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Table listing sections I through XI, including 'ARCHAEOLOGY', 'ARCHITECTURE', 'ASTRONOMY', 'CHEMISTRY', 'ELECTRICITY', 'ENGINEERING AND MECHANICS', 'GEOLOGY', 'MEDICINE AND HYGIENE', 'MISCELLANY', 'GENERAL PHYSICS', and 'TECHNOLOGY'.

ANOTHER PATENT NULLIFICATION BILL.

We give in this issue the text of a bill (H. R. 4,458) that threatens very gravely the interests of the inventors of this country. It was introduced in the House of Representatives by Mr. R. W. Townshend, of Illinois. During the last two years, it has often been our office to comment on proposed enactments that had the same bad tendency—a tendency to the abridgment of the rights of patentees. We have reiterated the expression of the best jurists that this country has ever seen, that the inventor is a pre-eminently useful member of the community, and deserving of every protection and encouragement that the law can afford him.

But the present bill has gone further than most of its predecessors. It has, after consideration, been reported favorably by the Committee on Patents, and presumably is in a fair way to pass the House. A glance at its provisions is enough to condemn it. It strikes at the root of our patent system, and threatens a gross injustice to the inventors of the country. A patent already granted is a pledge, and any curtailment of its rights is a violation of that pledge. The effect of the present patent system has been to place America in the van of nations, as regards her progress in the technical and industrial arts.

The first provision of the bill deprives the United States courts of jurisdiction in patent cases where the amount in controversy does not exceed two hundred dollars. By this provision, infringement is by law allowed on the majority of inventions. By one clause, the most meritorious inventions, and those that contribute the most to our comfort in every-day life, are declared unworthy of compensation. There is no need to refer to the records of patents to identify them.

The inventor would have no incitement to use his talent, save in the larger class of subjects. None of the minor improvements in household conveniences, productive of health as well as comfort, would have been carried out. Our lamps might smoke, for who would invent anything to improve them under the two hundred dollar limit? Our coffee would be ground with mortar and pestle, or in inferior mills.

This first provision declares in effect that an inventor must submit to infringement by any individual to that extent before he can sue for relief.

If his patent is infringed, he cannot strike at the evil in the beginning, but must patiently wait until a wrong of a definite extent has been committed. Again, he may suffer great injustice by a multitude of infringers, none of whom may pass the two hundred dollar limit. In such a case, he can do nothing. Any one can infringe with impunity if he does not exceed this amount.

The next provision aims at the rights of the "innocent purchaser," of whom we have heard so much during the last two years. He stands in all justice in the position of the innocent violator of a law, and in fact is such, and should be so treated. He should for the good of the community be subject to the same penalties as the willfully infringing purchaser.

The bill provides that purchasers of a patent right for actual use shall not be liable for its value, or for infringing the same in any manner, if, at the time of its purchase, they had no knowledge of the existence of

claims of a third person. In other words, if a fraudulent patent is obtained, and sold to a manufacturer, he can work under it quite regardless of the rights of an original and anticipating inventor.

The proviso of ignorance, at the time of purchase only, of such claims on the part of the purchaser is included. The clause is a blow at the equities of the case. The most admirable provisions of our patent laws are devoted to guarding the rights of original inventors.

Interference proceedings in the Patent Office and test cases in the courts continually arise for the purpose of determining priority of invention. By this act, all these safeguards are nullified, and such priority is made a secondary consideration, and subsidiary to fraud. The purchase of fraudulent patents is legalized, and a reward is offered for perjury.

All these provisions are a direct temptation and incitement to fraud. They do no good to any class of the community, except as a law depriving laborers of their wages might be held to benefit capitalists. Inventors are the servants of the community. They have served it faithfully in the past century, as the splendid record of over three hundred thousand patents shows.

The ingratitude of such an action counts for little, unfortunately; its injustice should count for more; but its shortsightedness and impolicy should be within the scope of every legislator. It is to be hoped that the House will not follow the action of its committee. If any influence has been brought to bear upon the latter, the whole body, it is probable, will be free therefrom. Though only one step on its road to enactment, we should be sorry to see the House of Representatives committed by the passage of this bill.

We hope that the House of Representatives will not pass this measure. If they do, the Senate will be under a great responsibility to the country for their action in the matter. If it should become law, then the majority of inventors will be deprived of their granted rights. Thousands of small industrial establishments, in all parts of the country, will be obliged to close and discharge their workers.

All who feel interested in preventing the consummation of this great error should lose no time in writing to their members of Congress, and protest against the passage of the bill, giving their reasons as fully and as forcibly as possible.

