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MECHANICAL ENGINEERING.-The Steam Engine-Its VII.

REPORT OF THE COMMISSIONER OF PATENTS FOR 1868. through whose operation vast masses of rubbish which The special report of the Commissioner of Patents to Congress, for the year 1888, has lately been presented, and is in many respects a very able and interesting document. The Commissioner, the Hon. Benton J. Hall, gives a very forcible statement of the existing condition of the Patent Office and the changes or reforms most urgently needed to improve the working and increase the utility of the bureau. It is a long document-equal to six of our pages-full of valuable suggestions and information.

The number of patents granted during the year 1888, including designs and reissues, was 20,506, being about one thousand less than for the year 1887, and nearly four thousand less than for the year 1885. The applications filed during 1888 were 37,797, and about the same number have been filed every year for six years. More rejections and fewer issues of patents appear to have been the order in 1888. The cash receipts of the office for 1888 were \$1,118,576, and the expenses of \$145,407.

of the office is crippled for lack of sufficient room. He: says :

"The various divisions of the Patent Office are crowded into narrow, inconvenient, and, in many instances, unhealthy limits. The records and drawings and other material, which should be conveniently arranged and made accessible in proper rooms, are stored in corridors and by-way places, where classification is almost impossible, and where access can only be had to the particular subjects desired after long search and delay. Not only this, but great quantities of valuable records, descriptions, specifications, and drawings are constantly exposed to the danger of conflagrations involving the safety of the entire building. It needs volved."

weekly, of which 2,265 copies are sold, and 4,235 given ents." away to libraries, members of Congress, etc.

The Commissioner dwells upon a number of different subjects, all of greater or less importance. The difficulties of making official examinations of inventions are constantly increasing; but if more space were afforded, he thinks the present force of employes could do the work. He favors the protection of the inventor in the enjoyment of the exclusive right to his invention, but asks that the patent shall be dated from the time the patent was allowed and passed for issue, thus practically reducing the life of the patent.

The present law by which the term of the American patent is reduced to that of the term of the previously granted foreign patent he thinks should be repealed. He favors the allowance of caveat registration to foreigners; also a modification of the record law for assignments. The renewal of lapsed cases is found to be attended with complications, and a change is recommended. A modification of the law in the case of joint inventors is also proposed. The Commissioner defends the present system of official examination of inventions, but at same time indicates that it is full of serious difficulties. He shows the hardships of interference proceedings, and offers suggestions for a partial remedy. He points out some of the absurdities and difficulties attending the international union respecting trade marks and patent properties. He thinks the examiners should have an increased compensation. Atten- were kept in use continually, and a large corps of govtion is also called to the importance of perfecting and ernment inspectors took indicator diagrams from her finishing the abridgment of patents.

The total number of patents granted since the organand developed horse power. ization of the United States government is 405,262. The ship started nearly southeast, with the wind abeam, her speed increasing quickly from 16.7 to 17.2 A REPLY TO THE NEW YORK "WORLD." knots per hour. After an hour's run the ship was turned so as to bring the wind on one bow, and the Principal Examiner W. W. Townsend has recently speed dropped off to 15.3-15.9 knots. The wind was published in pamphlet form an able and scathing reply to the recent attacks of the New York World upon next brought dead ahead, when a speed of 14.9 was the good name and fame of the Patent Office. We regret shown. The four hours' run ended where it began, off the limits of our space prevent us from giving Exam- | Cape Henlopen. The steam pressure varied from 145 iner Townsend's essay in full. It would occupy almost to 168 lb. In all the four hours' work no journal betwo of our pages. We are obliged to content ourselves came heated. The chip log, used at 15 minute intervals, showed an with an extract from the concluding portion, which will convey some idea of the author's views and the average of 15.67 knots, and the average of two taffrail logs was almost exactly 16 knots. Every 15 minutes vigorous, clear style in which he presents them : "The inventive genius of the country may, in truth, twelve different indicator cards were taken, giving 192 be aptly compared to a great tree, deep rooted in a tobe calculated. The indicators are first to be tested genial clime, constantly budding, blooming, and fruit- for accuracy, and it is probable that the slower of the ing. But it is a tree that produces both good and bad; two taffrail logs will need a correction in favor of the fruit; and oftentimes agreat deal of husk covers a very ship. The results of the trial are, therefore, not yet small kernel, scarcely worth the saving. definitely known; but it is thought that they will "The Patent Office is the great winnowing machine, show about 3,550 horse power and over 16 knots speed.

