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STATE INTERFERENCE WITH PATENTS.

The Supreme Court of the United States decided long ago that all State laws for regulating the sale or disposition of patented inventions were unconstitutional and void, for the reason that the exclusive authority in such matters is by the Constitution exclusively vested in the Congress.

For some unexplained reason, the authorities of the State of Indiana have for years treated the Supreme Court decisions with contempt, and there are to-day among the Indiana statutes several laws relating to patents that are at variance with the paramount authority of the United States. The most recent Indiana effort in this line is the new State law that regulates the price at which patented telephones may be sold. The law specifies that no telephone company shall charge more than \$3 a month for use of same; thus taking entirely away from the patentee all voice in or control of his invention. The validity of this law has been sustained by the highest tribunal of the State of Indiana, and is now in force there. The result is that the Bell telephone companies have in several of the cities of the State withdrawn their instruments from use, as the amount allowed by the local law is not sufficient to pay them any profit.

This action of the telephone company has proved so inconvenient to the Indiana law givers that they have applied for Congressional relief, and the Hon. Mr. Holman, Representative of the State, has introduced the following curious bill:

"A bill to secure to the public the use of patented inventions.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all persons or corporations, whether owners or licensees of patents granted by the United States, are prohibited from withdrawing any machine or process from public use because of any regulation of the tariff of charges by the Legislature of any State or Territory wherein such machine or process is being used, without the consent of such Legislature."

This bill adds one more to the various schemes of legislation hostile to inventions now before Congress; like the others, let us hope it will suffer defeat.

Indiana has profited vastly, in common with all of the States, from the many new industries and manufactures which inventive genius has created and given the country. The industrial prosperity of the State is largely based upon the wealth which has been brought in to her by the use of new improvements and inventions. If they are to be withdrawn or discouraged, property values must necessarily decline, and manufacturing industries must be removed to more congenial places. With a strange inconsistency, the Indians, by their own laws, deal themselves injurious blows, and then seek the aid of Congress to avert the resulting mischief.

THE PROPOSED EXTENSION OF PATENTS.

We have already given a summary statement of a number of bills that have been brought before the present Congress for the practical nullification of patents. As patents are a source of wealth to the country, and therefore to be fostered, not attacked, these bills, in their objects, deserve condemnation. Whether an invention be regarded as a property *per se*, or as only acquiring that status after patenting, the simple material interest of the Government requires that inventors should be encouraged, not repressed. Hence it is a matter of some interest to find a bill presented (H. R. 4,034) that on its face at least seems designed to protect, not assail, the inventor. In this sense it is a decided novelty; but it only goes a certain distance on the right way, but not far enough.

The bill applies to all patents ever issued, or issued and extended, or reissued, expired or unexpired. On application, the Commissioner of Patents is authorized to extend them for an additional period of eight years. Such extension is not to confer the right to damages for any infringement committed between the expiration of the original patent and its renewal. The interested party, who may be inventor, or administrator, or executor, must prove the value of the invention, and show what profit it yielded such party or parties. Publication in the District papers and elsewhere of the proposed extension is provided for. Should the patent be shown eligible for extension, a total fee of twelve hundred dollars is to be paid. Two hundred is a preliminary fee, to be paid before publication; one thousand dollars is the final fee, to be paid before issue.

On its face, as providing for the possible extension of all patents ever granted, this bill might appear revolutionary. But it is hedged in with so many provisions that this character is to a great extent repressed. Thus, the size of the fee required would cut off many applications. All expired patents that are to be renewed under it must have their application filed within six months of the date of the passage of the bill. This provision would operate in the same way as the high fee. The bill would insure a busy six months among the patent lawyers and in the Patent Office. The amount of applications that would be filed in that

period would exceed all precedent. Many a device, duly patented, that yielded the patentee a very poor return for his ingenuity, has now, as the basis of improvements, mounted into great importance. Many of the early patents covering the modern straw cutter, the plow, washing machine, churn, sewing machine, mower and reaper, the planing machine, the vulcanized India rubber, the telegraph, and hundreds of other great inventions, would certainly claim the new lease of life. The amount of revenue to be derived from some of these patents, if revived and extended at this day, would be simply fabulous.

Not only would this bill benefit some of the early inventors. The patent lawyers in the new infringement suits which it would occasion would reap a rich harvest. The circuit courts would have more of their time than ever devoted to patent cases. It would be interesting to see how the old patents would now be treated when they reached the Supreme Court. There would be a probability of more rigid construction being awarded their claims than they received in former days.

The limited time within which application under this bill is to be made would prevent many extensions. But all unexpired paying patents would certainly be extended under it if allowed. In other words, the terms of many important patents would be extended to twenty-five years.