The members of the present Congress have taken a more favorable view of another class of intellectual works, the productions of authors. International copyright has been favorably considered, and the bill reported by the Senate Patent Committee, and the grant of patents to foreign authors, not members of the community, many of whom never have and never will see this country, is now in a fair way of being realized.

GLoucester Fishers.

Contending with perils at sea and Canadian armed cruisers inshore, the life of the Gloucester fisherman is not a happy one. If, however, he can escape from the first and elude the second, he is pretty certain to find a good profit awaiting him, for rarely is there a glut in the deep sea fish market. Mackerel may be so plenty as to be almost given away, as was the case at Fulton Market, New York city, recently, during the early run of young mackerel or "tinkers;" but a large supply of halibut, cod, hake, and haddock only tends to so far reduce the price as to bring them within the means of the many.

The visitor to the Gloucester wharves will be surprised to find that the "bankers" are manned by young men exclusively; perhaps it would be safe to say that

at least half of these fishermen are under twenty. In many cases the skipper himself is as young as three and twenty. Indeed, it is said at Gloucester that there is no "old" bank fisherman; that is to say, there are none who have for many years continued to fish during the winter on George's and the Grand Banks.

Grim death menaces the life of the Bank fishermen in too many ways to permit of such a career. A few successful seasons of this fishing will often put several thousand dollars and sometimes very much more in the pockets of a single hand. Then is the time for him to quit the business. He usually does this, and employs himself thereafter in less hazardous enterprises afloat or ashore.

The statistics show that the number of fishermen lost on the Banks has averaged nearly one hundred and fifty a year for the past decade from the port of Gloucester alone. Heavy seas, fierce winds, and fogs and thick weather prevail on the fishing grounds all winter and these serve, of course, to intensify the peculiar dangers to which these fishermen are exposed. Most of the time the fishing schooners must be hove to under storm trysail; for should they come to anchor, the holding ground is so uncertain that, swinging with the tide, they are like to foul it and, athwart seas, tear their bows out with plunging. Sometimes during gales, they drift down on to one another, and this nearly always means disaster. Another and no less serious danger is that of being run down by the transatlantic steamers, for they lie almost directly in their track. Perhaps the most menacing danger of all is that experienced by the "trawlers" in setting and hauling in their nets. The "trawlers" always set four nets at some distance from their vessel. One of these nets is ahead, another astern, and one on each quarter. Two men go out in each dory, and are sometimes gone for hours. If the weather be thick, the fog horn is kept going on the schooner, but those to windward are not always able to hear, and those to leeward not always able, if a heavy sea is running and a gale blowing, to get back. Now, to be adrift on George's or the Grand Banks in a dory under such conditions of weather is more than dangerous, it is perilous. If a crew have their net aboard, they are likely any moment to be upset, and their only chance of a rescue lies in the possibility of drifting down upon some other fisherman and of being picked up.

The crew of a banker has a share in the catch; this share, under certain circumstances, amounting to one-half the fish they take. But the skipper and the cook, who is always next in rank, get the largest share. They are a sober, steady, and fearless lot of men, these fishers, whose habits and customs differ wholly from those of the ordinary Jack before the mast.

"Slow Burning" Construction.

The Boston Fire Underwriters' Union have issued several circulars recently which are full of suggestiveness to property owners. One of these gives rules for the proper construction of fire doors, so as to meet the requirements of the underwriters. Another important circular gives a brief standard schedule of what is needed to construct a slow burning building. We print this last mentioned circular in full for the benefit of the many whom it concern:

Mills, factories, stores, warehouses, and other buildings used for similar purposes, constructed in accordance with the following instructions, will be slowly combustible, and will receive the lowest ratings from the Boston Fire Underwriters' Union, viz.:

Walls.—To be of brick; of such thickness as the intended occupancy and building laws of the city may require, and not to exceed 60 feet in height from the sidewalk. The inner surface to be left plain or plastered direct on the brickwork.

Cornices.—To be of brick.

Roof.—To be flat and of "mill construction" (i. e.,

made of heavy timbers and planking, without plastering or sheathing), and covered with gravel or metal. No wooden Mansard or French roofs allowed, as they are regarded as "lumber yards up out of reach of water," furnishing so much additional material for the fire to feed on, as well as greatly increasing the risk of fire from adjoining property.

Girders and Columns.—To be made out of the best Southern pine timber. Iron girders and columns not allowed.

