

constructed and operating therewith substantially as described.

I also claim, in combination with the regulator and revolving tubes or arms, the vertical and inclined partitions, C C, and lip, D, for the purpose of directing the seed to be sown from the hopper to the openings in the arms or tubes, and to prevent the seed from escaping unduly through the arm or tube, for the time being, immediately under the lip, substantially as described.

GRINDING MILLS—Geo. Selser, (assignor to himself, J. Cook and W. Cook,) of Philadelphia, Pa.: I claim attaching the hollow steel burr to the spindle, D, by screwing or otherwise securing the end of the latter to a plate, I, which is fitted snugly to the inside of the burr, a shoulder, e, on the spindle bearing on the top of the burr, as set forth.

MARINE PROPELLER—John Taggart, of Roxbury, Mass. (assignor to himself and Geo. R. Sampson, of Brookline, Mass.): I claim my improved mode of propelling a navigable vessel through the water, viz.: by the conjoint action of two separate rotary or screw propellers, E and F, respectively operating or screwing into the water and air arranged and combined substantially as described, and propelled by a steam engine, or motor within, or carried by the vessel.

I also claim arranging the air screwpropeller, F, or its axis, at an inclination upward from the keel or plane of flotation of the vessel, substantially as shown, in order that the said propeller, while being rotated, may operate, not only to draw the vessel ahead, but to lift her bow more or less out of water.

GAS RETORTS—Davis L. Weatherhead, (assignor to himself and S. E. Southland,) of Philadelphia, Pa.: I claim the cap, E, with its box or reservoir, F, when arranged in respect to the lower chamber, A, the upper chamber, B, and exit pipe, D, of the retort, substantially as and for the purpose set forth.

SAW-SET—Olive Ann Brooks, of Great Falls, N. Y., administratrix of the estate of Lebbeus Brooks, deceased, late of Great Falls aforesaid: What is claimed as the invention of the said Lebbeus Brooks, is the arrangement and application of the benders and bending screw together, and with respect to the two handles, substantially as set forth, whereby the center of motion of the benders is at the place of contact, or the vertex of the angle of their upper surfaces, and no fulcrum pin is employed for the support and connection of the levers.

BRICK MACHINE—William Wood, of Hartford, Conn. Patented March 22, 1859: I claim the arms, B B, in combination with the slides, A A, provided with the lever, C, and tappet, c, for operating the molds, M, as described.

RE-ISSUES.

SMELTING FURNACE—Charles C. Alger, of Newburgh, N. Y. Patented June 30, 1857: I claim constructing furnaces with the hearth and boshes of an elliptical or elongated form, substantially as described, in combination with the application of the blast at the sides, so arranged as to introduce the blast in the direction of the breadth, and for the purposes specified.

I also claim, in combination with the hearth and boshes made of an elliptical or elongated form, substantially as described, the construction of such furnaces with two mouths, one at each end, for working and tapping, substantially as and for the purpose specified.

RECLINING CHAIRS FOR RAILROAD CARS AND OTHER USES—Isaac L. Devoe, of Staten Island, N. Y., assignee through mesne assignments of Samuel M. Perry, of New York City. Patented July 27, 1857: I claim, first, to combine the back, D, with the two end frames, B C, by means of bars, E F, jointed to it one or two studs, a, and one or two series of notches, d d, or equivalents therefor, that the said back, when not a reversible one, may be raised and inclined in various positions, so as to not only support the back, but the head of a person at the same time.

Second, Making the back reversible by means of two series of notches, d d and e e, &c., and two sets of studs, b, or equivalents, the same being arranged on opposite sides of the chair and made to operate as specified.

Third, The improvement of making each arm or bar, E F, with a rack or racks of teeth, or succession of notches, or equivalents therefor, for the purpose of adjusting and securing the backs in the desired position, whereby the occupant can alter or vary said position without rising from the seat, substantially as set forth.

DESIGN.

HAT-BACKS—Edward Reynolds, (assignor to Thomas W. Brown,) of Boston, Mass.

Improved Blow-off for Boilers.

