IDLERS AS INVENTORS.

It is popularly supposed that, in order to invent a machine for any particular purpose, one must be an expert in the particular business for which the machine is designed. To a certain extent this belief is correct, but it somehow happens that many of the most valuable inventions have been brought out by persons who had no practical experience whatever in the use of the machinery appertaining to the business for which their inventions are designed. It is not denied that many of our most valuable inventions are the works of mechanics and operatives of machinery; but it is asserted that a great many valuable inventions have been brought out by men who had no practical experience either as mechanics or operatives in the line of their inventions. It frequently happens that persons who have no special knowledge of machinery, when looking at the performance of some engine or other machine, discover a chance for improvement and drop suddenly into the highway to fortune.

The writer has just had an interview with a young man recently graduated at a medical college. His mind is not on pills or amputations; but he fancies he can see opportunities for improvements all around him, and he is now developing several important railway inventions, a sheet music turner, and several other devices not in any manner connected with his chosen profession. One would suppose that his inventive genius would turn to surgical and dental instruments, artificial limbs, etc.; but he, like thousands of others, leaves his chosen path, seemingly led astray by some invisible power over which he has no control. A man with no calling or profession is usually styled a "loafer;" yet many valuable inventions have been produced by such men.

One of the greatest inventions the world has ever seen was whittled out by an idler in a few minutes. He caught the idea by seeing a man trying to get an implement repaired. He saw the affair was imperfect, improved it, and revolutionized the world in its most important industry. He was no longer called a loafer, and although long deceased, he is now, and will be as long as the world exists, regarded as one of the greatest inventors ever known. It is by no means meant that all inventors are men of no steady occupation; but it is an undeniable fact that many of our most valuable inventions are from the brains of men who were considered as idlers and of no account.

This is not mentioned here to cast any reflections on inventors as a class; for it is well understood that we are wholly indebted to them for the wonderful progress the world has made and is making, but to encourage that class who have no faith or confidence in their inventive abilities and therefore make no efforts. In many communities the man who gives his time to perfecting some device is styled a "lazy good-for-nothing;" but when he finds himself successful his old acquaintances are pleased to know him. It will be seen that our inventors range from millionaires down to loafers, or rather *vice versa*. Perhaps the term "loafer" is hardly appropriate; but as there are so many of them who ultimately take their places in the ranks of the industrious and wealthy, some allowance may be made for the seeming slur on a very worthy class of people.

The mechanic who has to win bread for himself and family has hardly time to devote to inventing; but the idle man who has nothing to do, if he keeps his eyes open, carries off the prize in many instances. But there are many who have an idea that they cannot invent because they are not possessed of means to develop their ideas. They look ahead to those who have been successful and say, "They have been lucky, and have means to handle their inventions, while I am without a dollar and can do nothing." Most of our successful inventors have been those who had no means in the shape of cash, but they had its substitute—*pluck*. There are hundreds of men who might pick up some valuable ideas and work them into shape if they were possessed of the requisite pluck. It will not do to sit down and say, "I wish I could invent something." Our successful inventors were not of this stamp, and this is written to encourage all who have a taste for invention to reach for a successful development of their ideas and put them in practical shape. To conclude: Our inventors are men of pluck, and may be regarded as our best citizens, even if they were once idlers.

CAR COUPLINGS IN ENGLAND.—A CHANCE FOR AMERICAN INVENTORS.

The Amalgamated Society of Railway Servants of England, Scotland, Ireland, and Wales, will hold an exhibition of working models of improved railcar couplings, at Darlington, Eng., from the 3d to the 7th of October next.

American inventors are invited to send models, securely packed, to F. W. Evans, Exhibition of Railway Appliances, Mechanics' Institute, Darlington, England, under whose direction they will be packed for return after the exhibition is over. All exhibits must be received on or before September 30. The Board of Trade will grant a certificate protecting the patent rights of inventions exhibited, and promise to direct the attention of railway inspecting officers to the exhibition, as they have every wish to encourage the examination and consideration of such appliances.

It is reported that out of an estimated total of from twelve to fourteen thousand train men on British roads, 206 were killed outright and 1,614 injured, during the five years ending with 1880; a large proportion of these accidents being due, in the opinion of the Amalgamated Society, to the present mode of coupling cars.

