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### THE FIRE IN THE U. S. PATENT OFFICE,

The fire, therefore, had abundant material whereon to feed, and made rapid headway.

It is gratifying, however, to know that all the lower portion of the building, which is fireproof, and in which the active affairs of the Patent Office are conducted, escaped were lost: all drawings, specifications, files, etc., remain in- would appear on that date. tact, together with all caveats, assignments, and pending applications for patents. Consequently there will be no interruption of business.

will be sent for one year, postage free, on receipt of seven collars. Both papers to one address or different addresses, as desired.

The re-roofing will be ren great accumulation of rubbish. The re-roofing will be rap- made known the discovery to the world. idly pushed forward, and it probably will be so carried out before the fire.

## LEVERRIER AND HIS WORK.

ever accomplished.

21. 1874.

the motion of all the planets without being himself disturbed. and unhappy. Although the planets exert an attractive power on the sun, still if their joint attraction were exercised upon him in a in tables of wonderful accuracy. His study of the motions straight line, he would not be disturbed by a space equal to of Mars revealed the influence on that planet of the asteroid his own radius. So vast then is the controlling power of zone. Summing up his work, Professor Proctor says: "Bethe sun that even the greatest disturbance in the entire sys- | youd question he has deduced from the observed motions of tem (that resulting from the mutual attraction of Jupiter the planets all that at present can be deduced as to the the fact still remains that the planets do disturb each other complex system which occupies the space ruled over by the in varying degrees, and the more massive the planet the sun." greater its influence upon its neighbors. Consequently and ! fluencing body.

idea may, however, be gained from the fact that in determin-, death occurred on September 23d. ing the earth's motion around the sun-but one part of his subject-Leverrier reviewed and discussed nine thousand distinct observations. "Our conclusion is," he says, referring to these, "that the observations of the sun leave much to be desired, on account of systematic errors affecting the number of patented models destroyed as about 87,000. them; and there is no discordance between theory and observation which cannot be attributed to errors in observ- say about 49,000, making in all about 136,000. The following.'

Still, from these imperfect data, he estimated the sun's stroyed: ally accepted figures were too large by between three and ling, bungs and vents, bottling, bottle stoppers and washers. four millions of miles.

servations of Uranus, Leverrier had satisfied himself that traps, water closet appliances, and water traps. that planet was undergoing disturbance by some unknown body. He was in the position, to borrow Professor Proctor's illustration, of an observer who, traveling (say) along a ments of their size, and at last satisfied himself that they ing these articles were destroyed. All the back numbers of the Supplement, from the commencement, January 1, 1876, can be had. Price 10 cents each.

had increased. . . . If, however, while he had satisfied himself by his ways massyraments that they mig these articles were destroyed.

Class 13. Brakes and Gins. Machinery for the treatment himself by his ways massyraments that they mig these articles were destroyed.

restore the original size of the waves, he would manifestly On the morning of September 24, a fire broke out in one have here an indication which might serve to tell him of the of the attic model rooms of the Patent Office, in Washing- very spot where the disturbance had taken place." Someton, which destroyed part of the upper portion of the west thing of this kind had happened in the case of Neptune; and north wings of the building. It is not known how the and when Leverrier's analysis of the motion of Uranus was fire originated, but spontaneous combustion among patented finished, it was seen that the displacement had reached its chemicals in the upper part of the building is assigned as a maximum and was beginning slowly to decrease. In order probable cause. The edifice above the third story was to produce these perceptible effects—and many years were filled with printed documents and models, the latter made occupied in their production, for it is now known that of light inflammable wood. The roof was also of wood. Uranus only completes his circuit in 84 years, while Neptune requires 164 years—Leverrier assumed that another planet must exist; and from the observed perturbations of Uranus, he calculated the orbit and position of the unknown world. On the 1st of January, 1847, six months after Leverrier had completed the calculations, the planet was permanent injury. None of the original patent documents found within two degrees of where Leverrier predicted it

We pass over the long discussion among astronomers as to whether Leverrier or the English observer Adams was the true discoverer of Neptune; both overcame enormous The fire merely swept away a portion of the upper works mathematical difficulties, but whether Adams first conceived the existence of Neptune or not, Leverrier certainly earliest