Floors.—To be made of "mill construction," consisting of heavy Southern pine timbers from 5 to 10 feet apart, according to the burden they are expected to carry; covered with three inch tongued and grooved plank; then two layers of asbestos or other heavy floor paper (in stores and warehouses an inch of lime mortar can be used instead), and then an inch flooring above. These floor timbers and floors to be left exposed beneath, without plastering or sheathing.

Elevators and Stairways.—To be placed in brick well holes extending at least two feet above the roof, and crowned with a skylight having an iron frame and thin glass protected with a wire screen. All openings

NIGHT SKY.—MAY AND JUNE.

BY RICHARD A. PROCTOR.

The Great Bear (*Ursa Major*) occupies all the upper sky from west to north, except a small space occupied by the Hunting Dogs (*Canes Venatici*). The Pointers are in the northwest, almost horizontal. A line from the Pole Star (α of the Little Bear—*Ursa Minor*) to the Guardians of the Pole, β and γ , now occupies the position of the minute hand of a clock three minutes past an hour.

Due south, low down, lies *Cassiopeia*, while above, somewhat toward the east, we find the inconspicuous constellation *Cepheus*. The Camelopard is in the west of north, and getting upright.

Low down in the northwest lie the Charioteer (*Auriga*) and the head stars of the Twins (*Gemini*) further west. The Crab (*Cancer*) is nearly due west, the Sea Serpent (*Hydra*) holding his head almost exactly to the west point. Above is the Sickle in the Lion, its blade curved downward, and the tail of the Lion (*Leo*) lies above, toward the south of west.

On the Serpent's back we find the Cup (*Crater*) and the Crow (*Corvus*), in the southwest and to the south

of southwest respectively. Above these constellations, and extending beyond the south toward the east, the Virgin (*Virgo*) occupies the mid-heavens.

Above the Virgin we see the Herdsman (*Bootes*), his head and shoulders nearly overhead. Low down in the south is the Centaur (*Centaurus*), bearing on his spear the Wolf (*Lupus*) as an offering for the Altar (*Ara*), which, however, is invisible in these latitudes. Above the Wolf we see the Scales (*Libra*), while the Scorpion (*Scorpio*), one of the few constellations which can at once be recognized by its shape, is rising balefully in the southeast.

The Serpent Bearer (*Ophiuchus*) bears the Serpent (*Serpens*) in the mid-heavens toward the southeast, the Crown (*Corona Borealis*) being high up in the east, close by the Serpent's head.

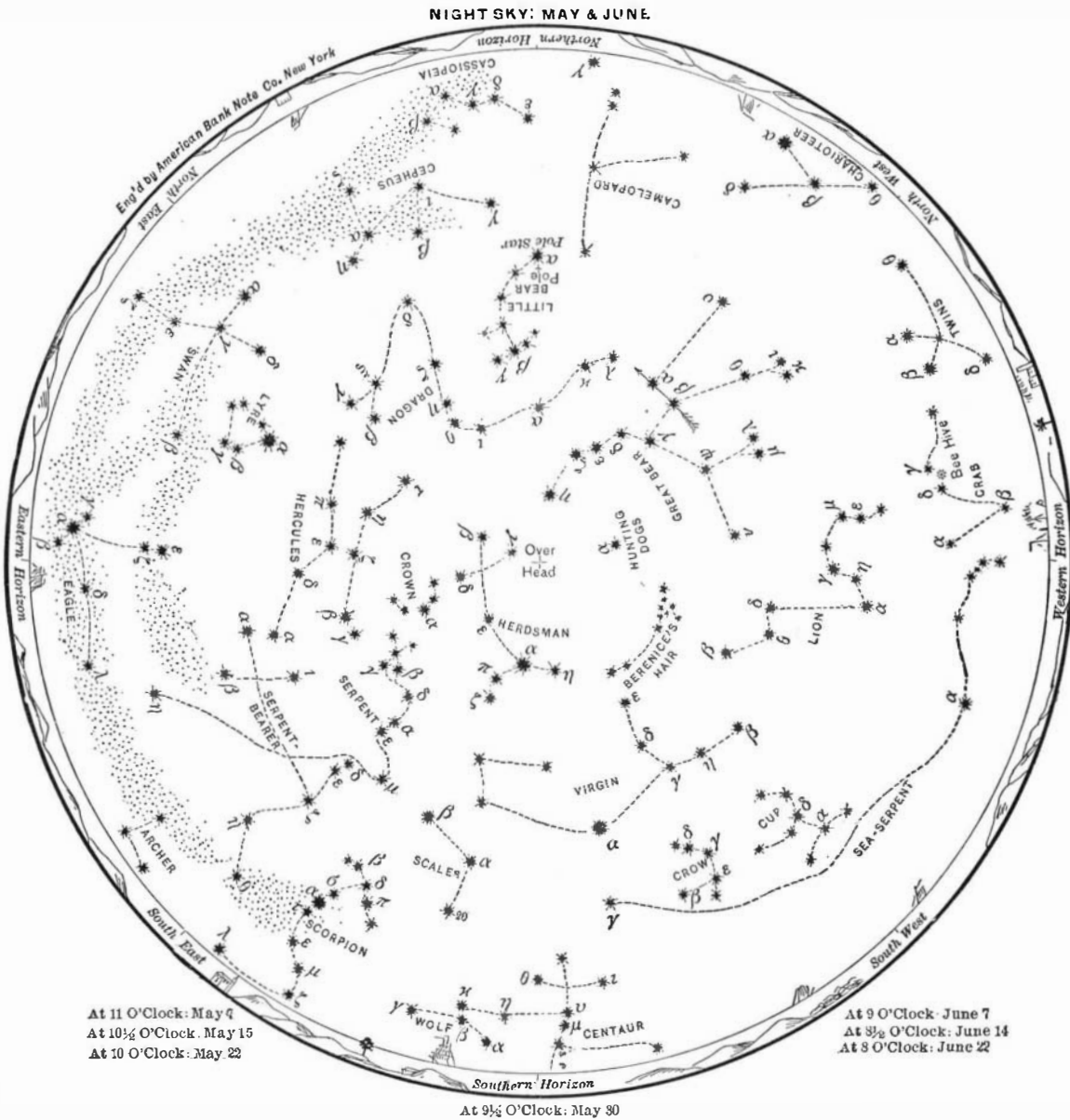
Low down in the east is the Eagle (*Aquila*), with the fine steel blue star Altair, the Swan on the left about northeast, and above it the Lyre (*Lyra*), with the still more brilliant steel blue star Vega. Hercules occupies the space between the Lyre on the one side and the Crown and the Serpent's head on the other. He is high up, due east.

