not be difficult to imagine some doing only the dyeing. I think this is the correct way of looking at this patent and if one does it becomes apparent that it is a mere aggregation of methods, a series of distinct and different steps,—not a combination—in the manufacture of buttons, each of which is carried out independently of the others, and none of which were, in my opinion, invented by Christensen. If I ask myself what step from the casein material to the finished button did Christensen invent, I can only answer none. If Christensen obtained any new results, or achieved any advantages over anything that had been previously known or practised, it seems to me it is not due to anything he discovered or invented.

1936

UNIVERSAL BUTTON FASTENING AND BUTTON CO. OF CANADA LIMITED. v. CHRISTENSEN.

Maclean J.

Mr. Clark very skilfully argued that sec. 61 (1) (*a*) should be applied, on the ground that the methods employed by Morrell, and others, in making casein materials and polishing solutions, were carried out secretly, and that such methods had not been made available to the public. In view of the conclusion which I have reached, that is, that there is not subject-matter in either patent, the point taken is not applicable. Section 61 presupposes that there are two inventions and two inventors, each of whom claims priority, and that a patent has issued to one only. The plaintiff lays no claim to invention; it seeks to expunge two patents on the ground that they are and always were invalid and void, which is not the issue contemplated by sec. 61 of the Act. I do not think therefore that the provision of the Patent Act mentioned is applicable here and I need not discuss the question as to whether or not the methods practised by Morrell, or others, were carried out secretly, and whether such methods were made available to the public in the sense intended by sec. 61 (1) (*a*) of the Act.

The plaintiff therefore succeeds and costs will follow the event.

Judgment accordingly.