



## New Inventions.

### Improved Steam Regulator.

We understand that Messrs. A. & J. Judson of Rochester, N. Y. have made an improvement that does away with one of the most objectionable features of stationary steam engines. The improvement consists in the instantaneous action of the regulator valve in letting steam into the cylinder in such accurate proportion to the resistance of the machinery that the motion is kept or held uniform and the variation of speed is hardly perceptible, when suddenly throwing off a part or all of the machinery the engine may be propelling and can be left entirely under control of the Governor of their construction (so long as a uniform speed is required) let the resistance of machinery or pressure of steam in the boiler be ever so variable, and there is no necessity of closing or opening the throttle valve under the greatest variations of either. The inventors have made application for a patent.

### Improved Water Gate for Canal Locks.

Mr. A. Bell of Nunda, N. Y., has made a very excellent improvement in the construction of Water Gates for Canal Locks, which cannot fail to supersede those at present in use. By this improvement the gate can be lifted with but very little power exercised, its motion being easy, and thus removing one great cause of breakage, and adds two great benefits, viz., duration and ease in operation. The improvement lies in having the water gate lifted by a carriage which runs in side grooves on friction wheels set on an inclination, and this carriage takes into openings in the gate on an incline, and running up on it, on the friction wheels. This carriage is raised and lowered by a lever above which has a friction roller on its connecting rod that allows it to work with but little friction in its guide groove. This invention has been highly approved of by some eminent engineers and the inventor has been induced to secure it by patent.

### Another Sewing Machine.

Mr. A. B. Wilson, of Pittsfield, Mass., has taken measures to secure a patent for a new sewing machine, which makes very excellent work, judging from the sample which has been sent us. As this machine will in all likelihood be presented to our readers with an engraving, at some future time, we will withhold saying any more about it at present.

### Life Preserving Mattress.

Messrs. Shegog & Chapin, of Columbia, S. C., have sent on to this city an improved Mattress, which answers the purpose of a life preserver at the same time, it being capable of being transformed into a kind of jacket in a very short period. There are plenty of Life Preserving Mattresses for sale in this city, but this one is different, inasmuch as it can be secured round the person, nearly like a jacket, whereas all the other life preserving mattresses that we have seen, had no such arrangement, and consequently they are anything but easily managed in a stormy sea.

### Combined Chimney and Screw.

Mr. Abner Chapman of Fairfax, Vermont, has invented a new chimney combination, which answers for a spark arrester, and elongated flue and self cleaner, at the same time. The combination is the placing of a flange screw of considerable pitch in a flue or chimney so as to throw the draft around the flue in a spiral direction, making the heated air act upon the heating surface for a greater length of time, than by mere worm flues. It will effectually arrest all sparks, and when the flue or chimney gets foul, by simply turning the screw by a crank for that purpose all the dirt is thrown out.

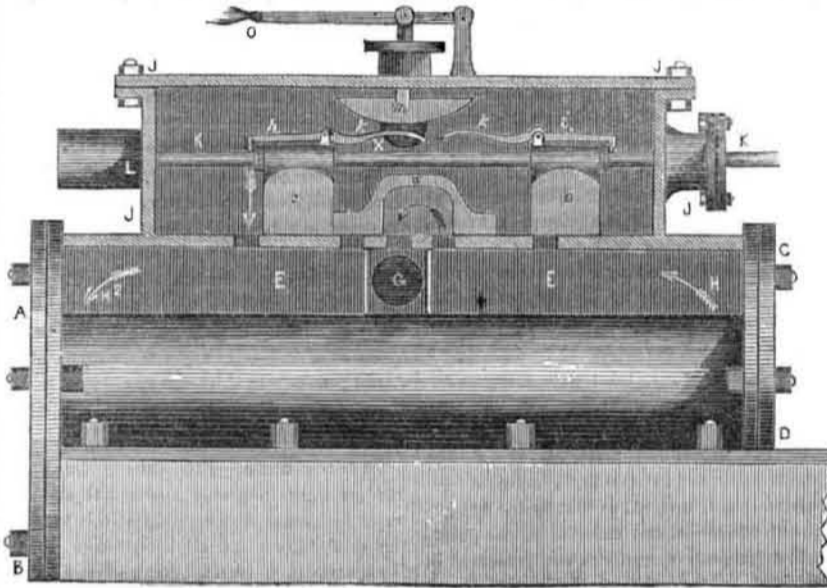
He has made application for a patent, but further information may be derived by enquiry at No. 91 West st., this city.

