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THE WILSON COOKED MEAT PATENTS.

The decision of the judges in the cases of the Wilson Packing Company, of St. Louis, against certain Chicago and St. Louis meat canning companies for alleged infringements of the patents of William J. Wilson and John A. Wilson, appears in full in the *Official Gazette* for February 7.

The cases were tried in the Circuit Court, Northern District of Illinois, before Judges Drummond and Blodgett, and were dismissed on the ground that the patents upon which they were based were void for want of novelty. The court also held that in all doubtful cases involving the validity of a patent the fact that the article made by the use of the process described in the patent has been extensively sold is a consideration of great weight, but not enough in itself to sustain the patent. "The rights of the public are to be protected as well as those of individuals, and a monopoly should not be allowed unless the right to it is clearly shown."

The most important questions in the case grew out of the patent of Wm. J. Wilson, reissued April 6, 1875, describing a process of preserving and packing cooked meats for transportation. The process as described consists in first cooking the meat by boiling in water, so that all the bone and gristle can be removed and the meat yet retain its natural grain and integrity. While yet warm with cooking the meat is pressed into a box or case with suitable apparatus, the pressure being sufficient to remove the air and all superfluous moisture, and make the meat form a solid cake. Then the box is sealed or closed air-tight upon the meat.

The court held that the cooking of meat in this way has always been known; that the sealing of the can is substantially the Appert process described in Durand's English patent in 1810; and that the process of pressing meat to remove moisture previous to packing is described in the Marshall patent of 1864. It was also employed by De Lignac in 1855; while cooked meats were canned by Lyman in 1869. The only possible novelty in the process described by Wilson in his original patent of 1874, was the packing of the meat while yet warm with cooking, and this specification (omitted from the reissued patent) cannot, the court held, fairly be considered patentable.

Another element of the case was the form of the can in which the meat was packed, the claims in controversy being the first and third of the John A. Wilson patent of 1877, which claims covered substantially a can of pyramidal form with rounded corners with the ends slightly flaring to form shoulders against which the head or end pieces rest. The can might have any number of sides, four being preferred. The advantage of the pyramidal form lay in its discharging the meat (when opened at the larger end) in a solid cake.

It was shown that this form of can was old. It was described in the French patent of Emile Peltier, recorded in 1859; also that this was a form in common domestic use before the Wilson patent was obtained. In the opinion of the court the well-known glasses and moulds used by housekeepers in domestic life for preserving jellies, boned turkey, head-cheese, etc., were all, from the very necessity of the uses to which they were applied, more or less flaring, conical, or pyramidal in shape, and made so, presumably, for the purpose of turning out or discharging the contents in a solid cake.

Touching the specific construction of the Wilson cans, it was shown that the distinctive features, rounded corners and offset ends, were employed by Gibbie and Perl as early as 1872. The claim as to the form and construction of the can was, therefore, pronounced invalid for lack of novelty. And the same was true of the other claim in dispute touching the method of packing the meat by pressure, with subsequent sealing. Marshall had done the same in 1864, and Lyman in 1870. It was further shown that while the complainants did not confine themselves to the form and construction of can described in the patent on which the claim for infringement was based, the defendant's cans were in all cases made differently. They were made by turning a rim of the head down over the outside of the body or shell of the can and fastening the head with solder—a form of construction practically adopted by the plaintiffs also, "probably because all packers find they can make a can just as tight and useful, and more cheaply, by turning the head over the outside of the shell than by following the exact description of the patent."

The interests involved in these cases are very large; and if the decision of the Circuit Court is sustained by the Supreme Court, the result will be to throw open to public use a process that has been made, by the naturally increasing demand for preserved meats, the basis of a great industry which has been monopolized by a few large establishments.

RAILROAD COLLISIONS AND THEIR PREVENTIVES.—ROOM FOR INVENTION.

While every precaution which the block system or any other system can devise to prevent collision on our railroads should be encouraged or adopted, it nevertheless will be found impossible, if constant human vigilance is a necessary factor in the means of safety employed, to entirely avoid the recurrence of this class of accidents. The greater the increase of traffic, the greater the danger to which the traveling public is exposed from collisions, and year by year the travel on our railroads increases. Trains following one another in rapid succession, and running at high rates of speed on the same lines of rail, in the dark of night as well as in the light of day, and with the same disregard of fog as of a blinding snowstorm, court danger, and collisions similar to the late Spuyten Duyvil disaster will continue to occur. Collisions in fact, like the assassin's stab, are now more to be dreaded from the rear than from the front, and as human vigilance cannot be depended upon to avoid them, automatic means of securing safety controlled by the engine of a train in motion, or operative only by the undue or improper stoppage of it, should be devised, and, if only as useful auxiliaries, be generally adopted.

