

## New Inventions.

## Music Notation.

When children are learning music they experience much difficulty in fixing on their memories the names of the notes, and their several positions on the scale; and many a child, or even adult, becomes discouraged before they have acquired the rudiments of the science, and give it up in despair. To facilitate the learning of music, and the reading of it at sight, a blind gentleman, Mr. Cornelius Mahoney, the teacher of music in the institution for the blind, in this city, has invented a system of notation that deserves to come into general use. He has the name of the note cut in the note, itself, showing white in the black notes and black in the white ones, so that at a glance, the name of the note can be seen. The same gentleman is also the inventor of embossed music for the blind, by which any blind person can read the music by touch and will not require a second person to read them, as was formerly the case; thus placing this charming solace and divine consoler, sweet melody, within the reach of that class who need it most—the blind. This is a valuable and humane invention and we hope it will be adopted in all the institutions for the blind.

## New Steam Valve.

A suspended segment or convex valve and a concave valve-seat, are used by this inventor—H. D. Wickes, of Flint, Mich.—and a steam-chest is dispensed with, so that the construction of the engine is simplified, and the steam is made to act upon the valve in such a way that all unnecessary pressure of the valve upon the seat is obviated, all binding of the axis of the valve removed, and every facility offered for adjusting the valve to the seat. The invention will be fully understood from the following description and accompanying illustrations.

Fig. 1 is a perspective view of a horizontal steam engine, with this invention applied. Fig. 2 is a longitudinal central section of the cylinders and valve, and Fig. 3 a transverse section of the same.

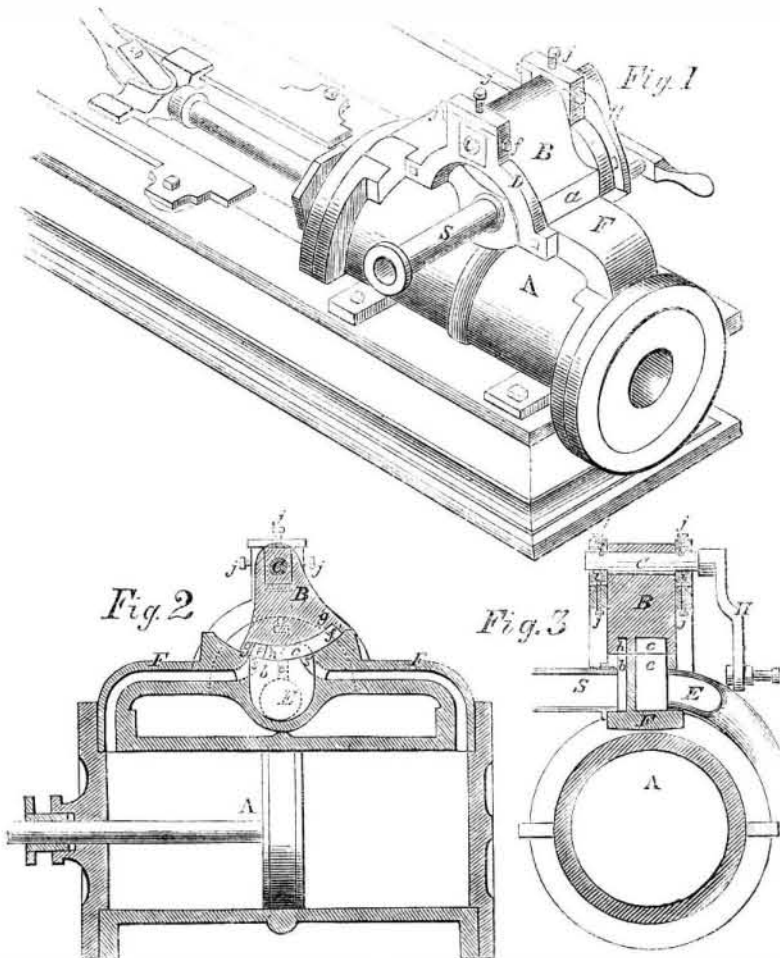
A is the cylinder, and B is the valve. The valve is attached to a rock-shaft, C, which is fitted to work in bearings in frames, D D, bolted to the engine cylinder, and derives an oscillating motion from an eccentric on the crank-shaft of the engine, or through other suitable agency. H is an arm attached to the rock-shaft, for connecting it with an eccentric. The face of the valve is of the form of an arc of a cylinder, generated from the axis of the rock-shaft, C; and the valve seat, a a, is of corresponding form. The valve seat contains two steam ports, s s', and an exhaust port, e, arranged in the manner common to reciprocating engines, the steam ports communicating with the two ends of the cylinder, and the exhaust port with the exhaust pipe, E, which is attached to the passage box, F. Besides these ports there is a third port, b, arranged longitudinally in the valve seat at one side of the ports, s s', and extending the whole width of the ports, and spaces between them, this port communicating with the steam pipe, S, which is secured to the opposite side of the passage box, F, to the exhaust pipe, as shown in Fig. 3. The valve contains the exhaust cavity, c, common to the short slide valve, and the usual width of face, d d, on each side of it, and is extended beyond d d far enough to contain two ports, f f', corresponding in width with the steam ports, s s', with a proper width of face, g g, outside of the ports, f f', and these ports communicate both with a longitudinal cavity, h, which ranges over the port, b, of the seat. The operation is as follows:—Steam is admitted by the pipe, S, and port, b, to the cavity, h, of the valve, which is always filled, thus constituting a steam-chest. From the cavity, h, it is admitted by the oscillation of the valve from the ports, f' and f', to the

