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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 particulars 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 uncleaned 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

cylinders—which had been tried in India, and he asserted that none of them equalled the native "churka." The cotton gins required for the East Indies are the small (hand) sort, and with the churka or native gin, one man can only clean 20 lbs. in twelve hours. It appears to us that this new double cylinder gin is well adapted for all kinds of short staple cotton; and from the advertisement of the company on another page, we learn that they manufacture hand as well as power gins. With a small double cylinder gin, one man will clean 200 lbs. of cotton in the same space of time that he will clean twenty pounds with a churka. We think that if the agents of the East India company were to witness these improved American gins in operation, they would meet with the same favor from them that the "Excelsior Sea Island Cotton Gin" received in Egypt. Small gins of this character are also well adapted for the use of those farmers who have begun to cultivate short staple cotton in Southern Illinois, Indiana, and Kansas.

## THE ANNUAL EXHIBITION OF THE ACADEMY OF DESIGN.

The National Academy of Design opens this year with a full and fine display of pictures, and the names of those artists who have become celebrated at home and abroad are well represented by their works. McEntee, Casilear, Cropsey, Hart, Durand, Beard, Bierstadt, and many other famous artists contribute of their genius and people the long green room with patches out of the cool heart of the forest, with scenes by the way, with groups of still life, and all the busy or silent transactions of the world of nature and of art. There are doubtless technicalities to carp and sneer at, and flaws which might be picked and pointed out by those profound critics who *do* the columns on art in the daily papers; but as for us, though we lose forever the opportunity of passing judgment on an art we are not at all familiar with—though we pass over the learned stock-in-trade of gibberish about shadows, and middle ground, and fore ground, of depth, distance, treatment, gray skies, cool tones, and a multitude of other swash-buckler phrases employed by critics to conceal their ignorance—though we omit them, we did not enjoy any the less the real effect of the artists' skill. A great improvement is manifest in the character of the exhibition over that of former years; not indeed because the critics have been so profuse in their adjectives, but by reason of the inevitable refinement and cultivation which attends and hedges about a true artist. Though groping blindly at first, and seeing nature as through a glass darkly, yet he comes sooner or later to know her face to face, and the result of such communion is that nature, dwelling in the heart of the painter, sits upon his canvas and beams upon the eyes of the visitor at the gallery like a leaf out of the early memories of his youth. There are a myriad of summer days embalmed in that narrow green room, and there are cool green lanes that wind in and out; and groves of trees; so vivid and distinct do these stand out that one listens with uplifted ear, half expecting to hear the susurrus and murmur of the soughing pines, or the shivering of the maples that bend to the soft south wind. There are battle scenes too, wherein the terrors of the war are reproduced. A cavalry charge in Virginia, in which the brave young Lieut. Hidden lost his life; above the cut-and-thrust of the scene depicted so faithfully on the canvas, the hero of the fight, Lieut. Hidden, looks down from another frame, and one can scarcely believe that his slight form could have performed such a feat as it did, dispersing two companies of rebel infantry with a squad of fifteen men. Those who delight in spending a quiet hour would do well to avail themselves of the attractions of the gallery.

BURNING OF AN OIL TRAIN.—The Philadelphia *Ledger* states that recently a train of truck cars on the Pennsylvania road, laden with petroleum, was ignited by a spark from the locomotive, somewhere near Kittanning Point, Pa., on the mountains. In a few minutes four of the cars were in flames. The rest of the train was cut loose and saved. The heat of the fire was so intense and consuming that the cross-ties of the track on which the cars stood, and also the track adjoining, were burned through, and the rail so warped as to render it difficult for trains to pass. The axles of the cars were melted down until they almost touched the road bed, and the wheels were bent inward.

## RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list:—

*Press for forming Dies.*—This invention consists in the arrangement of two hinged levers acting on a vertically sliding plunger, and acted upon by adjustable slides guided by grooves in the inner side of the frame of the press in combination with two arms projecting from the main or upper follower and acting on the adjustable slide, and with an adjustable press box in such a manner that the metal or alloy in the press box can be subjected simultaneously to a pressure from top and bottom, while, at the same time, the press box prevents the metal spreading, and consequently produces a clear and distinct impression or a die of the desired shape and size; it consists further in the employment of a press acting simultaneously from top and bottom for the purpose of forming dies by pressing the matrix or pattern on a red-hot body consisting of an alloy of tin and copper; it consists further in making the sides of the press box, removable and adjustable, so that the same can be set to suit dies of various sizes and shapes. Max H. Stein, of New York city, is the inventor of this improvement.

*Fire-arm Primer.*—This invention relates to primers the magazine of which, containing the percussion caps or pellets, is in the head of the hammer and the delivery of the caps or pellets from which is effected by a feeding slide actuated by the descent of the hammer. It consists, first, in a certain mode of applying the spring by which the feeding slide is drawn back as the hammer is raised, whereby the construction of the primer is simplified; and, second, in the application of a spring stop in connection with the lever which works the feeding slide, whereby the primer, while its magazine is full or partly full of caps or pellets, may be rendered inoperative, and the hammer be made to operate as an ordinary hammer upon caps applied to the nipple in the usual way, thereby enabling the caps or pellets in the magazine to be held in reserve. A. F. Tait, of Morrisania, N. Y., is the inventor of this primer.

