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CURIOSITIES OF THE RAILWAY CENSUS.

According to the census railway returns for 1880, there were 1,165 companies, having, in round numbers, 87,000 miles of railways in operation in this country—an aggregate almost equal to a track extending four times round the world.

The cost of this gigantic system was nearly five thousand six hundred and sixty millions of dollars, of which about two-fifths has been paid for and the companies are in debt for the balance. In the good time coming, when this enormous debt of over three thousand millions of dollars is paid off, and the interest thereon ceases, it is probable that railway speeds will be improved, traveling rendered safer, and the charges for freight and passage reduced.

The mortality upon our railways is frightful to contemplate. According to the census returns, the killed and maimed for the single year of 1880 formed an aggregate of 8,215 persons. If the companies were compelled by law to pay an average of say five thousand dollars for every person killed or injured, only a short time would elapse, probably, before this dreadful account would be reduced almost to nothing. There are very few railway accidents that might not be prevented if real care were exercised and the best safeguards adopted.

The demand upon our inventors for the discovery of new and better means for saving life and preventing accidents upon railways increases every year, in a ratio even greater than the augmentation of tracks, because the population is more rapidly increasing, and the present railways are not employed at anything like their full capacity.

The freight carried in 1880 was two hundred and ninety-one millions of tons, for which the railways charged \$1.29 per ton per mile, and made a profit of 53 cents per ton per mile.

The number of passengers carried was two hundred and seventy millions, for which they each paid an average of 233 cents per mile, and the companies made a profit of 0.62 cents per mile. If the passengers are counted by weight, allowing 14 passengers to the ton, then the receipts of the companies for their two-legged freight was \$32.62 per ton per mile and their profit was \$8.68 per ton per mile. This large profit, when set opposite to the small amount of 53 cents profit per ton realized from dead freight, seems to indicate that a great field is open to the genius of railway managers in devising ways and means to encourage the people to travel.

The haulage of our railways now employs over seventeen thousand locomotives, and the aggregate cost to run them, such as fuel, water, oil, repairs, and engineers, is about ninety millions of dollars, or not far from five thousand dollars a year for each machine. The item of fuel alone is thirty-three millions of dollars. The larger portion of the fuel is wasted; much of it is blown out of the smoke stack unconsumed in the form of smoke and dust. There is a grand chance for inventors to improve the locomotive by discovering means to lessen its wastes and expenses. The same remarks apply to the other branches of the railway rolling stock, consisting of over twelve thousand passenger cars and about four hundred thousand freight cars. In the year 1880 it cost the railway companies fifty-five millions of dollars for repairs for rolling stock. Is it not possible for inventive genius to study out some new mode of construction that shall reduce this enormous loss?

Our next issue will contain a variety of figures from the railway census, which will be found interesting and instructive.

THE WRINGER BEFORE CONGRESS.

A petition for the revival and extension of the old rubber wringer machine is now before Congress. This patent has a curious history. September 19, 1848, John Young, then of Amsterdam, N. Y., obtained a patent for a washing machine with the following modest claim: "What I claim as my invention and desire to secure by letters patent is, the combination of the conical rollers with the hinged platform, for the purpose of rubbing the clothes and squeezing the water out of them at the same time as herein described." Not a word is here said about elastic rollers or the use of rubber for the wringing of clothes. It is simply a washing machine in which rolls are used to rub and squeeze the clothes, and thus clean them. This patent was granted for fourteen years, and expired September 19, 1862. But under the provisions of the law as it existed when the patent was granted, the Commissioner, in 1852, extended the patent for seven years, which prolonged the life of the patent until September 19, 1869, when it expired, and since that time has remained public property, subject to free use by everybody.

July 30, 1861, while the patent was still in force, the owners obtained from the Patent Office, under the pretence of correcting "inadvertent errors" in the original, a reissued or corrected patent with the following new claims:

"1st. The combination of the rollers with the hinged platform for the purpose of rubbing the cloth and squeezing the water therefrom, substantially as and for the purposes described and specified.

"2d. The employment and use of elastic rollers which shall readily yield to any inequalities in the clothes passing through them, and thereby prevent injury, substantially as and for the purpose specified.

