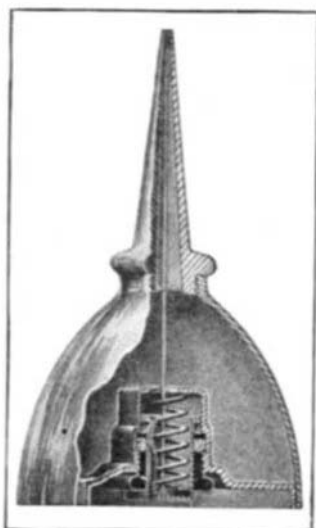




OIL CAN WITH MEANS FOR CLEANING THE SPOUT.

Pictured in the accompanying engraving is an oil can provided with a simple means for clearing the nozzle or spout of all obstructions, while expelling the contents. The can is also so arranged that it will positively deliver the oil. The general shape of the can is of the usual type, with the spout screwed into the

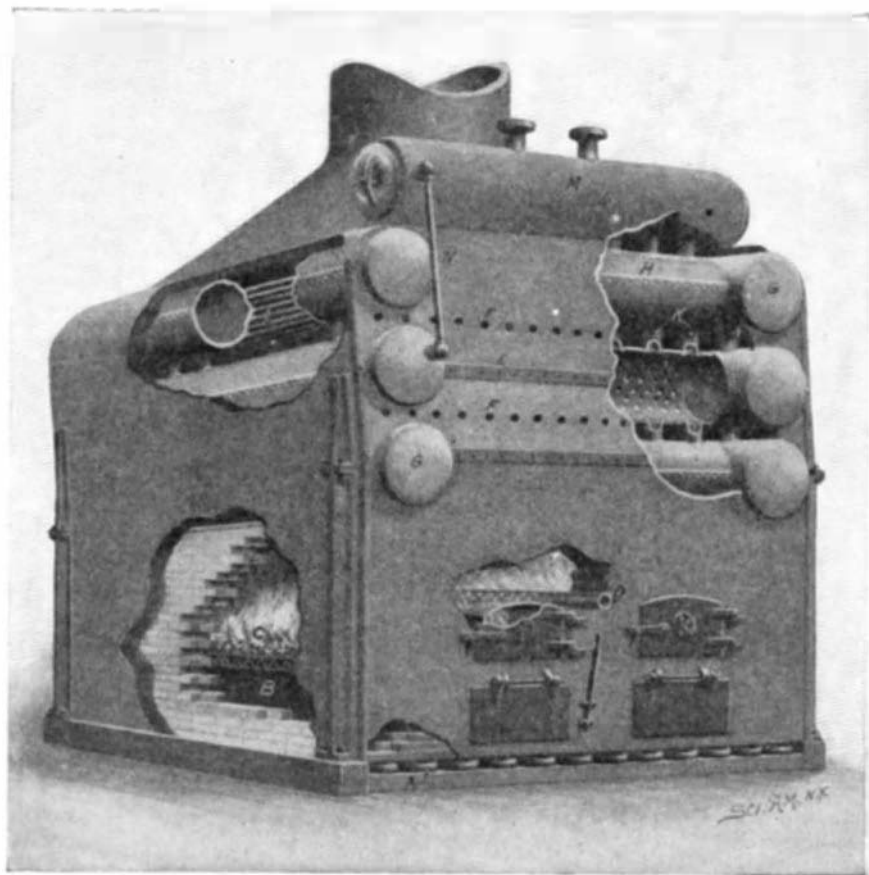


OIL CAN WITH MEANS FOR CLEANING SPOUT.

top of the body portion. The bottom of the can, however, is formed with an inwardly-extending cylindrical chamber, in which a hollow cylindrical plunger is fitted. This plunger, which is open at its upper end, contains a spiral spring that exerts pressure between a plate in the bottom of the plunger and the end wall of the cylindrical chamber. An opening is formed in this wall through which the clearing rod passes. The latter is formed integral with the plate above referred to, and its upper end projects well up into the spout of the can. An oil-tight joint is effected between the plunger and the cylinder, by means of suitable packing, which is held in place and expanded by a gland threaded into the mouth of the cylinder. In use, the oil may be expelled by inverting the can and pressing the plunger inwardly against the spring. This movement will produce a flow through the spout equal in volume to the amount of air displaced by the plunger, and at the same time the movement of the cleaning rod into the opening of the spout will dislodge any obstruction. It should be noted that both the cylindrical chamber and the plunger contain the oil which is within the can, and that as a result the capacity of the latter is only diminished by the space occupied by the comparatively thin walls and the slender rod and spring. The inventor of this improved oil can is Mr. George Palm, of Butler, Penn.

