

Communications.

Our Washington Correspondence.

To the Editor of the Scientific American:

A late issue of the New York Tribune published what purported to be a synopsis of the Annual Report of the Commissioners of Patents, for the year ending October 1, 1877, containing a number of figures as to the amount of business done by the Office during the "business year," which might possibly have been true if the Commissioner had written any such report, which he had not, and will not do until after the close of the year ending December 31. I propose to wait until a report is written before sending a synopsis of it, leaving this style of enterprise to your fast neighbors of the daily press.

During the past week 379 applications for patents were filed, and 224 cases allowed. The receipts of the Office amounted to \$12,501.

The trade mark treaty with Great Britain, which the cable reports has been signed by Lord Derby and Mr. Pierpoint, will probably bring a large accession of business to the Office, as hitherto English merchants and manufacturers could not register trade marks here.

PATENT LAW AMENDMENTS.

The Patent Office Bar Association have agreed to present to the Congressional committees on patents certain amendments to the statutes, which they desire to have passed for the more harmonious working of our patent system, which amendments are said to have the approval of the Commissioner of Patents, and are mainly as follows:

Patents to be issued on the day of their date, not later than the second week after the final fee has been paid; and until the day of issue the Commissioner to have jurisdiction over the application, but no patent to be withheld from issue because of interference with any application filed subsequent to the payment of the final fee. Re-issue applications may be made and specifications sworn to by the owner or owners of the entire interests. The section requiring forfeited applications to be renewed within two years (if at all) to be struck out. All assignments, licenses, powers of attorney to sell or license, to be recorded within two months. The selling of interests in patents not vested in the vendor to be punished by imprisonment or fine. Patented articles to be marked "Patented," with the year and number of the patent. The right to file caveats not to be limited to citizens. After the final decision in an interference suit the successful party is not to be put into another interference with any application filed subsequent to the closing of the testimony of the successful party; but after the patent is issued an interference may be had with said patent. Interferences to be appealable to the Supreme Court of the District of Columbia. The re-issue section to be changed, as shown by italics in the following:

SEC. 4,916. Whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more or less than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of duty required by law, cause a new patent for such invention as was shown in the model or drawings, or described in the original specification or its amendments, and might have been claimed in the original patent, and in accordance with the corrected specification, to be issued to the patentee, or, in the case of his death or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the amended patent. The Commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the things shown or described in the patent, upon demand of the applicant, and upon payment of the required fee for a re-issue for each of such re-issued letters patent. The specifications and claim in every such case shall be subject to revision and restriction in the same manner as original applications are. *In the case of re-issues no interference shall be declared with any patent of later date than that sought to be re-issued, except when the original application for such subsequent patent is shown by the Office records to have been of prior date to the application of the patent sought to be re-issued; nor with any application for a patent filed subsequent to the date of the patent sought to be re-issued; but if desired by such subsequent applicant or patentee on an application for re-issue, an interference may be had with the re-issued patent, after the same shall have been issued.* Every patent so re-issued, together with the corrected specification, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in case of a machine shall the specification be amended except by the model or drawings.

Since the fire the Commissioner has paid great attention to the preservation of the burnt models in order to save, as much as possible, all that could be of use in reproducing them; and a recent examination shows that many thousands of them are almost as good as ever for the uses for which they were designed, although not quite as pretty to look at. It is proposed to clean up, identify, and label all that can be of any use.

THE FRENCH EXPOSITION IN CONGRESS.

Notwithstanding the published reports that American citizens desiring to participate in the Universal Exposition in Paris can do so upon simple presentation by our Minister in Paris, the French Minister again informs our Government that foreign exhibitors cannot be admitted to the Exhibition except through the intervention of a special delegate officially designated by their Government and accredited to the French Commissioner General. In view of this it would appear that nothing will be done until Congress shall act in the matter, which will probably be soon, as a bill has been introduced by Mr. Hewitt, of your city, for this purpose, which authorizes the President to appoint a commissioner general to represent the United States, and appropriates \$150,000 to pay expenses, of which not more than \$50,000 are to be expended for salaries. The bill also requests the Governors of the different States to invite their people to assist in the proper representation of their handiwork and to take such further steps as they may think necessary to secure to their respective States the advantages to be derived from their exhibits.

