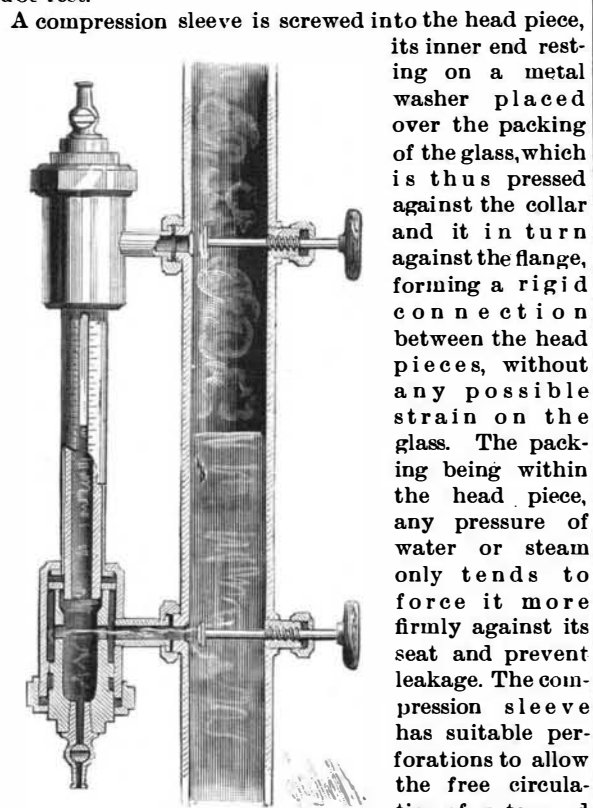


WATER GAUGE AND WATER COLUMN COMBINED.

An improved water gauge and water column combined, illustrated herewith, has been patented by M. Parker and J. E. Tupper, of Rothsay, Minn. The glass is placed in a metal tube having graduated sight slots, and collars screwed to the ends, against which the packing for the glass is placed. The head pieces are tubular, having inwardly projecting flanges, against the inner surfaces of which the collars of the tube rest.



PARKER & TUPPER'S WATER GAUGE AND WATER COLUMN COMBINED.

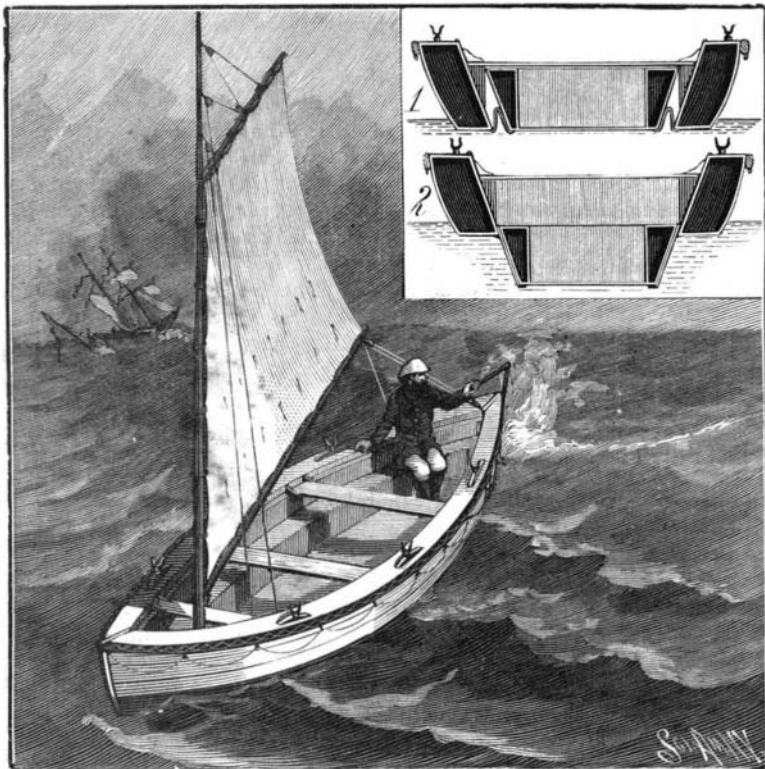
A compression sleeve is screwed into the head piece, its inner end resting on a metal washer placed over the packing of the glass, which is thus pressed against the collar and it in turn against the flange, forming a rigid connection between the head pieces, without any possible strain on the glass. The packing being within the head piece, any pressure of water or steam only tends to force it more firmly against its seat and prevent leakage. The compression sleeve has suitable perforations to allow the free circulation of water, and

is provided at its outer end with a hexagonal head to which a wrench may be applied to vary its pressure on packing, and a cock for the removal of sediment. A packing cap is screwed to the outer end of the head-piece to prevent leakage around the sleeve.

