

A Strange Accident.

A very peculiar accident occurred on the Philadelphia and Reading Railroad, near Tumbling Run crossing, on Monday afternoon. No. 62, one of the large engines lately turned out from the Baldwin Locomotive Works, was running down the road at a good rate of speed, when a number of persons who were watching her heard a loud report and saw the tank and caboose almost disappear in a cloud of smoke. Almost simultaneously with the report two figures which occupied the tank were seen to jump and turn half a dozen somersaults before they became motionless alongside the roadbed.

The engine continued on her way, the engineer being apparently unaware that anything of an extraordinary character had happened. Noticing, however, that his engine was the center of attraction to a large number of people who had been halted by the report of the explosion, the engineer, Andrew Quinn, left his cab and made an examination of the fire-box. The door was open and the tank contained a deposit of burning coal, but everything else was seemingly in proper order. The engine continued on her way and nothing of an unusual character has since been heard regarding her. The men who jumped from the tank were train men on their way down the line. Both of them were scorched by the explosion and bruised in their attempt to reach terra firma, but neither was seriously injured. Just previous to the explosion the fireman had put on a lot of fresh coal. It contained, it is supposed, a large quantity of gaseous matter, and this caused the explosion. The engineer was prevented from hearing the latter by the noise generally accompanying a moving engine, and as he was traveling at good rate of speed, and stood in the cab (on top of the boiler), while the force of the explosion was spent in the direction of the tank.—*Pottsville (Pa.) Miners' Journal.*

FEED WATER HEATER AND FEED PUMP.

The engraving shows the latest form of the now well known Berryman feed-water heater and purifier and feed pump. These appliances are in use in the principal manufacturing in the country, and have established their claim to superiority by long continued and successful use. It is a well established fact that the most economical way of feeding a boiler is by means of a good pump in connection with an efficient and economical heater. Our engraving represents the Berryman, showing the point in the center of the heater, near the top, from which the feed water is forced into boilers; the water, being under a pressure constantly maintained by the feed pump, is in a quiescent condition, and on reference to the engraving, it will be seen that the supply pipe extends far enough into the heater to draw the feed water from the quiet or dead water space, below all surface impurities, and where it is practically pure. This point has been brought out by a long experience in the manufacture of this heater.

The engraving shows a surface blow-off pipe, the use of which requires no loss of time; it will expel all sedimentary or surface deposits. The U-shaped tubes are not injured by any strain by contraction and expansion; hence the heater never leaks. The tubes are of brass, seamless drawn, and tested beyond any strain they can possibly be subjected to in actual use.

The double pump shown in connection with the heater is well made in all its parts, and is self-contained and complete. The four valves, the only parts that can get out of order, are so constructed that they can be got at by simply unscrewing a brass cap. The gears are made from cut iron patterns, rendering them noiseless in action, and the pump, being double-acting, is easy on the driving belt, and its action very smooth.

Mr. I. B. Davis, of Hartford, Conn., is sole manufacturer of these appliances, and has made a specialty of this heater and feed pump for over ten years.

Remedy for Acid Burns.

Since vitriol throwing has become a common offense, it may be well to point out that in a case which occurred during a chemical lecture, described in the *Bulletin de Therapeutique*, in which two students were seriously injured in the face by the explosion of a flask containing boiling sulphuric acid, the intense suffering at first experienced ceased entirely about a quarter of an hour after the application of a soft paste of calcined magnesia and water in a layer about two millimeters in thickness. M. Alande states that the magnesia requires to be renewed in twenty-four hours, but that patients, after recovery, retain no marks of the accident.

SMILAX and Japanese ferns are now made to twine around the same cord while growing, and thus become doubly valuable for decorative purposes.

NEW METHOD OF SPACING AND LETTERING SIGNS.

The engraving represents a new method of spacing and outlining the lettering for signs lately patented by Mr. John

**CALLOW'S METHOD OF LETTERING SIGNS.**

C. Callow, of 56 Beech St., Cleveland, O. With this device the spacing of letters in sign work can be easily and rapidly executed by unskilled persons with all the facility of practical sign painters, and letters and other forms can be readily traced around the edges preparatory to filling in with paint, and accuracy in spacing is secured.

