

## INVENTORS AND MANUFACTURERS

It is very noticeable that an inventor when absorbed in the idea of carrying out one of his pet schemes loses sight of everything save the one object in view, of making his machine or invention carry out his idea and accomplish the work for which he has designed it. In this way, he is very apt to become narrow in his views, and has little patience with anyone who does not see just as he does. It is natural after spending several years in the study of one subject for him to think himself well informed on that point. There can be no question but that a careful study of any one subject should give a person great advantages over those who only casually look into it, and on this ground, therefore, an inventor has at least one good argument to support his claims. But a great many good men have spent years of their lives in vain, and a great many inventions have remained imperfect and of no practical use through the existence of this idea.

The average inventor is very apt to encumber his invention with a great many unnecessary and impractical attachments. Very few have the means for placing their inventions on the market, and must, therefore, depend on capitalists to develop their ideas. On carrying an invention to a capitalist with a request to manufacture it, the average inventor is apt to make the mistake of insisting that his invention be manufactured and sold exactly in accordance with his own ideas. The capitalist probably knows nothing of mechanics and does not attempt to criticize the mechanical construction and details of the invention. He wishes to know at what price the invention can be placed on the market, and is usually in a position to form an opinion as to whether it can be made a financial success at the price given. On the other hand, the inventor, after having spent an enormous amount of time and labor on the invention, imagines it to be much more valuable than it really is, and thinks it ought to command a price far beyond that named by the capitalist. There are, in consequence, frequent sharp controversies engendered between the men on such points, which make it very difficult for them to work together and cause a great deal of unnecessary worry and annoyance in carrying on the business.

It is very common to hear an inventor complain that he is not satisfied with the way his invention is handled, and he wishes to get it in different hands. In many cases, he has good ground for making such a complaint, but on the other hand there are very few cases indeed where good sound reasons for making an important improvement will be ignored by a manufacturer. There are a great many companies constantly advertising for articles to manufacture, but as the money risked is theirs, they naturally wish to use their own judgment in regard to the management of the business. Each man has his own ideas and thinks he is entirely right because he sees only his side of the case. In most cases, the inventor is very apt to forget how much the capitalist has at stake in his manufacturing, and knowing very little, if anything, of the difficulties and hard work in connection with the business part of a manufacturing enter-

prise, does not realize the importance of this part of the work. He, therefore, does not attach the value to this department which it deserves.

Another mistake which inventors make is by continually making attempted improvements in their inventions and wishing to constantly change designs of machines already established on the market, and it is very hard for them to understand the reasons given by the capitalist for not making such alterations; they can see the advantages to be obtained by such changes, but cannot understand the objections which are raised by buyers and consumers to continual modifications, and do not, therefore, realize how difficult it is to explain away objections which are thus put forth. The markets of to-day are filled with mechanical devices of all kinds. Points which a few years ago would have been regarded as possessing little significance are now strongly urged both for and against every device placed in the market, and any change, unless it be a very decided improvement, is, to-day, usually looked upon with great disfavor. Most of the arguments advanced, particularly in railway work, are in the line of adopting more uniform devices for all classes of work, and avoiding the confusion and the annoyance caused by the great variety of designs which are at present being used for performing the same class of work. Some inventors now realize this fact, and are taking the greatest possible care to perfect their devices before attempting to place them in the market. This is surely commendable as well as the most practical and satisfactory course to pursue.

There are hundreds of patents existing upon principles which are thoroughly sound and good, but the inventor in working out the principle has done so in a manner so thoroughly impracticable that it would be utterly impossible to manufacture and sell the article with any degree of success whatever. In some of these cases the inventor has spent a great deal of time and money in attempting to put his device on the market, and has not been able to do so, while if he had spent more time in attempting to make the application of his principle in a practical manner he would probably have met with marked success and made money out of his invention instead of losing everything which he put into it. It is not at all uncommon for an inventor when attempting to take out a patent on an invention of actual merit to find that his idea had been patented many years before, and while the same principle was involved it was worked out in so unmechanical and impracticable a manner as to be entirely without merit, this fact making it impossible for him to obtain patents having a wide range. In such cases all that can be done is to take out a patent covering some minor detail and thereby limit what might have been a marked success but for the former inventor, who has not only failed to gain the object for which he was working, but has prevented another from doing so.

Two morals may be drawn from this recital of facts—and which, if heeded, will contribute to the welfare of all concerned, to wit: First, a new device should not be placed on the market until it has been sufficiently tested to demonstrate its

ability to well enough accomplish that for which it was designed to justify its use without necessitating any modifications in minor details; and, second, inventors must learn that their ideas worked into a design and capitalized are no longer their own property.—*The Railway Review.*

## WEALTH OF THE UNITED STATES.

A United States census bulletin just issued states the assessed valuation of property in that country in 1890 as compared with 1880 by states and geographical divisions, together with the estimated true valuation for the whole country at the end of four decades. Following is the statement for the whole country, changed by the addition of a column showing the percentage of increase during each decade:

YEAR.	Assessed valuation.	Increase per cent.
1860 .....	\$12,081,560,005	...
1870 .....	14,178,486,732	17.35
1880 .....	16,902,993,513	19.01
1890 .....	21,651,585,465	15.85
YEAR.	Estim'd true valuation.	Increase per cent.
1860 .....	\$16,159,616,068	...
1870 .....	30,068,518,507	86.26
1880 .....	43,612,000,000	45.01
1890 .....	63,648,000,000	45.85

It should be stated that the true valuation figures for 1890 is submitted as an estimate. The superintendent simply states that if it should be found upon the completion of the inquiry that the same relation exists in 1890 between the assessed and true valuation as existed in 1880, the absolute wealth of the country may be estimated at \$63,648,000,000. The columns of percentages introduced above will enable the reader to form a conjecture as to the likelihood that the relation between the true and the assessed valuation will be found to have been the same in 1890 as it was in 1880.

The reader will observe that while the rate of increase of assessed valuation from 1860 to 1870 was only 17.35 per cent., and from 1870 to 1880 only 19.01 per cent., it suddenly jumped to nearly 46 per cent. from 1880 to 1890, or more than two and a third times the rate for the next previous decade, and nearly three times the rate for the decade ending with 1870. This points to the conclusion that the increase in the rate of gain for the last decade was due rather to a closer approach of the assessed to the true valuation than to increase in wealth. If the conclusion is correct, the conjectural estimate of true valuation in 1890 is much too high. Still, as this conjectural estimate shows a rate of increase in true value not much greater than for the decade before, it may be as correct as the estimate for 1890 was.

A point which cannot fail to arrest the attention is that the rate of increase in true valuation from 1860 to 1870 was 86.26 per cent., or nearly double the rate of increase for the following decade, and nearly five times the rate of increase in assessed valuation from 1860 to 1870. Then in the decade ending with 1880 the rate of increase in true valuation was only about two and a third times the rate of increase in assessed valuation, instead of being five times, as in the next preceding decade. There is no discoverable relation between the assessed and estimated true valuations or law of progress in either.