

Although for many years Mr. Babbage entertained the intention of constructing this machine, and made many preparations, we can hardly suppose it capable of practical realization. Before 1851 he appears to have despaired of its completion, but his workshops were never wholly closed. It was his pleasure to lead any friend or visitor through these rooms and explain their contents. No more strange or melancholy sight could well be seen. Around these rooms in Dorset street were the ruins of a lifetime of the most severe and ingenious mental labors perhaps ever exerted by man. The drawings of the machine were alone a wonderful result of skill and industry; cabinets full of tools, pieces of mechanism and various contrivances for facilitating exact workmanship were on every side, now lying useless.

Mr. Babbage's inquiries were not at all restricted to mathematical and mechanical subjects. His work on the "Economy of Manufacturers and Machinery," first published in 1832, is in reality a fragment of a treatise on political economy. Its popularity at the time was great, and, besides reprints in America, translations were published in four Continental languages. The book teems with original and true suggestions, among which we find the system of industrial partnerships, now coming into practice. It is, in fact, impossible to overpraise the work, which, so far as it goes, is incomparably excellent. Having assisted in founding the Statistical Society of London in 1834, Mr. Babbage contributed to their transactions a single paper, but as usual it was a model research, containing a complete analysis of the operations of the Clearing House during 1839. It was probably the earliest in which complicated statistical fluctuations were carefully analysed, and it is only within the last few years that bankers have been persuaded by Sir John Lubbock to recognize the value of such statistics, and no longer to destroy them in secret. In this as in other cases, many years passed before people generally had any notion of the value of Mr. Babbage's inquiries; and there can be little doubt that, had he devoted his lofty powers to economic studies, the science of political economy would have stood by this time in something very different from its present pseudo-scientific form.

Of all Mr. Babbage's detached papers and volumes, it may be asserted that they will be found, when carefully studied, to be models of perfect logical thought and accurate expression. There is, probably, not a sentence ever penned by him in which lurked the least obscurity, confusion, or contradiction of thought. His language was clear and lucid beyond comparison, and yet it was ever elegant, and rose at times into the most unaffected and true eloquence. We may entertain some fear that the style of scientific writing in the present day is becoming bald, careless and even defective in philosophic accuracy. If so, the study of Mr. Babbage's writings would be the best antidote.

Let it be granted that in his life there was much to cause disappointment, and that the results of his labors, however great, are below his powers. Can we withhold our tribute of admiration to one who throughout his long life inflexibly devoted his exertions to the most lofty subjects? Some will cultivate science as an amusement, others as a source of pecuniary profit, or the means of gaining popularity. Mr. Babbage was one of those whose genius urged them against everything conducive to their immediate interests. He nobly upheld the character of a discoverer and inventor, despising any less reward than to carry out the highest conception which his mind brought forth. His very failures arose from no want of industry or ability, but from excess of resolution that his aims should be at the very highest. In these money-making days, can we forget that he expended almost a fortune on his task? If, as people think, wealth and luxury are corrupting society, should they omit to honor one of whom it may be truly said, in the words of Merlin, that the single wish of his heart was "to give them greater minds?"

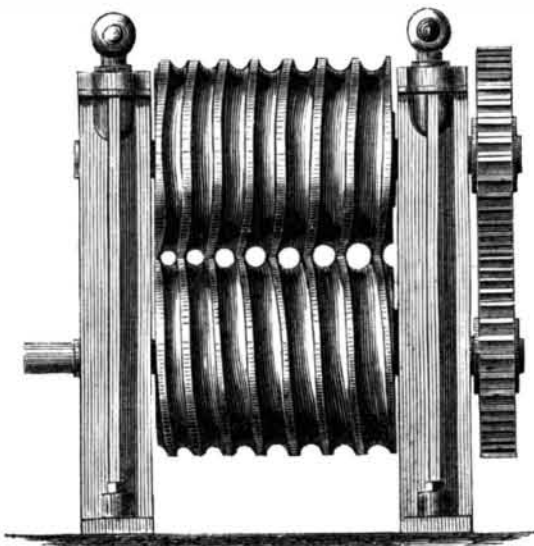
FEED AND TREATMENT OF HORSES.—Hay and oats make the best feed for horses that are obliged to work hard and regularly. If the hay is cut fine and the oats bruised or ground, the whole mixed and moistened, the horse will eat his rations quicker, digest them sooner, and thus have more time for resting and renewing his power for labor. Farmers' horses that work little during the winter time may be kept cheaper by cutting and mixing bright straw and hay in equal quantities, and adding a ration of steamed potatoes or raw carrots. Colts should be fed liberally on good hay—bright clover is best—and bruised oats; give them a roomy box stall in stormy weather and during nights. Litter freely, and do not let the manure accumulate under them. Sawdust or spent tan makes good and convenient bedding; in cities and villages they are often cheaper than straw. Groom horses well and let them have exercise every day; a run in the yard is excellent. See that stable floors over basements are sound and strong. Arrange the feeding racks so that dust and hay seed will not fall into the horses' manes or eyes; some horse-men build their mangers too high, thus forcing the animal to take an unnatural and painful position when eating. Farm horses that are not worked should have their shoes taken off, and those that are driven on the road should be kept well shod.—*Stock Journal.*

