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Contents.

(Illustrated articles are marked with an asterisk.)

TABLE OF CONTENTS OF

THE SCIENTIFIC AMERICAN SUPPLEMENT,

No. 478,

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THE COMMISSIONERSHIP OF PATENTS.

The incoming of the new administration involves the appointment of a new man as Commissioner of Patents. The duties of this officer are of the highest importance, and great care should be taken in the selection of the individual. The Commissioner makes the rules that govern his subordinates in the transaction of all Patent Office work; he determines whether old and slow modes shall be followed, or whether promptness and activity shall prevail. Upon him falls almost the entire responsibility of the bureau in all its workings.

Among the best names mentioned in connection with the Commissionership is that of the Hon. R. B. Vance, of Asheville, North Carolina. He is a gentleman of ripe experience and marked ability, possessing many qualities admirably suited to the requirements of the position. He is a man of great integrity, honor, and uprightness, and withal a good business man. He has been a member of the Committee on Patents of the House of Representatives for ten years, and chairman of the same committee for eight years. He is familiar with the working and needs of the Patent Office, and appreciates the necessity for a change by which the present ruinous delays of business shall be swept away. Like the new President-elect, Mr. Vance is a man of untiring industry. He enjoys the esteem and confidence of a large constituency. We believe his appointment as Commissioner of Patents would be hailed with general satisfaction throughout the country.

BUILT-UP MILLS.

Machinists have their notions, and perhaps no other tradesmen are more ready to indulge them. Something has already has been said in these columns about the material and the forging of milling machine tools, but nothing has been said about mills being built up when their sections were of the same diameter. Yet this is the system pursued by a very competent machinist. He makes up his straight mills from thin disks, and arranges them on the arbor so that the teeth zigzag, or alternate. For instance, a straight mill for flat work, to cut two inches wide, instead of being forged in one piece, or cut in one chunk from a bar, is made up of eight or nine disks of one-quarter inch thickness, faced and screwed together on the arbor, and turned and cut as one solid mill. The disks are then taken apart and tempered, and when returned to the arbor they are set so that the teeth break joints. When the mill is to be ground by the emery wheel, the tightening set-up nut is loosened and the teeth of the disks moved into line by a steel straight-edge. They can then be ground across on a continuous line, as though they were cut on a solid block. It is easy enough to disarrange the disks so that their teeth shall alternate, and to set them in this position.

The claim for this divisional mill is that it cuts faster and freer because of the alternation of the disks as regards the teeth; that there is no give or spring to the arbor by the alternate cut and let-up of straight-across teeth; that any section of one-quarter of an inch thickness, or of one-eighth of an inch, can be readily removed when broken; and that by using these thin disks mills may be built up of any required width (length) whenever the exigencies of the work require, without the necessity of making new solid mills. This is an experiment of an old machinist, who believes that it is an improvement on the solid mills, but who makes no claim to a control of the device, and no claim to its originality.

A TRADE AS A REFUGE.

Many years ago the writer was foreman of a machine shop in Boston, Mass., and one day had an application for apprenticeship from a young man who was accompanied by his uncle. The latter carefully explained that his nephew did not expect to be a machinist for a living, as there was ample means for his support outside of the workshop; but he wanted to learn the trade, so as to be independent of circumstances. The propriety of the intention of the young man and his uncle was recognized; but the exaction was made that the apprentice should travel the same road that impecunious and needy young men traveled; there was no royal road or short cut to mechanical success for lads of great expectations. These plain truths—very plainly presented—suited the applicant and his relative, who was at that time a United States Senator, and subsequently became a candidate for a still higher office.

The young man came into the shop, was treated the same as the other apprentices, was instructed as though he was to become a machinist and follow the honorable business for a living. But he disregarded shop hours; he sneered at shop rules; he came and went as he chose; and finally, six years after, he was usher at a second rate theater. He was not cut out for an amateur mechanic.

His experiment as an embryo mechanic illustrates the nonsense frequently talked in public and published in print—that the experimental knowledge of a trade or business is sure defense against possible disaster, and secures the journeyman-apprentice a chance for an income from his trade. The notion is as fallacious as would be that of every graduate from a college claiming the qualifications for a professor.

It is well enough that yong men should learn some means of supporting themselves by their own exertions, but it is folly to imagine that because a boy has soiled his overalls against a lathe and dirtied his hands with oil and filings, he is necessarily a mechanic, and can return to his shop, as to a "city of refuge," when misfortune overtakes him.

No mechanic is worthy the name who does not keep abreast with the improvements in the shops. To do so, he must either work in the shop or be a frequent visitor. It is astonishing to men—practical mechanics—who write for publication to their brother mechanics, to see how the changes and possible improvements in shop methods and shop tools keep apace with their growing years. The sixty year old proprietor of a well known manufactory said, recently, that he was surprised every day when he compared what was being done in his own establishment with what he knew how to do thirty-five years ago; and this man is one of the liveliest mechanics and prolific inventors of the country. It is evident, from observation, and it is convincing from experience, that a learned trade should be a practiced trade to be of real use.

A Clergyman on Shavings.

Rev. Dr. Paxton, in a lecture before the Mechanics' and Tradesmen's Union, of this city, a few evenings ago, stated in a few words a good many truisms. Shavings, the lecturer said, were not of American invention, like whittling, but were as ancient as the working of metals by Tubal Cain. They are the necessary waste of every work. There is a certain loss from every gain; there is no building without its rubbish heap to remove, which requires almost as many carts as to bring the building material. The fewest substances in nature are found pure. Construction is based upon destruction. Every joy presupposes a sorrow. The door posts of progress are sprinkled with the blood of its martyrs, and along the way are scattered like millstones the bodies of those who have fallen in the path. We cannot get something for nothing; for every tit there is a tat. The wrecks of rich men's sons to be seen everywhere show that it is as hard to keep as it is to get. Without toil there is no substance; hence the recklessness with which estates are squandered, without any regard for the toils and hardships that had to be undergone to procure them. It may be likened to the sacrifice of human life at the battle of Bunker Hill, through which the salvation of our country was procured.

The Chicago Electrical Fire Alarm.

Mr. Wm. H. Preece, who is now the Chief of the Government Telegraph Service in London, visited this country in 1877, and last year he came over again to attend the meeting of the British Association in Montreal. In a recent meeting of the Society of Telegraph Engineers and Electricians, in London, he described the Chicago fire alarm operation as follows:

Some members present may remember that, when I described my last visit to America, I mentioned how in Chicago the fire alarm was worked by an electric method; and I told you a story then that you did not believe, and which I have told over and over again, but nobody has yet believed me, and I began to think that I must have made a mistake somewhere or other. So I meant, when at Chicago this time, to see whether I had been deceived myself. There was very little room for improvement, because, as I told you before, they had very near reached perfection. This is what they did: At the corner of the street where a fire alarm box is fixed a handle is pulled down, and the moment that handle is released a current goes to the fire station; it sounds a gong to call the attention of the men, it unhitches the halters of the horses, the horses run to their allotted positions at the engine, it whips the clothes off every man who is in bed, it opens a trap at the bottom of the bed, and the men slide down into their positions on the engine. The whole of that operation takes only six seconds. The perfection to which fire alarm business has been brought in the States is one of the most interesting applications of electricity there.

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