would otherwise obstruct the industries of the nation are consigned to the waste heap. Toabolish the official search would be to destroy this machine, and substitute what? A host of similar machines, badly made, unfinished, and left to run themselves at enormously increased aggregate expense. Do away with the system of official examination, and you are more likely to practically legalize a species of robbery now but rarely practiced, and only upon the easily duped, rather than to effect an improvement such as would warrant such an extreme measure.

"It is admitted that the present system has many defects. But they are not inherent in the system itself; they are rather the result of the manner in which the system is administered, and largely of the disposition to consider public office as spoils of war and not as a public trust; of the niggardly policy which allows upward of three millions of dollars to lie idle in the Treasury to the credit of the Patent Office, while the salary \$973,108, leaving a surplus for the year over expenses of the Commissioner is at such a figure that in the last thirty-eight years there have been nineteen incumbents The Commissioner shows how seriously the business of the office. Experience has developed defects in the details of the law; but Congress utterly ignores the Commissioner's oft-repeated recommendation as to the cure.

"But what is the remedy? The inventors of the country have it in their own hands. Let them insist that the office shall have ample means, ample room, ample force, so that there shall be an end of inaccessible records and extra hours of labor, with their demoralizing tendency to lax and hasty work. Let them insist upon having a commissioner and assistant commissioner trained in science as well as in the law, and with such a salary as will insure their incumbency for a reasonable period, and consequently a much needed stability in the practice of the only an examination or investigation to demonstrate office. Let them insist upon an examining force selectthe absolute necessity that exists for making some ed and tested and promoted by rigid competitive exchange in the arrangement between the bureaus occu- amination and not by political influence, as has too pying this building, in order that each shall have frequently been the case. Let the organized inventors proper room and facilities to discharge its respective insist upon these things, and they will get them ; and functions. The force under the control of the Commis-; having got them, I will undertake to say that the busisioner of Patents is scattered and located in remote ness of granting patents will be carried on with as little parts of the building on different floors to such an friction and individual hardship as necessarily accomextent that in order to communicate with the various; pany the administration of any great public function. divisions, transfer records back and forth, and conduct But without the requisites named, inventors will conthe business, much more time and a greater amount tinue, as now, to suffer occasional hardship, while as a of labor are required than would otherwise be in-: class obtaining substantial justice and protection, and the public will continue sometimes to be robbed in the Of the Official Gazette, 6,500 copies are printed name of the law through the wrongful issuance of pat-

OFFICIAL TRIAL OP THE GUNBOAT YORKTOWN.

The gunboat Yorktown was subjected to an official trial on Wednesday, February 13, to determine her acceptance or rejection by the government. The trial as far as reported was a complete success, the contract requirements of speed and horse power being exceeded. Four hundred tons of pig lead were distributed through the ship so as to represent her stores, guns, and other equipments. Thus seventy-two tons of lead was placed in six piles at the positions to be occupied by the guns. This weight brought her down to draught in fresh water of 13 ft. 4 in. forward and 15 ft. 4 in. aft-a mean draught of 14 ft. 4 in., with a displacement of 1,703 tons. The day before the trial she ran down the bay and anchored inside the breakwater. Early the next morning preparations were made for the trial. This was to be a four hours' run. The run over the measured mile has been discarded as a satisfactory test, as the speed thus shown is fallacious, in the sense that it may be largely in excess of that which can be maintained for any length of time. Three to five minutes is not sufficient time in which to prove a vessel's capabilities.

The Yorktown ran out to sea, and at 9:45 A. M. the official test began., Quite a heavy breeze was blowing, with considerable sea. The chip log and taffrail log different cylinders, so as to obtain full data for speed

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