During the period mentioned there were about 17,000 miles of railway open for traffic in the United Kingdom (16,658 miles at the end of 1875, and 17,696 at the close of 1879). The number of passengers carried, not counting season ticket holders, was 507,532,187 in 1875, and 562,732,890 in 1879. The freight receipts were about $300,000,000 a year.

For this amount of traffic, the average of forty train men killed and four hundred hurt during each year, seems very small in comparison with like casualties on American roads.

At the earlier date specified, the United States had about 75,000 miles of railway in operation, and now have 100,000. Our railway mileage was thus, during the period covered, about five times that of the United Kingdom, though the traffic was not proportionally large, the population of this country being much less dense.

The casualties among train men in the United States, if the business were conducted as carefully as in Great Britain, should not exceed two hundred killed and two thousand hurt in the course of a year. Competent railway officers give the actual losses as from 1,200 to 1,500 killed and from 5,000 to 10,000 injured every year.

The disproportion is tremendous. Is it due to the greater carelessness of American train men, to the use of less suitable coupling appliances, or to a different mode of making up and handling trains?

It is hardly credible that the train men of American roads can be five or six times less careful of their lives and limbs than the men employed on English roads and in English car yards.

It is probable that there will be found a greater variety of cars and far less uniformity in coupling appliances, in the average American train—especially freight trains—than in English trains, owing to the vastly larger number of connecting lines here, and the general intermingling of cars from many roads. All these differences increase the hazard in making up and handling trains; still it may be questioned if they are great enough to account for the excessive loss of life and limb experienced here.

It is pretty certain that if, in the proposed competition, it should appear that the couplings in general use here are less safe and efficient than those the English use, or that devices existing, but not adopted, are calculated to lessen the number of casualties, the public attention that will be drawn to the matter must hasten the adoption of the better methods and appliances. In this way the exhibition is calculated to do much good.

Inventors who are curious to compare their ideas or inventions with the couplers used or proposed in England will be interested in a critical paper by T. Atwood Brockelbank, of England, on "Improvements in Railway Couplings as a Necessity of the Day," printed in No. 21 of the SCIENTIFIC AMERICAN SUPPLEMENT. It is copiously illustrated, and presents clearly and forcibly the conditions of the coupling problem as developed on British railways.

Singapore as a Market for American Edge Tools.

In a recent report to the State Department, Consul Studer, at Singapore, gives the following information with regard to the edge tools used in that region and the possibilities of American trade there:

"The sale of edge tools, notwithstanding the fact that Singapore is in the center of one of the heaviest timbered regions in the world, is almost null and void; this, in a great measure, is owing to the absence of an able and practical American agency for the introduction and sale of the same. Another good reason is, that the mechanics here using edge tools are very nearly all Chinamen, who bring their tools with them from China, or buy them here from their own countrymen. The Chinese are used to these tools, and they are always of excellent temper, answering well among the hardest known woods here. It may be known to some, but not generally, in our country that the Eastern races understand how to harden or temper steel for edge tools and weapons in a manner superior to any other peoples or races. I have myself seen the edges of 'perangs' (the 'macheta' of the Malays) and 'klewangs' (the largest battle-sword of the Malays) tried, by cutting copper coins in two, without showing marks on the edges (this often), and once a wrought nail with a like result. It would be almost impossible to induce Chinese merchants to adopt our edge tools. Such among them, carpenters, as have been in the United States, or served on American or European vessels, might perhaps form an exception to this rule; but their number, comparatively, is rather limited. The shipping being very large here, especially steamers, the ships' carpenters are the best customers of 'civilized edge tools,' and buy them in the ship chandleries, and these are nearly all of English manufacture; but such a thing as a 'tool chest' after American pattern is not to be had. Our manufacturers of edge tools, or their agents, must take the matter in hand if they want to sell their products here successfully. The Malays living in the jungle, and who clear the same upon contract for planters, cannot be induced to lay aside their weird and strange looking light axes for American axes.

"This has been tried repeatedly by the tobacco-planters in Sumatra. Their axes resemble a narrow shaped hatchet (such as the planters use in the United States), only that they are longer and a little wider, and that the eye for the helve, round in shape, is in the hammer part, or upper end of the ax. Their helves are much longer than ours, of elastic wood, and only as thick as an average broom handle. The helve is so fastened to the ax, with rattan thongs, as to prevent it from slipping or turning in the eye. Very nearly all species of wood in this region are hard, and some exceedingly hard, and it is wonderful to see with what dexterity they handle their chisel-like axes—how they make the chips fly, and in what a short time they make a tree fall. They make contracts for cutting down jungle at very low figures, but that contract does not include the burning of what they cut down.