This improved method consists in stretching a cord or wire at the proper point, and attaching thereto the appropriate pattern letters either by means of hooks or by passing

the wire through eyelet holes formed in the letters. In laying out a sign where several letters of the same kind occur more than once, it is only necessary to substitute any other letter of the same width temporarily, replacing it afterward with the outline of the proper letter.

The Manufacture of Plate Glass.

To cast, roll, polish, and burnish plate glass requires machinery of peculiar construction, and a "plant" that is costly by reason of its complex nature. The pouring of liquid glass from the furnace upon the cast iron plates, and the subsequent rolling, are processes comparatively simple. Any housekeeper who has used a rolling-pin on a batch of pie-crust dough, performs an operation very similar to this stage of plate-glass making. It is the succeeding processes of grinding and polishing and final burnishing that require time and costly mechanism. After leaving the rolls and bed plate the glass is rippled and rough, and only fit for gratings or skylights. Each plate must be transferred to machines that resemble the turn-tables of a railway. On the revolving platform the glass is cemented in to a bed of plaster of Paris, and the machine started. Bearing heavily on the surface of the glass are blocks of metal, and while in motion the surfaces are kept supplied with sharp sand and a constant stream of water. The next stage of the glass-grinding process is the same as to machinery, but instead of sand coarse emery is used. Then finer emery is used in another revolving table, and so on for half a dozen times. The final polishing is done by heavy reciprocating devices, fed with rouge, and maintaining a constant back and forward motion, and also a lateral movement over the surface of the crystal. All this requires the assistance of a large force of men, many of them skilled laborers. After going through these different grindings and polishings the plate that measured an inch in thickness is only three-quarters of an inch thick, has lost all its roughness, and is ready for the show-window of the purchaser.—*Pittsburg Telegraph.*

MECHANICAL INVENTIONS.

Mr. John H. Eddy, of Sidney, Ohio, has patented a cutter head so constructed that the knives can be adjusted to cut any desired bevel without pitching or tilting the spindle.

Mr. Albert A. Bennett, of Harveysburg, O., has patented a hand circular saw for cutting thin lumber, and it consists in a plate having near its middle and its lower edge a small circular saw loosely revolving in a bearing, and having in front and rear, and slightly projecting below the lower edge of the blade, a gear wheel which, as the plate is steadily pushed over the surface of the board, bites the latter, and through a train of gear wheels imparts a rotary motion to the saw, which, as the plate advances, cuts a kerf through the board with a circular sweep.