In this there would seem little objection. The award of a patent right is by the best authorities considered a bonus from the Government. Property in ideas has never been recognized. All protection accorded them is considered artificial, and in the nature of a monopoly. The term of a patent is the measure of the bonus. Otherwise, as a matter of simple justice, patents should be awarded for all time, and the Patent Office would become a simple office of registry. A twenty-five years' term would not from this standpoint seem too great a reward, especially when it is remembered that the last eight years would be conditional on an insufficient return having been yielded by the term of the original grant.

The bill has a great deal of good in it. Any provision for the indiscriminate extension of all expired patents would be so revolutionary as to deserve opposition. But the present bill has so many limitations that it would not seem destined to do any harm in this regard. Indeed, it may be considered to err in the other direction.

If expired patents are only to have a limited time for securing their extension, six months does not seem enough. The amount of the fee is quite disproportionate to the prevailing rates of the Office. These two features give the bill a disagreeable aspect, as, to say the least, they suggest the possibility of its being presented in the interest of some particular corporation or patentee.

The one and only restriction needed is contained in the provision that the applicant must show that he has been insufficiently rewarded for his work. This properly acted on would suffice. No high fee or restriction of period of application is proper.

In such a bill as this, it would be well to insert some special clause relating to extension of claims. Many an old patent of greatest merit would be useless on account of its restricted claims. If justice dictated the extension of a patent, the same quality would suggest the propriety of seeing that its claims were made to cover the essential features of the device, and its points of novelty judged by the state of the art at the period of its original date of issue. The scope of the claims might justly be determined in the extension proceedings. The present treatment of expanded claims of reissues by the Supreme Court is a subject of general criticism among patent lawyers.

New Process of Manufacturing Car Wheels.

At the works of the Dickson Manufacturing Co., in Wilkesbarre, a new machine and process, patented by J. J. Carr, has been tested with satisfactory results. It is claimed that while on the old method of moulding, casting, dressing, and boring the wheels the average product of three men per day of twelve hours is eighteen wheels, with the new process the same number of men can turn out one perfect wheel every minute, or 720 wheels per day. The principal feature seems to be the substitution of a steel core for one of sand in casting the wheel. This has been tried before, but no one had hit upon a means of getting this core out of the wheel after it was cast. This is now accomplished by a center key, which falls out upon a single stroke of the hammer and lets the steel core drop out, leaving the hole in the wheel perfectly true, and ready to be put upon the axle without any dressing or boring. The sand is run into the moulding boxes by a hopper, and both matrices are moulded and the pattern drawn out by the single revolution of a shaft driven by steam power. The matrices are borne away upon movable platforms to the cupola, and then the piece is cast as under the old process. The moulding is done as rapidly as a revolving disk can carry the boxes under the pressers.

Nutritious Baking Powders.

BY PROF. CHAS. A. DOREMUS, ADJUNCT PROF. CHEMISTRY AND TOXICOLOGY, BELLEVUE HOSPITAL MEDICAL COLLEGE, NEW YORK.

The public has been educated in the last few years to regard the quality of bread from other standpoints than that of whiteness solely. Greater perfection in the cooking of breadstuffs is now demanded than any other single article of diet.

Next to a fine flour, the quality of a loaf depends more upon the method adopted to give the bread a porous nature than upon any other single element in its manufacture.

The lightness or porosity of bread, as well as that of all varieties of crackers, biscuits, pastry, and the like, is the result of the expansion of one or more gases in the dough. This expansion is generally effected by heat, but may be the result of relieving the gas or gases of the atmospheric or artificial pressure to which the dough is subjected.

In 1856, we have the first suggestion of a solid inorganic acid or acid salt to take the place of the tartaric or citric acid hitherto employed. The suggestion came after a mature consideration of the subject, and was based upon an extensive experimental research. It marked a new departure in the art of bread making. It opened a series of investigations on the whole subject of bread making, which, though controversial in their character, added greatly to our knowledge of this art in all its details, and was the cause of extensive researches being made in cognate fields of science.

On April 22, 1856, Prof. E. N. Horsford secured his letters patent for the manufacture and use of an acid phosphate of lime to be incorporated with starch and bicarbonate of soda, and thus serve as a baking powder. This is the first instance in which, besides acting as an aerating agent, a baking powder was to add nutritive elements to the bread. Phosphatic powders are to-day the sole exemplification of this important principle. The natural phosphates removed from the grain in the process of bolting the flour are, by Horsford's method, restored through the baking powder. While the residues which all baking powders leave, except those which consist of salts which volatilize completely under the heat of the baking oven, are of a nature which makes it a matter of doubt whether they should be introduced into the system, in the case of the phosphatic powders the residue is of positive value, and is not foreign to the flour, but composed of the same salts, practically, which form the ash of the cereal grains.

