DECISIONS RELATING TO PATENTS, TRADE MARKS, ETC.

United States Circuit Court.—Western District of Arkansas.

THE LIGGETT & MYERS TOBACCO COMPANY *vs.* HYNES.

Parker, J.:

The leading principle of the law of trade marks is that the honest, skillful, and industrious manufacturer or enterprising merchant who has brought into market an article which has found favor with the people, and who, by affixing to it some name or device to distinguish it as his and from all others, has furnished his guarantee of the quality and integrity of the manufacture, shall receive the first reward of his honesty, industry, skill, or enterprise.

Such a person is not in any manner or extent to be deprived of the right he has acquired by another who, to that end, applies to his own productions the same mark or a colorable imitation thereof.

In considering an alleged imitation of a trade mark, sight must not be lost of the character of the merchandise, the use to which it is put, the kind of people who ask for it, and the manner in which they usually order it.

If the article on which the alleged infringing mark is placed resembles another article bearing the trade mark that is claimed to have been infringed, so that this resemblance, when blended with the appearance of the device, has a tendency to deceive the ordinary public, then the very nature of the article becomes potential evidence in the case to show a purpose to deceive.

While there is no trade mark in the shape of complainant's plug of tobacco, yet when defendant makes plugs of the same general appearance and puts on them a device of such general resemblance to complainant's that the ordinary customer is deceived thereby, there is clear ground for an injunction.

United States Circuit Court.—Northern District of Illinois.

LYMAN *vs.* MAYPOLE *et al.*—PATENT TRAP FOR EXHAUST STEAM PIPES.

Blodgett, J.:

The law permits an inventor to construct a machine which he is engaged in studying upon and developing, and place it in friendly hands for the purpose of testing it and ascertaining whether it will perform the functions claimed for it; and if these machines are strictly experiments, made solely with a view to perfect the device, the right of the inventor remains unimpaired; but when an inventor puts his incomplete or experimental device upon the market, and sells it as a manufacturer more than two years before he applies for his patent, he gives to the public the device in the condition or stage of development in which he sells it. In such case his patent cannot be allowed to relate back, and cover forms which he gave to the public more than two years before he applied for a patent.

Letters Patent No. 179,581, granted July 4, 1876, to Wilfred C. Lyman, for an improvement in traps for exhaust steam pipes, construed, and *held* not to be infringed by a condenser head having an enlarged drain pipe instead of a hand hole, and not having inside cones with turned rims or edges.

United States Circuit Court.—Southern District of New York.

ROOSEVELT *vs.* WESTERN ELECTRIC COMPANY.—PATENT ELECTRIC BATTERY.

Wallace, J.:

The case made by the motion papers is this: The complainant's patent is for an improvement in electric batteries consisting of a prism and other elements, and the claims are for the prism and for various elements, in combination with it. The defendant is selling an electric battery which contains the prism, in combination with the several other elements which are covered by the claims of the patent, having purchased the prisms from complainant, but having obtained the other elements of the battery from other sources.

If it were true that the prisms are not capable of any use except in combination with the other elements covered by the several claims of the patent, the complainant can nevertheless insist that the purchaser should only be permitted to use them as substitutes for prisms which have been deteriorated or destroyed or to sell them to others. They could be used in this way without infringing the complainant's rights.

The purchase of a patented article from the patentee or owner of the patent confers upon the buyer the right to use the article to the same extent as though it were not the subject of a patent, but the sale does not impart the permission of the vender that it may be used in a way that will violate his exclusive property in another invention. When the article is of such peculiar characteristics that it cannot be dealt in as a trade commodity, and cannot be used practically at all unless as a part of another patented article of the vender's, it would be preposterous to suppose that the parties did not contemplate its use in that way. It would be against good conscience to allow an injunction to a vender under such circumstances. He would be estopped from asserting a right which the purchaser must have understood him to waive.

Upon the argument of the motion the case seemed to be like the one last stated, but it is not such a case.

The motion for an injunction is granted.

Vitiation of the Air by the Various Illuminants.

At a conference held in connection with the International Health Exhibition, in London, Mr. R. E. Crompton read a paper, in which he set forth the advantages of the electric light over other illuminants considered as a health question, which the *Sanitary Engineer* epitomizes as follows: He commences by pointing out the differences which exist between hours of work or recreation spent in daylight and under artificial light. The sunlight exercises a subtle influence on our bodies, and is necessary to enable all animal and vegetable organisms to flourish in the fullest conditions of healthful life. It furnishes heat as well as light, and these without vitiating the atmosphere. With artificial illuminants, on the other hand, we have light, but in insufficient quantities. Heat is also produced, which in proportion to the light afforded is enormously in excess of the heat given by sunlight. Artificial illuminants, with the exception of electricity, vitiate the atmosphere to a considerable extent.