The head pieces are connected to the water column by suitable nipples and union joints, to facilitate removal for repair. The valves which close the passages are within the body of the water column, with their handles on the side opposite the glass, so that in case the glass breaks they may be closed without danger to the operator. The whole is so designed as to be cheaply constructed, of artistic proportions, and easily polished and kept clean, while furnishing the greatest degree of safety and facility with which it can be operated, the glass and its connections being easily removed for cleaning or repair while the boiler is under pressure.

AN IMPROVED LIFE BOAT.

The life boat shown in the accompanying illustration is made up of upper and lower sections, forming, as it were, a boat within a boat, after a novel form of construction, devised by Mr. William Lockerly, of West Newton, Mass. The upper section has a large outside air space, its walls forming the body of the boat, while the lower section, also completely surrounded by an air space, has a flat bottom, and is pressed up into the upper section when afloat, un-

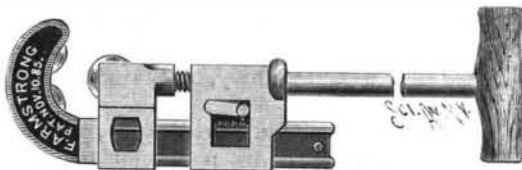


LOCKERLY'S SELF-ADJUSTING LIFE BOAT.

loaded, as shown in the sectional view, Fig. 1. The flat bottom of the lower section is securely fastened to the lower part of the upper section, or outside air space, with strong three-ply waterproof canvas, forming one completely water-tight boat, as shown in section, when loaded, in Fig. 2. The air spaces in the boat are divided into water-tight compartments of two feet in length each, and are of such size as to be equal to the full carrying capacity of the boat, which would not, consequently, be sunk if entirely filled with water. The pressing of the lower section down into the water as the boat is loaded acts to ballast it, while the disposition of the air space is such that it is almost impossible for the boat to be upset. A canvas fender prevents the lower or inside section from oscillating against the outside air space in a broadside sea, and a canvas fender, filled with cork shavings, runs along the rail where the life lines are attached. A boat of this class, such as represented, 20 feet long, 6 feet beam, and 2 feet 9 inches deep, will weigh about 1,100 pounds.

A SIMPLE AND EFFICIENT PIPE CUTTER.

A rapid working tool for cutting pipes, which can be quickly and easily adjusted for cutting pipes of different sizes, is shown in the accompanying illustration. It is adjusted from a large to a small size by pushing the hooked bar through the yoke until the wheels meet upon the pipe, after which the cutting is done by passing the device around the pipe, the cut-



A THREE-WHEELED PIPE CUTTER.

ting wheels being kept up to their work by turning the handle as required. To change from a small to a large sized pipe, the ratchet or pawl by which the hooked bar is held in position on the handle bar is lifted, and the hooked bar pushed out to accommodate the desired size. This device is manufactured by the Armstrong Manufacturing Company, of Bridgeport, Conn., in two sizes, No. 1, for cutting $\frac{1}{8}$ inch to $1\frac{1}{4}$ inch pipe, and No. 2, for $\frac{1}{2}$ inch to $2\frac{1}{2}$ inch pipe.

Martineau's New Remedy for Diabetes.

Martineau's new anti-diabetic remedy, which is now being called for by physicians and druggists, is an artificial lithiated arsenical water. Martineau claims extraordinary results from this water, recording 67 cures out of 70 cases, *i. e.*, 96 per cent. The mode of preparing and of prescribing this remedy is as follows: A siphon bottle holding about a liter (one quart) is taken; into this is put a powder consisting of 20 centigrammes, or about three grains, of carbonate of lithia. A tablespoonful is then added of the following solution:

Take of distilled water 500 grammes (1 pint 5 drachms).

Arsenate of soda 20 centigrammes (about 3 grains).
M. Dissolve.

The siphon bottle is then charged with carbonic acid water from a soda fountain, and is ready for use. The patient makes this water his principal beverage, taking the whole quantity in about equally divided doses with his meals. The bottle must be freshly charged every morning. Martineau allows the patient to take with the water a little wine. The diet is not modified, except that a certain amount of reserve is enjoined in the use of starchy foods, fruits, and sugar.