M. DEVERGIE, a French chemist, finds that water containing only one four thousandth of its weight of carbolic acid sufficed for the disinfection of the Morgue in Paris during the hottest weather, when it contained six or seven bodies.

TRUTHFULNESS is a corner stone in character; and if it be not firmly laid in youth, there will always be a weak spot in the character.

MACHINE FOR ROLLING TAPERED BARS.

Mr. Henry Kesterton, of Birmingham, Eng., has patented an ingenious arrangement of rolls for rolling taper tubes or rods. According to his plan, there is employed a pair of rolls, each roll having a spiral groove of variable depth, and of half round section, turned on it. The groove in one roll is a right handed, and that in the other, a left handed spiral, as shown in the engraving, and when the rolls are placed to-

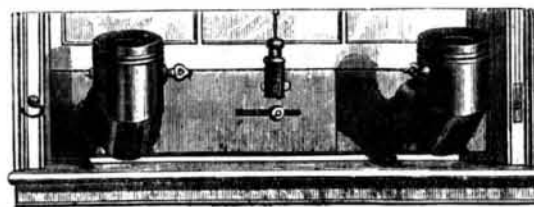


gether and geared, so as to revolve in union, the grooves form a series of eyes, which, as the rolls revolve, appear to move laterally, and gradually decrease in size. Thus, if a bar or tapered strip of iron, bent so as to approximately form a tube, be introduced between the rolls at that end where the grooves are largest and deepest, it will be gradually shifted towards the other end of the rolls as it passes between the latter, and will thus be rolled tapered.

MAINE'S PORTABLE WINDOW VENTILATOR.

We have been using the above ventilator (an engraving of which is annexed) in our office, with much satisfaction, for some time. By its means we find the condition of the air in the apartment much improved.

The principle of the invention is the deflection of the inflowing current directly up toward the ceiling, where it becomes diffused, and gradually falls without creating sharp currents.



Short sheet metal elbowed tubes are fixed in pieces of board, which overlap and are held together by a bolt which passes through a slot in one of them, so that they can be adjusted to fit windows of different widths. These boards are placed with their outer ends flush to the window casing, and the lower sash is raised to rest upon the upper edge of the apparatus. The joints are made tight with suitable packing. Each elbow tube has a damper to regulate the admission of air.

The apparatus is cheap and simple. It can be applied anywhere; and, if others are as well pleased with its working as we have been, it will gain a wide-spread popularity.

Patented March 1, 1870. Underhill & Co., 95 Duane street, New York, will give further information on application to them.

THE APPLICATION OF MECHANICS AND MECHANICAL PRINCIPLES IN AGRICULTURAL OPERATIONS.

We copy from the *Ohio Convention Reporter*, published at Columbus, Ohio, some extracts from the introductory address by Hon. L. F. Ward, delivered before the Ohio State Agricultural Convention at its last meeting. We would also state that from the *Reporter* we learn that another meeting of the convention will be held on the 3d and 4th of January 1872, at Columbus. We hope it will be well attended. Such associations do a vast amount of good in the dissemination of practical knowledge among the agricultural producers of a State, and we are glad to see that a growing interest is manifest among the farmers throughout the country to enlighten themselves on subjects so important to their prosperity. The speaker thus accords to the mechanic and inventor, due credit for the great advances made in the agricultural field:

"We may rejoice that we live in a period of mechanical triumph. The dreams of past ages are already more than realized. The "alchemy" of invention has learned the world more than the transmutation of baser metals into gold. By machinery, crude iron ore, in the hands of scientific manipulators, is wrought into delicate hair springs and tiny watch screws, worth far more than so much gold; and so it is in a thousand places. There is something truly wonderful to stand among the machines, and see what is accomplished by the mechanic arts of the age.

By the electric telegraph we have almost distanced time, and by steam locomotion we have nearly destroyed the idea of terrestrial distance.