The question is considered both in its relation to health generally, and also as our eyesight is affected. The various artificial lights differ very widely from sunlight in this respect, that they are all more or less deficient in the rays at the violet end of the spectrum, commonly called the actinic rays, and which most probably exercise a very powerful effect on the system. Even the light of the electric arc, which is richer in these rays than any other, is still on the yellow side of sunlight. The incandescent electric light is next best in this respect, after which come gas and oils.

To show the comparative heating and air vitiating properties of artificial lights, the following table, by Dr. Tidy, was given, to which has been added the heat produced by a 12 candle incandescent electric lamp:

Burnt to give light of 11 candles equal to 120 grains per hour.	Cubic Feet of Oxygen consumed.	Cubic Feet of Air consumed.	Cubic Feet of Carbonic Acid produced.	Cubic Feet of Air vitiated.	Heat produced in lb. of Water raised 10° F.
Cannel gas	3·30	16 50	2·01	217·50	195·0
Common gas	5·45	17·25	3·21	348·25	278·6
Sperm oil	4·75	23·75	3·33	356·75	233·5
Benzole	4.46	22·30	3·54	376·30	232·6
Paraffine	6·81	34·05	4·50	484·05	361·9
Camphene	6·65	33·25	4·77	510·25	325·1
Sperm candles	7·57	37·85	5·77	614·85	351·7
Wax "	8·41	42·05	5 90	632 25	383·1
Stearic "	8·82	44·10	6·25	669·10	374·7
Tallow "	12.00	60.00	8·73	933·00	505·4
Electric light	none.	none.	none.	none.	13·8

From these figures you will see that the air of a room lighted by gas is heated twenty times as much as if it were lighted to an equal extent by incandescent electric lamps. When arc lamps are used, the comparison is still more in favor of electricity. You will be surprised to see from the table, our old friend, the tallow candle, and even the wax candle, far worse than gas in the proportion of air vitiated and the heat produced; and you will be disposed to disbelieve it. But the fact is that, so long as candles were used, light was so expensive that we were obliged to be content with little of it; in fact, we lived in a state of semidarkness, and in this way we evaded the trouble. It is only since the general introduction of gas and petroleum that we have found what an evil it is.

It is not unusual, in fact, it is almost invariable, for us to find the upper stratum of air of the rooms in which we live heated to 120° after the gas has been lighted for a few hours. Looking again at the table, it will be seen that each gas burner that we use consumes more oxygen, and it gives off more carbonic acid, and otherwise unfits more air for breathing than one human being; and it is this excessive heating and air vitiation combined which are the main causes of injury to health from working long hours in artificial light.

Mention is made of some experiments conducting during the Birmingham Musical Festival. "The hall was lighted both by gas and electricity, the latter being in the form of clusters of lights placed on large brackets, projecting from the side walls, while the gas lighting was in the form of several large pendants suspended down the center of the hall. The candle power given by the electric light was about 50 per cent in excess of that given by the gas light. The degree of illumination by electricity was consequently very brilliant. It was found that when the gas was used, the temperature near the ceiling rose from 60° to 100° after three hours' lighting. The heating effect of the gas was, therefore, the same as if 4,230 persons had been added to the full audience and orchestra of 3,100. Similarly, the vitiation of the air by carbonic acid was equal to that given off by the breathing of 3,600 additional persons added to the above audience of 3,100. But on evenings when the electric light was used, the temperature only rose 1½° during a seven hours' trial; and the air, of course, was only vitiated by the breathing of the audience. Now we all of us know that the times when we suffer most from the effect of artificial light is in crowded places of public amusement which are at the same time brilliantly lighted. Many are unable to go to the theater, or attend evening performances of any kind, as the intense headache which invariably results through staying a single hour in such places entirely prevents us. This headache we commonly say is due to the heat and glare of the gas. Now this phrase is not strictly correct. It is no doubt due to the heat of the gas and its air vitiating properties; but when we use the word glare, I believe we refer to the effect the gas light has upon our heads, and which effect is not due to excess of light. On the contrary, I believe if a far greater amount of light be given by the electric light without the heating and air vitiation being present, such headache is never produced, although some of the more tender-hearted among us will at first complain of the glare because we are habituated to associate with plenty of light, great heat, great air vitiation, and other evils."