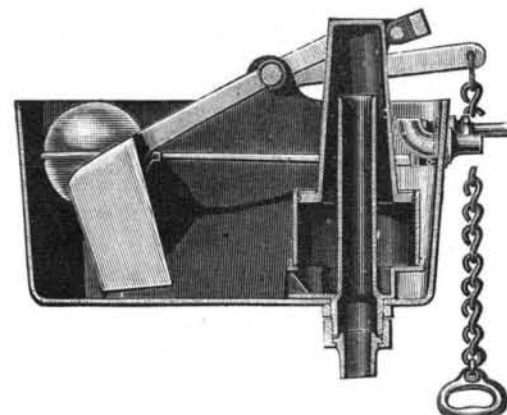
Martineau claims to have learned this mode of treatment from Professor Rouget twelve years ago. When the diabetes is treated by lithia alone, or by arsenic alone, the result is not the same. Many of the natural mineral waters, as Vichy, Royat, Bourbole, Pourges, St. Nectaire, and even Canterets, have a favorable action on diabetes; this is due, Martineau thinks, to the fact that they all contain lithia, and some of them, notably Vichy and Bourbole, contain arsenic.

Any physician in country practice where easy access can be had to a soda water generator can prepare for his diabetic patient Martineau's remedy. He has only to fill an ordinary quart bottle, in which he shall have previously put a three-grain carbonate of lithia powder and a tablespoonful of the above-mentioned solution, with gaseous water from the soda fountain, and order the whole quantity to be

taken during the day after meals. As for the curative value of this prescription, there is justification for considerable skepticism. Dujardin-Beaumetz, at the meeting of the Societe de Therapeutique where Martineau's paper was read, expressed grave doubt as to whether the 67 cases cited by Martineau were typical cases of diabetes, and was tempted to believe that Martineau had fallen upon a series of cases of *alimentary diabetes*, like those treated by Cantani at Naples, where abuse of pastry, sweets, and starches had given rise to a temporary glycosuria that was not true diabetes.—*Med. and Surg. Reporter.*

AN IMPROVED WATER CLOSET BOX.

A siphon service water closet box in which there are no valve faces to wear and cause leakage has been pa-

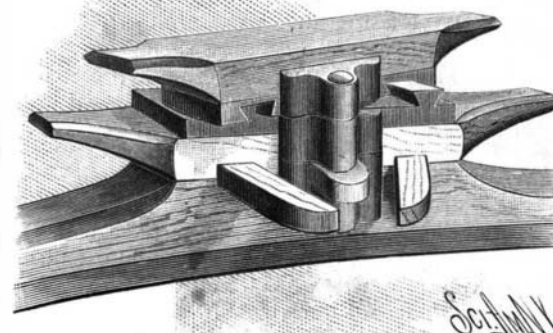


DAVIES' VALVELESS BOX FOR WATER CLOSETS.

tented by Mr. William Davies, and is shown in the accompanying illustration. From the arrangement of the moving cap, or piston, in the cylinder, with the reflex diaphragm in the passage between the cylinder and the cistern, it is impossible for the box to be emptied unless by the charging of the siphon by pressing down the piston, there being no direct outlet from the cistern except that down the flushing pipe, the top of which is above the top of the cistern, and waste cannot occur except by a defective ball cock, which at once shows itself by the overflow or warning pipe. The siphon being once charged, this service box is very easily worked. For further information relative to this invention, address Mr. Jos. E. Hannah, Winnipeg, Manitoba, Canada.

IMPROVED RUNNING GEAR FOR VEHICLES.

A novel construction of front running gear for vehicles, designed for both heavy and light work, is shown in the accompanying illustration, and has been patented by Messrs. Henry Warmington and Benjamin Bulger, of Virginia City, Montana Ter. The forward axle has fixed to it the sand board, over which the head block is arranged, metal plates being fixed to the opposing faces of the sand board and head block. In one of these plates, preferably the lower or sand board plate, a projecting dovetailed tongue is formed, on a curve struck from the center of the king bolt, and the opposing or bolster plate has a corresponding dovetailed recess, into which the tongue fits snugly,



WARMINGTON & BULGER'S RUNNING GEAR FOR VEHICLES.

but so as to allow the head block with its plate to turn freely either way as the vehicle is turned to one side or the other. The king bolt passes through lugs fixed to the axle, the sand board, and head block, as well as the reach, so that the tongues and grooves and king bolt mutually re-enforce each other, whether the vehicle be running straight or while being turned; and should the king bolt break, the tongues and grooves will prevent disconnection of the head block and sand board. For spring wagons, this construction obviates the necessity for a fifth wheel extending back of the head block and axle.

Among the almost numberless methods of removing particles from the eye, the following is recommended as an efficient means: Make a loop by doubling a horse-hair. Raise the lid of the eye in which is the foreign particle; slip the loop over it, and placing the lid in contact with the eyeball, withdraw the loop, and the particle will be drawn out with it.