*Desiccating Apparatus.*—The object of this invention is to effect the desiccation of fruits, vegetables, meats, fish and other substances at so low a temperature as not to impair their flavor or nutritious properties; and to this end it consists in the employment, in such desiccating process, of a pan or vessel of suitable depth to contain such substances, arranged within or over a vessel containing water and heated by the vapor rising from or through said water at a temperature not above the boiling point; the said water being heated by steam or by the direct application of fire to its containing vessel, and the latter vessel being open to the atmosphere. It also consists in the employment, in combination with such desiccating vessel, of rollers for crushing and spreading out, and rakes, scrapers or stirrers for stirring up the substances to be desiccated; such rollers, rakes, scrapers or stirrers being attached to and driven by a rotating shaft arranged in the center of the vessel. W. K. Lewis, No. 93 Broad street, Boston, Mass., is the inventor of this improvement.

*Improvement in Pianofortes.*—This invention consists in an improved construction of what is termed in pianofortes the full metallic plate, whereby the bringing any of the string bearings on any such plate is avoided; thus bringing the connections of the strings with the tuning pins on wooden bearings, and so close to the wrest plank as to prevent the leverage and great strain on the pins, which is unavoidable when the strings pass over the plate, as has commonly been the case when the plate has been used. By these means the only objection heretofore existing to the use of such plate is obviated, which is so advantageous in all other respects. David Decker, of the firm of Decker Brothers, No. 91 Bleecker street, New York city, is the inventor of this improvement.

*Letter Envelope.*—The object of this invention is to produce a letter sheet which can be conveniently folded up and sealed the same as an ordinary envelope, and which can be cut out with little waste of paper, and its whole surface, or nearly so, can be made available for writing. It consists, first, in extending the side flaps over the whole width of the sheet, and overlapping the same with or without gum, in such a manner that said side flaps, before folding, form an essential part of the letter sheet to be written upon the same as the central portion of the sheet, and that the contents of the letter when the same is folded, cannot be read by pressing the edges of the letter and peeping in sideways; second, in the arrangement of marks or notches at the ends of the side flaps and opposite to the head flap, in such a manner that, in folding over the side flaps, two points are provided to serve as guides in creasing, one point being the junction of the head and side flap, and the other the notch or mark opposite to that junction, and thereby the operation of folding the letter is rendered easy. William Murphy, of 438 Canal street, New York city, is the inventor of this improvement.

*Device for moving Goods and Merchandise.*—This invention consists in the employment of two endless chains having crossbars attached to them and fitted over rollers or pulleys which are secured to a plank or skid, the latter having guards attached to its sides and ways to either or both of its surfaces, all being so arranged that the freight or merchandise may be moved with the greatest facility for loading and unloading vessels, and for similar or analogous purposes. Robert Bragg, of San Francisco, Cal., is the inventor of this apparatus.

*Railway Car for carrying Petroleum.*—This invention consists in the construction of the body of a railway car of corrugated or other sheet iron in the form of a cylinder, whereby it is made of the greatest strength with the least practicable weight of material, and is rendered especially applicable to the transportation of petroleum and other liquid substances; it also consists in the combination with such car body, of a system of pipes running under the whole or any portion of the length of the bottom of the car, near the sides thereof, and furnished with a series of cocks and flexible branch pipes for drawing off the liquid contents of the car into several barrels or other vessels at once. And it further consists in the protection of the said cocks by means of boxes so constructed and arranged as to allow the flexible branches to be stowed away within them and furnished with suitable doors through which the cocks may be reached to open and close them, and through which the flexible branch pipes may be drawn out for filling the barrels or other vessels. S. J. Seely, of Brooklyn, N. Y., is the inventor of this improvement.

OIL A PRESERVATIVE AGAINST THE PLAGUE.—It is a singular but undoubted fact that as often as that fearful and contagious malady, the plague, has broken out and decimated the population of Smyrna, Constantinople, Candia and other parts of the Levant, there is not a single case on record of any one of the numerous kamalides or porters employed in the loading, unloading or transportation of oil ever having been attacked by, much less succumbed to, that dreadful scourge of the human species in the East. Indeed, so well is this known by the men themselves, that they fearlessly offer their services to carry the sick to the hospitals, bury the dead and attend on the sufferers.

THE DIGNITY OF LABOR.—The Connecticut House of Representatives is composed of 109 farmers, 15 merchants, 14 manufacturers, 13 lawyers, 9 mechanics, 3 clergymen, 3 physicians; teachers, editors, lumber-dealers, clerks, tobacconists, hotel-keepers, 2 each; ship-masters, printers, mariners, surveyors, glass-blowers, 1 each.

[The reader will notice that farmers come first, and bringing up the tail end of the list are *editors*, glass-blowers and lumber-dealers in very close proximity. It is an old saying that misery makes strange bed-fellows.—EDS.

BY the latest statistics of Australia, we learn that there are only 2,500 Americans in those British Colonies. Five years ago there were about 10,000: but most of them have returned to California.