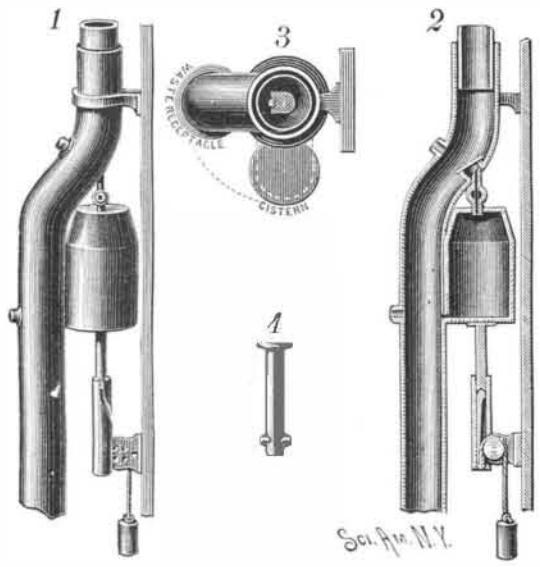
AN AUTOMATIC WATER TRAP FOR CISTERNS.

A water trap designed to assure the escape of the water first flowing from a roof at the commencement of a rain, the flow being after a brief interval directed to the cistern, is illustrated herewith, and has been pat-

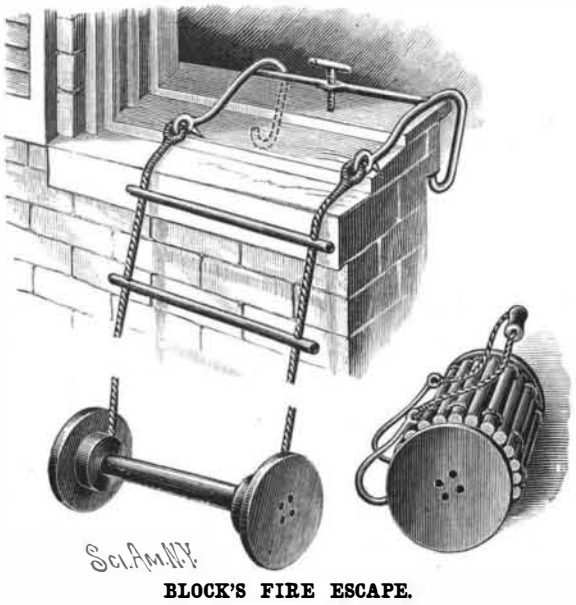


PICKERING'S WATER TRAP FOR CISTERNS.

ented by Mr. Charles H. Pickering, of Houston, Texas. The upper straight end of the main pipe, in which terminates the lower end of the leader, is guided in a bracket secured to the wall of the building, the main pipe having a bend, and thence continuing straight down, to connect at its lower end alternately with the waste receptacle and the cistern. On the side of the main pipe is secured a receptacle, as shown in Figs. 1 and 2, with a small aperture near its bottom communicating with the main pipe, and the top of the receptacle is connected by a pipe and an opening controlled by a valve with the bent portion of the main pipe, the top opening being covered by a hinged sieve or strainer. To the bottom of the receptacle attached to the main pipe is secured a pin extending into a sleeve rigidly connected with a bracket fastened on the lower end of the first bracket, and from the lower part of the pin project short pins, which engage a spiral groove formed in the sleeve, so that when the pin descends the spiral groove turns the pin on its axis about ninety degrees. In the sleeve is held to slide a pin engaging a recess in the bottom of the upper pin, and having a vertical slot into which projects a pulley mounted to rotate on the bracket, there passing over the pulley a rope secured by one end to the lower end of the pin, and the other end of the rope carrying a weight. As shown in Figs. 1 and 2, the receptacle at the side of the main pipe is empty, and the main pipe is held in its uppermost position by the weight, its lower end connecting with the waste pipe. Water now passing down the leader slowly accumulates in the receptacle, until the weight of the main pipe, the receptacle, and the water overbalances that of the balancing weight attached to the rope, and the main pipe and its attached receptacle descends, turning at right angles in its downward motion, so that the lowered end of the main pipe is disconnected from the waste pipe and connected with an opening leading to the cistern. When the rain stops, the water in the receptacle drains out slowly, and the main pipe again moves back to its former position.

AN IMPROVED FIRE ESCAPE.