Speaking of the effects of artificial lights on the eyesight, he said that healthy eyesight demands a plentiful supply of light. "It is the greatest mistake to suppose that a state of semidarkness is good for our eyes, unless they are defective or recovering from the effects of past injury or disease. I think I have the authority of oculists when I say that nineteen-twentieths of the diseases of the eye arise from working long hours with insufficient light. Again, another great cause of injury to eyesight is the unsteadiness of most artificial lights."

Referring to the arc and incandescent electric lamps, he said both had their proper places. The arc light, which is whitest in color and most economical to produce, is not so steady as the incandescent lamp. It is therefore unsuitable for indoor use where a maximum of steadiness is required; but it is well suited for the lighting of large buildings and public places.

Hibernation of Reptiles.

Charles C. Abbott, writing in *Science*, asserts that the hibernation of reptiles varies much according to the severity of the winter. Many turtles take refuge in the deep holes of ponds, and Doctor Abbott asserts that, in the severest cold weather, he has caught the snapping turtle, the musk turtle, and the box mud turtle in deep holes and about large springs that discharge their waters on level ground.

As fish have been found partly eaten when taken in nets in mid-winter, Doctor Abbott concludes that the snapper takes an occasional meal. At the same time, he does not deny that the species found active in winter hibernate under certain conditions, and that the other species of turtle hibernate.

Snakes which live in water do not sleep so deep a winter sleep as do the black snake and others which frequent the uplands.

The true water snake (*Tropidonotus sipedon*) may often be found in winter a foot or two beneath the sand of any spring hole, and is not slow to swim off when thus disturbed. This species and the common garter snake are the first to appear in the spring.

The upland snakes may be literally broken into pieces without giving evidence of life, so thoroughly torpid are they.

Toads and tree frogs, terrestrial and arboreal animals, are more sensitive to cold than the water living frogs and salamanders.

Frogs at the commencement of winter retreat to the bottoms of ponds and deep ditches; salamanders, to the mud at the bottom of springs.

All the kinds of frogs and three species of salamanders have been found in a hogshead sunk in the ground to collect the waters of a spring. They were sluggish, but not actually hibernating.

Border Carnations.

J. Douglas, in *The Garden*, states this beautiful plant may be grown in any garden in town or country without any further preparation of the soil than digging it well up and giving it a good dressing of stable manure. All soils are not, however, equally well adapted for carnations. If they incline to be of a clayey character, so much the better. Light, sandy soils with a gravelly foundation are the least suited for carnation culture. I have, however, grown them well on such soils by digging or trenching them and placing a good layer of manure in the bottom of the trench. When the plants were put out, they were also placed in a layer of loam about two inches deep spread over the surface. Soil from a melon bed just suits carnations; in fact, we generally utilize the soil that has grown one class of plants for the production of another class.

This year we wanted to put out several hundreds of seedling carnations, and as the ground is of a clayey character, the light, sandy soil from pots in which hyacinths had grown was used to place on the surface instead of melon soil, which is heavy. Last year I planted in an ordinary herbaceous border some of our best carnations and picotees, and they flowered remarkably well without any attention, except that of the most ordinary kind. Florists of old could not grow their flowers so well as we do now, although they took more pains to make up their carnation beds than some people do to make a vine border. There are very few carnations or picotees that require coddling up in the greenhouse. We grow them in pots to obtain purer and better flowers for exhibition or to produce an effect in the greenhouse, but in any good garden the same plants flower freely and produce useful flowers to cut for bouquets.

How to Expedite Topography.

The writer has found it quite a tedious job transferring the contours, water courses, etc , from the topography book to the plate of the preliminary survey by the usual method.

Now, if the transitman will place the preliminary on tracing cloth to the same scale as the rulings in the topography book, the topographer can place the line and stations of the plate over the corresponding lines and stations in his book, and trace his work on to the plate in a few minutes, as the writer has found by actual trial while working with a B. and M. locating party. "TOPOG."

The Purification of Water by Iron.

BY W. ANDERSON, M.INST.C.E.

In January, 1883, in a paper on the Antwerp Waterworks, read at the Institution of Civil Engineers, I described the application of Professor Bischof's method of filtration, through a mixture of spongy iron and gravel, to the purification of the waters of the river Nethe. The eighteen months' additional experience gained has shown that, so far as the purification of the water is concerned, Professor Bischof's process leaves little to be desired, but the working of the system has been costly, and the area of land required, as well as the quantity of iron necessary, has, in the case of the Antwerp water at any rate, proved very much beyond the inventor's expectations.