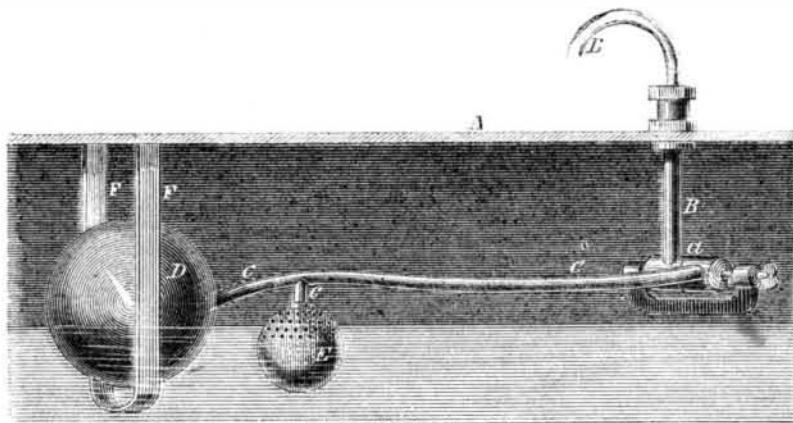
This invention makes security doubly sure, and adds an additional protection or preventive of accidents to boilers by the sedimentary deposits from the water. There is much solid matter contained in water, some of it organic particles which when the water ceases to hold them in suspension, they rise to the surface instead of falling to the bottom. The same is true of salt water, the salts in which, as evaporation goes on, rise crystallizing to the surface and afterwards form a scale on the inside of the boiler, causing it to burn out rapidly, and being at the same time a fruitful source of accident. The design, then, of this surface blow-off, invented by J. H. Washington, of 36 Fawn-street, Baltimore, Md., is to prevent the forming of this scale by blowing-off continually from the surface.

A is the boiler, through the top of which projects a pipe B, to the bottom of which (inside the boiler) is attached by a water-tight hinge or joint, a, the tubular arm, C, carrying at its extremity the hollow float-ball, D. D moves up and down in guides, F, which are proportioned according to the limits beyond which it is not safe to allow the water in the boiler to rise or fall. A steam whistle may be attached to the end of C, to notify the engineer when the water is too low. Near the end of C there is a small branch-pipe, c, projecting vertically downwards, and over this is slipped the perforated hollow ball, E, which is itself half filled with water, the perforations only being made on the upper hemisphere. This can be slid up and down on c to take the proper relative position with respect to D and the surface of the water. This

it will be seen will accommodate itself by the float, D, to the motion of the water in the boiler caused by the rocking of the vessel, and should any sudden lurch occur, which leaves the upper hemisphere of ball E, entirely exposed to the steam, the contained water has

first to be blown out before the steam can escape and by that time the ship will have righted itself, and if not steadied then, will refill E with water which will again act as a preventive to the escape of steam should a similar lurch occur,

WASHINGTON'S BLOW-OFF FOR BOILERS.



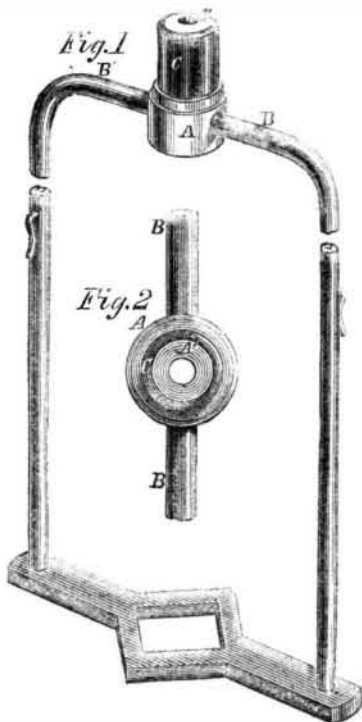
The device is remarkably simple; and, judging from the testimonials we have seen from the engineers of steamships which have it fitted in their boilers, and from the Inspector of Boilers for the Baltimore district, it very

thoroughly, efficiently, and perfectly performs the work for which it is designed. It was patented Jan. 25, 1859, and any further information may be obtained by addressing the inventor as above.

Sawtell's Spinning Flyer.

The accompanying figures represent an improvement in spinning flyers, invented by J. N. Sawtell; Fig. 1 is a side elevation and Fig. 2 a plan view of the nozzle. In form it is similar to the common flyer, but in construction quite different.

A is the bronze shoulder of the nozzle and B B are the arms of the flyer. The bronze part extends upwards, forming the tube, A', and C is the hardened iron capping or collar on the neck.



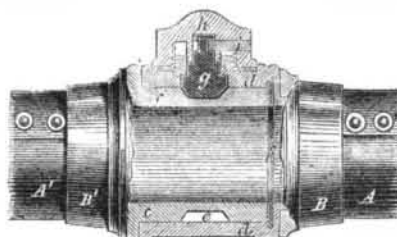
We will now explain wherein this flyer differs from others, and point out its advantages. In making the common flyer, the neck or nozzle is brazed to the arms or wires, B B, but this flyer is constructed by casting the nozzle (which is bronze) on the arms, and thus uniting them together in a more permanent and superior manner. By the old way of brazing the nozzle and arms, the wires are highly heated, which injures their elasticity and strength, and by the refinishing which they require afterwards they are reduced in size which renders them weaker still. One of the arms is also liable to be reduced somewhat smaller than the other which thus tends to throw the flyer out of balance, and render the operation defective. The brazing is also sometimes imperfect and the arms, as a consequence, soon become loose; and when a nozzle becomes much worn, the cost of re-

pairing it is so great as to render this operation inexpedient.