A flexible fire escape, adapted to be attached to a window sill or other support and extended to the



BLOCK'S FIRE ESCAPE.

ground, is illustrated herewith, and has been patented by Mr. William Block, of St. Petersburg, Russia. The ropes are preferably of steel wire and the rounds of metal pipe, to secure strength with lightness, the wire ropes being passed through holes adjacent to the ends of the rounds, and held in place by a pin surrounded by solder. The upper ends of the ropes have an attaching device consisting of rods bent to form hooks of a convenient shape, with spurs, and a cross bar through which passes a clamping screw, whereby the device may be firmly attached to a window sill or other support on a building. The lower ends of the ropes are secured to rollers having disks which serve as flanges to hold the ropes on the rollers. When the fire escape is not in use, the whole is wound up to afford a light and compact package, as shown in one of the views.

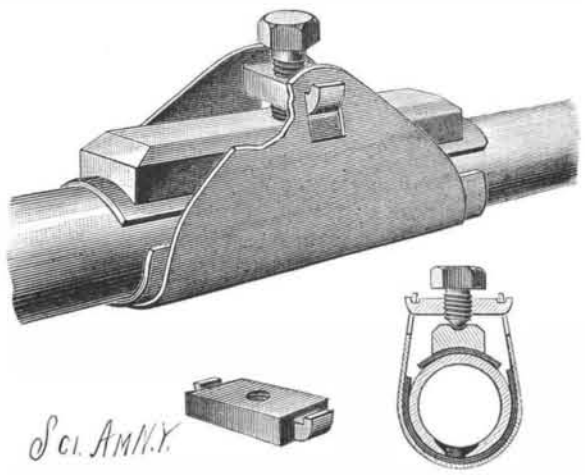
Further information with reference to this invention may be had of Messrs. H. Behr & Co., No. 75 Beekman Street, New York City.

Deer in New Zealand.

At a recent meeting of the Wellington Philosophical Society, Mr. J. W. Fortescue spoke of the rapid increase of deer that have been acclimated in the New Zealand mountains. Having had special facilities for observing these creatures, he proceeded to state some interesting facts as to their habits. At the close of his address Sir James Hector asked Mr. Fortescue, as an expert on the subject, whether the chief use of the antlers was not so much for fighting as for facilitating the progress of the stag through dense woods. He had considerable experience with the wapiti, in North America, and found that by throwing up the head, thereby placing the horns along the back, the animals were enabled to go forward with great rapidity and follow the hinds. He asked this, as it had been stated at a previous meeting of the society that the antlers tended to entangle the deer. Mr. Fortescue said that Sir James Hector was quite correct in stating that the antlers assisted the stags in penetrating dense forests. Mr. Higginson also bore out this statement from his experience in India.

AN IMPROVED LOCK-CLAMP FOR PIPES.

A device which may be readily attached to and detached from a pipe, to effectually seal and close a leak



PURDY'S LOCK-CLAMP FOR PIPES.

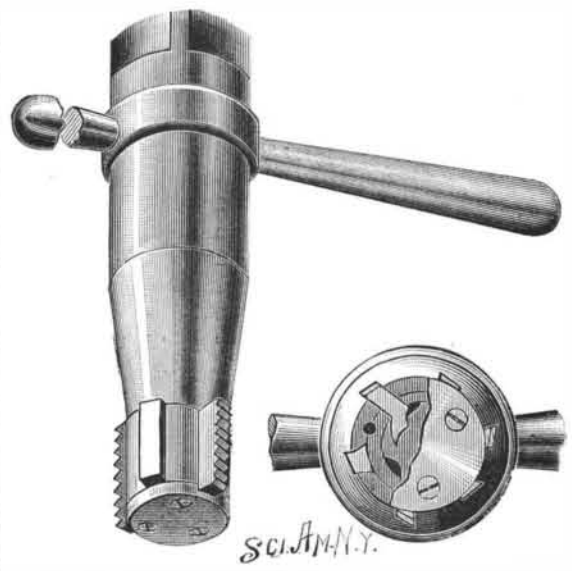
or split, or for other purposes, has been patented by Mr. William J. Purdy, of No. 357 Broadway, New York City, and is illustrated herewith, one figure showing a transverse section through the device applied to a pipe. The body of the clamp consists of a strip of spring metal bent in U-form, the upper end of each member having an aperture adapted to receive a yoke, shown in a small figure, and having a threaded aperture. Prior to placing the clamp upon the pipe, a strip of yielding or flexible material is placed on its inner surface, to abut against the pipe, and a bed block, likewise separated from the pipe by flexible material, is placed upon the upper surface, a bolt being then screwed into the threaded aperture of the yoke to bear upon the bed block and draw together the opposing members, holding them in rigid engagement with the lips of the yoke. The bed block may, if desired, be provided with a recess in its upper face, adapted to engage the reduced lower end of the bolt, whereby the bed block will be swiveled to the bolt.