"3d. The employment of the conical rollers for producing a rubbing as well as squeezing motion on the clothes passing between them, whereby the operation of washing is greatly accelerated, substantially as and for the purposes described and specified."

New matter appears to be here introduced into the claims, and for the first time we have the suggestion of elastic rollers; but nothing about wringing machines.

January 6, 1863, the Patent Office granted a reissue of the reissued patent, and, as it now appears, unlawfully extended the scope of the patent. By the new reissue the patent was divided into two parts, and practically two separate patents were granted, the claims of which were as follows:

"Reissue 1,384.—Claim: 1st. The pressure rollers in combination with the hinged platform, operating as described for the purpose set forth.

"2d. The conical rollers for producing a rubbing as well as a squeezing action upon the clothes, as described.

"Reissue 1,385.—Claim: The application of India-rubber or other elastic gum impervious to water, substantially in the manner and for the purposes described, to the rolls of machines for washing and squeezing clothes."

The claim in the last mentioned patent, it will be noticed, covers the broad idea of applying India-rubber or other elastic gum impervious to water to the rolls of machines for washing and squeezing clothes. Its grant was a violation of the law, which only permits the correction, by a reissue, of inadvertent errors.

But in those early days of patent progress nothing was more common than for the Patent Office to allow any claims that any strong and rich monopoly asked for; so the rubber wringer patent was allowed.

In the light of the decisions of the Supreme Court of the United States made at sundry times during the past five years, it seems to be quite clear that the various reissues of the Young patent were unlawful, and could not now be sustained in the courts.

In the case of E. Miller & Co., in 1882, the Supreme Court of the United States decided that while a patentee had the right under the patent law to ask for a reissue to correct an error of inadvertence in the patent, he must make his application for reissue promptly, and the right to have it corrected was abandoned and lost by unreasonable delay. The court also decided that devices or combinations not set out in the original claims are, in law, a dedication to the public of that which is not claimed.

In the case of the Norton postal stamp case, the Supreme Court, in 1882, held that when an original patent describes and claims a specific invention, complete in itself, so as not to be inoperative or invalid by reason of a defective or insufficient specification, a reissue cannot be had for the purpose of expanding and generalizing the claim so as to embrace an invention not specified in the original.

The practice of the Patent Office is now made to conform to the tenor of these decisions, and such glaring irregularities as took place when the Young wringer reissues were granted could hardly occur.

But in the face of these decisions, Congress is now asked, in the ostensible name of the heirs of John Young, but, it is believed, in reality for the chief benefit of one of the wringer companies, to revive and again extend the patent. If the petition were now to be granted by Congress, this old and illegal patent, which has been dead and buried for fourteen years, would be revived, there would be a "corner" in wringing machines, and the monopolists would be able to extort money from nearly every family in the land, for the rubber wringer is now in common use. Rubber wringers are now abundantly supplied to the public from many factories at reasonable prices. But if this extension is granted, all these establishment must be closed, hands discharged, and thousands of dollars now invested in the business lost. We cannot believe that Congress will sanction such a scheme of jobbery.

FLORIDA EXPLORATION.

The claim of the party which crossed the Everglades of Florida last fall to be the first white men to explore that part of the State is disputed. It will be remembered that the party referred to (sent out by the New Orleans Times-Democrat) started from Kissimmee City, traversed the adjacent lake region, descended the Kissimmee River to Lake Okechobee, and, after exploring that lake, followed its outflowing waters to the Gulf.

Mr. George O. Allen, of Fitchburg, Mass., informs us that he was one of a party of five who made the same trip in a twenty-foot sail boat, under the leadership of Mr. James Capehart, of Mt. Pleasant, W. Va., in January, 1881. Mr. Allen also incloses a long account of the trip which was printed in the Forest and Stream, November 10, 1881. This venturesome trip was made nearly two years before the expedition of the Times-Democrat started, and when the route was much more difficult to traverse, owing to the fact that at that time none of the channels had been cleared or marked, and the lately cut canal from Okeechobee to the Caloosahatchie had not been begun.

That these recent improvements of the route must have greatly assisted the later expedition is evident from the fact that a party of twenty-two gentlemen have since crossed the State in a small steamer, traversing the same region, and arriving at Fort Myers, Feb. 15.

SOME one says that there are a great many times when a glue pot in a house is a well spring of joy.