It is a serious problem for the physiological chemist to discover the best method of supplying the human system, especially an exhausted one, with the requisite amount of phosphatic food for the organism to remain in health. The phosphatic salts are never wanting in the most nourishing varieties of food, whether vegetable or animal. They are closely allied to all the vital functions, are constantly being eliminated from the body, and must be replaced by a fresh supply. The testimony of thousands goes to show that under the prevalent conditions and habits of American life, there are few who are not greatly benefited when they partake of these same phosphates as restorative agents. The sales of phosphatic preparations for medicinal use, or as a mild tonic, have assumed enormous proportions.

In this connection it may not be amiss to mention the high favor with which the Austrian officials regarded the use of the phosphatic powder for bread making for the army. It was my good fortune to be one of the witnesses of the experiments made by Prof. Horsford before the commission detailed by the Austrian Minister of War, at the Vienna Exhibition of 1873, in which he demonstrated the possibility and great usefulness of phosphatic baking powders for an army in the field. A brief account of these experiments, which proved most successful, was incorporated by Prof. Horsford in his elaborate report to the United States Government, and published by it under the title of "Vienna Bread," but the modesty of the author prevented his giving this part of the subject the notice it deserved.

Elaborate experiments on the effect of the residue left by certain baking powders on gastric digestion showed that the digestion of albumen by gastric juice was greatly retarded by the residue which would be left in biscuit made by cream of tartar baking powders. Besides retarding the digestion of albumen, it was observed that the tartrate residue rendered the mass liable to fermentative changes.

That the phosphates can have any detrimental influence on either gastric or intestinal digestion is improbable, since the juices of the digestive organs contain these salts in relatively large proportion. Indeed, at one time, the acidity of the gastric juice was considered by many to be due to the presence of phosphoric acid in combination. Practically, the "acid phosphate," as prepared by Professor Horsford, has been found to act with great benefit in some types of dyspepsia. While there are many baking powder mixtures of quite dissimilar composition, yet they have essentially but one office, that of raising bread. Their action may take place at the time of

kneading or subsequently. They may possess some advantage in regard to cost or quantity to be used; in the residue, if there is any, being either smaller or less injurious than some other; but in all cases, save one, the element of adding a nutritive character to the bread is entirely lacking.

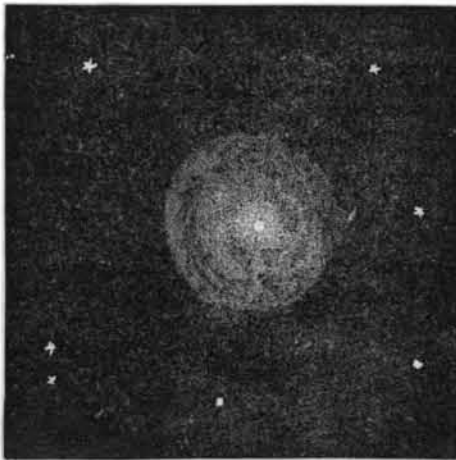
Unless a phosphate form one of the ingredients of a baking powder, there is no residue left of nutritive value.

We are in the position to-day to select from among many of approximately equal value in other respects, a powder which shall, through the foresight of one versed in science, surpass all competitors in possessing the additional quality of restoring or adding to the flour nutritive elements.

DISCOVERY OF TWO NEW COMETS.

On the evening of April 27, 1886, it was my good fortune to discover the first comet of the present year. It was situated in the constellation Cassiopeia, and in the same low-power field with the star Kappa. Its appearance was that of a large round nebulous body, with slight central condensation and no tail. Its motion was about one degree daily in a southeasterly direction.

Again, on the Saturday morning following, or on May 1, it was my privilege to discover still another



BROOKS' COMET No. 1.—1886.



BROOKS' COMET No. 2.—1886.

TELESCOPIC VIEW ERECTED.

comet. This one was situated in the great square of Pegasus, in the eastern sky. The comet's position at discovery was 23 hours; north declination 21 degrees, with a northerly motion.

It has a small though bright star-like head and a fine tail, indeed, a most beautiful telescopic comet. It very much resembles the great comet of 1858—Donati's—when telescopic. It cannot be that comet, however, for it has a period of 3,000 years.

As a matter of interest and record, and showing the different characteristics of these two comets, which have visited our heavens together, I append drawings of the same. Comet No. 1 is visible the entire night, in the northern heavens, being circumpolar; while No. 2 is visible in the early morning sky. Both comets were discovered with the 9 inch reflector of this observatory, and may be observed with telescopes of half that aperture.

WILLIAM R. BROOKS.

Red House Observatory, Phelps, N. Y., May 5, 1886.

THE ALADDIN COOKER.

