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AMERICAN INDUSTRIES.—No. 4.

BY HAMILTON S. WICKS.

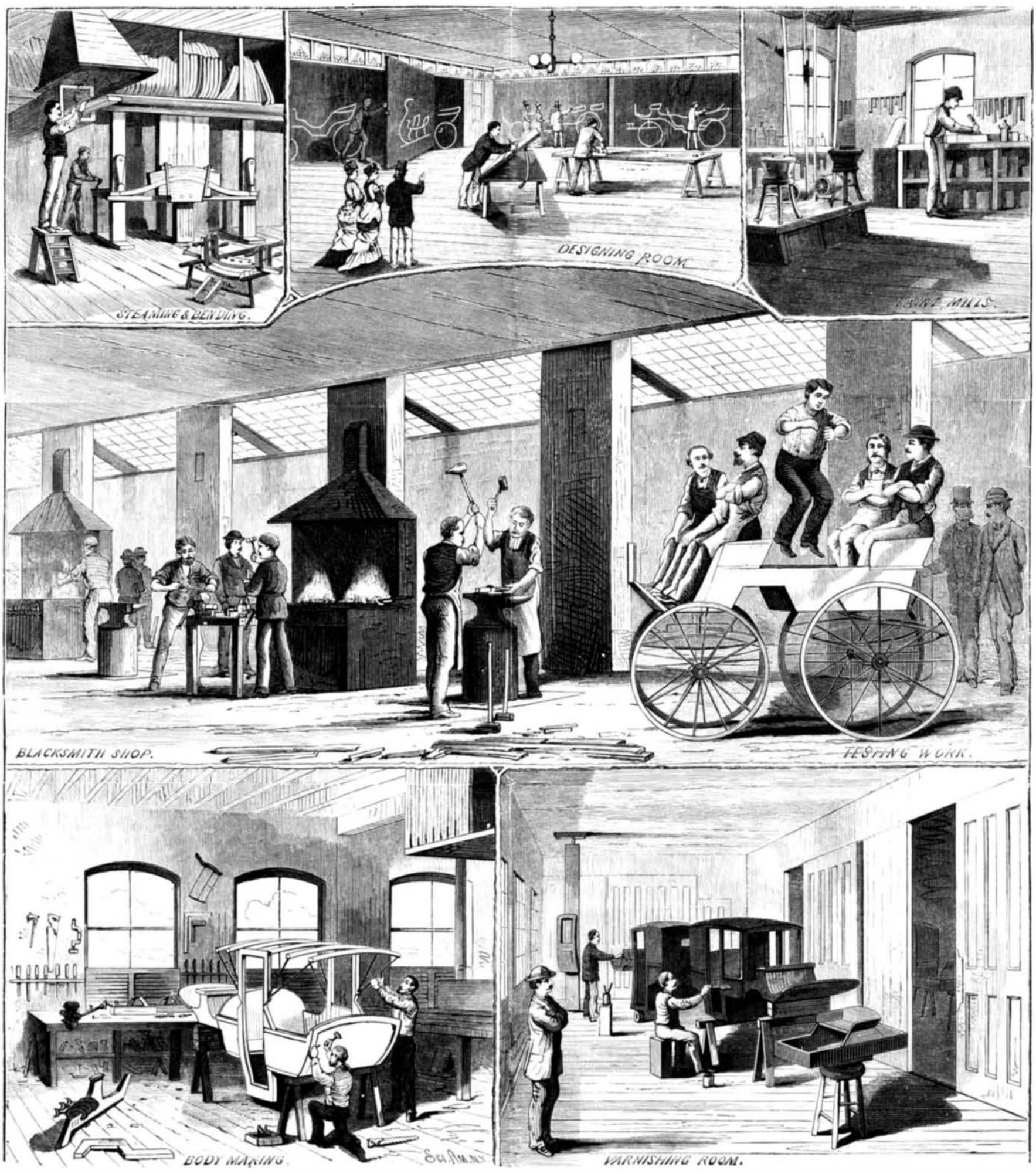
THE MANUFACTURE OF PLEASURE CARRIAGES.

The business of carriage making is essentially a modern industry. The present century was well advanced before the number of people able to afford the luxury of a pleasure carriage became large enough to warrant the devotion of an entire establishment, much less a large establishment, to the production of these emblems and accompaniments of wealth and fashion. The unprecedented prosperity of the civilized world, particularly its American portion, during the past fifty years, however, has so rapidly multiplied the owners and users of carriages, that the business of meeting their wants has developed into an industry which ranks among the first in scope and magnitude.

