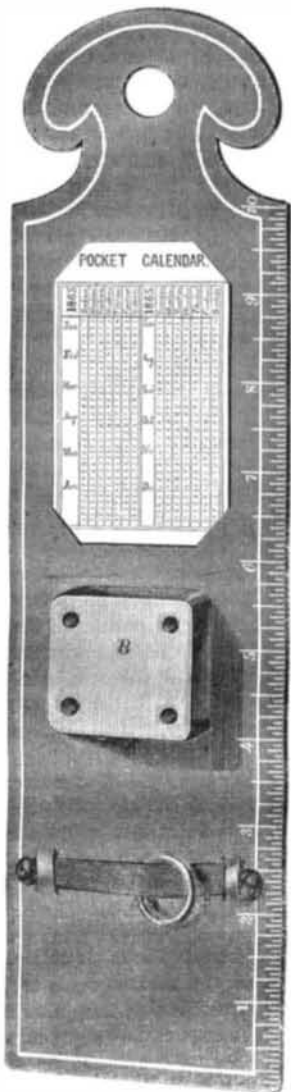


BOSWELL'S IMPROVED PAPER TIN.

This engraving represents an improved paper cutter, whereby it is made capable of other uses than those it is generally applied to. It can be employed as a ruler for making parallel lines, as a measure of distances in feet or inches, as a letter file, as a complete calendar for the year, and as a receptacle for letters. The letter file is simply an elastic band, A; the penholder consists of a block, B, perforated with holes, and the calendar is placed above it. The rest of the utensil needs no description.



It is claimed that by the combination of these articles, used about a counting room, into so small a space a useful article is produced.

A patent is now pending on it, through the Scientific American Patent Agency, by E. H. Boswell, of Philadelphia, Pa.; for further information address him corner of Eighth and Walnut streets. State rights for sale.

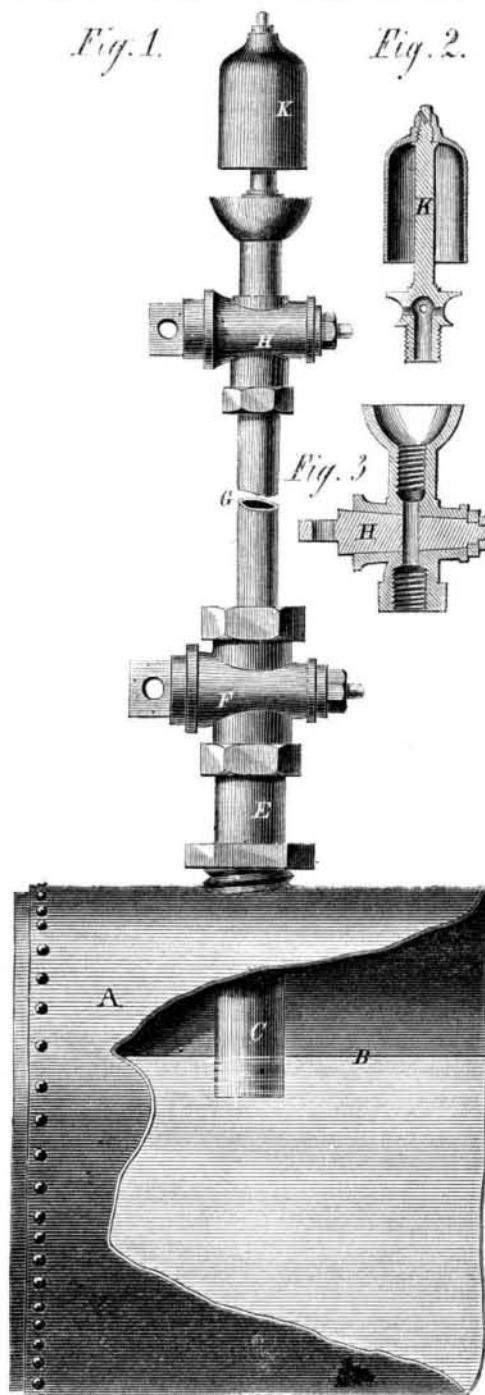
NON-EXPLOSIVE GUNPOWDER.

We published some time since a plan suggested in England for making gunpowder non-explosive, in order that it might be stored in large quantities with safety. On the 27th ult., Mr. Handel Cossham, from England, gave an exhibition with the prepared gunpowder, at Jersey City, N. J., which showed that the plan is effectual. About an eighth of a pound of powder was mixed with three times its weight of very finely pulverized glass, and the end of a red-hot iron was thrust into the mass. A few grains of powder, that came in contact with the iron, flashed off, one at a time, but the principal mass remained unburned. The glass was then sifted from out the powder, when, on applying the hot iron the powder, of course, burned with explosive suddenness.