steam ports, s and s', of the cylinder, alternately; and while steam is being admitted to one end of the cylinder through the port, s or s', it is exhausting through the other of the said ports, and through the cavity, c, of the valve, the port, e, and exhaust pipe, E.

During the operation of the valve, the pressure of steam on the valve tends to force it

from the seat; but this is counteracted by fitting the journal boxes, i i, of the valve rock-shaft to the frames, D D, in such a manner as to provide for their adjustment by screws, j j, so that the valve may be confined to its seat, and these screws are so set as to prevent unnecessary friction between the valve and seat.

## WICKES' STEAM ENGINE VALVE.

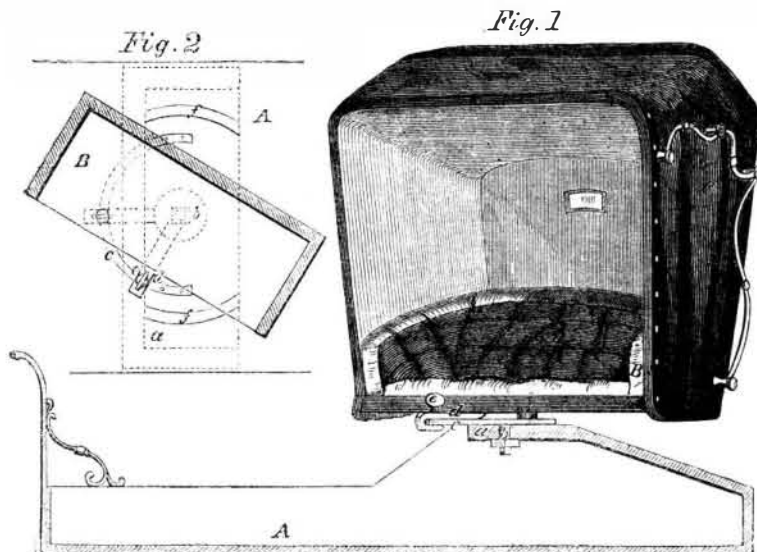


To apply the invention to an oscillating engine, the valve is made stationary, and with its face concave to fit a seat on the cylinder in the form of an arc generated from the axis of oscillation of the cylinder, and the steam and exhaust pipes are attached to the valve instead of to the cylinder; the steam pipe being attached to communicate with the cavity, h, and the exhaust pipe with

the cavity, c. The cavities and ports of the stationary valve are the same as those in the oscillating valve of the stationary engine represented, but the ports, b and e, in the cylinder, are dispensed with.

