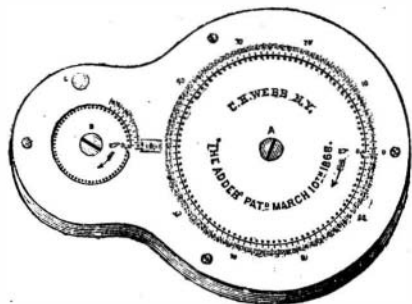


WEBB'S PATENT ADDER AND TALLY BOARD.

We have an innate and hereditary hatred of all of the order *ophidian*, and we much doubted the expediency of receiving Mr. Webb's reptile into our office, but having seen the animal and found it was no "snaik" whose head was to be crushed, but an industrious little device calculated to save head-wear, we welcomed it cordially. Its appearance is similar to the accompanying engraving, the implement, however, being larger, measuring about six and three-quarter inches long by about five inches across the widest place. The form is seen in the engraving. A large disk, A, and a small one, B, both revolving, and both graduated around the circumference and marked with figures in two concentric circles, are seated in a case and partially covered with a metallic plate, leaving only the inner circle of figures exposed, except at a small opening between the two disks, where one set of figures, on the outer circle of each, is seen through the slot in the plate. The plate around the larger disk is marked from 0 to 99 to correspond with similar numbers on the disk's concentric circles. The smaller disk has 50 numbers, from 0 to 50, with a corresponding segment of numbers (units) from 0 to 9 ranging from the penning in the plate or cover back around a portion of the smaller circle.



The larger disk has on its under side a ratchet with a single tooth and the smaller one a ratchet of fifty teeth. A connection is made between the two by a spring pawl so that one entire revolution of the large disk will move the small one one-fiftieth of its circumference. The operation may be comprehended by the above description of the parts.

The inventor believes that it is a great aid to accountants, substituting a merely mechanical process for mental or brain labor. Certainly if his manipulation of the device, and the opinions of those who have given it a trial are to be considered, the implement should be estimated as a valuable adjunct to the means of summing up wearisome columns of figures. It may be let in flush with the surface of a desk so that the accountant, or clerk, may always have it at his elbow, working it with one hand while keeping his place in the columns of figures with the others. It is neat, handy, and presentable, but although it will add numbers rapidly, it is is doubtful if it will add to a man's fortune or to his family. With this drawback we can endorse the adder.

Orders for the implement or for explanatory circulars should be addressed to the patentee, C. H. Webb, 571 Broadway, New York city.

Geological Survey of Ohio.

The Cleveland *Herald* says:—"A number of years since a partial geological survey of the State was made. A mistaken economy on the part of the State terminated the work when but a small part had been completed, but that which had been done has proved an incalculable benefit in revealing a portion of the mineral wealth of the State, and enabling mining operations to be carried on intelligently.

"Every year has shown the folly of the legislature in stopping the appropriations before the survey was completed; and the feeling in favor of the resumption of the work has been yearly growing stronger. The increasing demand for coal, the tendency to seek out new sources of supply, and the reports from time to time of mineral discoveries in various parts of the State, combine to render desirable a complete survey that shall map out the geological structure of the State and enable projectors of mining enterprise to work intelligently and not sink pits at hap-hazard, or with no better guide than a 'divining rod,' or the revelations of a spiritualistic medium.

"Mr. Lee, of Delaware county, will introduce into the House of Representatives a bill to provide for a thorough geological survey of the State.

"The former survey was made by Colonel Charles Whittlesy, Colonel J. W. Foster, Professor J. P. Kirtland, Dr. C. Briggs, Professor W. W. Mather, Professor John Locke, and Dr. S. P. Hildreth. The last three named of the above are dead."

Harbor Defenses.