The plan manifestly would not answer for fixed ammunition, or for magazines that must be kept ready for action; but where very large masses of powder are to be stored for long periods, it would seem to be a reasonable precaution to have it thus protected from all danger of explosion.

SHAW & JUSTICE'S LOW-WATER SIGNAL.

This engraving represents a novel instrument whereby the water in steam boilers is prevented from falling below a certain level, by giving notice to those in charge that the quantity has diminished and is already below the point of safety. This notice is



given by a steam whistle, and the method by which it is made to operate is quite ingenious. The proprietors say of it:—

"This efficient and simple instrument is offered in the belief that it will, to a great extent, do away with the objections which imperfect arrangements for a similar end have been open to. Fig. 1 shows a broken section of a boiler, A, with the water pipe, C, of the signal adjusted to the safe water line, B, below which the water should not fall, and which will keep the pipe of the signal filled with water to the upper cock, H. When the water line falls below the end of the tube, C, steam will of course take the place in the pipe, C E G. Fig. 3 is a vertical section of the cock, H. To prevent the water from being blown out through the key when opened to whistle, K, the bowl aperture of this cock is filled with molten resin, and the whistle, of which a vertical section is shown, Fig. 2, is at the same moment screwed down into the bowl socket of the cock.

"The resin not being affected so as to melt with a heat of less than 180°, remains, while hard, as a permanent barrier to the water, which is always cold at the cock, H, but when, by reason of the water line, B, falling to an unsafe point, and steam taking the place of the water in the tube, the resin melts, it is almost immediately blown out from the bowl aper-

ture of the cock, and the whistle gives notice of the danger from low water in the boiler. F, in Fig. 1, is a cock attached to a section of pipe and nut, to enable the signal to be removed at any time when necessary to recharge it, without the necessity of lowering the steam in the boiler. In many months of trial it has never failed in giving notice to the engineer when the water was allowed to run too low in the boiler."

It was patented on July 11, 1865, by Thomas Shaw, and is manufactured by Philip S. Justice, No. 14 Fifth street, Philadelphia, Pa., and No. 42 Cliff street, New York, where all orders must be addressed.

GODDARD'S PUMP ROD.

This engraving represents a simple improvement in pump rods for oil wells where the great weight is a serious objection. The weight is unavoidable except by this device, for the length of tubing employed for such rods must be used if the well is pumped. This improvement consists in perforating the rod with oblong openings, taking out the weight of metal represented by the opening, and reducing it to that extent. This reduction in no wise affects the strength of the tube for the duty it has to undergo, and is a manifest advantage in deep wells where the weight of the rod is great. This reduction lessens the labor on the pump gear, as also the machinery by which the same is operated, and will have a tendency to lessen the cost and frequency of repairs, which is sometimes a serious item.

It was patented through the Scientific American Patent Agency, on April 11, 1865, by Kingston Goddard, D. D., Philadelphia, Pa.

**Machinery Wanted at the South.**

We still continue to receive a large number of letters from parties residing in the Southern States, requesting information about machinery. The following are samples of many of a similar character:—

Wm. T. Hart, Engineer of the Virginia and Tennessee Railroad, Lynchburgh, Virginia, wishes to purchase steam fire engines, stationary and portable engines, saw and grist mills, gas works, and brick machines.

Frank Taft, Memphis, Tennessee, wants the best portable steam cross-cut saw.

Mrs. L. A. Benjamin, Baton Rouge, La., wishes to purchase a steam washing machine.

Letters of this character are so numerous that we cannot answer them by mail, and must refer our correspondents to the advertising columns of our paper.

Refining Petroleum.

For purifying and refining crude paraffine, some new processes have been proposed, viz.:—Melt the article and stir in 10 per cent of dry powdered chloride of lime (bleaching powder); then pour the mixture into diluted muriatic acid and boil until all the paraffine swims clear on the surface, and when cool it must be drawn off; 2d, Crude paraffine is boiled with ten times its bulk of fusil oil, and the hot fluid filtered in order to separate the insoluble tarry impurities. After cooling, particles of pure paraffine will fall down from the solution, and the heavy oils remain dissolved in the solution. The crystallized paraffine should be separated from the mother liquor by filtering and pressing. The cake of paraffine must be mixed again once or twice with cold fusil oil, when, after washing and pressing, the final melting will produce a perfectly white and pure article.

MESSRS. GUINNESS & Co. employ in their brewery about 300 men, through whose hands no less than 500,000 gallons of water, either in its crude form or manufactured state, pass daily. Thirty tons of coal per day is the average consumption of fuel, and this, with the water, is used to extract the virtue from, in round numbers, 1,500 cwt. of grain per day. The "pieces" in which the manufactured article is stored number sixty-five, besides twenty others in course of erection, and these contain from 1,500 to 2,000 hogsheads of 52 gallons each.