Like many other industries carriage making in America has had a markedly characteristic development. An American-made carriage is recognizable as such wherever it may be found; and the features which distinguish it are those which give evidence of the highest taste and skill in construction.

The special features of American pleasure carriages, in comparison with those of Europe, are found in their fine lines, extreme lightness, and beauty of finish—peculiarities which, however paradoxical it seems to those whose judgment has been formed on foreign standards, are entirely consistent with superior strength and durability.

Several causes have united to determine this result. In the first place, American woods and irons have excelled the corresponding materials used abroad in strength, toughness, and other qualities requisite to give great endurance with little weight. As a natural consequence of working with such materials American artisans have learned to admire



BREWSTER & CO.'S CARRIAGE MANUFACTORY.

forms that combine delicacy with strength, and to abhor the loading of any structure with material that, performing no useful function, merely adds dead weight, an ultimate source of weakness. The bulkiness which the foreign artisan calls solidity, is to the American an eyesore, especially in machines or other structures which have to be moved, every pound of unneeded "solidity" merely adding to the cost of motive power. And it is not only in the choice of materials—the habit of selecting for each part of a complicated structure the material which will best do the required work—that American workmanship shows itself; but also in skillfully making the most of the materials which nature furnishes. The English wheelwright, for example, wishing a stick of peculiar shape in constructing a carriage, cuts the piece out of a block, and makes it heavy enough for the service required, letting bulk atone for the loss of tenacity incident to cutting across the grain. The American invents a method of steaming and bending a straight-grained stick to the shape desired.

The influence of conditions like these is radical; and American carriage building has, therefore, followed its own lines of development, not only in perfecting styles originating abroad, but in creating other styles specially adapted to the varying requirements of different parts of the country, and the preferences of individual minds untrammeled by fashion or undue deference to established forms and usages. As one of the foremost leaders in the development of this important industry the house of Brewster & Co., of Broome street, may fairly be selected as a representative in this series of illustrations of American industry. For sixty years, Brewster wagons and pleasure carriages have enjoyed an enviable reputation for superior merit; and the influence of this house in furthering the progress of American carriage industry in the directions of artistic taste in construction, mechanical perfection, honest material, and sterling workmanship, has been second to none. The exhibit of this firm at Paris, last summer, was conspicuous for its scope and excellence; and their award of gold medals in competition with the leading carriage makers of Europe is evidence that their high reputation at home and abroad is not undeserved.

The factory and warerooms of Brewster & Co., formerly on Broome street, are now situated on Broadway, extending from 47th to 48th street In this building, a five story structure, 200 by 175 feet, is built every description of pleasure carriages, from the massive four horse drag introduced by Colonel Kane for fashionable coaching, to racing sulkies weighing no more than forty-three pounds. The Brewster wagon is a noted specialty. The firm make also a double suspension carriage hung on eight springs with thorough braces, and a new dog cart, the body of which can be shifted backward or forward without alighting.

To obtain a comprehensive idea of this establishment, one must take the elevator and ascend to the top of the building; thence in gradual descent visit each department, beginning with the body making, continuing with the painting of the bodies and running gear, and ending with the finishing department on the second floor, where the parts of the vehicle are put together and given the finishing touches. Each of these several departments is in charge of a master mechanic, who is permitted a share in the profits of the concern, and held to a strict accountability for the quality of the work under his charge. At the top of our illustration (front page) is given a view of a portion of the designing room, the real birth place of the carriage.

In an establishment like this, largely devoted to the production of carriages to order, stereotyped forms and styles will not always answer. New designs have to be invented to meet the demands of varying individual taste and new requirements arising from local condition and novel uses. These new forms are invented and elaborated in the designing room, where they are finally drawn full size on the blackboard. From the perfected and accepted designs working drawings are made, and the several parts are allotted for construction to skilled mechanics in each department.

At the upper left corner of the illustration is shown a powerful bending machine, in which those portions of the framework requiring curvature are brought to shape. Hickory, ash, elm, oak, and whitewood are used, according to the service the part is to undergo; and the machine gives the desired shape without breaking the grain.

At the lower corner the body of a leather-topped landau is shown in process of construction. When complete, the woodwork of the body is transferred to the blacksmith shop in the basement to be hung and ironed. Here the clang of thirty forges noisily testifies to the industrious activity of the entire establishment.

After ironing, the body is submitted to the inspection of the superintendent, and then taken to an upper floor for painting—an important part of the work, but one calling for no special description here. The testing of the finished carriage is the only scene that breaks the general gravity of the entire process. The first occupants of my lady's carriage are not fashionably dressed, nor are their movements entirely graceful, but the test is a necessary one, and the workmen are solid and nearest at hand for the purpose.