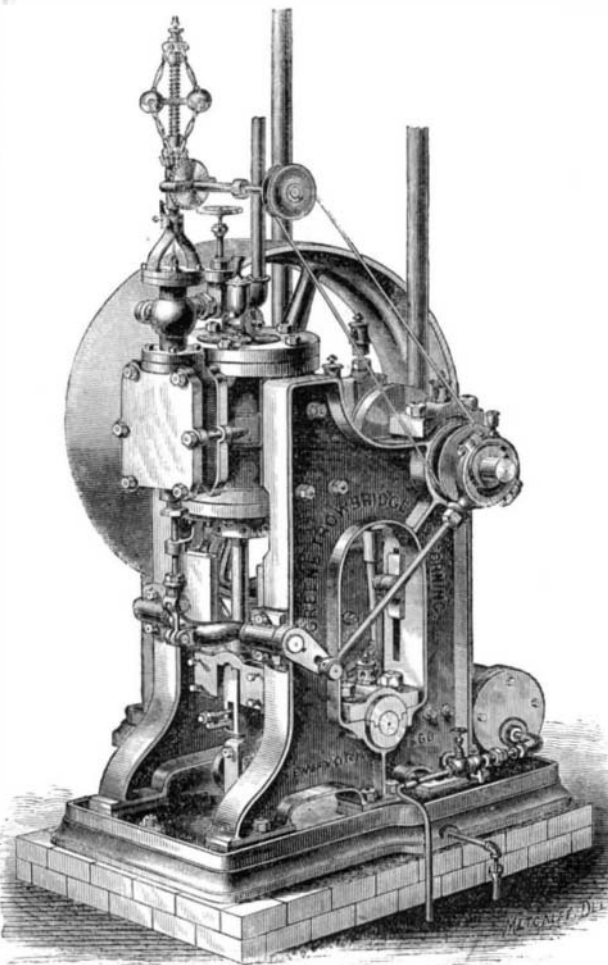
We learn that the joint resolution which passed the Senate last July has been passed in the House, authorizing the General of the Army, and the Admiral or Vice Admiral of the Navy, to inquire into the utility and practicability of the Ryan-Hitchcock mode of marine fortifications, directing them to report the result of their investigations at the next session of Congress. The method of marine defense here referred to, is known as Ryan's revolving iron turret fort, to be used for monitors and for harbor defense. It was illustrated and described in No. 26, Vol. XIX SCIENTIFIC AMERICAN. A board, to be composed partly of army and partly of navy officers, will soon be appointed, with instructions to proceed to some suitable point where the value of the invention can be fairly and thoroughly tested.

THE germination of seeds can be watched, at every stage of its progress, by laying the seeds between moist towels, and laying them between plates. The towels can be lifted without damage to the tender sprouts.

GREENE'S PORTABLE ENGINE, UNION CHECK VALVE, AND LUBRICATOR.

Compactness in an engine is a very desirable quality, whether for facility in removal from one locality to another, diminution of weight—and consequent friction—or absorption of room. Short pipe connections are also to be considered advantageous.

UPRIGHT BALANCED ENGINE.

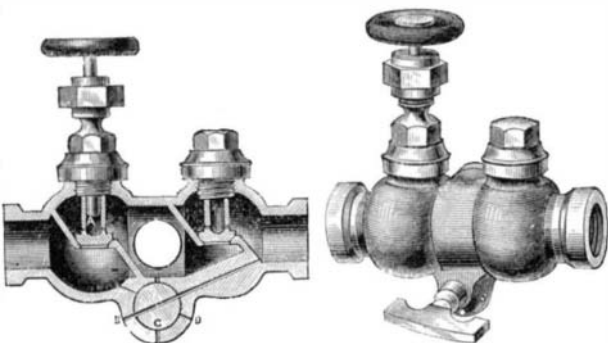


The engine shown in the accompanying illustration is one that better fulfills these requirements than any other of its power with which we are acquainted. Having seen it in operation in a wood sawing and splitting establishment where its capacity and performance were severely taxed, we feel free to say that it is a machine we can honestly commend as very superior. When running at 170 revolutions per minute it made no perceptible jar and worked almost noiselessly. Although occupying but a small space for its power, the parts are so arranged that the engineer experiences no annoyance in reaching every part.

As seen, it is an upright engine, the cylinder and steam chest near the top of the frame, the piston rod connecting with a crosshead, that itself is connected to a walking beam at the bottom of the frame, the other end of the beam connecting with the crank and driving the pump which is inside the frame. The parts are balanced so that the resistance is equal on each end of the beam, and there is no shaking or jar under any circumstances. A double eccentric with link motion can be easily attached to act as a cut-off or for reversing the motion, adapting the machine to hoisting and other purposes. The piston rod, valve, valve stem, and all the connection pins, are of steel; the pump has Greene's Union Check Valve, which we shall presently describe; the heater is in close contiguity with the engine; and the base plate has a rim for receiving all the drippings and the condensation from the steam, thus keeping the engine room neat and clean.

The engine can be built per horse power much cheaper than engines of ordinary patterns, and can be transported entire or easily taken to pieces and packed on mules or horses, and as easily put together, making it especially adapted to the mining regions of the country.

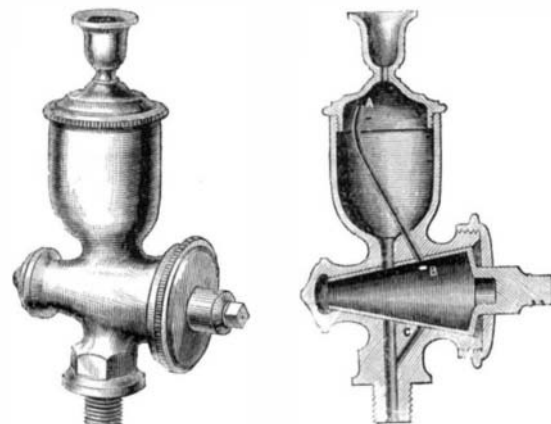
UNION CHECK VALVE.