If, however, collisions cannot be altogether prevented, there is one thing that can be done to make such accidents less destructive of human life than they usually are, and that is to construct our railroad cars so that they will not crush or telescope. We have no desire to travel in trains which shut up with all the ease of a well-constructed telescope whenever a little sudden resistance is brought to bear upon them. Railroad cars might be constructed so that they could not thus close up and pack one within the other, and from the frequency of these telescoping occurrences we have no hesitation in saying that either the style or construction of the cars now in use on our railroads is defective, so far as their liability and capacity to telescope is concerned, and that some radical change or improvement in the construction of them to avoid this danger is needed.

Furthermore, as the running of one train into the rear of another is now of such frequent occurrence, and as in such case it is generally only the last car or two of the advance or stalled train which are so badly damaged as to occasion any great sacrifice of life, why not make the last car of a train purely a safety one, a sort of buffer car to receive the shock, and from which all passengers should be excluded? Such car need not necessarily be of special construction, provided it and all the cars in the train are of superior rigidity, and so built or framed that they cannot telescope; consequently the delay and inconvenience which attaches to the use of a rear car of different construction from the rest when making up a train would be avoided. Possibly in an overcrowded train there would be a strong temptation to use such car for other than its safety purpose, but this could be strictly prohibited until it ceased to be a rear car by the adding of another. Possibly, also, railroad companies might object on the ground that it was merely hauling dead weight for an emergency which might not occur, forgetful of the fact that in a single accident such precaution would be the means of saving many lives and economical in a pecuniary point of view by reducing claims for damages sustained.

Again, in view of the many burning accidents which have occurred, why should our railroad cars be made of the combustible material they now are, or not be provided with self-operating extinguishing apparatus, or be otherwise heated than they are? But we do not care to pursue this subject further, excepting to remark that if native ingenuity is not sufficient to discover a block system in which the locomotive is the active agent, or to devise a car that will not telescope and when ignited furnish fuel for a fire to burn up human bodies, then we confess to having greatly over-estimated it, and shall be deceived if, in the near future, the means of safety we have suggested, or better ones, be not found, once the tide of invention sets in this humane direction.

THE PARK ROW FIRE.

The coroner's jury called together to discover the cause of the Park Row fire, find that the fire originated from an overtaxed flue near the front wall of the Nassau street entrance. Further, that the flue was improperly constructed and defective from age, and a recess or chase in the wall cut in close proximity to the flue after the completion of the building, had caused a fracture in the side wall of said flue; the elevator shaft which had recently been erected near the flue, or opposite to it, being a most efficient agent in distributing the flames through the whole building.

One important effect of the fire and the attending circumstances has been to draw public attention very forcibly to the crying need of more and better appliances for rescuing persons beset with flames and for enabling people to escape by their own efforts from burning buildings.

It was seen that an important building in the heart of a great city possessing what is supposed to be the most perfect and efficient fire and water service in the world—a building mainly devoted to business offices and occupied by adults, could be burned in the daytime, and so rapidly that the escape of all the tenants was impossible. It appeared also that the means at the command of the firemen for rescuing persons cut off by the flames were relatively less efficient than they were forty years ago. Their ladders were too short to reach above the third floor, and they had no appliances for getting ropes or other means of escape to the upper floors. A number of those who escaped the flames owed their salvation to the accidental occurrence of business signs nearly connecting with those on the front of an adjacent building, and to the skill and pluck of a passer-by (the black boy, Charles Wright), who climbed an icy telegraph pole and detached a wire stretching from it to the front of the burning building.