The increased demands of the town rendered it necessary to extend the arrangements for purifying the water, and it became my duty to advise the directors of the company on the best means of doing this.

The extension of Professor Bischof's method would have involved so great an outlay, that after trying, unsuccessfully, many experiments on direct filtration through unmixed iron at high rates of flow, I determined to adopt a plan first suggested to me, some years ago, by our chairman, Sir Frederick Abel, of agitating the water to be purified with iron instead of attempting to filter it. The object, in either case, was to expose the water as much as possible to an extended surface of iron; consequently any plan by which the iron could be made to keep itself clean by rubbing against itself continually, would seem to be a more rational way of attaining this object than of trusting to a partial filtration through a more or less spongy material.

The obstacle to trying Sir Frederick Abel's method at a much earlier date was the belief entertained by Professor Bischof that a contact of about 45 minutes was necessary to insure complete purification, and any such time would be fatal to mechanical means of performing the work. The late Professor Way and Mr. Ogston, it is true, had shown that with very finely divided iron the effect was much more rapid, but there was still a doubt about its permanence.

In the autumn of last year a revolving cylinder, 4 feet 6 inches in diameter and 5 feet 6 inches long, was adapted to try Sir Frederick Abel's system. It was fitted with inlet and outlet pipes, and with shelves or ledges for scooping up the iron, raising it to the top of the cylinder, and then letting it fall through the water.

At first I began to run water through at 12 gallons per minute, which gave a contact of about 45 minutes, but I found that at this rate the water was very heavily charged with iron; I gradually increased the quantity to 30 gallons per minute, and then found that 1·20 grains of iron were dissolved per gallon, or about twelve times more than experience at Antwerp showed to be necessary. The flow was increased to 60 gallons, and even then 0·9 grain per gallon were dissolved.

The experiment looked so hopeful that I fitted much larger pipes to the apparatus, and having made some other dispositions connected with maintaining a uniform distribution of iron in the cylinder, and preventing it being washed away by the comparatively rapid current that would be possible, I sent the "revolver," as it came to be called, to Antwerp, where it was put to work at the end of last February, and has continued to operate ever since.

The head available for forcing the water through the "revolver" is, at Antwerp, limited to 5 feet, but by fitting very large pipes I have managed to get 166 gallons per minute through; this gives a contact of about 3½ minutes, and is so amply sufficient that I feel sure that, even for the waters of the Nethe, much less time will be adequate.

The charge of iron is about 500 pounds, and the quantity taken up by the water, including impurities and very fine iron washed away, during a run of 33 days, was 0·176 grain per gallon.

By making suitable arrangements, and choosing a favorable time with respect to the demands of the town, we were able to obtain samples of water that have been purified by the "revolver" only, and after proper exposure to the air, followed by filtration through one of the large sand filters, the result obtained has been that the color was very little different from distilled water, the free ammonia was reduced from 0·032 grain per gallon to 0·001, and the albuminoid ammonia from 0·013 grain to 0·0045.

The "revolver" turns at the rate of about one-third revolution per minute, and requires scarcely appreciable power. The area occupied by apparatus for dealing with 2,000.000 gallons per day is 29 feet by 24 feet, and it can be introduced into any existing system of filters, for by enlarging the in and out let pipes to a suitable diameter, a head of some 12 inches will suffice to pass the water through.

It can easily be arranged so as to be used or not, as the state of the water to be purified may warrant; and the consumption of iron being only about 20 pounds per million gallons, is quite an insignificant expense. It will be found to remove all color from water, whether caused by peat or clay, and will facilitate the action of sand filters by the peculiar curdling effect the iron has on the impurities.

During the experiments made at Erith, it was noticed that considerable quantities of gas collected in the upper part of the "revolver." On collecting this gas it was found to extinguish a lighted taper instantly, and on analysis was found to contain only 8 per cent of oxygen.

