

**IMPROVED MILLSTONE.**

We illustrate herewith a new millstone, in which is embodied a large number of novel and useful improvements, mainly in mechanical construction, the object being to render the stone more effective in operation and more readily adjusted and balanced. These will be found noted in their proper places in the following description, reference first being had to Fig. 1.

The lower millstone, A, is bound with bands in the usual way, and its eye is made circular to receive a correspondingly shaped bushing, B. Within the latter are four radial boxes to receive the wooden bearing blocks shown, and also the metal wedges, C, by which said blocks are forced against the spindle. The wedges are adjusted from the lower side of the stone by the screws, D. The bushing has a cover, E, to which it is attached by bolts. This projects over the bushing, and its edge enters a rebate in the lower stone. Said cover is convex above and flat below, and is hollow in order to receive tallow or other lubricant. An upward projecting flange on the convex part enters a cavity in the driver, and serves to protect the spindle, which passes through, from contact with the substances ground, etc. The upper end of the spindle fits into a polygonal socket in the driver, so as to carry the latter with it in its revolution. The ends of the driver enter recesses in opposite sides of the bail, F, and so rotate the same, and the latter rests on the spindle end and has projections, G, which enter notches in the side of the eye of the moving stone. The bail has on its outer surface four spiral grooves, flaring downward so that they may not become clogged.

In the upper part of the runner are holes to receive the pockets, H. In these are placed the weights which receive screws swiveled in the covers so that said weights may be adjusted by turning the screws. This construction adapts the weights to serve as a standing and as a running balance. The screws may be easily operated by a wrench. Around the runner, between the usual main and edge bands, are placed several narrow bands which are cut away successively as the stone wears, the edge band being driven up.

When the runner is to be backed, a skeleton shell, I, Fig. 2, is placed upon it and secured by rods, J, which hook into the radial bars above, and are leaded into holes in the stone below. The plaster is then poured upon the shell and turned down true. The radial bars are made of such a length at their inner ends that the eye may be formed to the proper size without uncovering said end. This construction of the eye, the inventor states, enables him to put in a dress with 1 1/2 inches draft for each foot of the diameter of the stone, and twenty-four furrows at the edge and two furrows in each quarter, or seventy-two in all. The main furrows, J, are on a draft of about 1 1/2 inches for the eye for about two thirds their length. Their outer part and also the furrows, K, are on a draft of 1 1/2 inches per foot of diameter of the stone. The furrows, J, are about three eighths of an inch deep at the eye, and gradually decrease in width and depth toward the skirt, being about three sixteenths of an inch deep at the two thirds point, where the draft changes. The furrows, K, also gradually decrease in depth and width from their inner to their outer ends. All the furrows at the skirt are not more than five eighths of an inch wide, and, for grinding corn and other coarse grain, not more than one eighth of an inch deep. For wheat the depth does not exceed one thirty-second to one twenty-fourth of an inch. This dress gives an almost unbroken skirt and full lands, producing an even grade of meal or flour, and, it is claimed, more flour to the bushel of grain than the ordinary dress.

Patent now pending through the Scientific American Patent Agency. For further information address the inventor, Mr J. W. Truax, Essex Junction, Vt.

**IMPROVED FAUCET AND VENT.**

The function of the device illustrated in the annexed engravings is twofold: First, to admit air into a barrel, keg, or other vessel, so as to counterbalance the atmospheric pressure at the outlet, and thus allow a free discharge of the contained liquid; and, second, to act as a faucet for drawing off the liquid, without, however, admitting air to fill the vacuum in the vessel due to the escape. Thus the invention may be used either as a vent or as a faucet, and to this end a sleeve, provided with oppositely located air vent and liquid discharge holes, is applied to a hollow gimlet-pointed stem,

so as to be rotated thereon, and locked in either of the two positions necessary to the performance of one or the other of the above stated functions. The invention also consists in a corkscrew and brush attachment, and in certain other features, due reference to which will be made as we proceed.

The implement is composed of a T-shaped open-ended tube, A, and a gimlet tube, B, in which is a spring-acted plunger rod, C (Fig. 2), having a piston as shown. Said piston is packed with cork and india rubber so that the swelling

air vent openings, G, and in the stem are like holes to correspond. When the sleeve is adjusted in one position, the holes, F, therein will register with the similar apertures in the stem; and the piston having been pushed down and locked below said holes, F, the device will act as a faucet, the liquid discharge taking place through said coincident orifices and through the tube, A, as will readily be understood from Fig. 2.

When, on the other hand, the sleeve is turned half round from the position above described, the vent holes, G, will similarly register, and the device is then adapted to act as a vent. It will be seen, of course, that when holes, G, are open, holes, F, are closed, and vice versa. As a means of locking the sleeve in either adjustment, and of permitting it readily to be changed from one position to the other, two oppositely located notches, H, Fig. 4, are provided at the upper end, and a spring catch, I, is secured to the T tube, which enters and, by a square pin, engages in said notches.