### Improvement in Band Boxes.

There is just as much necessity for improvement in small things, as large things. In fact, we are perhaps more benefited by the perfection in the minutia of those articles that make up part of the sum total of domestic convenience, than we are by those great machines, which have deservedly conferred so much honor upon their inventors, or those works of art that have handed down the names of their authors from generation to generation. Good watches are subjects of more importance and confer greater benefits upon the mass of mankind, than lofty spires and far famed clocks, and in making such comparisons we do not blush to claim merits of no ordinary kind for our band box, especially as we know that we are backed by the approving

smiles of our fair countrywomen. We like to see attention paid to their comforts and tastes. Well, this band box is the invention of Mr. Tabele, of Harlem, N. Y. and its object is to protect the bottom from damp and wet and the top from being crushed, if by any accident some heavy article should get placed on it.—The sides too are also much stronger than the common kind. The bottom is fitted into a concave groove in the sides at a little distance above the lower edge, thus protecting the crown in perfect shape. The cover is made rounding above, and there is a secondary cover fitted into a concave groove like the bottom, which thus makes the cover double and of great strength by this very simple combination—which Mr. Tabele has taken measures to secure by patent.

### WINNE'S IMPROVED SLIDING CUT OFF VALVE.

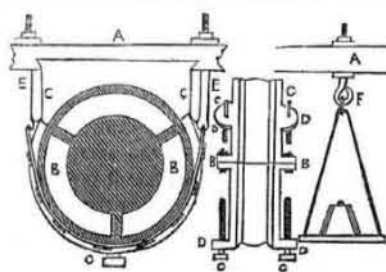


This is the invention of Mr. Simon P. Winne, of Albany, N. Y. and has just been patented, as would be observed on our patent list two weeks ago. This engraving is a vertical longitudinal section of the steam chest and passages of a cylinder, with the valves in their place and ready to act. A B C D, represent a steam cylinder having on its top A C, the usual hollow steam channel E E, divided by partitions to separate the entering from the issuing steam in the usual way with the exit passage G, and openings into the cylinder at H H. J J J J, is a steam chest made a little longer than the ordinary kind, but of the same form. The steam entering in by the passage X, fills the chest, from which, as will be noticed, there are four openings into the channels E E, and one into the exit passage G.—They are all properly faced with slides and arranged in reference to the valves to move over them, as seen in the engraving. c d e, are the three slide valves. c and e have solid bottom surfaces and d, the central valve, has the usual chambered passage to effect a communication together between two of the three central passages from the chest into the steam channel. The valve rod K, passes through a stuffing box at the one end and has the other end passed through a stuffing box or into a chamber L, bored out to receive support and steady its movements. The rod passes through the upper parts of the valves c e, which are pierced to receive it, but it is not attached but moves freely through them. The rod K, moved by the eccentric communicates motion to the valves by means of two stop nuts which screw upon a thread in the rod for adjusting the cut off. These nuts will readily be noticed at the ends of the catches. Upon the two valves c and e, are mounted catches h and i, moving on pivots and have handles k k. The catch drops down upon the valve rod and is held in this position by its own weight or a spring, as may be found most suitable. m, is a metallic plate placed over the centre of the valve range. It has its lower edge curved or made flat as may be desired. Its chord is parallel with the rod K. This plate is attached to a spindle at right angles to it, which passes through a stuffing box, where it is attached to the handle O, for raising and depressing it, thus attaching and detaching the catches h and i, from the nuts on the rod K. The valve d, lies upon its bed unattached

to the rod and is only moved by the impulse of c and e alternately. Between these two valves and d there is a space to be determined by the portion of the stroke of the piston at which the steam is to be cut off.