It was observed from the first that the animal and vegetable life which was so abundant and troublesome in the natural waters of the Nethe, lying over the spongy iron filters, had quite disappeared in the water, otherwise in exactly the same circumstances, lying over the sand filters, and I always supposed that this was due chiefly to mechanical filtration through the spongy iron having separated all the germs, spores, and seeds which come to life above it. But during the recent hot weather it has been found that the water from the "revolver," though it contains all the impurities of the natural water, has been modified by the action of iron to such an extent that neither animal nor vegetable life is apparent over the sand filters. Without presuming to draw very wide inferences from this fact with reference to the action of iron upon organisms connected with disease, it may, at least, be pointed out that the absence of visible life in water treated by iron on a large scale confirms, in a great measure, the experiments of Dr. Frankland, Dr. Voelcker, Mr. Hatton, Professor Bischof, and others. It is due to the last named gentleman to state that to his persistent advocacy the introduction of iron as a purifier is mainly due. It must be borne in mind that the system does not depend on filtration only, but, first, on a process of exposure to iron, which decomposes the organic matter, and kills living organisms; and, secondly, on simple filtration, which merely separates the noxious matters which had been previously attacked by the iron. The waters of the Nethe are exceptionally bad, and heavily charged with impurities, so that the test both of Professor Bischof's and Sir Frederick Abel's systems has been very severe.—*Jour. Soc. Arts.*

Purification of Water by Iron at St. Louis.

Mr. L. H. Gardner, Secretary of the New Orleans Waterworks Company, has invented a method of clarifying river water. His description of it is as follows: "It has long been known that iron in all its forms, from ordinary scrap iron up to the various solutions of iron known to chemists, will clarify water. The trouble has been to give a clear water result and at the same time to eliminate from that result every feature that the investigation of the chemist or that every day use could criticise. I have used a solution of iron, the result of empirical experiments, the use of which does not develop any objectionable feature or characteristic whatever. It precipitates matter held in suspension in the water, and goes with it to the bottom of the tank or basin. The water thus clarified presents no feature or characteristic it did not possess before, except its crystalline appearance.

"St. Louis has very large settling basins, four in number, with an aggregate capacity of some 70,000,000 of gallons. Our reservoir has also four basins, but their total capacity is less than 4,000,000 gallons. I wanted to test my method upon the largest scale possible. To this end I consulted Col. T. J. Whitman, the water commissioner of St. Louis, a disciple of Kirkwood, and one of the most eminent engineers and waterworks men in the country. His interest in the matter led him to invite me to St. Louis, and to tender me the use of one of his settling basins for the purpose of experimentation on a large scale.

"The basin assigned me could not be drawn entirely clear of water. It contained, on its delivery, about 3,250,000 gallons of muddy water. To this we added over 9,500,000, making a total of over 12,750,000 gallons.

"It required six hours of steady pumping by the ponderous machinery of the St. Louis works to accomplish this, lasting from 9 A.M. to 3 P.M. We had not been at work much more than an hour before the water at the further end of the basin, 600 feet distant from the inflow, could have been delivered in a much clearer condition than the average city supply. Three hours after the pumps ceased work on our basin the water presented a contrast to that in the contiguous basins which was highly complimented by the mayor of St. Louis, by the water commissioner, his assistant, and others who witnessed it. At sunrise next morning the water was clear as crystal.

"The solution of iron was poured from a pitcher by a man standing over the supply pipe in a porportion which had been calculated of one-quarter of a pound of the solution to 8,500 pounds, or 1,000 gallons of water. 'You see,' added Mr. Gardner, 'that the proportion is practically infinitesimal, and even strychnine in such a dilution would be, I imagine, harmless.'

"There now remains the investigation of the chemist and his comparative qualitative and quantitative analysis. This has been promptly entered upon. If intelligently conducted, as I have no doubt it will be, I have no doubt of a favorable report. This, in the mind of Col. Whitman, the water commissioner, seemed to be the only thing needed to demonstrate the entire success of the system. The cost of this method is anywhere from three-quarters of a cent to a cent and a quarter per 1,000 gallons. The cheapest method of *filtration* in the United States, so far as I know, is over three cents per 1,000 gallons, and this with irregular results."

Mr. Gardner showed some of the water clarified here by this process, which had been kept in a five gallon demijohn since 1883. It was in perfect condition, clear as crystal, pure, and sweet to the taste. That water has been analyzed by Dr. Joseph Jones, Professor R. N. Girling, and Professor C. F. Chandler of New York, who have pronounced it pure and potable.

M. TROUVELOT, of the Observatory of Meudon, after observing the shadows thrown by the faculæ on the penumbræ of sun spots, suggests that the brilliant light emitted by the faculæ, and perhaps the entire light of the sun, is generated at its surface, the presence of the coronal atmosphere being, perhaps, necessary for its production.

