Abstracts of patents relating to rubber latex

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No. 702908. *Sponge rubber. Dunlop Rubber Co., Ltd. Inventors: D. J. McKeand and J. L. M. Newnham.* (*Appl.* 27.9.50. *Filed* 31.8.51. *Publ.* 27.1.54)
The process comprises gelling a latex foam in which the rubber particles are negatively charged and which contains an anionic soap, a gelling agent, vulcanising ingredients, and a cationic long-chain compound which is soluble in the serum of the latex, and vulcanising the rubber in the gelled foam. The cationic long-chain compounds may be quaternary alkyl ammonium halides containing an alkyl chain of at least 10 carbon atoms, e.g. cetyl pyridinium chloride. The process may be applied to natural rubber latex and to synthetic rubber latices.

No. 703292. *Upholstery material comprising artificial filaments agglutinated by adhesives. Vereinigte Glanzstoff-Fabriken A.-G.*
(*Appl.* 11.9.51; *Germany* 23.10.50. *Filed* 11.9.51. *Publ.* 3.2.54. *Addition to No.* 688315)
Crimped bands or loops of viscose fibre are drawn through a solution or emulsion of a water-repellent binding agent which may be compounded or pre-vulcanised latex. After heating to dry the material and, if necessary, to vulcanise the latex, the product has a fibre:rubber ratio of 1:1.5 to 1:2.

No. 704116. *Sealing expansion joints. Revertex, Ltd. Inventor: P. B. Cormac.*
(*Appl.* 13.9.51. *Filed* 10.12.52. *Publ.* 17.2.54)
Expansion joints in concrete roads, pavements, aircraft runways, floors and the like are filled to half their depth with soft bitumen and then, while the bitumen is still warm, the joints are topped up with a resilient self-hardening latex composition. The latex composition may comprise the following ingredients: compounded concentrated latex sold under the trade name "Revertex" 100, water 17, sodium hydroxide (to neutralise any possible acidity of the water) 3, aluminous cement 200, tyre waste of 7-mesh 350, and sand 50, all parts by weight.

No. 704542. *Products from foamed rubber latex. Dunlop Rubber Co., Ltd. Inventor: F. J. Paton.*
(*Appl.* 21.2.51. *Filed* 29.1.52. *Publ.* 24.2.54)
The process comprises the compounding of concentrated ammonia-preserved latex with vulcanising agents and a foaming agent, and foaming the compounded latex by mechanical agitation in presence of a proteolytic enzyme, *e.g.* trypsin, to increase the sensitivity of the compounded latex to gelling, without rendering it unstable to foaming by mechanical agitation after compounding. The foam is gelled with a delayed action gelling agent and is then vulcanised.

No. 705344. *Compounding carbon black and rubber latex. Columbian Carbon Co.*
(*Appl.* 21.4.52; *U.S.A.* 12.3.52. *Filed* 21.4.52. *Publ.* 10.3.54)
A continuous process for the dispersion of carbon black in water and its admixture with natural or synthetic rubber latex is described, the mixture then being coagulated, washed and dried. Compounded rubber prepared from the carbon black masterbatch is found to have a faster vulcanising rate, a higher modulus and better tear characteristics than that prepared by conventional procedure. The process is of particular utility for compounding carbon black into GR-S-type latex.

No. 705454. *Production of sponge rubber. United States Rubber Co.*
(*Appl.* 7.2.52; *U.S.A.* 15.2.51. *Filed* 7.2.52. *Publ.* 10.3.54)
Latex sponge rubber is produced by foaming without coagulation a carbon dioxide-coagulable latex, shaping the latex foam, and then diffusing carbon dioxide throughout the foam to cause coagulation. The process may be applied to natural rubber latex or to GR-S latex, suitably compounded.

No. 706364. *Sponge rubber upholstery. Pirelli Societa per Azioni.*
(*Appl.* 7.11.51; *Italy* 11.11.50. *Filed* 7.11.51. *Publ.* 31.3.54)
Circulation of air between the surface of sponge rubber upholstery and the user's body is permitted by forming narrow shallow ribs in the material in close proximity to one another on the sealing surface. The upholstery may be made of latex foam.