The union check valve herewith represented in perspective and section is used on this engine. It is a check valve, stop cock, and air cock, or tester, combined. A is the stop cock valve operated in the usual way by the hand wheel; the ordinary check valve is seen by its side. The air cock has one opening, B, through its center transversely, connecting with openings to the top and bottom of each valve and with the openings, C and D. Thus freezing and bursting may be prevented, and the condition and action of pump and valves may be, at all times, determined.

THE UNION LUBRICATOR.

The lubricator seen in the two last engravings—perspective and sectional—is of the simplest imaginable form. It is intended for the valves and pistons of engines. The plug is hollow with an opening at the bottom of the cup, or receiver and three vent holes, one shown, marked B, at the bottom of the tube, A. When the cup is filled the plug is in the position shown in the sectional engraving and its interior is filled at the same time with the reservoir. In turning the plug



to empty, the vent holes, B, will pass the orifice of the vent, C—which is a branch of the main delivery—before the large hole in the plug, directly under the cup or reservoir, meets the main delivery, thus allowing steam from the engine to pass into the plug and assist in the discharge of the oil. When the plug is turned back to refill, the vents, B, pass the orifice of the tube, A, through which the steam goes without disturbing the oil in the cup. The three vent holes are for allowing the plug to be turned in either direction, the center one being on a line with the main hole, and always when filling or discharging, aiding the operation by means of the steam. The parts may be easily removed for cleaning.

Orders for this engine and appurtenances should be addressed to Greene, Trowbridge, & Corning, 326 and 328 Delancey street, New York City

Annals of Iowa--The Great Pipestone Quarry.

The first number of the "Annals of Iowa," published quarterly by the State Historical Society at Iowa City, has made its appearance. It is edited by Sanford W. Huff, Corresponding Secretary of the Society, and contains much instructive and entertaining matter. Like the earlier annals of any section of the United States, it also contains many amusing incidents.

As a taste of the flavor of this publication we have condensed from its pages an account of the great pipestone quarry, around which so many legends cluster, and which has been celebrated by Longfellow in the "Song of Hiawatha:"

On the mountains of the prairie,
On the great Red Pipestone Quarry,
Gitche Manito, the mighty,
He the Master of Life descending
On the red crags of the quarry
Stood erect, and called the nations,
Called the tribes of men together

From the red stone of the quarry
With his hand he broke a fragment,
Molded it into a pipe head
Shaped and fashioned it with figures.

A narrow ledge of rocks in the broad shallow valley of a little prairie creek, lying entirely below the general prairie level, constitutes all there is of the Great Pipestone Quarry. As far as the eye can reach in every direction, no "mountain of the prairie," no grove, no tree, no habitation, no living thing except a few birds, is in sight. The spot is within the State of Minnesota, about thirty miles in a direct line from its south-western corner, and three or four miles from its western boundary. Approaching it, the exposure of rocks appears much greater than it does in the distance when it looks like a mere line of broken rocks in the open prairie, for our view then takes in the whole region for many miles around it.

The principal exposure of rocks is about a mile in length from north to south, in both of which directions it becomes gradually lost from view beneath the surface of the prairie, it faces the west and reaches its greatest perpendicular height about twenty feet, where "Gitche Manito the mighty," is supposed to have stood when he took his wonderful smoke, and where the brook falls over it into the plain below. The pipestone is in somewhat thin and usually shaly layers, and only from eight to twelve inches in aggregate thickness, and is the lowest layer found here. The red quartzite rests immediately upon it, and is four or five feet thick at the ditch, and must be removed to get the pipestone.

This pipestone is chemically a clay—silicate of alumina—colored brick-red with peroxide of iron. It is too heavy for pipes for white men, and is valued by them almost entirely for its legendary interest. It is heavier, harder, and in every respect inferior to meerschaum—silicate of magnesia—yet the finer specimens may be worked without much difficulty with a common saw, file, or knife, and readily takes and retains a considerable polish. Geologically it is a metamorphic clay, as the quartzite is metamorphic sandstone. It was originally a layer of clay intercalated between layers of sandstone and the same metamorphic action that changed the latter to a quartzite, also converted the clay into pipestone.

An old Spanish silver coin of the year 1017 has been found by a gentleman in Bangor, Me. It shows how rude the art of coinage was at that date, being "hammered out."