The Great Atlantic Steamships.

The Cunard steamer Oregon concluded on Saturday, August 23, the fastest ocean trip from Queenstown to New York yet made, making the passage in six days and ten hours, and beating her own former record. The distance run each day was as follows:

	Knots.
Monday	400
Tuesday	452
Wednesday	436
Thursday	452
Friday	448
Saturday	449
To Sandy Hook	181
Total	2,818

The two new large steamships now building for the Cunard Line, to sail on their Atlantic route between Liverpool, Boston, and New York, will come out here next spring. One of them, the Umbria, was launched last June, and the other, the Etruria, will soon follow. Both of these vessels are intended for what is called among steamship men fast vessels, *i. e.*, "express steamers," and the highest naval constructing and engineering talent has been employed in their design and construction. They are built of steel, and their hulls subdivided in watertight compartments, to conform with the requirements of the British Admiralty, which feature in itself means the maximum degree of safety at sea. These vessels are the largest steamships that have ever been built on the Clyde. As can be seen in the following table, these new Cunarders are both shorter and deeper (proportionately) than the City of Rome and other steamships built lately, besides being (proportionately) wider. They will be engined to develop the enormous power of 12,500 horses, which, as Mr. Pearce, their builder, stated at the launch of the Umbria, will make them the most powerful steam craft in the world. How much they may lower the record of passages across the Atlantic is, of course, a matter of conjecture. The following table shows the comparative size and power of some of the leading steamers now running on the Atlantic:

Vessels.	Length between Perpendiculars. Feet.	Extreme Width. Feet.	Depth of Hold. Feet.	Indicated H. P.	Gross Tonnage.
Alaska	500	50	38	11.000	6,932
America	442	51·2	36	7 500	5 528
Arizona	450	45·4	35·7	7,400	5,164
Aurania	470	57·2	37·2	9,500	7,269
Austral	456	48·2	33·9	7.000	5,589
City of Rome	560	52·3	37	10 000	8.144
City of Berlin	489	44 2	34·9	6,000	5,491
City of Chicago	431	45	33·6	6,600	5,202
Furnessia	445	44·8	31 5	5,500	5,495
Germanic and Britannic	445	45·2	33·7	7.000	5,008
Servia	515	52·1	37	8,500	7,392
Oregon	501	54 2	38	11,500	7.375
Umbria and Etruria	505	57	40	12,500	8,000

The Importation of Rags.

The extended use of wood pulp for paper making has not greatly reduced the demand for rags, although it has made their price permanently lower. All good book and writing paper, as well as that used for printing fine periodicals, should be made all or largely of rags, and, to get the supplies needed in this trade, paper makers annually import considerable of such stock, the imports last year reaching 84,000 tons. Fear of the cholera, however, recently caused the Treasury department to prohibit all importations of rags for ninety days from Sept. 1. This order was subsequently modified so as to admit rags now on the way here, where it was certainly proved that they were collected from non-infected districts, but that no rags shipped after the date of the order would be admitted. The matter has caused considerable excitement among paper manufacturers. some of whom had been at considerable expense in erecting and conducting rag washing and disinfecting establishments at Cairo and Alexandria, in Egypt, whence a large portion of the rags imported come. There is said to be a strong feeling in Congress in favor of absolutely prohibiting the importation of rags; this the paper manufacturers claim would be most unfair to their industry, and they assert that, under the present system of inspection, imported rags are no more dangerous than the domestic.

Glue, Paste, or Mucilage.

Lehner publishes the following formula for making a liquid paste or glue from starch and acid. Place five pounds of potato starch in six pounds of water, and add one-quarter pound of pure nitric acid. Keep it in a warm place, stirring frequently for forty-eight hours. Then boil the mixture until it forms a thick and translucent substance. Dilute with water, if necessary, and filter through a thick cloth. At the same time another paste is made from sugar and gum arabic. Dissolve five pounds gum arabic and one pound of sugar in five pounds of water, and add one ounce of nitric acid and heat to boiling. Then mix the above with the starch paste. The resultant paste is liquid, does not mould, and dries on paper with a gloss. It is useful for labels, wrappers, and fine bookbinder's use. Dry pocket glue is made from twelve parts of glue and five parts of sugar. The glue is boiled until entirely dissolved, the sugar dissolved in the hot glue, and the mass evaporated until it hardens on cooling. The hard substance dissolves rapidly in lukewarm water, and is an excellent glue for use on paper. —*Polytech. Notiz.; Pharm. Record.*