Lastly, the Dragon winds from between the Pointers and the Pole round the Little Bear, toward *Cepheus*, and then eastward toward the feet of Hercules, close by which we see his head and gleaming eyes, β and γ .

THE Textile Manufacturer, London, thinks there is likely to be a great deal of trouble growing out of the winding up of the New Orleans Exposition. The governments of Honduras, Ecuador, Peru, the Argentine Republic, the Samoan Islands, Uruguay, Chili, Santo Domingo, Hayti, Nicaragua, and Russia sent goods under the guarantee that all expenses of transportation to and fro would be paid by the Exposition Company. Even Dom Pedro, Emperor of Brazil, has his son on the way with goods, in expectation that the show would be open into the fall. The enterprise has closed a miserable failure, and the goods of these nations are held for the charges due. It would seem not at all improbable, from the moral support the United States gave the affair by granting it subsidies, that it would in good faith be bound to take these goods out of pawn and send them back.

Brooks Comet No. 3.

On the evening of May 22, Professor Brooks, of Phelps, N. Y., discovered another comet, having a right ascension of 11 h. 51 m. 15 s., and a north declination of 8° 55' 15". The wanderer is reported as large but faint, and has a slow motion to the southeast. Its discovery secures to Professor Brooks the first, second, and third Warner prizes of the year.



In the map, stars of the first magnitude are eight-pointed; second magnitude, six-pointed; third magnitude, five-pointed; fourth magnitude (a few), four pointed; fifth magnitude (very few), three-pointed, counting the points only as shown in the solid outline, without the intermediate lines signifying star rays.

on the various floors to be protected with standard tin clad fire doors.

Well Holes for Light.—Not allowed in this class of buildings.

Shutters.—To be placed on all windows and other openings at the rear and sides of buildings, when exposed by other property or by another section of the same property cut off by division brick walls. To be of standard construction, and the fastenings so arranged that they can be opened from the outside.

Blind Attics.—And other concealed places that cannot be readily reached by firemen not allowed.

Boilers.—For heating or power, to be placed in separate buildings or fire proof rooms, and provided with regular boiler chimneys.

Preservation of Wood.

The prevention of decay in wood is said to be effectively accomplished by exhausting the air from the pores and filling them with a gutta percha solution, a substance which preserves the wood alike from moisture, water, and the action of the sun. The solution is made by mixing two-thirds of gutta percha to one-third paraffine, this mixture being then heated to liquefy the gutta percha, when it is readily introduced into the pores of the wood, the effect of the gutta percha being, when it becomes cool, to harden the pores.