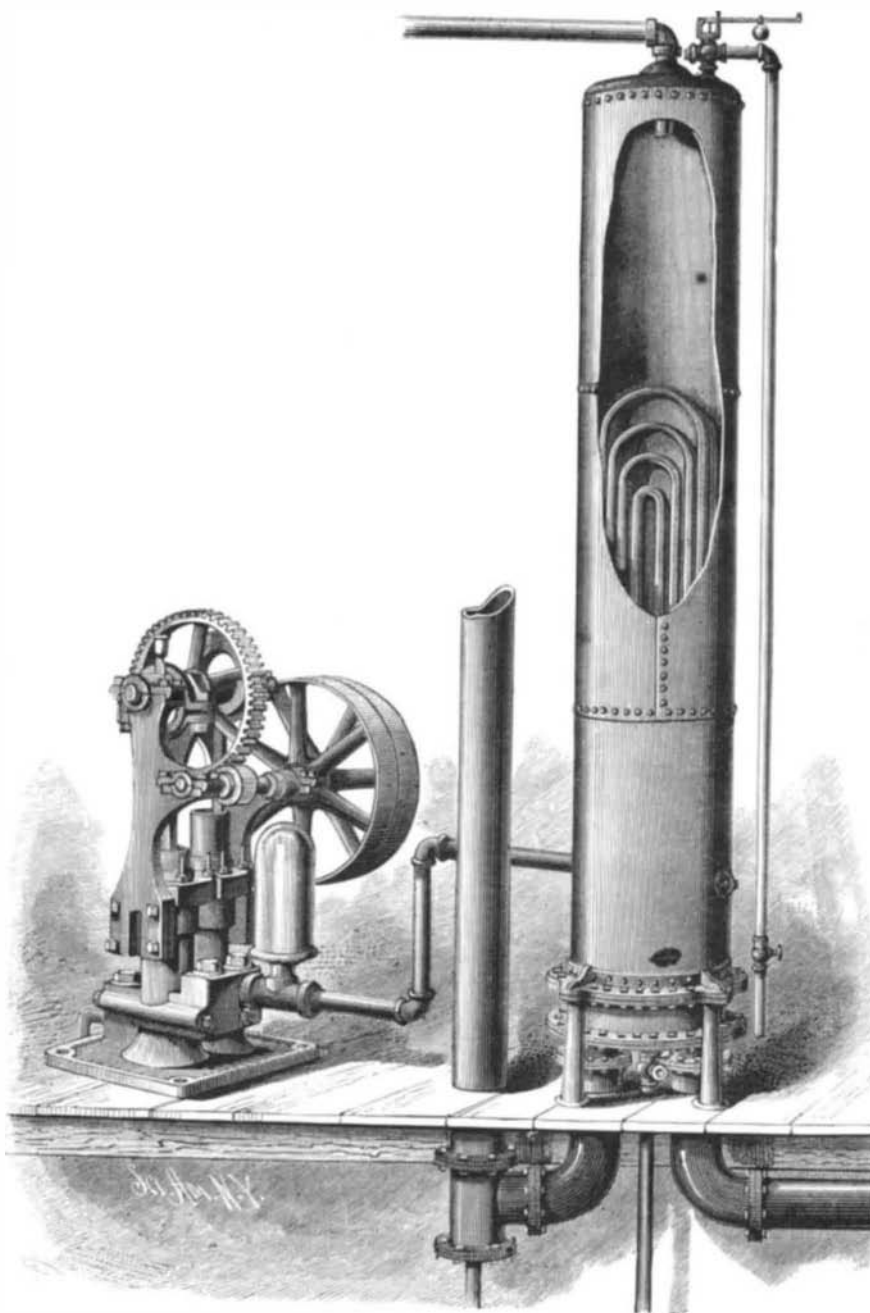
An improvement in pipe tongs has been patented by Mr. Deloss Worden, of Oil City, Pa. The invention consists in forming one of the tongs with a bit chamber or seat adapted to receive and hold a square, parallelepiped, or any many-sided removable bite-block in such manner as to present one edge of the bite block in position to take hold of the pipe, the block being retained in place in the chamber by a recessed button.

An improved button-polishing machine has been patented by Mr. Homer W. Terry, of Springfield, Mass. This is a machine for applying buttons of horn or other material to the buff or polishing wheels in a more expeditious manner than by hand, as in now usually practiced. The invention consists in a movable and flexible or jointed band or apron distended between pulleys or drums, and provided with grips arranged in a plane parallel with the plane of the belt, and arranged to seize the button by a movement in the plane, and hold them while passing under the buffs.

An improvement in breasts for cotton gins has been patented by Mr. Charles C. Tate, of Brown's Station, Ala. The invention consists in combining, with the breast heads, horizontal rolls arranged on arms thereof.

An improvement in middlings purifiers has been patented by Mr. John A. Kister, of Mill Brook, Ohio. This invention relates to the arrangement of parts whereby the bran and coarser particles are separated from the middlings. The nature of the invention is such that it cannot be described without engravings.

Mr. Benjamin F. McCarty, of Rolling Prairie, Ind., has patented an implement for cutting the wire bands of bundles or sheaves of grain before feeding them to a thrashing machine. The invention consists of a hollow handle or casing having its upper end reduced in size, the casing being adapted to slide a suitable distance on a central spindle which carries a spring and the cutting blades, the blades being so constructed and pivoted that their ends or shanks will be brought together by the downward thrust of the handle.

**THE BERRYMAN FEED WATER HEATER AND PURIFIER AND FEED PUMP.**

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The alphabets are cut from tough, heavy boxboard, and the letters are of modern shape and style, such as are used by the best sign painters. The letters themselves when