

Science and Art.

Will Saltpeter Explode?

This ponderous question, after all that has been said and done *pro* and *con* to decide it, is still involved in smoke and confusion. A circumstance occurred, not long ago, in London, which really goes to prove that this *old salt* will explode in spite of all that has been said to the contrary. In the report (for 1858) of Mr. Braidwood, the Superintendent of the London Fire Department, it is stated that a fire took place in one of the dock warehouses last summer, and "when the flames reached the saltpeter, a violent explosion took place, by which the center of the building was blown to atoms, the division walls crumbled in, and the floors of the adjoining warehouses set on fire." Mr. Braidwood appears to have settled this question for London, although it is well known that saltpeter may be roasted over an open fire without raising a single puff.

Improved Smut Machine.

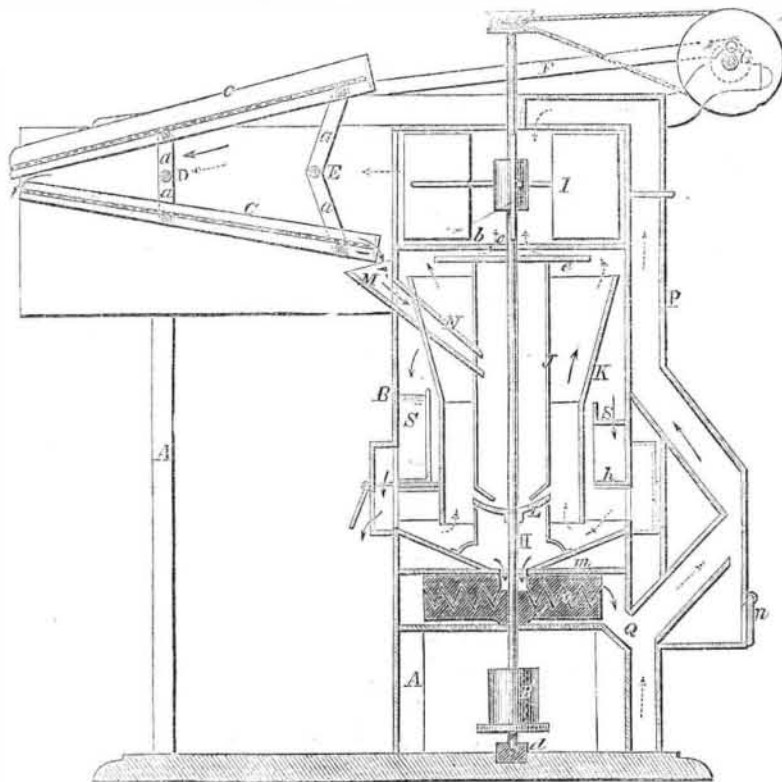
The good things of this life are few that have not their counterbalancing and relative evils; indeed, we should not enjoy the good had we not the contrast of the evil to stimulate our appreciation and give, by opposition, a zest to the enjoyabilities of existence. Wheat, the most useful of all grain, has its drawback, the smut, which, whether it be a fungus or an insect nest, as some say, is remarkably disagreeable, and renders the wheat useless until it is removed. To remove this many machines have been devised, as our readers are well aware, and we now present before them another which possesses many advantageous points of difference from those in common use. The great peculiarity is that it separates the smut-balls whole and does not break them, thus preventing the smut getting into the eyes of the wheat, from which it is very difficult to remove it. The same scourers which clean wheat and rye, and all kinds of grain, will also remove the hull from buckwheat. The machine is admirably constructed and avoids all jar, the central shaft running with great ease and freedom. Having said thus much by way of introduction to the machine invented by J. Tobin, of 206 Mulberry street, Newark, N. J., we will at once proceed to describe its operation by the aid of the sectional illustration.