These startling discoveries have caused a general awakening—popular and official—to the neglect of life-saving appliances hitherto, and have opened the way to the ready and cordial acceptance of any new devices which may be calculated to prevent similar disasters in the future. Among the devices called for are extension ladders capable of reaching to the upper floors of lofty buildings; means of throwing life-lines to any place where men, women, or children may have taken temporary refuge from fire; less obtrusive and more efficient fire escapes, especially such as may be fixed at every window; means by which women and children may be safely lowered from the upper floors of any building, particularly those by which timid and feeble persons may lower themselves; devices for quickly raising rope ladders to any part of a building where they may be needed, or devices by which wire ladders may be stored at the eaves or cornices of buildings over every tier of windows, and dropped by means of appliances within easy reach of any and every window; parachutes; means for quickly cutting away opposing telegraph wires when ladders are to be raised, and so on almost endlessly. It is to be hoped that our inventors will not let the occasion pass without developing something to remove the stain which the too frequent burning of helpless men, women, and children leaves upon our civilization.

ASPECTS OF THE PLANETS FOR MARCH.

VENUS

is evening star, and ranks first in importance on planetary records not only during the month, but during the year. She was in superior conjunction with the sun on the 20th of February, when, passing to his eastern side, she commenced her course as evening star. She is now so near the sun as to be hidden in his rays, but as soon as she emerges from his close vicinity she will be a beautiful object in the evening sky, and will reign as queen of the stars in the western heavens until she reaches her inferior conjunction on the 6th of December. Her transit then occurs, the grand astronomical event of the year, and one of the greatest astronomical events of the nineteenth century. It will be safe to say that no object in the heavens will receive, during the year, anything like the attention that will be bestowed upon this peerless planet. Astronomers have been busy for years in getting ready for the transit, for the whole Western world, where the sky is clear, will be in the sunlight during some portion of the passage. The busy notes of preparation are now being sounded in many of the American observatories, where every aid that science can command will be utilized for the occasion, while European astronomers have already formed their plans, received appropriations for the great expenses to be incurred, and chosen stations which are best adapted for observation, as well as those that are at extreme distances from each other.

The phenomenon is not sublime and awe-inspiring, like a total eclipse of the sun; nor simply beautiful, like the conjunction of two planets; nor magnificent, like the telescopic Saturn. The naked eye observer, looking at the sun through smoked glass, will see a tiny black spot passing over his face. The telescopic observer will see a black round ball, as large as the full-grown moon, making its way across the great luminary. The phenomenon to the ordinary observer will be only this and nothing more. But thousands of scientific observers will eagerly note, as if life depended upon the accuracy, the second when Venus touches the sun's edge, the moment when she is fully embarked upon his disk, the exact time of her passage, and the second when her retreating edge touches the sun's edge, as well as the time when the last contact occurs and the exhibition closes. There are two principal reasons for the importance attached to a transit of Venus. One is that it is considered the best means for determining the sun's distance; the other is that it is extremely rare in its occurrence.

Venus and Mercury are the only planets that can make transits across the sun, for their orbits are within that of the earth, and they are therefore called inferior or inner planets. In every synodic revolution, or when earth, planet, and star come into line, these planets must pass between us and the sun, the point being known as inferior conjunction. Venus accomplishes this period in five hundred and eighty-four days. But her orbit, or path, is inclined to the ecliptic or sun's path, and, at inferior conjunction, she ordinarily passes above or below the sun and is invisible. When she is in inferior conjunction, and also at one of her nodes or crossing points, as in December, she passes directly between us and the sun and makes a transit. The transits at the descending node are in December, those at the ascending node in June. The intervals between are eight and two hundred and thirty-five years. The transit of 1874 occurred eight years ago; the next transit after that of 1882 at the same node will be in 2117. The last transit at the ascending node occurred in 1769; the next will occur in 2004.

When in 2004 the next transit of Venus after the coming one takes place, no human being who now treads the earth will be alive to see its passage. Nearly four generations of men will have lived and died before the brightest of the stars again passes between us and the sun when at one of her nodes. Observers will, therefore, witness an event to be remembered for a lifetime, and, for this reason, independent of its scientific importance, the phenomenon will be eagerly anticipated. If astronomers can agree in their calculations and make the transit a means of accurately determining the sun's distance, a great feat will be accomplished. For the sun's distance from the earth is the unit or yardstick for measuring celestial distances outside of the solar system, and on its accuracy the whole celestial structure depends.

Venus will be prominent among themes for astronomical study during the year. She will be far enough from the sun to be picked up by careful observers during the last part of the month. She must be looked for about three degrees north of the sunset point, and soon after sunset. She sets now at eight minutes before 6 o'clock, a few minutes after sunset; at the end of the month she sets about six minutes after 7 o'clock.