Among the avalanche of new bills just introduced into Congress is one offered by Mr. Hunter, of Indiana, authorizing an expedition to the arctic seas. This is essentially the same bill as the one reported favorably by the Naval Committee of the last session, and embodies what is known as the Howgate plan. Another bill proposes to establish a department of commerce under a commissioner with a salary of \$3,000 per annum, who shall be charged with the supervision of the commercial, manufacturing, and shipping interests of the United States, so far as they may be confided to the general Government. A third bill, introduced by Mr. Wallace, provides for the coinage of \$400,000,000 in value of a coin metal, patented by W. K. Hubbell, of Pennsylvania, called "goloid," consisting of one part of gold, twenty-four parts of silver, and three fourths of a part of copper.

All the divisions of the

HAYDEN GEOGRAPHICAL SURVEY

have returned to this city from their explorations of the western wilds, and have begun the work of reducing their examination to the form of a report for official transmittal to the Interior Department and Congress. About 25,000 square miles were covered by primary triangulation by Mr. A. D. Wilson, who established 26 stations, upon which monuments were built, besides locating a great number of other points by foresight intersections, upon which the parties carrying on the secondary triangulation have built monuments. The division in charge of Mr. Henry Garnett surveyed about 12,500 square miles and erected 104 monuments. The division directed by Mr. Beckler surveyed about 6,000 square miles and built 40 monuments. As soon as the office work of the survey will admit, a chart will be prepared showing the location of all the monuments in relation to the public lands suitable for available purposes.

OCEAN EXPLORATIONS.

The coast survey schooner Palinurus has just returned from making a series of scientific observations in regard to the density of the water and character of the bottom of the Chesapeake Bay, with the special object of determining the quality of the water and the kind of bottom in which oysters reach the greatest perfection. Specimens from the bottom of the bay were obtained at 148 stations between Havre de Grace and points fifteen miles outside the capes, which are to be turned over to the chemical department of the coast survey for analysis, just as soils are subjected to similar processes by the Agricultural Department for the benefit of agriculture.

A NEW NIGHT SIGNAL.

The Bureau of Navigation will soon put in use on board our navy the new "Very Night Signal," invented by Lieutenant Very of the navy. By this plan of signalling, colored fire stars are projected from 200 to 300 feet into the air by a pistol, so that a commander-in-chief may readily communicate with all his fleet in a crowded harbor, by a series of signals which may be seen and read by officers of all his vessels, notwithstanding the space between them may be crowded with other craft. By firing a single red or green star, or a combination of them, all the sentences in the navy code may be communicated. The stars burn with brilliant red and green lights, and can be seen at a distance of from ten to twelve miles.

The Spanish, Portuguese, and Dutch navies have signified their intention to co-operate with the Chief Signal Officer in extending his system of international meteorological reports, and the Portuguese Minister of War has ordered that these observations be taken during the Government exploration of Helonga, in Central Africa.

General Benet, Chief of the Ordnance Bureau, in his annual report states that, owing to the failure of the army appropriation bill for the present fiscal year necessitates the closing of the National Armory and the discharge of the operatives employed there, cutting off the supply of small arms, so that on the 1st of October the reserve was only 8,552 rifles and 5,983 carbines, and asks that an appropriation be made sufficient to manufacture at least 50,000 during the coming year. The General also recommends the passage of the Senate bill of the last Congress, giving the Court of Claims jurisdiction of claims for damages for infringements of patents. Under the law as it now stands, officers using patented articles are liable in their private means, while a refusal to use them under the orders of their superiors would render them liable to court martial.

FIREPROOF PUBLIC BUILDINGS.