IT is stated that Dr. Kauffmann, a Russian experimenter, has succeeded in solidifying petroleum, to be used as fuel, by heating it and mixing it with from 1 to 3 per cent of soap. The latter dissolves in the oil, and the liquid in cooling forms a compact mass having the appearance of cement and the consistence of tallow. The product is difficult to inflame, but when lighted burns slowly and without smoke, developing a high temperature, and leaving only 2 per cent of a hard black residuum.

THE Italian Admiralty have recently caused to be carried out a number of experiments with a view to testing the comparative merits of castor oil and of olive oil for lubricating purposes on board ship. From the results obtained they have given orders that henceforth all exposed parts of machinery are to be lubricated exclusively with castor oil, while mineral oils are to be used for cylinder and similar lubrication.

AN IMPROVED SCREW TAP.

An improvement in screw taps, providing means whereby the cutting dies may be projected outward or drawn inward, to enable the tap to be withdrawn after the thread has been cut, without the necessity of

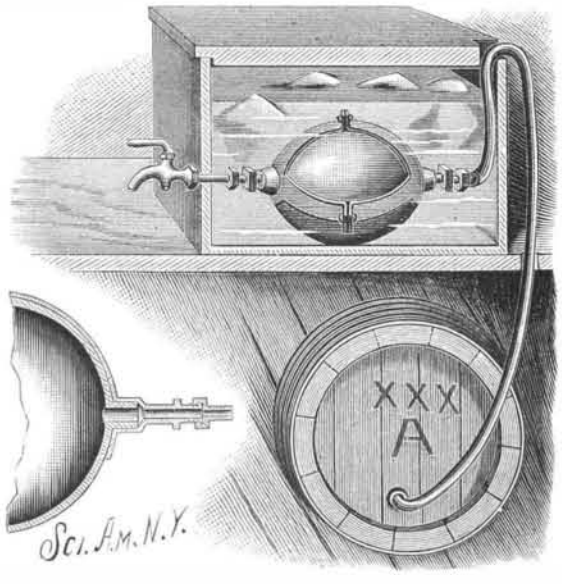


MATHER'S EXPANSIBLE AND COLLAPSIBLE SCREW TAP.

a reverse movement, is illustrated herewith, and has been patented by Mr. William Mather, of No. 245 West Tenth Street, New York City. The casing consists of a hollow mandrel provided at the cutting end with longitudinal slots or seats for the cutting dies. A spindle is adapted to turn in the hollow of the mandrel, having at the lower end a cam consisting of a reduced extremity and spaced longitudinal wings, as shown in the sectional view, there being a lip produced upon one inner side of the dies upon which the different faces of the cam acts, and by which the dies are respectively thrown outward and drawn inward. The spindle is reciprocated through the medium of a sectional handle, and in operation, to expand the dies, the handle sections are turned to the right, the dies being withdrawn by turning the handle in the opposite direction. Reaming dies are located in the forward or cutting end of the mandrel between the several cutting dies, and the dies when inserted in the longitudinal slots or seats of the mandrel, and into the under cuts of the cam, are retained in position by a cap plate apertured to receive the reduced end of the spindle.

AN IMPROVED RESERVOIR FOR COOLING ALES, ETC.

An improved apparatus whereby ales and similar liquids can easily be kept at a proper temperature, in a simple, inexpensive, and efficient manner, is shown in the accompanying illustration, and has been patented by Mr. William B. Hawkins, of No. 57 Christopher Street, New York City. The reservoir, which may be of any suitable material, as of stone, porcelain-lined metal, etc., is shaped more or less oval, with opposite inlet and outlet apertures, provided with nipples, and has a spider-like metal jacket made in two sections, each having an integral sleeve adapted to surround the nipples at the inlet and outlet. A length of pipe is attached to each sleeve, threaded at the ends to receive the coupling of the tubing leading respectively to the cask and to the draught faucet. The two sections of the jacket are united over the reservoir by screw bolts passing through their upturned contiguous edges. The



HAWKINS' COOLER FOR ALES ETC.

reservoir is submerged in a tank containing more or less ice, to cool the liquid to be drawn to the desired temperature, the reservoir to be made of a size adapted to cool as large a number of glasses as it may be called upon to supply at a time.