"The planting coolies must do the latter part, which, in order to produce a good ready burning, requires much ax work. Not so many years ago the coolies used for this work the Malayan ax ('bilian,' in Malay); but gradually the planters managed to induce them to use American axes, though without the American-shaped helve, they preferring straight helves. This change in axes required much persuasion, but after a few had tried our ax, and found what effective work they could do with it, the rest of the coolies on all the neighboring plantations soon followed, and now they could not be induced to exchange them for others. I am alluding to the tobacco-planting districts of Deli, Langkat, and Sirdang, all lying close together, for which Penang, in this colony, has ever been the place of import for all things needed from abroad, as well as the place of shipment of their tobacco to Europe. The port of Penang, and not Singapore, has become the place of import for American axes; and, if there was an immediate demand for the same here, firms who have their agents or branches in Penang would get them from there. Other countries, I have been told, have endeavored to compete with our manufacturers in this article, but they cannot. Those Chinese coolies know the shape, quality, and trade marks of the axes they have been using, and (it has been tried) they will not, as the planter-employer makes them pay for them, buy any of different shape or trade mark.

"There are various patterns of Malay axes throughout the Indo-Malayan Archipelago, and a collection of them would be very interesting and instructive, bnt it would require both time and money to make it. I mention this for the information of manufacturers of edge tools, knowing that they are anxious to get new patterns.

"With such a collection should also be sent a few kinds of '*perangs*,' or underbrush choppers, which in shape resemble our American corn-cutter, and are from 18 to 22 inches in length, forming a slight outward curve from the handle to about five-eighths of the length (I mean edge outward). The blade in the middle is about 1¼ inches in breadth, tapering off slightly to the end, where the breadth is about 1 inch; others, again, have the same breadth for three-fourths the length from the end. The thickness of the blade, lengthwise, is greater in the middle than at the back, forming what is called check the whole length, the center third of the blade protruding, generally, a little more than the other thirds. There is a wooden or horn handle to it, well shaped for the hand to make the grasp easy and firm, and a downward curve or hook at the end to prevent it slipping out of the hand. The Malays use this '*perang*' for all ordinary jungle cutting, excepting trees of over 10 inches diameter; and great is their dexterity in the use of the same. It is also their favorite weapon in combat with the ferocious beasts of the jungle. In fact, a great number of land Malays, called 'Rayols' (distinct from the 'Orang laut,' who follow the sea, or are fishermen), have absolutely no other weapons than the '*bilian*' (ax), the '*perang*,' and the '*kris*' (dagger), which latter they carry in their girdles, and occasionally spears of hard wood (of the '*Nebeng*' *palm*), with or without iron points, and variously shaped knives of native make. There has been more activity displayed by Europeans in various provinces on the peninsula under British rule, during the past two years, toward selecting, securing, and clearing, as well as planting land, and this may be the means of creating a greater demand for edge tools, axes especially, as well as saws of various kinds."

Overhead Fire Escapes.

A Tasmanian correspondent suggests as a fire escape a passway of iron along and above the roofs of houses; passing through the more lofty buildings if need be, or diverging to the right or left, so as to bridge over and connect all the houses of a block, thus securing an easy and safe passage from any house to those adjacent, as well for the convenience of firemen as for the escape of those who are beset by fire. The construction of these iron passes, he says, could be fairly compulsory to owners, and they need be by no means of an unsightly appearance. When wished, they could be elegantly constructed to conform to the general architecture of the building by or through which it passes, and this would hold good with regard to the means by which each house was connected with this proposed passway. He is aware that there are disadvantages which at once crop up—apparent danger from burglars, and so on—but there is no good without its modicum of evil, and this weakness of his plans, he thinks, could be overcome and guarded against.

Elevated Railroad in Cleveland.

The first passenger train over the New York, Chicago, and St. Louis Railroad, from Chicago eastward bound, passed through Cleveland, Ohio, August 30. The heart of the city is traversed by a system of bridges and viaducts, that carry the tracks above the streets and all other roads for a distance of nearly a mile. The cost of this portion of the road was about $250,000.