This rapid advance of the world announces the dawning of "millennial morning," when wearied fingers can give place to

those of steel; when exhausted muscles rest and let sinews of iron endurance do the hard work; when, indeed, emancipated humanity may rest, and the mind preside over mechanical agencies doing his work; when we may have leisure for cultivation of intellect and such development of both mind and matter as will elevate our race.

There is something impressive in contemplating the triumphs of mechanical skill exhibited in this nineteenth century. These triumphs come so rapidly, are being developed everywhere, that we scarcely note the wonders before they are displaced by others. Every department of industry has its new machinery and new modes of accomplishing wonderful results. New fields of enterprise are being constantly developed, while inventors are handing out new devices and improved machines to accomplish new work, and are teaching the world how to do things better and more surely.

I need hardly say that agricultural pursuits are entirely different and surrounded by a different kind of machinery than when we were boys on the farm. Do any of you remember the thump, thump, of the winter's flail, and the long weeks of hard threshing? These have given place to the thresher and separator, and the work of the winter is done in a day. We can some us remember the old flax brake, the "scutching" board, the old spinning wheels and hand looms, and the months it took our mothers and sisters to produce the wearing apparel of the family. These are all gone, and steam has been harnessed on to automatic machinery, and a thousand spindles hum and power looms "weave away the web" to warm and adorn us. You can remember the long weeks of back aching hand mowing. Since then the mowing machine, in a hundred forms, has been wheeled in, and with his team the farmer does in a few days and easily what was a tedious and long "hay-making." All departments of farm labor have improved tools and machinery, and new modes of accomplishing the work that used to make farm labor so wearying.

DEMAND FOR THE PRACTICAL APPLICATION OF SCIENCE.

A competent amount of knowledge of the fitness of machinery and its auxiliaries is a valuable attainment for him who would make agricultural work a success. The honest farmer, who had learned a part when he had learned that the axles of his wagon needed lubricating, and so kept his tar bucket filled and at hand, showed that he had not matured his mechanical knowledge when he applied tar to the cogs and pivots of his Yankee clock, and was, himself, much surprised when he found it would not run!

The use of machinery on the farm implies the want of mechanical principle, and the farmer would hardly use his steel plow for a stump machine, or his reaper for clearing brushwood, or his mower for trimming his hedges; yet as absurd things as these have been done. We do not expect the enlightened farmer will insist on putting his corn in one end of his sack, and a stone in the other, to balance it, even on going to mill on horseback; but we do often see the laborer working away at the wrong end of the lever, doing his work wrong end first, and in the hardest way. A little clear headed thought, that weaves in mechanical ideas, wonderfully helps on even herculean tasks.

AS AN IMPROVER OF FARM IMPLEMENTS.

The farmer ought to be the best judge of farm implements and farm machinery; and, if properly instructed in mechanical principles, could not only (as he now does) discover the defects of tools and machinery, but could at once cure and perfect them. He should indeed, select an easier and more rapid accomplishment of many agricultural employments now involving hard muscular labor.

It is the mission of applied mechanics to emancipate the agricultural laborer from that exhaustion that holds both soul and body in the slavery of a mere animal drudgery. Why may not a great deal that is now done by muscular exertion be accomplished by improved mechanical adaptations? Why not harness up the unmeasured power of steam to do some of his work? And what objection can there be to letting the idle winds pump water, for his stock or for irrigating his lands in time of drought? With a little mechanical and engineering skill, a whole farm could be well watered at a comparatively trifling expense. Can you see any reason why in the future, steam may not do our plowing—and indeed a great deal of our farm work?

Thought and mechanical science will enable any to judge as to how power should be applied—whether with rapid or slow motion, or whether great power is to be attained by reducing motion. I have no doubt that this single fact will account for the difference we find in the ease with which some accomplish much with little effort, while others do everything by the hardest. The farmer should know so much of the strength and nature of the material and construction of the machinery he uses, that he may form an accurate judgment of its capability and durability. He is the only proper judge of his own machines.

THE FARM SHOP.

The farm should have a good shop, well furnished with material and tools, where, in stormy weather, tools and implements can be repaired, and new labor-saving machinery constructed; and if half the time lounged away by many in bar-rooms and saloons were used in this shop, it would make the farmer so much a mechanic that he could repair much of his machinery in a great deal less time than is now spent in hunting for and being disappointed by mechanics."

After referring to the proposed new agricultural college of Ohio, and recommending the Professor to insist upon the pupil *doing* the science as well as reciting from text books, Mr. Ward closes with a word in behalf of

THE MECHANIC AND INVENTOR.

"The world has been in the habit of giving these producers