It was patented December 14, 1858, and any further information can be obtained from the inventor, by addressing him as above.

## POTTER'S REVOLVING CARRIAGE SEAT.



It is very often the case that in riding in a covered wagon, the cover is no protection against the inclemency of the weather, as the rain, snow, or sleet, may beat from the side, and render the voyagers as uncomfortable as if there was no protection over their heads. To prevent this by providing a carriage seat which may be turned cover and all in any position, H. H. Potter, of Carthage, N. Y., has invented the subject of our illustrations, Fig. 1 being a perspective view of the cover,

and Fig. 2 a horizontal cross section. The back or covered side can always be placed against the wind, and the seat affords a greater facility for getting in and out of the vehicle, as the seat can be turned half round while ladies are ascending the step, and adjusted to its proper position when they are fairly in.

A is the body of a pleasure wagon and Bits seat provided with a calash top. The body has a transverse peice, a, on its upper

part, to the center of which the seat, B, is attached by a bolt, b, so that the seat may turn on the bolt as a center. To the transverse peice, a, a semi-circular plate, c, is attached, concentric with b. To the underside of B a plate, d, is secured, and it projects a little beyond the front of the seat, its front end being bent into the form of a hook, so as to catch c; d also carries a set screw, e. On the transverse peice, a, segment plates are secured, and corresponding plates are secured to the underside of B. The seat, B, may be turned either to the right or left, and secured at the desired point by the set screw, e. By turning the seat obliquely with the body, A, a person may get in or out from the body, A, with the greatest facility, and in case of a horse running away or becoming unmanageable, persons may readily get out from the body and reach the ground with less danger than by jumping over the wheels. The tops of the seats are generally a great barrier to the ready getting in and out of vehicles, in consequence of the top projecting over the front of the seat. By turning the seat obliquely, this difficulty is obviated, and aged and infirm people can get in and out of the body without trouble. The seat can also be made to shelter from the sun as well as rain. It was patented Dec. 14th, 1858, and any further information concerning this truly ingenious and useful device, can be obtained by addressing Potter & Blake as above.

## Steam Plow.

S. K. Basset, of Galesburgh, Ill., has invented a new steam plow, in which the wheels of the track of a traction steam-engine are so arranged that the track may be readily guided and turned, and the engine rendered available for drawing a gang of plows to turn over the earth in the usual way. The invention also consists in a peculiar manner of attaching and applying the gang of plows to the track; also in the employment of track clearers, arranged in a novel way, and in so attaching the boiler to the track that it is allowed to remain in a horizontal position when the track rises and falls in corresponding with the inequalities in the surface of the ground. It was patented this week.

## The Cigar Steamer a Failure.

The Baltimore Sun states that "Messrs. Winans, acting upon the improvements suggested by the late trial trip, have concluded to lengthen the cigar steamer thirty-nine feet. This will be accomplished by cutting off twenty-five feet from the bows, and adding the required number, gradually tapering to the prow. The extra sheeting required for the work is now being prepared at the machine-shop of Messrs Winans at Mount Clare. Some alterations, at the same time, will be made in the motive power, by which it is believed the speed of the vessel will be increased. The addition will be completed before the spring."

If this steamer had answered all the expectation of its designers, the above alterations would not have been made. If Messrs. Winans will put a keel on their steamer, decrease the rise of its floor somewhat, and run up the sides of the bow to prevent it burrowing in the waves, then remove the propeller to the stern and greatly diminish its size; they will have a steamer of a good and common model, which will do them essential service, provided the engines and all the other parts are properly constructed and arranged.

ILLUSTRATED SUPPLEMENT.—With our next number we shall issue an Illustrated Supplement of the SCIENTIFIC AMERICAN, containing engravings, and a description of one of the largest manufacturing establishments of its kind in the United States; and in the course of three weeks we hope to have another Supplement ready, which will contain information of great interest to inventors and patentees.