The Honorable Edward Atkinson, of Boston, whose interesting article, entitled "The Price of Life," appeared in the SCIENTIFIC AMERICAN of April 10, writes us that he has received a large number of letters of inquiry concerning the cooker mentioned in the article, and in answer to his correspondents he would like an engraving and description of its construction to appear in these columns. We are glad to oblige Mr. Atkinson, and at the same time we believe the subject will interest many of our readers. The engraving will be found on another page. Mr. Atkinson disclaims any intention of patenting the invention, and wishes the public to have the benefit of it.

Cost of Different Kinds of Walls.

The following, from the *National Builder*, shows the comparative cost of frame, brick, and stone walls.

The first idea that naturally suggests itself, after the general plan of arrangement has been perfected, is what material shall mainly enter into the construction of a building, brick, stone, or wood. In nearly every portion of the Eastern, Middle, and Western States, these three building materials can readily be had, and the cost of production does not vary much in any locality. Assuming, therefore, that the first cost is the same in the above localities, we may easily arrive at the ultimate cost of construction. For the purposes of this article we may assume the cost of good common brick, during the summer to be \$8.00 per thousand; cost of labor and mortar to lay the same in the wall, \$4.00 per thousand, wall measure. The cost of good quarry stone, assumed at \$10 per cord; the cost of labor and mortar to lay the same in the wall, \$8 per cord of one hundred feet. The cost of framing lumber \$12.00 per thousand feet; labor and nails to put the same up, \$6.00 per thousand. With these prices as a basis it is a matter of computation only to arrive at the proportionate cost of each material after it has been worked into the walls. As an example, suppose we have ten feet square of plain wall to build, what will be the comparative cost? Ten feet square equals one hundred superficial feet. If to be built of brick twelve inches thick, estimating 22½ brick to the superficial foot, would take 2,250 brick; cost in wall per thousand, \$12.00, equals \$27.00.

To lay a good rubble stone wall, it should be 18 inches thick; therefore, 10 feet square, or 100 superficial feet, of stone wall 18 inches thick, at \$18 per cord of 100 feet, would cost \$27.00. In estimating a frame or studded wall there should be included first, the studding, say, 2 x 8, 12 inch centers; second, the outside sheathing of 1 inch surfaced boards; third, the siding of clear pine. For this example we have placed the cost of rough lumber at \$18.00 per thousand, put up. We will assume the cost of the inch surfaced boards for sheathing to be \$25.00 per thousand, including labor, nails, and material. Siding at \$40.00 per thousand, including lumber, labor, nails, and waste. Ten feet square, or 100 superficial feet, of 2 x 8 studding, at \$18.00 per thousand, equals \$2.43. The same surface, covered with surfaced boards at \$25.00 per thousand, costs \$2.50; 125 superficial feet of siding, at \$40.00 per thousand, equals \$5.00, allowing one-quarter for lap and waste. Thus we find the total cost of the frame wall to be \$9.93. Add to this the cost of painting the same, one square, at \$3.00, we find the cost to be \$12.93. Comparatively, therefore, we find the cost of 100 superficial feet of wall built of the three leading building materials of the country as follows:

| | |
|-------------------|---------|
| Common brick..... | \$27.00 |
| Rubble stone..... | 27.00 |
| Frame..... | 12.93 |

The cost of window and door frames, cornices, etc., may be estimated about the same in either building. In brick and stone buildings we find the additional cost of cut stone window and door sills, water table, etc., but the cost of these adjuncts does not enter into the first cost of the walls, and should rather be estimated on separately or considered as additional items of cost that may be dispensed with if necessary.

The May Comets.

Early in December two comets were recorded, which were named from their discoverers Comet Fabry and Comet Barnard, and which gave promise of becoming much brighter than the ordinary telescopic comet.

From the tables of position published by the Berlin Observatory, it seemed probable that at the time of greatest brilliancy, during the first week in May, both comets would be visible to the naked eye, high up in the northwest and early in the evening. They have, however, failed to realize these anticipations; they certainly have not become the promised "conspicuous objects," and it is, indeed, extremely doubtful whether they have anywhere been seen without the aid of a telescope. Unless there should be some sudden and unexpected increase of brilliancy during the coming week, both Comet Fabry and Comet Barnard will simply add two new names to the long list of telescopic comets.

The two other comets which have been recently discovered in the same general quarter of the sky are as yet remote and undeveloped, and, therefore, of small general interest.

CLEAR SHELLAC VARNISH.—To get an absolutely clear solution of shellac has long been a desideratum, not only with microscopists, but with all others who have occasional need of the medium for cements, etc. It may be prepared by first making an alcoholic solution of shellac in the usual way; a little benzole is then added, and the mixture well shaken. In the course of from twenty-four to forty-eight hours, the fluid will have separated into two distinct layers, an upper alcoholic stratum, perfectly clear, and of a dark red color, while under it is a turbid mixture containing the impurities. The clear solution may be decanted or drawn off with a pipette.—*National Druggist*.