An estimate is to be submitted to Congress for an appropriation to erect a new fireproof observatory, as the commission for examining the Government buildings have reported that the old one is so old and so much worn as not to be capable of being remodeled into a fireproof structure. The importance of making immediate provision for the safety of the valuable books and instruments can at once be seen when it is considered that many of the books and papers could never be replaced, and that the glass of the great telescope, although so large, is so clear that if a hundred of the same kind should be cast not one of them might be as good as this one, so that there would be great difficulty in replacing it if destroyed.

The building commission recommends that the Printing and Engraving Bureau be removed from the Treasury to a separate fireproof building to be erected for that purpose, to prevent the danger of destroying the records of the Treasury from the inflammable material constantly used in that bureau. This can be readily done out of the savings during the current year effected by the efficient head of this branch of the Treasury Department, as there has been saved out of the appropriation for it during the first three months of the fiscal year no less than \$150,000, and it is believed that the aggregate saving for the current fiscal year will not be below \$600,000. Besides this saving the work to be done by the bureau upon internal revenue stamps will cost about \$120,000 less than was paid for the same work last year.

THE COTTON CROP.

The cotton report of the Department of Agriculture for October makes the average condition nearly as high as in 1876. It is 81.1 this year against 82.7 last year, and 88 the year before. The decline in condition during September was less this year than last. In portions of Texas and Arkansas heavy rains prevailed in the early part of that month, and from the 16th to the 20th a violent storm swept through the cotton belt, doing great damage by beating out the fibre and rotting the bolls. A loss of at least 20,000 bales is reported from the overflow of the Black Warrior and Tombigbee in Alabama. The caterpillar has done less damage than was feared, the most serious losses from this cause being in Texas and Louisiana. In the more northern States of the cotton belt they will accomplish quite as much benefit as injury by reducing redundant growth of foliage and hastening maturity of fruitage.

Accounts received here from all parts of the United States show that the wheat crop this year is the largest that has ever been produced in this country.

COMMERCIAL STATISTICS.

From the report of the Chief of the Bureau of Statistics, it appears that the total commerce of the United States for nine months, ending September 30, was \$796,000,000, in merchandise, showing an increase of \$58,000,000 over the corresponding period of 1876. The movement of specie in the nine months of this year amounted to \$60,000,000 or \$2,000,000 more than last year. The balance of trade still remains largely in our favor, it being \$53,000,000 in our favor during the nine months, although it does not equal our balance for the corresponding period of last year, when it was \$77,700,000. About five eighths of this enormous foreign trade appears to have been transacted through New York. It is estimated that the yield of gold and silver for the current fiscal year in the States of California and Nevada will be as follows: Nevada—Comstock lode, \$20,000,000 silver, \$17,000,000 gold; balance of the State, \$6,000,000 silver, \$1,000,000 gold. California—\$15,000,000 gold, \$1,000,000 silver. Total, \$60,000,000.

Washington, D. C.

OCCASIONAL.

Repairing the Washington Monument.

To the Editor of the Scientific American:

It is reported by the engineering board which has recently examined the foundation and soil underlying it of the Washington monument, that it is built on a compressed clay that has now to sustain a weight of five tons to the square foot and that the completed structure will exert a pressure of seven tons to the square foot. The only way to make the structure stable is to increase the area of its base—excavations in clay are dangerous at the best, as they expand as well as contract, and when it is already under a great pressure, it is very difficult to handle. I propose the following method of increasing the bearing surface, which can be done without risk.

First: A ditch is dug entirely around the foundation and at a proper distance from it. This ditch is to be filled with beton of high tensile strength, and is so to be constructed as to form a monolith.

From this circumscribing wall tunnels are run in to the base of the foundation and under it. These tunnels are narrow and are to be filled with beton as fast as the excavation is made. You have then something in the shape of a wheel, the felloes and tire being the circumscribing wall, the ribs the spokes, and the monument being the hub. By putting an invert between the ribs, the new foundation becomes a saucer.

Beton is the proper material for this purpose, as you can obtain a monolith and get a greater benefit from the circumscribing wall as well as fill completely all excavations. By this process of removing the earth and stone and replacing it section by section, the area of the base can be enlarged without risk, the new foundation forming part with the old one.

Brooklyn, N. Y.

JOHN C. GOODRIDGE, JR.