There are now 43 drinking fountains in Liverpool, England, and it is estimated that 1,000 people drink daily at each. This is true temperance—practical philanthropy.

Scientific American.

NEW YORK, FEBRUARY 19, 1859.

REMOVAL.

The SCIENTIFIC AMERICAN Office has removed from its old location, 128 Fulton st. (Sun Building), to No. 37 Park Row (Park Building), where all letters, packages, and models should hereafter be addressed. Entrance is had to the Office also at No. 145 Nassau st. Munn & Co.'s American and European Patent Agency is at the above office.

Sewing Machines.

We are not afraid to confess it. We have an intense respect for John Bull. There is an amount of steady jollity and sincere good humor in him that makes us like him, and his great solidity of character commands our highest esteem. Therefore, we are careful seldom to say anything against him, or to rake up old sores, and blister the ancient wound. We prefer to act rather as a healing salve among the nations, and to write with the intention of promoting universal goodwill. We never liked to tell John that he was a slow coach, but have always admired his unvarying speed. What was our surprise, then, to find in a recent number of the London Engineer an article on "Sewing Machines," which contains the following sentences: "Somehow or other, however, the invention seems to have spread slowly, and it is better known through the quarrels of the inventors than by any useful effects it produces." And again: "They seem, indeed, never to have got into the ordinary category of trade. No manufacturer tells you in an honest and straightforward way at what price he will supply his machines. One would imagine, indeed, that the whole business was spell-bound—that the wonderful machine had only been employed in sewing ligaments for the inventor's energies, and in stretching toils from which he could not escape."

We ask, in amazement, "Is this the progress the sewing machine has made in England?" Why, Uncle John, you have had the invention as long as we have, and have done nothing with it! It is your own confession, not any invidious remark of ours. Listen, while we tell you what we are doing with the sewing machine, and it may, perhaps, stimulate you to give up law and turn to manufacture. For the benefit of the poor needlewomen, for the cause of humanity, for the prevention of the horrors which your own Tom Hood described in his "Song of the Shirt," we hope it may!

Messrs. Wheeler & Wilson made and sold during the last three months 4,700 machines, and are now producing and selling 100 per day. They vary in price from \$50 to \$100, and the highest priced ones sell best. In their business there is over \$500,000 invested, and they keep over 400 men regularly employed manufacturing machines. The system pursued is the same as that adopted in the manufacture of arms, every piece is made to a gage, and consequently the parts of any machine may be transposed with those of another machine of the same size; or should an accident occur, the broken part can be immediately replaced on application at the office.

Messrs. Grover & Baker manufactured and sold in 1858 fourteen thousand sewing machines, and more of the \$100 ones than any other price. Their factory is at Boston, but in this city they employ 150 cabinet-makers to produce stands and ornamental covers for the machines sold. They sell a great number in South America, and many are bought here and carried to England by persons returning or going to live there.

Messrs. I. M. Singer & Co. produce and sell about 350 machines weekly, and they are now making arrangements to increase their manufacturing facilities. The prices of their

machines vary from \$50 to \$125, and two-thirds of their sales are those of the highest price. Messrs. Singer & Co., taking advantage of the fact that Howe's English patent (now owned by Thomas, of London) does not cover Scotland and Ireland, have a branch establishment in Glasgow, and in the last year they sold machines in that city to about the amount of £25,000, thus proving that in the old country, wherever "Yankee Doodle" as we are familiarly called has a chance, he can make money and give value received.

There is not an establishment in this country where stitching of any kind is required in which the sewing machine is not employed, and there are few private families in which it is not an acknowledged article of furniture. It is impossible for us to estimate the number of other machines sold weekly in the United States, but when we mention the fact that a machine may be bought in New York or any other city in the Union from \$5 upwards, it will not be considered an exaggeration, but considerably under the mark, when we say that over 1,500 sewing machines are sold weekly in this country.