URANUS

is morning star until the 6th, when he comes into opposition with the sun and is numbered among the evening stars. He is then at his nearest point to the earth, the sun, the earth, and Uranus being in a straight line, with the earth in the center. At this time he is seen opposite the sun in the heavens, as the word opposition implies, rising when the sun sets, and setting when the sun rises. A far more important epoch than his opposition occurs also during the month. On the 25th, he reaches his perihelion or nearest point to the sun, and is the second of the four great planets to reach this part of his course. Jupiter arrived at the goal in 1880, and Neptune and Saturn will take their turn in the near future.

The occurrence of the perihelia of the four giants of the system within a few years of each other is an event that has not happened for many centuries, and will not be repeated for many centuries to come.

Uranus was discovered by Herschel in 1781, the centennial anniversary of the discovery occurring last year. At perihelion he is one hundred and sixty million miles nearer the sun than at aphelion, and as his opposition and perihelion are nearly coincident he is just so much nearer the earth. Yet such is his immense distance that the approach will be hardly perceptible in appearance. It will be eighty-four years, the time of his revolution, before the conditions are repeated, and the present is, therefore, a favorable time for beholding the faintest and smallest of the visible planets. A keen-eyed observer will have no difficulty in finding him on a clear, moonless night, as he tracks his slow course in the constellation Leo. His right ascension is 11h. 8m., and his declination is 6° 23′ north. He shines as a star of the sixth magnitude, and must be looked for in a line with Regulus, the brilliant star in the handle of the Sickle, and forming a right angled triangle with Regulus and Denebola, a bright star in the tail of Leo.

Uranus now rises at eleven minutes after 6 o'clock; at the end of the month he sets at eight minutes after 4 o'clock in the morning.

MERCURY

is morning star throughout the month. He reaches his greatest western elongation or most distant point from the sun on the 21st. He is then in one of the three favorable positions for observation as morning star that occur during the year. He will be an interesting object between the middle and close of the month, reigning alone as morning star, and lovely beyond description as he heralds the sun's approach. He must be looked for eleven degrees south of the sunrise point and about half an hour before sunrise. Mercury rises now at a quarter before 6 o'clock; at the close of the month he rises at 5 o'clock.

SATURN

is evening star, and is becoming an object of lesser interest, as growing dim in luster, and traveling from the earth he approaches conjunction with the sun, when for a time he will disappear from view. He passes the meridian at a quarter before 4 o'clock in the afternoon, so that he is well advanced on his western course when twilight fades and becomes into view. Saturn sets now at half past 10 o'clock; at the close of the month he sets about a quarter before 9 o'clock.

NEPTUNE

is evening star, following closely after Saturn and bound for the same goal—conjunction with the sun. He passes the meridian only twenty-three minutes after Saturn. If his nearness corresponded with his dimensions, for he is only exceeded in size by Jupiter and Saturn, we should have great enjoyment in watching his movements as he threads his way between the two great giants of the system. But his diameter is not nearly half that of Jupiter, and he is more than five times as far away. Neptune sets now not far from 11 o'clock in the evening; at the close of the month he sets a few minutes after 9 o'clock.

JUPITER

is evening star, and, though still the brightest of the heavenly host, is lessening in interest as his distance from the earth increases. He follows closely in the track of his two brother planets, passing the meridian about twenty-one minutes after Neptune. He has lessened perceptibly in size and brightness, for his disk now measures thirty-five seconds, while at opposition last November it measured forty-seven seconds. Jupiter sets at half past 11 o'clock; at the end of the month at 10 o'clock.

MARS

is evening star, and diminishing in interest as he travels on the long road that leads to his next opposition in January, 1884. He is, however, a beautiful member of the starry throng as looking down from the zenith in the early evening he beams with ruddy light and finds few rivals among the fixed stars. Mars now sets a few minutes after 3 o'clock in the morning; at the end of the month a few minutes before 2 o'clock.

Interesting objects for telescopic study will not be wanting during the month. Uranus, through a good telescope, will come into view as a small full moon of a delicate sea-green tint, and two of his four moons may be picked up. Jupiter still rewards the observer with a view of his northern belt, his southern red spot, and his equatorial white spot. Venus, close to the sun, takes on the gibbous phase of the moon just after the full. Mercury, at his western elongation, presents the aspect of the moon at her first quarter. Mars shows dimly his northern polar cap and the delicate markings of his oceans and seas.