AN IMPROVED TYPE OF WATER-TUBE BOILER.

In the accompanying engraving we illustrate an improved type of water-tube boiler which has recently been patented by Mr. James M. Colman, of Everett, Wash. The principal objects of the inventor in designing this boiler were to increase the efficiency and at the same time to decrease the cost of manufacture and maintenance. This he effected by means of a new arrangement of the parts. Mr. Colman's boiler, as in-



AN IMPROVED TYPE OF WATER-TUBE BOILER.

dictated in the drawing, is quite different from ordinary types of boilers. The boiler foundation may be of any desired construction, but comprises, in addition, a series of water pipes laid in the cement of the foundation to keep the hot ashes in the ash pits from unduly heating the foundation parts and burning out the timbers. These water pipes are indicated at A in the engraving. Above the water pipes is a layer of bricks which forms the bottom of the ash pits, B. The usual shaking grates are indicated at C. The two furnaces and ash pits are separated from each other by a central brick partition, which extends upward a short distance above the grates. Along the top of this partition a perforated pipe, D, is laid, through which air is admitted to aid the combustion. The iron casing of the boiler is supported by columns at the corners, and is furnished with asbestos lining. Longitudinal seams are provided on the outside of the front plate, as shown at E, arranged for easy access in case of repairs. The casing is also formed with a series of holes, F, through which the soot may be blown out. Each hole has a short piece of tube expanded into it and projecting out of it. A cap covers the end of the tube and may be easily removed when it is desired to blow out the soot.

The boiler system comprises a tier of large tubes or drums, G, at each side, and these at the front and back of the boiler are connected by similar tubes or headers, H. The headers and side tubes are joined together by series of short tubes, K, as shown. The water tubes of the boiler, which are indicated at L, are inclined and extend from back to front, being expanded into the headers at each end. Upon the top of the boiler is the steam drum, M, which is connected to the uppermost header by a series of tubes. The water-gage glass is shown at N. The headers and side pipes of the boiler, which are of the same size, are large enough to permit a workman to enter when it is desired to effect repairs. Entrance may be had through the manhole provided at the rear of the side pipes. The joints of the water tubes are thus laid open to inspection. Similarly the steam drum, M, may be entered through the manhole, shown at the left-hand end.

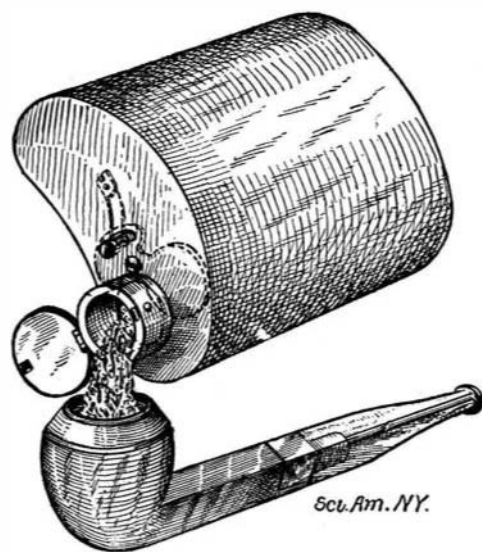
As will be observed by studying the engraving, the boiler is very compact and the construction is very strong. The large side pipes intersecting with the headers serve to brace the parts, obviating the necessity of staybolts. There are no hand-holes to weaken the structure, nor are any threaded joints used, the parts being connected by expanded joints, and the seams being riveted. The large side pipes and the headers not only give complete and ready access to all parts of the boiler for cleaning and repairs, but also, owing to their large capacity, they permit the boiler to carry a larger quantity of water than forms heretofore known, thereby securing more steady steam and obviating the danger of burning out the water tubes. Perfect facility is obtained for separating water from steam, yielding a dry steam, and thereby insuring economy. The circulation of the boiler is very good and is ample to carry off all the steam generated. Expansion in the inclined water tubes, L, causes an upward flow toward the front headers, the return flow taking place through the side pipes. The circulation is greatly assisted by the series of short tubes, K, which connect the tiers of headers and side pipes together. The openings, F, are also important, as they provide convenient means for cleaning out the soot collected on the pipes without removing any of the plates of the boiler casing. But if at any time it may be desired to effect an entrance therein, a plate may be removed from the front of the boiler by opening the seams, E. The construction provides a large grate area and the grates may be adapted to burn any kind of fuel. No special fittings are required that must be obtained from the manufacturer, so that any boiler-maker can repair the parts.