In constructing this improved flyer by casting the bronze nozzle on the arms, B B, the two metals are permanently united, yet this is done in such a manner that the wires are not overheated, and thereby not softened, nor do they require to be reduced in size afterwards, but retain all their original stiffness, strength and elasticity; they are therefore not liable to work loose, nor be thrown out of balance; and should the hardened capping, C, become worn, it can be renewed at a small cost, and the whole nozzle rendered as good as when new.

These flyers have now been in operation for nearly three years and have given great satisfaction. They are manufactured by the Ames Manufacturing Company at Chicopee, Mass., who will attend to communications addressed to them on the subject. It was patented Feb. 17, 1857. For more information see advertisement on another page.

Lawton & Bliss' Hose Coupling.



A swivel joint for hose—one that would admit of turning, and that could be easily put together—has long been wanted. Here it is. It is the invention of R. B. Lawton and W. H. Bliss, of Newport, R. I., and was patented Feb. 22, 1859. Our illustration fully shows the invention, the coupling being seen in section.

A A' are the ends of the two hose provided with caps, B B', by which they are attached to their respective metallic rings or thimbles, c d, the one, c, fitting into the other, d, and pressing against a rubber packing ring, f, in d which renders the joint water-tight. Around c a groove, e, is made, and in d there is a hole in which a hollow screw is fitted provided with a screw-cap, h, through h a pin, i, projects that fits into the groove in the top of the roller, g, that is conical at its end and fits into the groove, e, thus securing the thimbles, c d, together and allowing one to move round the other with perfect freedom, but at the same time preventing them coming apart. This roller being conically shaped and the groove having inclined sides, the pressure of g upon the side of e will always tend to keep c close

o d, and thus compensate for any wear by the simple act of connecting them together.

A simpler and more efficient hose coupling it would seem impossible to devise, especially when so many ends are attained by the same device. Any person desirous of knowing more concerning it, in a business or other point of view, should address W. H. Bliss, at Newport, R. I.

Firing of Locomotives.

In the saving of wear and tear, and in the economy of fuel and oil in running locomotives, a very great deal depends upon the engineer. This is very clearly set forth in the recent report of R. A. Wilder, Esq., Superintendent of the Minehill and Schuylkill Haven Railroad, published in the *Miner's Journal*, of Pottsville, Pa. The principle feature of this report is the information contained about the successful use of anthracite coal for fuel. It is used on the engines running on this road, and has been found much cheaper than wood at two dollars per cord. The engines are similar to those in which wood is employed for fuel, excepting that the fire-box is larger in area, but not quite so deep. An engine of 30 tons will take a train of 140 cars, to the summit of the mountain and return loaded—a distance of 65 miles, consuming four tons of coal—the total rise in the road being 900 feet. The coal used is all broken with a hammer, as it has been observed that when broken by rollers, although the work is done more rapidly, it does not ignite so readily, on account of the sharp angles being broken off. The fire in the furnace, is never more than six or eight inches deep, and an experienced fireman never throws in too much fresh coal at once; great care and skill are required in firing—in fact most of the success of coal-burning locomotives depends on this operation. A fireman has been known to burn out a set of grate-bars in one day, while another using the same coal, and raising as much steam, has preserved a set of bars for several months. The rapid destruction of fire-boxes, under the use of coal as fuel, has retarded its introduction as a substitute for wood. As the bottom parts of the fire-box plates are subject to the most rapid destruction; it has been necessary to remove the entire box to replace the injured parts. This has been owing to the method by which the sheets have been riveted together. On the above road, the lower parts of the fire sheets which are injured are only cut away, not the entire fire-box, and a saving of nine-tenths of the usual cost has been effected. By forming the fire-boxes with a set of lower fire-plates, joined to the upper portion above the fire surface by a horizontal seam, these could be easily removed, when burned out, with but little expense in comparison with that now incurred, according to the method by which fire-boxes are at present constructed. The firemen were very much prejudiced against coal when they first commenced its use, but now they prefer to work on coal-burners rather than those in which wood is employed. Engines which use wood require to stop frequently to obtain a supply of fuel; a tender full of coals will last an entire day. In Pennsylvania, where good oak wood can be obtained for two dollars and a quarter per cord, coal is found to be cheaper, and ten years experience on the above railroad has established the superiority of coal over every other kind of fuel. Common locomotives with large fire-boxes can be altered with very little expense, to burn anthracite; all that is required for their success is careful firing—no large lumps being used, and a thin fire kept up.

CHEAP GAS.—In the city of Dublin, Ireland, a new gas company supplies good coal gas at 80 cents per 1000 cubic feet, and no rent charged for meters. This is certainly very cheap gas in such a city, when it is considered that all the coal used is imported from England.