It must not be forgotten that, while they have been leaders in the development and perfecting of the art of carriage making, Brewster & Co., of Broome street, have always been quick to adopt improvements made by their own workmen or by outside inventors. One of the more recent of the improvements introduced by the firm is the patent rubber cushioned axle, which reduces jolting, and largely increases the safety and durability of the carriage.

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KEEP TO THE POINT.

In very much of the talk in Congress and out of it about the proposed amendment of the patent law, there is a tendency on one side to neglect, on the other to adroitly conceal, one vital feature of the entire patent system, namely, that a patent is not a grant of privilege, but a contract on the part of the government to secure to the inventor for a prescribed period a right which exists by virtue of the inventor's creative act.

The sole object of the patent system, as announced in the Constitution, is to promote the progress of science and the useful arts; the only method by which this end is to be gained is by *securing*, for limited times, to authors and inventors the *exclusive* right to their respective writings and discoveries. The right is recognized as inherent: Congress is to secure that right for a term of years, on condition of its free surrender at the close of the term. To this test every clause in the proposed amendment should be brought before any time is wasted on the discussion of its general capacity for good or evil. Will it aid in promoting the progress of science and the useful arts? and will it aid in securing to the inventor the exclusive control of his invention?

The experience of this country has been that the surest way to promote progress in the arts is through the encouragement of invention; and that inventions are best encouraged by securing to the inventor his right to his own, at the least expense in time and trouble and money. As Commissioner Hoyt has expressed it: "From the very foundation of this government, it has been its settled policy to secure a just reward to all inventors; and it is to the inflexible maintenance of this policy that we are indebted for the unparalleled advancement which, as a people, we have made in the useful arts. All that is glorious in our past or hopeful in our future is indissolubly linked with that cause of human progress of which the inventors are the *preux chevaliers*."

That the policy of the nation has been wiser as well as juster than many people (even among the agents of government in Congress, in the courts, and in the Patent Office) have always approved, is only too true. Witness the grievous injustice that has been done to some of the noblest and most beneficent of our inventors in the markets and in the courts; witness the grievous injustice to all inventors threatened in the proposed changes in the law now before Congress; but the constitutional principle remains. Congress has power only to make the inventor's exclusive right *secure*. Congress has no right under the Constitution to impose needless burdens upon the patentees, or to interfere with the patentee's unrestricted right to the use and profit of his invention after he has surrendered his specification.

That the proposed amendment of the law undertakes in various ways to accomplish both these unjust and impolitic ends has been shown repeatedly in these columns, particularly with reference to sections two and eleven. Indeed the hand of the infringer is so plainly visible in these, and to a less degree in section one and some of the other sections, that the bill should be overwhelmingly defeated unless these features are stricken out. The single fact that the parties chiefly interested in its passage are not inventors, but those who wish to profit by the inventions of others without being called to account therefor, should arouse inventors, and the public so greatly benefited by their labors, to the necessity of bringing public opinion on this important matter to bear forcibly and promptly upon their representatives in Congress. The American patent system is intended to benefit the public, as a whole, through the protection of inventors. The obnoxious features of the proposed amendment are intended to benefit a few, through the protection of infringers, through the limitations of inventors' rights, through the summary confiscations of the inventions of poor men. The choice between the system as it is and as the change would make it, would seem to be an easy one to make by all clear headed and honest men.

THE ESTABLISHMENT OF PUBLIC TOWN LIBRARIES.

At the late Conference of British Librarians in London, the last resolution adopted was, that "the Council be recommended to take all opportunities of influencing public opinion in favor of the Public Libraries Act." The power given by this law of 1851 to towns, annually to raise money by local tax to maintain free libraries, has been very acceptable to the people; and it is an evidence of it that, at the end of twenty-five years, every large town in Lancashire has established one. At the last conference of American librarians also, the same spirit was manifested. A committee was appointed to devise measures for the increase of town libraries, and to report a suitable form of law in respect to them adapted for enactment by those States which have not yet had any law upon the subject. By such action librarians show that they are not discharging their daily duties as mere perfunctory officials, but that they possess at least as much of the emotion of warm benevolence for the common weal as characterizes any other class of public servants. Indeed in the mention which was made in the American conference of the importance of the multiplication of town libraries, the duty of aiding in forming them was frequently alluded to by the speakers as having the dignity of a missionary enterprise. The advancement of this great work cannot justly or successfully be left to depend upon librarians: there are no supernumeraries among them. It must be set in motion by the citizens of individual towns. And we know of no class of persons in the community who can be more efficient in giving an impulse to such a movement in the towns where they live for the establishment of a public library than the