Now, what is the cause of this difference? Why is it that, as the Engineer tells us, the sewing machine in England is a nut for the lawyers to crack and run off with the kernel, while here it is an increasing article of manufacture and a blessing to the community? We think we can solve the question in a few words. Firstly, the superiority of our patent laws, which, by our system of examination before granting a patent, prevents much litigation; and, secondly, the conservative feelings of the English people render them unwilling to adopt a machine which will do that in a few minutes which, for centuries, it has taken their hands many hours to accomplish.

In a quiet, friendly way, Uncle John, looking at your patent laws and many social evils, (confessing, at the same time, that we have some, too,) we ask you, as the older man, the more experienced social philosopher and political economist, from this sewing machine contrast, to aid such men in your midst as your social science philosophers—Lords Brougham and Russell, to wit, and cease playing with the great obstruction to your progress—conservatism; but in the words of your own great poet—

"Reform it altogether."

The Winds.

The ancients believed that the winds issued from a cavern at the command of Jove, and that they were under the control of four deities, to whom the Phœnicians, Greeks and others erected temples. We now, however, know that wind is merely air in a state of motion, and that by waving the hand to and fro, or blowing our breath, we may produce wind on a small scale. When the air, at any particular place, is heated by the direct action of the sun's rays or radiation, it rises because of its lightness, and cold air from the surrounding localities rushes in to fill its place. A common door will illustrate this; if we partially open the door of a warm room and hold a light near the top, the flame will be blown outwards by the heated air escaping; and if we hold the light near the bottom, the flame will be blown inwards by the cold air that is rushing in to supply the place of the heated air that has escaped. In particular parts of the tropical regions, where the air becomes highly heated by the sun there is a constant rushing of air to these points, from east to west, and this causes the trade winds, so called because taken advantage of by merchantmen on the Atlantic and Pacific Oceans. They blow in the same direction for months together.

This local action of the sun on vast areas of land and water produces several other important winds, such as the monsoons, which blow from the south to the north, being trade winds turned round by the heat of land lying within the tropics; the simoon is a burning blast that rushes over the Arabian deserts,

carrying on its wings fine sand, and destroying all that venture to oppose its power. The harmattan is a cold dry wind frequent in Africa and is nearly as dangerous as the simoons. The sirocco visits Italy, with a hot, moist and relaxing blast from the African shores of the Mediterranean; and whirlwinds and tornadoes are common to all climates, but most destructive in hot ones.

Notwithstanding the seemingly terrible nature of these winds, they, with the milder ones, have important parts to play in the great economy of nature, in dispersing the clouds over the surface of the earth, and purifying the atmosphere from noxious vapors and effluvia; they also disperse the seeds of plants, and, as aids to civilization, impel ships across the seas, and move machinery.

Steam on the Erie Canal.

A bill has been introduced into the Legislature of New York, by Mr. Prosser, of the Senate Canal Committee, which bill has for its object the encouragement of using steam as the motive agent in canal navigation. It provides that boats propelled by steam power on the canals shall be allowed to run at the rate of five miles per hour—four miles being the maximum speed at present allowed; also that all other boats shall give way for their passage in the same manner as freight boats were required, "a long time ago," to stand for packets. Steam is undoubtedly destined to supersede horse-flesh entirely, at no distant day, on our canals, and this measure looks like a move in the right direction to secure this end. Boats of good model, propelled by screws, can run on the canal at the rate of seven miles per hour, and cause no more swell to injure the banks than the old bluff-bow barges running at the rate of three miles per hour. It is many years since we first urged the importance and necessity of steam for canal navigation; we are glad to perceive the truth finding its way up into our legislative hall, however tardy it may have been in reaching such a source.

Patent Law—Returning Money.

In the Senate, on Feb. 2d, Senator Reid, of the Committee on Patents, to whom was referred a bill for the relief of the widow of Charles Pearson, reported the same and recommended its passage. Some objection was made to its consideration, but he said "It is a clear question. It is merely to refund some money paid into the Treasury by an insane man, who made application for a patent. I trust the amendment will be adopted, and the bill suffered to pass."