The March moon fulls on the 4th, but her movements are not of special interest. The new moon of the 19th passes, on the 22d, near Saturn and Uranus, and on the 23d near Jupiter, when the evening sky with the three days' old crescent and the radiant planets will be fair to see.

The heavens present a delightful planetary picture during the month of March. Uranus, our far-off brother, reaches opposition and perihelion; Venus, at its close, will be seen in the glowing west just after sunset; Mercury will beam in the morning light; Saturn, Jupiter, and Mars will move in their appointed course as they approach the source of life and light. Thus, the planets as they track their devious path among the shining stars, not only illustrate with them the amazing beauty of the star-lit heavens, but also the variety that lends its never-failing charm to the science of astronomy.

Better Thermometers Wanted.

It would appear, from the following remarks by the London *Engineer*, that there was plenty of room for the discovery of improved thermometers, capable of correctly registering low temperatures.

Experiments at the Meteorological Observatory at Kew have proved that ordinary thermometers are "very wild" below the freezing point of water, and that the low temperatures announced as having been produced by apparatus for freezing meat on board ocean-going steamers are liable in some cases to serious question. Some of the thermometers used for the indications have been found to be inaccurate to the extent of more than 50° Fah., and one was 100° out. A thermometer, a relic of one of the earlier Arctic expeditions, was recently tested at Kew. At 40° Fah. it was 15° out, and at 100° Fah. it was 30° wrong. The demand for trustworthy thermometers for circumpolar and northern meteorological stations, as well as for meat freezing machines and various scientific purposes, has induced the authorities at Kew to test the instruments at the temperature of melting mercury, the air thermometer being used for lower temperatures should exceptional circumstances require it.

The freezing point of mercury, —37·9° Fah., was first determined by Dr. Balfour Stewart, and his observations were subsequently confirmed by other observers. Between the freezing points of water and mercury no intermediate fixed point is known, although methylchloride is supposed to furnish one. It is difficult to get this chloride in a solid state.

On Thursday, last week, for the testing of a thermometer to be used with meat freezing apparatus, also a thermometer for a meteorological station in Norway, about a pint of mercury was poured into a wooden cup, which cup was surrounded with a covering of boiler felt, which again had an outside wooden cover. Solid carbonic acid was made in the usual way by the evaporation of some of the liquid carbonic acid from an iron bottle into which 200 gallons of the gas had been compressed. Lumps of the solid acid were then placed on the surface of the mercury, a little sulphuric ether was poured over them, then the lumps were pressed down into the mercury with a wooden spoon. This produced a hissing and a bubbling from the escape of carbonic acid gas.

After the operation had been several times repeated, lumps of solid quicksilver began to form; some of them, rich in gas bubbles, floated at the top; others sank to the bottom, for mercury, unlike ice, is heavier than the liquid in which it is formed. The lumps, some of them hard and some soft, were constantly broken up as much as possible with the wooden spoon, the great object being to get a thick layer of soft mercurial paste at the bottom of the vessel in which to plunge the thermometers during the observations.

The whole operation appeared to the onlookers to be simple and easy enough, although in the last generation the freezing of even a small piece of mercury was considered such a wonderful feat. Four standard Kew thermometers were then placed in the mercurial paste, and those to be tested were inserted alongside, their errors in indication being written down on paper. The possibility of all four of the Kew thermometers going wrong at once is not to be supposed, consequently the values of the indications of the thermometers on trial are well tested.

Why Some Oysters are Green.

A great deal has been written in regard to the peculiar green character of European oysters, and in certain varieties of these shell-fish their value abroad seems to depend on the intensity of color. For those who like such green oysters it may be stated that there are localities in the United States where oysters of the most pronounced verdigris tint can be obtained. Prof. Ryder has found that the coloring is not due in American oysters to the green diatoms on which the oysters largely feed, as was supposed by M. Puysegur to be the case in French waters. In experiment on the green color in Chesapeake Bay oysters, it was found, on drying the substance, that it faded out in time. Prof. Ryder is disposed to believe that it is composed of an immense number of glandular cells, containing chlorophyl, and is due to a vegetable parasite. In this method of coloration oysters would not differ from certain mussels which, as Prof. Leidy has shown, owe their peculiar green tinge to the same substance.