No. 706413. *Bonded resilient fibrous material suitable for upholstery. Xetal Products, Ltd. Inventor: P. Merriman.*
(*Appl.* 5.12.50. *Filed* 10.10.51. *Publ.* 31.3.54)
A loose web of intermingled horsehair or other fibre is treated with a thermosetting synthetic resin adhesive free from volatile matter and the treated fibre placed in a mould and heated to set the adhesive. The shaped mass of hair is then removed from the mould and dipped in concentrated compounded latex. Excess latex is allowed to drain off and the treated hair is then dried and the rubber vulcanised at a temperature of about 100°C.

No. 706487. *Method and apparatus for measuring the moisture content of fabrics. Firestone Tyre and Rubber Co., Ltd., and J. B. Collins.*
(*Appl.* 23.1.51. *Filed* 9.1.52. *Publ.* 31.3.54)
A method of measuring moisture in fabric consists in connecting one pole of a ripple-free d.c. source isolated from earth through a length of the fabric to earth, connecting the other pole to earth through a fixed resistance and measuring the potential difference across the fixed resistance, this value being used to

determine the moisture content of the fabric. The method is intended particularly for measuring the residual moisture in tyre cord fabric which has been dipped in latex and then dried.

No. 706488. *Producing ripple-free direct potential. Firestone Tyre and Rubber Co., Ltd., and J. B. Collins.* (*Appl.* 23.1.51. *Filed* 9.1.52. *Publ.* 31.3.54)
Apparatus for use in the process of No. 706487 for determining the moisture content of tyre fabric is described.

No. 706589. *Moulds for cellular or porous plastic material. Wingfoot Corpn.*
(*Appl.* 13.12.51; *U.S.A.* 9.6.51. *Filed* 13.12.51. *Publ.* 31.3.54)
The mould cover for a mould for latex foam is provided with deformable rubber sealing strips where it comes into contact with the edges of the mould. The rubber strips are attached to metal strips which are inserted in grooves in the mould cover so that they can readily be removed to renew the rubber sealing strips. These rubber sealing strips prevent formation of rinds on the latex foam product and so eliminate the operation of trimming.

No. 706962. *Foamed rubber latex sponge containing polybutadiene. Wingfoot Corpn.*
(*Appl.* 24.4.52; *U.S.A.* 17.11.51. *Filed* 24.4.52. *Publ.* 7.4.54)
Latex foam made from natural rubber latex in admixture with as little as 5% of one of the commonly used synthetic rubber latices has an odour that is most objectionable arising from the presence of the synthetic rubber latex. It has now been found that polybutadiene latex has an improved odour characteristic compared with other synthetic rubber latices, and the present invention is for latex foam consisting of a mixture of compounded polybutadiene latex 10 to 90 parts and compounded natural rubber latex 90 to 10 parts. It is stated that such mixtures have improved resistance to ageing compared with an all-natural rubber latex foam.

No. 707004. *Frothed latex sponge. Wingfoot Corpr.*
(*Appl.* 3.10.51; *U.S.A.* 16.3.51. *Filed* 3.10.51. *Publ.* 7.4.54)
The physical properties of latex foam are improved by treating the vulcanised latex foam with an aqueous solution of an alkaline earth hydroxide or an alkaline earth salt. In examples, the latex foam is treated with aqueous solutions of barium hydroxide, calcium hydroxide and calcium chloride.

No. 707140. *Latex compositions for the production of rubber goods. Dunlop Rubber Co., Ltd. Inventors: D. J. McKeand and C. Moss.*
(*Appl* 6.10.50. *Filed* 31.8.51. *Publ.* 14.4.54)
Compounded latex, which is either pre-vulcanised or contains vulcanising ingredients, and contains a maximum amount of zinc oxide of the order of 0.2% on the weight of the rubber, is sensitized to coagulants by the addition to an organic cationic surface-active agent. Suitable surface-active agents are cetyl trimethylammonium bromide, lauryl pyridinium bromide and N-alkyl amides of oleic acid. The amount of surface-active agent added is 0.01 to 0.1% and is insufficient to cause the rubber particles in the latex to become positively charged. A particular application of the process is to pre-vulcanised latex for the production of transparent dipped goods, such as rubber teats, an example of the preparation of such a latex being given.