Experiments have been carried out by the British Admiralty with a new type of collision mat, which is the invention of Messrs. Speeding & Co., Sunderland, with very satisfactory results. The device was placed over an inlet orifice of one of the dock caissons, having a head of water over it of 12 feet to

a pressure of 6.68 pounds per square inch, while the inlet valve was open, the water passing freely through the 2-foot orifice. Immediately the mat was applied to the orifice the flow of water was completely stopped. The tests are to be repeated when one or two alterations in the device, which were seen to be essential, have been carried out.

ODDITIES IN INVENTIONS.

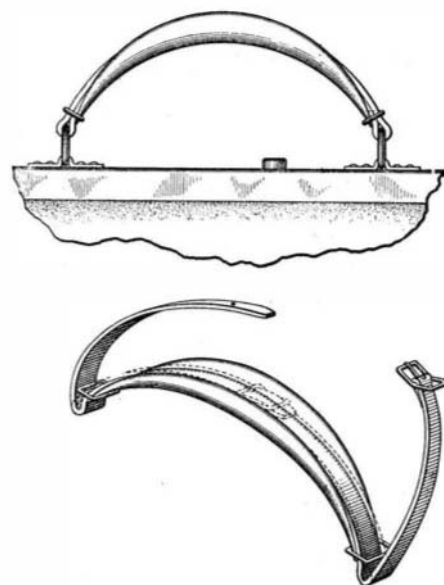
AN IMPROVED TOBACCO POUCH.—A Californian has invented a rather novel tobacco pouch, which we illustrate herewith. The pouch is provided with a measuring device which will measure off a quantity of tobacco necessary to fill a pipe, or to make a cigarette.



TOBACCO POUCH WITH MEASURING DEVICE.

This measuring device consists of a cylinder formed at the upper end of the pouch. This cylinder is covered at the top by a lid which is kept closed against the pressure of a spring-actuated hinge, by means of a spring latch. A sliding plate is provided within the pouch to close the lower end of the cylinder. This plate may be operated by a thumb piece, projecting through the upper wall of the pouch. In use the plate is moved clear of the cylinder, and the pouch is inverted to fill the cylinder with tobacco. Then the plate is moved to closed position, and the lid is released, causing the measured amount of tobacco to flow out into the pipe. The measuring chamber thus prevents waste. The pouch is particularly useful for smokers who make their own cigarettes. When adapted for that purpose the cylinder is made of a size to measure just the quantity of tobacco necessary for a single cigarette.

DETACHABLE HANDLE FOR VALISES.—The handles of valises, traveling bags, and the like, which are subjected to long and continued use, or to rough treatment, are very apt to wear out and break at a most inopportune time. The ordinary type of valise handle is a rather difficult thing to apply, and requires the use of special tools. But a new type of handle has just been invented which may be quickly applied by anyone without tools. It comprises a body part made of padded leather, and formed with a central depression in its upper face to receive a strap which is stitched thereto. The ends of the strap are passed through the rings on the valise frame, and then buckled together at the top of the handle. A couple of metal retainers serve to



DETACHABLE HANDLE FOR VALISES.

hold the straps in the groove of the handle piece. Since the buckle rests in this groove, the hand is prevented from coming in contact therewith and, being bruised by the metal parts while the valise is being carried. It will be observed that neither sewing nor riveting is necessary in applying the device, and that both time and expense are saved thereby.