Mr. Hale said: "It is simply to return \$150 to the widow of a poor insane man, who paid money into the Patent Office. The Commissioner wants to repay it, but he is not authorized by law to do it."

The bill was amended so as to grant \$140 to the "legal representative" of Charles Pearson, late of Concord, N. H., and then passed.

There is certainly a very great defect in some points of our patent laws when, in such a case as this, money has been paid into the Patent Office by mistake, and cannot be refunded otherwise than by a special bill of relief brought into the Senate. We hope our present Congress will see the necessity of making some amendments to our patent laws.

Cunning Adulteration of Gold Coin.

An Italian woman was taken into custody in this city last week, for passing gold coins that had been adulterated in the following ingenious manner:—Genuine half-eagle (\$5) pieces were sawed through the middle on the edges, about one dollar's worth of gold taken from each, and its place filled up with base metal. The two halves of the coins were then united together again, and the edges remilled so skillfully that it was impossible to detect the forgery by mere inspection, as the faces not only bore the impress of the genuine articles, but really were such.

M'CORMICK'S EXTENSION CASE.

COMMISSIONER HOLT'S DECISION.

UNITED STATES PATENT OFFICE, }  
January 28, 1859. }

On the application of CYRUS H. M'CORMICK, for the extension of a patent granted to him on 31st January, 1845, and re-issued on the 3d of August, 1858, for Improvement in Reaping Machines.

In our country of fertile and cheap lands and sparse population, the reaping machine, operated by animal labor, ranks probably next to the plow in its value as an agricultural implement. Though undoubtedly the remote successor of the sickle and the scythe, still the researches which have been made into its history assign it a high antiquity. Pliny, in the first century of the Christian era, describes minutely such a machine as then in use among the Gauls, which being drawn or rather pushed forward by a single ox, was, as we are subsequently informed by Palladius, capable of cutting large fields of grain in a single day. What changes it underwent in the course of after ages, or from what causes it finally fell into disuse, are not certainly known. It was not until towards the close of the last century, that the inventive genius of the world seems to have been again directed to this agricultural implement, and the machine as sketched by Pliny appears to have been the starting point for its reconstruction. From that time until the present day, its progress towards perfection, though slow has been steady and uninterrupted. The improvements of which it has been the subject for the last seventy years have been contributed alike by the ingenious minds of both hemispheres, as shown by the numerous patents which have been granted during that period in Europe and America. It is manifest from the very lucid and elaborate report of the Examiner in this case, that at and before the date of the applicant's invention in 1845, the reaping machine already comprised, in varying combinations, all those fundamental elements which at present enter into its composition. To enumerate, it contained the frame to support the working parts—two wheels for carrying the frame and operating machinery; a platform to receive and carry the grain until raked off by a raker seated on the machine or walking at its side; shafts to draw the machine, arranged at the side of the frame and cutter; the vibrating straight cutter; driving the gearing by the wheels that carry the machine; the spear-head guard-fingers; a crank and pitman for communicating the reciprocating motion to the cutter; reel posts or supports; the arrangement of the outer reel-post behind the cutter and bent forward; the reel; means for adjusting the height of the reel in its supports; an arrangement for regulating the height of the cutter; the lateral arrangement of the platform to and behind the driving wheel, for enabling the raker to remove the grain at the side; the arrangement of the outer wheel for supporting and balancing the machine; the combination of a vibrating serrated cutter with guard-fingers; the blade case; the divider, and the raker's seat. The Examiner, from whose report this enumeration has been extracted, designates the several patented inventions in which these component parts of the reaper appear, and this review of the then actual condition of the machine is essential to correct appreciation of the character and extent of applicant's invention of 1845, now under consideration. The operation of the several parts thus named had proved more or less satisfactory, according to the combinations in which they were found. It seems to have been the purpose of the applicant to improve the efficiency of the functions performed by the divider and reel in separating the grain to be cut from that left standing. This appears not to have been perfectly accomplished before, especially when the grain was lodged or tangled; and if we are to judge from the suggestions of counsel, the special aim of the applicant was to remedy this defect. If so, it