No. 707334. *Rubber compounding. United States Rubber Co. Inventor: D. G. Slovin.*
(*Appl. and filed* 15.3.52. *Publ.* 14.4.54)
A method of inhibiting development of pink discoloration in vulcanised rubber articles containing symmetrical di-beta-naphthyl-p-phenylene diamine comprises incorporating 2,5-di-tertiary butyl hydroquinone in the rubber before vulcanisation. Elastic yarn having a core of vulcanised rubber containing both these ingredients is particularly claimed and the examples relate to the production of such a core from latex. The preferred proportion of the amine antioxidant is 0.25 to 2% and of hydroquinone inhibitor 0.25 to 5% by weight on the rubber.

No. 707854. *Mattresses. Multi-Spring, Ltd. Inventor: D. Y. French.*
(*Appl.* 17.9.52. *Filed* 6.1.53. *Publ.* 21.4.54)
A mattress is made up of a comparatively deep body formed of foamed or sponge rubber covered on its upper surface with a composite covering consisting of a ticking, layers of cotton linters and a layer of muslin, the parts of the covering being stitched together in a convenient form of quilting. By the use of such a covering, the tendency of the covering to move in relation to the rubber interior as a result of movement of the user is overcome.

No. 707935. *Aqueous alkali metal silicofluoride compositions. United Rubber States Rubber Co.*
(*Appl.* 7.2.52; *U.S.A.* 24.2.51. *Filed* 7.2.52. *Publ.* 28.4.54)
The composition comprises an alkali metal silicofluoride, diethylene glycol mono-oleate and at least 5% by weight of oleic acid based on the mono-oleate. The amount of mono-oleate is from 10 to 100% on the weight of the alkali metal silicofluoride. The use of the composition is claimed for heat-sensitizing compounded latex, there being 0.5 to 15% of the silicofluoride by weight on the latex solids. The use of this treated silicofluoride composition considerably lengthens the coagulation time of the latex at room temperature compared with the use of an untreated silicofluoride, since the hydrolysis rate of the silicofluoride is greatly reduced by mixing it with the diethylene glycol mono-oleate and oleic acid. The treated silicofluoride is suitable for use in latex for dipping, moulding and for making latex foam.

No. 708056. *Improving the stability of rubber latex. Dunlop Rubber Co., Ltd. Inventors: E. W. Madge, H. M. Collier and J. D. Peel.*
(*Appl.* 19.7.50. *Filed* 12.6.51. *Publ.* 28.4.54)
The mechanical stability of ammonia-preserved latex having an abnormally high ratio of magnesium to phosphorus is increased by reducing the ionizable

magnesium content. This is effected by adding to the latex either a compound capable of sequestering the ionizable magnesium, *e.g.* tetra-sodium ethylenediaminetetraacetate, or a compound capable of converting it to an insoluble salt, *e.g.* diammonium hydrogen orthophosphate. A water-soluble soap, *e.g.* ammonium oleate, is preferably also added to the latex. The magnesium remaining in the latex is reduced to 5 to 20 parts per 100 (by weight) of phosphorus. It has been shown that instability of the latex is directly related to a high magnesium/phosphorus ratio. Reference is directed to No. 698505.

No. 708278. *Rubberized yarns. Lewis and Tylor, Ltd., and N. Lawson.*
(*Appl.* 27.6.51. *Filed* 13.5.52. *Publ.* 5.5.54)
Yarn which is impregnated or covered with natural or synthetic latex is coated with a layer of wax, *e.g.* paraffin wax, so that at room temperature sticking of the yarn together is prevented and the coefficient of friction reduced, while during vulcanisation the adhesive properties of the yarn are increased. The wax may be applied by contact of the rubberized yarn with a roller on which the molten wax is distributed. This method eliminates the dust nuisance of the powdering methods. Transmission belts may be manufactured from fabric made from yarn treated in this way.

No. 708361. *Artists' palettes. G. Bergen.*
(*Appl.* 8.11.51; *U.S.A.* 13.11.50. *Filed* 8.11.51. *Publ.* 5.5.54)
The thumb hole in an artists' palette is surrounded by a ring of resilient material, such as rubber or foam rubber, so that the palette is more confortable to hold.

