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FORTY YEARS IN THE PATENT OFFICE.

contains a comparative statement of the business of the to the annual income, would be an item worth considering. office from 1837 to 1881 inclusive. Since 1840 the table As the Scotch proverb has it, "Many mickles make a shows the number of applications, the number of issues, the muckle." With proper organization for marketing the receipts, expenditures, and the surplus, where there has cocoons, the aggregate efforts of many thousand women been any. Eight of these years (1837, '40, '41, '53, '54, '56, and children otherwise unemployed might make the coun-'57, '61) show a deficiency, the fees received being slightly try independent of the rest of the world in the matter of less than the expenditures. Curiously the year 1855 shows silk production. As skillful reeling doubles the value of a surplus of nearly \$37,030, though the two preceding and the cocoons at the least estimate, the silk reel may possibly the two succeeding years were years of deficiency. In 1859 contribute still further to the profitable employment of time the surplus had risen to over \$35,000. It dropped to \$3,500 now wasted. the next year, and the next shows a deficiency of \$16.000. In 1862 the surplus was \$33,000. It fell to \$6,000 the next year; and in 1865 it leaped from \$11,000 to nearly \$75,000. This was nearly doubled the next year, and the year after (1867) it dropped to less than \$8,000. Between '67 and '71 the surplus aggregated nearly half a million dollars. The next four years were lean, the surplus falling as low as \$12 000 in 1873. Since 1876 the surplus has ranged from \$100.000 to about \$250,000, aggregating in six years nearly a million dollars.

The fluctuations in the number of patents applied for and issued have been much less marked, though considerable 435. The number of applications reached a thousand in 1844, and five years later the issues for the first time reached and slightly exceeded 1,000. The year 1855 saw the number of issues raised to 2,000. During the next ten years the increase was tolerably steady, rising to 9,458 in 1866. The number stood at thirteen hundred and odd pretty uniformly from 1867 until 1875, the number of applications varying not far from 20,000 a year. After two years of gain the number dropped off once more, remaining not far from 1,300 until 1880. Last year it rose to 16,584, with 26,059 applications.

The ratio between the number of applications and the number of grants has shown considerable variations. During the earlier years the proportion of rejections was much greater than at present, amounting in 1847 to two-thirds of the total applications. This, in the opinion of the Commissioner, is largely attributable to the fact that the earlier inventors had fewer opportunities for discovering what had already been done in the same fields of invention, and, as a consequence, presented a larger proportion of crude devices and repetitions of each other. Possibly the spirit of the Commissioner had more to do with the numerous rejections. some of them acting as though this business of the office was to restrain rather than to encourage inventors. During the past fifteen years the ratio between the number of applications and the number of patents issued has been comparatively stable, and not far from three to two.

The total number of patents issued up to 1843 was less than three thousand. Ten years were required to raise the number to ten thousand. In the next ten years they rose to over forty thousand, and to a hundred thousand early in assistants, seems well within bounds. 1871. Since then the increase has been very rapid, more being issued between 1871 and 1880 than in the preceding thirty years.

To date about ten thousand patents have been reissued. The highest annual rate of reissue was reached in 1875 and 1876, when it exceeded six hundred. Since then there has been a marked decline, the number of reissues for 1881 being 471. The whole number of new patents issued last year was 16,113, of which 995 were taken by foreigners, chiefly citizens of Canada, England, Germany, and France. 4,638 patents expired during 1881.

THE PROFITS OF SILK CULTURE.

The estimates of possible profit in silk production, made by a writer in the Louisville Courier Journal, and quoted in our issue of February 11, must be taken with a large discount. His estimate of 1,000 pounds of silk from 40,000 eggs can be accounted for only on the hypothesis that he has somewhere misread pounds for ounces.

The figures given by Professor Riley, in his report as United States Entomologist for 1878, are more trustworthy; and his conclusion from them is that "silk culture never was and never will be an exceedingly profitable business; but it adds vast wealth to nations engaged in it, for the simple reason that it can be pursued by the humblest and poorest, and requires so little outlay."

The special advantages which silk raising offers to our people arise from the fact that our women folk in rural districts have much unoccupied time which might be pleas antly and profitably devoted to the care of a few worms, though it would not pay to hice the work done at current rates of wages.

the yield of four ounces of eggs will furnish employment is 40,000. The average yield of one ounce of eggs, the worms being well cared for, is 100 pounds of fresh cocoons, which will weigh 23 pounds when choked. Four ounces lose two thirds of their weight in the process of killing with

There are many thousand families in the country who change in the nabits of a bird.—A relit-eating parrot becomes a fish have ground for growing a few mulberry bushes and spare New England and in the West.

time to devote to the care of a few thousand worms, to The last annual report of the Commissioner of Patents whom the addition of \$200, or half or quarter of that sum,

NEEDS OF THE PATENT OFFICE.

