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THE TAX ON MANUFACTURERS.

We have received a circular upon the above subject, signed by a well-known manufacturing firm in Chicago, which sets forth certain grievances experienced by manufacturers under the amended tax law, coupled with a call for a general convention of all concerned, to be held in that city on the 4th inst. We regret not to have received the circular in time to have enabled us to discuss its merits previous to the sitting of the convention, but the subject is one of too general interest not to receive candid criticism. The circular sets forth that while manufacturers do not object to the payment of a fair proportion of such taxation as is necessary for the support of the Government, they are, as a class, singled out as objects for oppressive and unjust taxation; and it instances the tax of three per cent on manufactured articles, in addition to the ad-valorem duty previously imposed upon the raw material. The circular also insists that some honorable member of Congress who helped to pass the law is now of the opinion that it was pushed through without due consideration—the result of sharp practice or hasty legislation. It also sets forth the magnanimity of manufacturers in this, that while the tax of three per cent is imposed upon them, they have not added it to the selling price. Objection is also made in behalf of manufacturers to the exposure of their business by the returns which must necessarily be made under the law of the extent of their manufacturing business and the profits resulting therefrom; and the circular concludes by urging upon the Commissioner of Internal Revenue to either ignore the law altogether, or to suspend its operation until Congress can meet and repeal the obnoxious feature of the bill.

While we cannot coincide with the allegations contained in the document, we commend the calling of a convention to consider the subject, as it will afford some intelligent political economist an opportunity to show to those zealous manufacturers that their views of the law are not correctly formed, and that their opinion, that the Commissioner of Internal Revenue should either ignore the law or suspend its operation, will not bear the light of moral investigation. We do not think any class in the community have been distinguished by those entrusted with the work of preparing the schedule of taxation, or that it is the result of hasty legislation on the subject; but that in view of the fact that manufacturers in general make large profits and find ready sales, they were both able and willing to pay the amounts at which they were rated. Certainly no one can object to that part of the circular which exclaims against bruiting to the corners of the streets, the state of the private business of any firm or individual; such a condition of things as this involves could not be tolerated. It would at once put an end to all business principle and usage; it would sap the very foundations of mutual good feeling, and subvert all established customs. The relations between the assessor and the assessed should be as strictly confidential and as much respected as those observed by physicians toward their patients or by an honorable attorney toward his clients.

We can assure our most timid manufacturers that they need not hesitate to give all necessary particu-

lars about their business for fear of publicity, as the instructions to assessors state specifically that these statements "must not be exhibited to the inspection of any one." Government ought to be very careful about the appointment of inspectors; certainly none but the most honorable and high-minded men are fit to fill these offices of trust and confidence. We cannot tolerate, even for an instant, the proposition that the Commissioner should ignore the passage of the bill. Such a course would be entirely opposed to all moral principle and be productive of no end of evil. The laws are made to be observed, and are to be upheld until they are legally repealed; and individual interest must go to the wall, and not hinder their execution.

The tax on manufacturers is doubtless heavy, and will fall with great inconvenience on many; but we, as publishers, might as well claim exemption from the onerous burthen as the manufacturers. We pay a heavy tax on paper, the price of which has greatly increased since the war, also upon every other article used in our business. We also pay a tax of three per cent upon our advertisements, and the income tax on all over \$600, allowed by law. Now if manufacturers have not charged the three-per-cent to their prices, we honor them for their magnanimity, but we really think few of them have failed to take good care of their interests in this respect. They are entitled to a living profit for their capital, skill and labor; and as a class we are happy to know that they are abundantly prosperous in spite of grievous taxation.

COMPOUND CYLINDER ENGINES.