The quite recent supposed discovery of an inter-Mercurial as to render the business facilities of the Office better than planet, which afterwards proved to be a sun spot, brought M. Leverrier's investigations into the motions of Mercury prominently forward. He long ago determined that the movements of Mercury, as observed, did not accord with In the death of Leverrier the world loses its most eminent those calculated. "This result," he says, "naturally astronomer; but unlike many great disciples of science, he filled us with inquietude. . . Long years passed, and it bequeaths to posterity not unfinished work which none but was only in 1859 that we succeeded in unraveling the cause a master mind equal to his own could complete, but the re of the peculiarities recognized." There exists, he states, in cord of undertakings carried to successful endings, and to- the neighborhood of Mercury, doubtless between that planet gether aggregating the noblest astronomical achievement and the sun, some matter as yet undiscovered; but whether it consists of one or more small planets or other more min-Urbain Jean Joseph Leverrier was born at St. Lo, in the ute asteroids, or even of cosmical dust, he does not positively old Department of Normandy, France, on March 11, 1811. assert. The present opinion is that the meteoric and cometic He was a close student and obtained honors in the Poly- matter existing in the sun's neighborhood in enormous technic School, which entitled him to a choice of employ- quantities, produces the perturbations of Mercury; but Le ment in any of the select branches of the public service he verrier clung to the belief in Vulcan, and manifested the might desire. Choosing the position of engineer attached most intense interest in every alleged discovery of that to the administration of the government tobacco monopoly, planet. When Lescarbault believed that he had found the in order that he might possess the necessary facilities for inter-Mercurial world, Leverrier was one of the first to abthe continuation of his studies, his attention was first di- ruptly present himself and to demand how the discoverer rected to chemical experimentation, and in 1837 he published | had dared "to commit the grave offence of keeping your his first original investigations, announcing a new combina- observation secret for nine months. I warn you," he tion of phosphorus and oxygen. His preference, however, continued, "that I have come here with the intention of was for mathematics, and in 1839 he began the colossal as-doing justice to your pretensions;" and then he examined tronomical task, the termination of which he himself an- Lescarbault's primitive apparatus, cross-questioned him nounced to the French Academy of Sciences on December sharply, and finally departed, overwhelming the supposed discoverer with his congratulations. How Liais upset this In order to reach a just estimate of this vast work, it is discovery by showing the imaginary Vulcan to be a sun spot necessary to recall the fact that in the solar system the mass is well known; and a repetition of similar experience re of the sun is so great that that luminary is capable of swaying cently is said to have left the great astronomer disappointed

Leverrier's examination of the motions of Venus resulted and Saturn) is inconsiderably small in comparison. But masses of the different known and unknown parts of that

In 1853, M. Leverrier became Director of the Observatory conversely, if we know how much one planet disturbs an- in Paris, which post he occupied until 1870, when he reother, we have a means of determining the mass of the insigned, but in 1872 he resumed its duties, which he has since continued. He took the greatest interest in the large This determination was the object of Leverrier's inquiry, telescope recently erected at the observatory. "It comes and he set to work to examine into the motions of the seven none too soon," he replied coldly, when congratulated on planets known at the period when his labors began. It is its completion; and he at once set to work, hoping by its aid scarcely possible for any one, not conversant with the deli- to settle the question of the inter-Mercurial planet. His cate and intricate toil of the astronomer, to appreciate the labors were severe, his rest constantly broken. The task multitudinous perturbing causes which in such an investi | was too much for a man sixty-six years of age, whose life gation it becomes necessary to take into account. Some had been one of incessant toil, and he sank under it. His

## MODELS DESTROYED BY THE PATENT OFFICE FIRE.

The Superintendent of Models at the Patent Office gives To these should be added the postponed and rejected cases, ing list will give a pretty accurate idea of the classes de-

apparent monthly displacements and deduced therefrom an ' Class 1. Aeration and Bottling. Aerated liquor apparatus estimate of the distance of the sun, showing that the gener- and processes, soda fountains, fire extinguishers, barrel-fil-

Class 4. Baths and Closets. Includes baths, water and Meanwhile, by a most careful analysis of all available ob- earth closets, urinals, washstands and basins, sinks, stench

> Class 6. Beehives. Includes apiaries, bee feeders, fumigators, honey boxes, moth traps, and swarm indicators.

Class 10. Bolts, Nuts, Rivets, and Washers, Consists of vari canal, should observe "that certain waves, which had long eties of the articles and machines for making them. Of this been of a particular size, began to grow larger. Suppose class the following were saved: Nutlocks, taps, dies, and that, struck by this, he instituted a careful series of measure-plates for screw and nut making; but all machines for mak-

himself by his wave measurements that the waves had really of raw cotton, flax, and hemp; hair and oakum pickers, and