The brush tube is shown at J, and the corkscrew at K. The latter is attached to one side of a screw plug having a milled rim. A small screw thread stem is formed on the other side of said plug, and at the base of the stem is a threaded boss or circular shoulder.

The various ways of applying the corkscrew, pursuant to this arrangement, are clearly shown in the engraving. It may be inserted in the brush tube as in Fig. 5, and so rendered convenient for carrying in the pocket. In use the stem is inserted in an aperture of the brush tube (which thus becomes a handle), and set up above by a little nut; or the corkscrew may be attached at one extremity of the T tube, A, and the brush tube slipped over the other, as shown in Figs. 7 and 1. Fig. 3 represents the adaptation of the device as a spout for siphoning bottles containing effervescent and any other liquids; and Fig. 8 exhibits the invention suitably modified to adapt it to the bung of a barrel, as an automatic bung.

The invention is an improvement on a somewhat similar device patented June 30, 1874. It is well suited, not merely to the uses of grocers, druggists, brewers, and saloon keepers, but to those of private families. The implement is inexpensively made, of strong and

durable metal throughout.

Patented through the Scientific American Patent Agency, March 7, 1876. For further information relative to proposals for manufacture, purchase of territory, etc., address the inventor, Mr. James Talley, Jr., Kansas City, Mo. The inventor calls attention to the simplicity and cheapness, especially of the automatic bung, which can be supplied to brewers, distillers, and original package men, at a cost but little over common bungs.

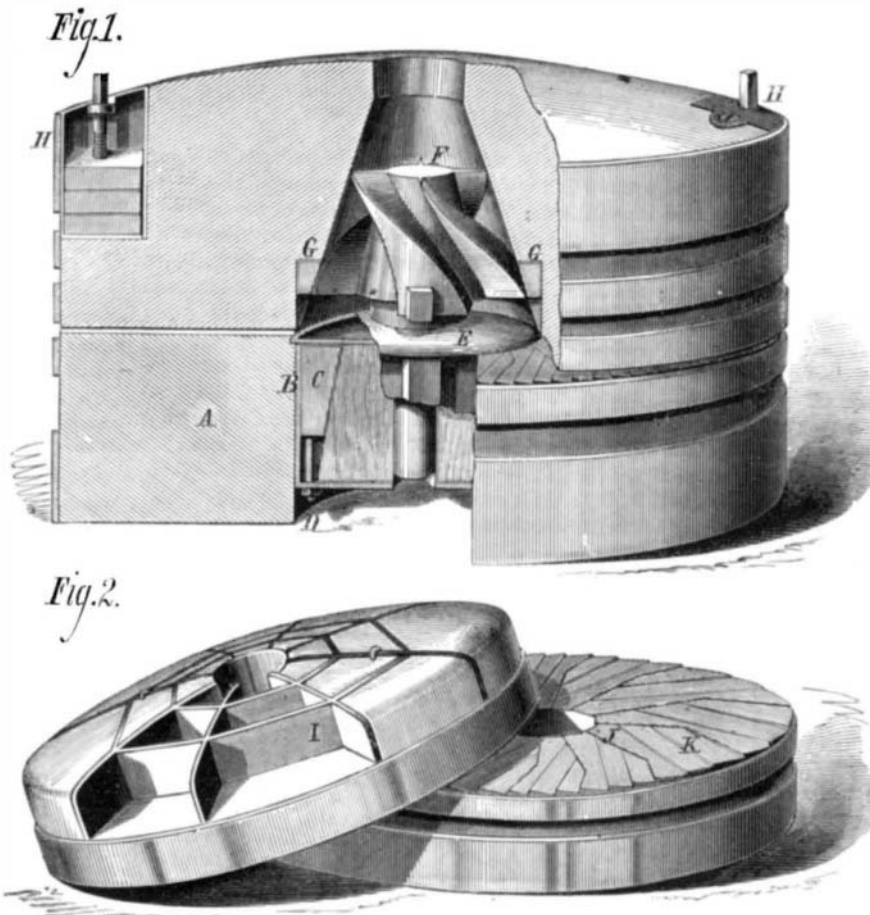
**Photography as a Detective.**

Recent attempts at forgery, by the alteration of the dates and amounts of written checks and drafts, have resulted in investigations as to how erased writing may be rendered visible. Various chemical processes, more or less efficacious, have been suggested, but the simplest process yet devised seems to be the photographing of the suspected paper.

This is founded on the fact that certain colorless or feebly colored substances, while very slightly affecting the eye, act powerfully upon the sensitive film in the camera. Photographers are aware that a photographic proof nearly effaced through age may, by photography, be reproduced with all its primitive detail and intensity. Generally all yellowish stains may thus be brought out; and peroxide of iron in the smallest proportion, so as to be practically imperceptible to the eye, gives proofs of great clearness.