This variety of the steam engine, now attracting so much attention in England, has received very little notice from our own engineers, and we can recall to mind but one instance at the present time, where the principles involved in it have been successfully adopted; that instance is the *Buck-eye State*, a steamer formerly running on Lake Erie, and, for aught we know to the contrary, still employed there. The engine of this steamer was built from drawings furnished by Erastus W. Smith, the well-known engineer of this city, and embraced the general features, in principle, of those English engines which we have alluded to at the head of our article. The cylinders of the *Buck-eye State's* engine were two in number, and were contained the one within the other; the internal cylinder was 32 inches in diameter, and had 11 feet stroke, the external one was 80 inches in diameter, with of course the same stroke. The internal cylinder was turned outwardly, and the large piston was of annular form, and fitted both cylinders steam tight. The boilers were of the flue-tubular type and carried a pressure of 75 pounds to the square inch above the atmosphere. The consort of this vessel was the steamer *May Flower* (since lost), a vessel every way similar to the *Buck-eye State*, except in the matter of the machinery. The *May Flower* was fitted with an ordinary working-beam engine of 70 inches diameter of cylinder, and 11 feet stroke, working steam at 30 pounds per square inch above the atmosphere. She performed the same service as the *Buck-eye State*, but not so economically. The company's books show a difference of 30 per cent. in favor of the compound cylinder engine, over the ordinary beam engine. This was the net result of one year's trial, and the *Buck-eye State* weathered all sorts of heavy gales, during which the engine was severely tried; we never heard that it failed to perform well. For some reasons that we could never ascertain, no other engine of this particular pattern was constructed; although, in view of the results, such a course would seem politic. Several other engines approaching in principle but differing widely in detail and the mode of operating the valves have been constructed in this country; but they have all been laid aside sooner or later, and the engine of the *Buck-eye State* is the only one built on the plan in question we can recall at present, which continued to do duty for a term of years. The English compound engines, designed to work steam expansively, are of peculiar construction and a certain amount of complexity in the connections and the steam passages seems unavoidable. The lesser cylinder is bolted to the back of the larger one, and the lesser piston rod is keyed to the greater piston, this latter has a trunk secured on it, in the bottom of which

the connecting rod is jointed as usual. The smaller cylinder is surrounded with a steam jacket. If as good results as are claimed for this class of engine are obtainable, why are they not more generally employed?

COTTON GINS AND GINNING.

On page 26, Vol. VII (new series), of the SCIENTIFIC AMERICAN, we gave a description of our visit to the factory of the New York Cotton Gin Company in King street, near the Atlantic Docks, South Brooklyn. We described the operations of ginning Government Sea Island cotton by Brown's "Excelsior Roller Gin." Since that period those gins have been visited by an agent from Egypt, where the Sea Island cotton is now cultivated, and so well pleased was he with their operation that he contracted for twelve on the spot. These were soon completed and forwarded to their destination, and after being fully tested they gave such satisfaction that three different orders have since been received, embracing one hundred and ninety-two gins, the last twenty of which are now being completed. What wonderful changes have taken place among the nations during the lapse of centuries—young America now furnishing improved mechanism to that land which was the cradle of the arts and sciences!

Last week we again visited that cotton ginning establishment; having been informed that two of Brown's "Double Cylinder Gins" for short staple or upland cotton had been set in operation there, and that they were the first that had been employed north of Mason & Dixon's Line. These are saw gins, and entirely different from the roller gin for Sea Island cotton. The common cotton gin used for cleaning the short staple consists of a single long spindle on which are secured a series of thin circular saws; and in front of these is the feed-box with a "breast-fall," in which are secured a series of thin metal ribs, and behind the saws is a revolving brush. The saws revolve and play for a short distance between the spaces of the ribs, and thus they catch the fibers of the unclean cotton placed in the feed-box, and draw them through the spaces, which are too narrow to permit the seeds to pass through. In this manner the fibers are stripped from the seeds, and the latter fall down below the "breast-fall," while the clean cotton is carried behind the cylinder, removed from the saws by the revolving brush, and thrown back into the room behind. Instead of using one long saw cylinder, which requires a very extended space in front, two cylinders are employed on this improved gin, and thus the same number of saws are enclosed in one half of the horizontal space. The two saw cylinders are set above one another, at about one inch apart, and they revolve in the same direction, therefore the top of the lower one is always moving contrary to the bottom of the upper one. This arrangement prevents clogging of the cotton in the box, so that the fiber is not so liable to be cut as in the single roller gin. One of the gins in operation has fifty saws—twenty-five on each cylinder, and the other has twice that number. The small one has cleaned 2,400 lbs. of cotton in one day; the larger 5,000 lbs., and the separation of the seed and mots appears to be effected in a superior manner. The saws are nine inches in diameter each, and the small gin occupies but few feet in space, and can be attended easily by a boy. Mr. Israel F. Brown, of Columbus, Georgia, is the inventor of the double cylinder gin, and for more than a quarter of a century has been engaged in the manufacture of cotton-cleaning machinery. On account of our national troubles he was forced to come to the North; and Mr. Franklin H. Lummus, of No. 82 John street, this city, who is the general agent of the company, has introduced these machines, thus applied them, and a factory for their construction has been established at New London, Conn. A very great quantity of unclean cotton has arrived at New York during the past year, and the ginning of it here has been conducted upon an improved and extensive scale. We saw these two double cylinder gins operating upon upland cotton grown from Sea Island seed in Venezuela, and it was cleaned in a very superior manner.

A report had lately been made to the Bombay Government by Major Forbes, superintendent of the cotton gin factory in the Dharwar Collectorate, in which he complained of the foreign cotton gins—single