No. 708477. *Twin-passage catheter. W. Ruesch.*
(*Appl.* 17.3.52; *Germany* 24.9.51. *Filed* 17.3.52. *Publ.* 5.5.54)
The tube of a twin-passaged, balloon intratracheal catheter for lung operations is moulded in one piece over cores which provide the twin passages and also an external longitudinal channel, the channel being filled with an insert having air passages for the balloons. The tube has at its lower end a bend and a projection, and at its upper end a bifurcated connecting piece of soft rubber. The whole is vulcanised in one operation in a pressure mould, giving the composite tube a round cross-section. Fine silk thread is wound round the ends of the balloons, and these windings, as well as the catheter tube, the balloons and the air tubes vulcanised thereon, are coated with a thin film of latex, rubber solution or a synthetic resin to provide a smooth surface skin on the catheter.

No. 708622. *Impregnated paper. Imperial Chemical Industries, Ltd. Inventor: P. G. Noble.*
(*Appl.* 27.7.50. *Filed* 27.7.51. *Publ.* 5.5.54)
Paper produced by mixing a lightly beaten cellulosic pulp, *e.g.* half-rotted cotton, with at least 25% of a material consisting of non-fibrillated staple organic fibres, or synthetic organic filaments ranging from $\frac{1}{8}$ in. to $1\frac{1}{2}$ in. in length, is impregnated with natural rubber latex of 10 to 60% solids, mangled and dried in air between 50° and 100°C. With a latex of 30% solids, and a mangle having a clearance equal to 75% of the thickness of the unimpregnated sheet, the final rubber content in the dried paper is 50 to 100%, depending on paper type. Synthetic rubber latices may be used instead of natural rubber latex.

No. 709170. *Instrument for the treatment of circulatory troubles. A. P. S. Ferrier.*
(*Appl.* 6.8.52; *France* 20.8.51. *Filed* 6.8.52. *Publ.* 19.5.54)
The device incorporates a diaphragm made from a sheet of latex rubber having a circular aperture in its centre. The diaphragm is mounted in a plastic or metal frame and cables are connected to the diaphragm so that when the patient's limb is inserted in the aperture it may receive an improved form of massage.

No. 709413. *Patterned pile fabrics. T. Brandon and H. Robertshaw.*
(*Appl.* 21.6.49. *Filed* 21.9.50. *Publ.* 26.5.54)
Lengths of yarn are helically wound on mandrels and treated with a bonding agent; they are then brought into engagement with a backing material which has also been treated with bonding agent to cause the yarns to adhere to the backing material to form a pile. Latex may be used as the bonding agent.

No. 709502. *Ribbon of extruded rubber threads. United States Rubber Co.*
(*Appl.* 19.6.52; *U.S.A.* 6.7.51. *Filed* 19.6.52. *Publ.* 26.5.54)
Latex thread is extruded to give single threads which are dried until they are only slightly tacky. They are then contacted lightly with one another without twisting to form a ribbon and the ribbon is vulcanised to form a flat band from which individual threads are easily separable. An apparatus for carrying out the process is described.

No. 709668. *Seats, chairs, and the like. Christie-Tyler, Ltd. Inventor: T. J. Snell.*
(*Appl.* 27.2.52. *Filed* 12.1.53. *Publ.* 2.6.54)
The construction of the chair is such that interior filler units of foam rubber, forming the seat and backrest, are supported upon a framework and held in position by means of easily detachable covers, which form pockets into which the units are placed.

No. 709870. *Overshoes. Gem Rubber Corpn.*
(*Appl.* 28.7.52; *U.S.A.* 4.8.51. *Filed* 28.7.52. *Publ.* 2.6.54)
The overshoe, of natural rubber, synthetic rubber, or elastic plastic, or their latices, and formed by a dipping method, has a higher portion, or collar, to the upper, at about ankle height, which flares outwardly and then curves inwards to its top edge, this collar being adapted to be folded upon itself, when the outward flare forms a rearward projection, which acts as an anti-splash protector. The inward curve creates a tension in the material of the overshoe, whereby the collar is held in position both in its folded and unfolded state.