Common ink, says M. Gobert, to whom is due the credit of the suggestion, is a compound of tannin and oxide of iron. Now it matters little what chemical means are used to remove the ink marks; for however carefully the chemical be applied, some traces of peroxide of iron are sure to be left either on the surface or in the substance of the paper. It is only necessary, therefore, to photograph the sheet, and to enlarge it besides, to bring out in the proof the effaced writing in an entirely legible condition.

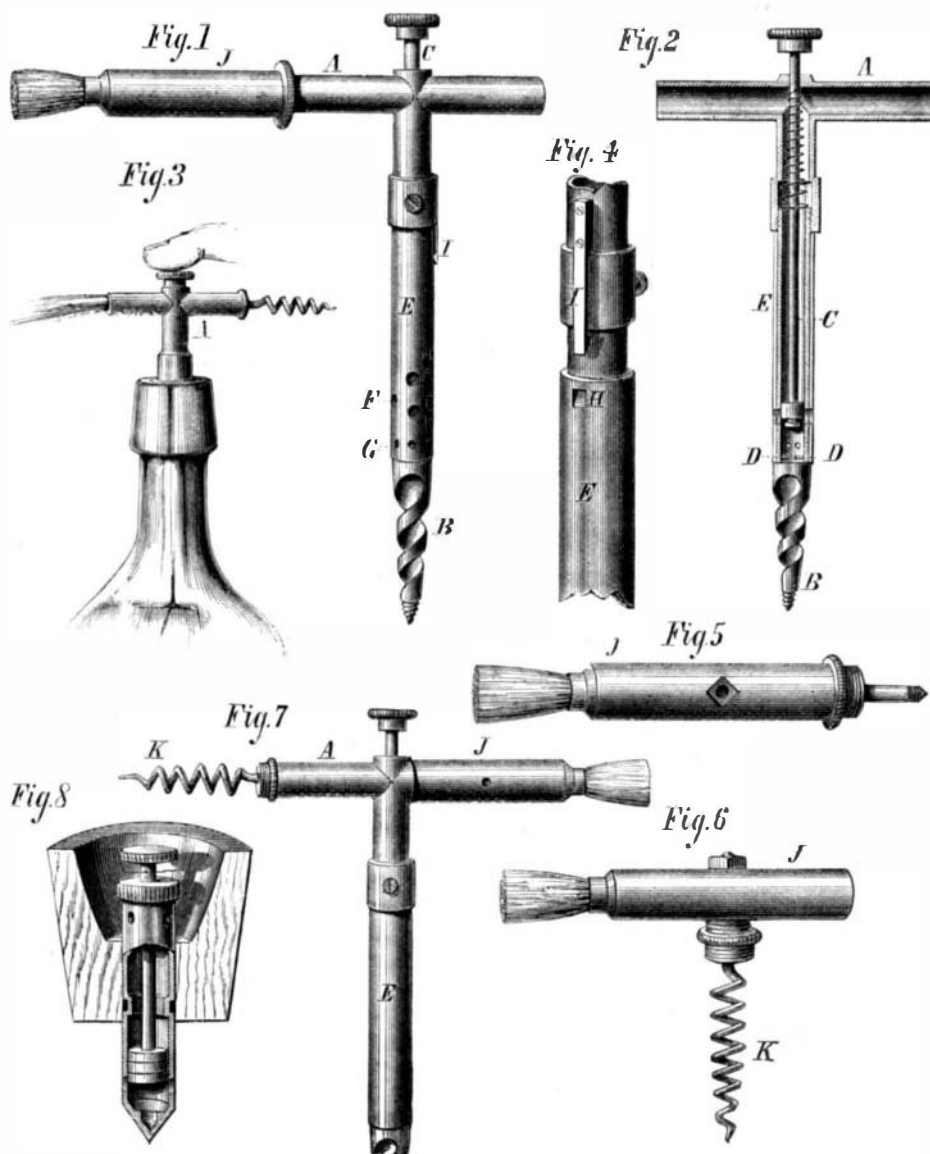
A RECENTLY proposed casing for steam pipes is composed of equal parts of fuller's earth and coal ashes, mixed to a paste with water and with as much calf's hair as it will take up. Before using, add one eighth its quantity of calcined gypsum and apply in thin coats.



**TRUAX'S IMPROVED MILLSTONE.**

of said packing will compensate for wear. There is a rubber washer applied to the rod, C, immediately beneath the head or thumbpiece, which serves to form a tight joint around the plunger when the piston is forced down and locked by lugs at D, to hold it away from the vent holes.

A rotating tube, E, is applied to the body of tube, B, which is correspondingly reduced in diameter to form a smooth exterior, as shown in Fig. 1. This sleeve has liquid discharge holes, F, arranged spirally around it, and the hollow stem has similar apertures. The sleeve also has similar



**TALLEY'S FAUCET AND VENT.**