**OPERATION.**—The valves are to be attached to the rod by the catches when the cut off is to be used. The engine in the engraving is represented as having just begun the stroke of its piston from left to right and the valve rod from right to left. Before the piston has passed over one third of its stroke, e will have covered the first opening cutting off all passage of steam from the chest to the opening H, of the cylinder, and will keep it covered during the remainder of the stroke during which valve d is kept stationary passing steam from the right passage of the cylinder H, through the two passages indicated by the middle arrow, and out of G, until the valve e impels it to the left, and the valve c is carried over the other opening, and opening the other exit passage. This completes the stroke and the same operations are repeated continuously from left to right and right to left. When it is desired to give the engine full steam, the lever O is depressed, by which the catches are raised to allow the three valves to act in concert, operating as a single slide driven by a cam. The stroke can be cut off and regulated by the handle O. It is only necessary to depress the bar plate m to permit the proper catch to drop over the stop nuts and the required cut off will be effected. The valves when used for upright engines may be kept in their places by springs during the absence of steam pressure. Rights for sale.

### Morin's Friction Brake to test the Power of Water Wheels.



This engraving represents an annular collar of cast iron formed in two parts and united at B B, with ears and screws—the middle figure

showing an edge view, and the two outside figures a side view of the whole brake. C C C are square headed screws disposed symmetrically on its exterior. These screws pass through the projecting ears D D D D. The ring is placed upon the shaft as represented, and the outer surface is easily adjusted by the centring screws, but this must be done with great care. The collar being mounted on the shaft it is ready to receive the friction band, which is a flat chain composed of pieces of sheet iron, hinged together as represented.—This chain is terminated by two strong half links connected to the two large bolts E E.—The annular ring has therefore a strong flange with a rim on it to receive and retain this friction chain. The bolts E E, pass perpendicularly through the lever A A. The under side of this lever receives a cushion of hard wood by notching as represented, the underside cut to the form of the collar on which it rests. F, is a hook for the scale that is to hold the weights to load the brake.—The essential parts of this friction brake are the collar, the friction band, the cushion, the lever, the scale and a wrench to adjust the screws.

The wheel must be properly examined to see that it is properly centred, so that the axis of rotation may coincide with its centre of gravity. This being done, the wheel end of the lever must pass between two cross beams, as supports, at such a distance apart from one another as will allow it to oscillate through an arc of two or three degrees. If the shaft of the wheel is of wood, there is danger of the screws piercing into it, but in all cases be it of wood or iron it must be well lubricated during the experiments. This Friction Brake is simple being made to fit on to the wheel shaft and the weights in the scale are employed like weighing any substance, so that a number of experiments with different heads of water may be tried in a short time and it also enables us by the determinate weights, to determine the velocity under which the wheel acts most advantageously. This Brake is only for horizontal shafts and consequently would not answer for a vertical shaft. We will at another time present De Prony's for vertical shafts. With this brake a number of experiments were made by Captain Morin in Prussia and a minute account of them in the German language was published in Berlin.

### New Composition for Sign Letters.

Mr. John A. Parks, of this city, has discovered a new composition for making ornamental letters for signs and for making mouldings and other works of an ornamental character. The composition can be struck out with dies in a press while in a soft state and afterwards it becomes quite hard, but possesses great tenacity, and is not easily broken.—For sign letters it is a thousand fold better than wood, and can be manufactured at one half the cost. It is capable of taking a very fine polish, and for durability it may be said to be imperishable.

### New Process of Manufacturing Carbonate or White Lead.

Sheets of lead of about two feet long, one broad and the 1-16th of an inch thick are suspended in an air tight chamber on the floor of which is placed a tub containing about eight pecks of malt, two pounds of sugar, six pints of yeast and twelve gallons of water. The temperature of the chamber is kept at 92 degrees. The malt, &c. induces fermentation, and the gas evolved acts energetically upon the lead plates. The whole of the materials are allowed to remain in the tub till the liquid becomes mouldy, when it is withdrawn and mixed with two gallons of vinegar, heated by steam, and passed back again into the chamber through a pipe; when the first charge of the fermenting ingredients is withdrawn, another is put in its place, and this is repeated till the lead is converted into white lead.

The gases evolved from Breweries may be employed for making white lead, if conducted by proper tubes into an air tight chamber in which the sheets of lead may be suspended. The pressure of the gases may be regulated by a safety valve.

A machine has been invented in Connecticut to cut out clothes of every shape without shears.