A considerable portion of the recent annual report of the Commissioner of Patents is properly devoted to a presentation of the urgent needs of the Patent Office for an increase in its working force and in the room provided for the transaction of its rapidly increasing business.

The receipts of the office during the past year were nearly \$100,000 larger than in any previous year, and the excess of receipts over expenditures (nearly a quarter of a million dollars) was correspondingly greater than ever before. The Commissioner says frankly. "At the present rate of invariations are noticeable. The number issued in 1837 was crease in the number of applications for patents either the work must accumulate upon the examiners' desks, or the quality of the work done must be such as to bring discredit upon the thoroughness of official examinations?

The annual increase alone represents a number two-thirds as great as the entire number of patents applied for in 1861, when Congress appropriated money enough for the support of sixteen principal examiners, each with two assist-

Now the office has twenty-six principal examiners, twentyfour of whom have three assistants each. Thus in twenty years the examining force has been just about doubled, while the number of applications has increased from 4,643 in 1861, to 26,059 in 1881, or nearly sixfold. Twenty years ago the examiners had to be familiar with 31,000 American patents; now the number of existing patents exceeds 250,000, and the examiners are expected to search them all besides the largely increased number of foreign patents and scientific periodicals. The printing of specifications and the reproduction of drawings in convenient form have done much to simplify and expedite the work of the examiners; but the gain has not been at all proportional to the increase in the work to be done.

As the office was never designed to be a source of revenue to the government, justice to inventors requires that the fees charged for service shall be materially reduced, or else the surplus should be expended in making the work of the office more thorough and speedy. Public interest dictates rather the latter course. In view of these facts, the Commissioner's recommendation, that four additional examining divisions be created, each to consist of a principal examiner with three

Seeing that any mistake in the Patent Office is liable to be followed by costly litigation or worse, neither individual inventors nor the public at large can afford to have such mistakes occur; certainly not the inventors, who, during the past six years, have paid into the treasury, through the Patent Office, a million dollars more than the service of the office has cost the government.

John Cooke

John Cooke, President of the Danforth Locomotive and Machine Works Company, at Paterson, N. J., died in that city, February 20, at the age of 57. Mr. Cooke's successful business life affords another illustration of the truth that natural capacity, zeal, and patient work can win success in spite of the most unfavorable conditions. When but a child of eight years he worked in a cotton mill, frequently from 4:30 in the morning until 8 and 9 o'clock at night. He afterward learned the trade of a machinist, and, finding his way to Paterson about 40 years ago, was employed for some years in the Rogers Locomotive and Machine Works. In 1848 he became superintendent of the works, and four years later he joined the firm of Charles Danforth & Co., which had been engaged in the manufacture of cotton and cotton machinery. Locomotive building was now added to the business, Mr. Cooke taking charge of it. The firm has since turned out about 1,300 locomotives, the works having the capacity of 12 or 14 engines a month. Mr. Cooke was also one of the principal stockholders of the Passaic Rolling Mill Company

Joseph Earle Sheffield.

Joseph E. Sheffield, founder of the Sheffield Scientific School of Yale College, and a liberal benefactor of the col-It takes about six weeks to handle a crop of worms, and lege in other respects, died February 17. Mr. Sheffield was born at Southport, Conn., in 1793. His father and grandfor two persons. The average number of eggs in one ounce father were extensive shipowners. At fifteen years of age he began his business life as clerk in a shipping office in Newbern, N. C. Subsequently he removed to Mobile, where he became one of the largest shippers of cotton in the counof eggs will yield about 400 pounds of fresh cocoons, which try. He returned to the North in 1835, and established himself in New Haven. He was one of the chief projectors of HYGIENE, MEDICINE, BTC.—The Physiological Action of Coffee and Sugar. Dr. Leven's researches.

heat, or "choking." As the fresh cocoons may be rated at the New York and New Haven Railroad, and was the profess and Sugar. Dr. Leven's researches.

See Statutess. Views of a medical officer of a steamship line.—

See Statutess. Views of a medical officer of a steamship line.—

So cents a pound, on an average, the yield of a crop of jector and for many years the president of the New Haven causes and remedies.—

Habit and will-power as preventives. ... 5135 worms (handled by two persons) is about \$200, instead of and North Hampton Railway Company. He was also en-Yale College and other public institutions of learning in