Motion is given to the shaft, H, the plate, j, basin, L, and fan, I, by the belt-wheel, B'. The grain to be cleaned falls on the uppermost screen, C, which is coarse enough to allow the grain to pass through, but rejects large foreign substances. The grain then falls in the lower screen, C, which allows fine dust to fall through it, but sends the grain into hopper, M. These two screens are supported by bars, a, that are pivoted on the horizontal bars, D E, so that they are capable of a reciprocating motion, which they derive from the arm, F, connected with a crank on the shaft of the pulley, G. The grain, while passing through the screens, is subjected to a blast from I, which blows away light foreign substances. The spout, N, receives the grain from M, and conducts it into the cylinder, J, from which it falls on to the basin, L, which, by its rotation, throws the grain from its edge in a circular sheet and slightly upwards, so as to subject it most favorably to the action of the blast. Another hopper conducts the grain to the scourers, O, the upper one of which, m, is fixed while the lower one, j, rotates; this gently loosens all the dirt that may adhere to the ear, and the tip and blow, without injuring the ear, and forces the grain into the spout, Q, being subjected to a blast that passes up the spout, P, and carries away all the dirt that has been loosened by the scourers. The other parts of the machine are soon described. A is the framing and B the outer case; S are inclined spouts attached to the inner sides of B, between the plates b and h, and having flaps, n, at their ends by

which the dirt can fall out when the machine stops or there is weight enough of dirt behind the flaps to overcome the pressure of the air outside, which keeps them shut. c is the opening into the fan box, and the plate, e, and case, K, tend to keep up an even and

regular current of air through the machine. The arrows show the direction of the grain and blast. We have seen one of these machines in operation, and perceived the smut-balls come perfectly unbroken from it while the grain fell out in a beautiful state

TOBINS' SMUT MACHINE.

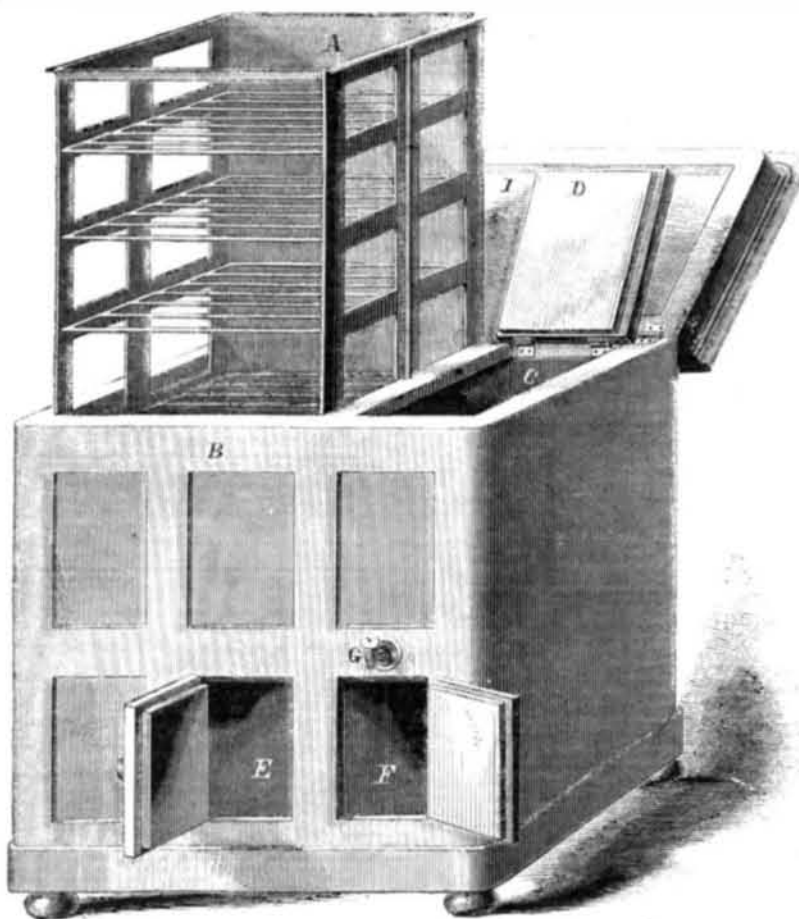


of cleanliness; in fact, a miller possessing one of these requires no other.

Space bids us stay our pen, and therefore we can only say that its many merits and great superiority can be proved, by an exam-

ination of its construction, by any person acquainted with such machinery. It was patented April 27, 1858, and any further information can be obtained by addressing the inventor as above.

McAVOY'S REFRIGERATOR.



There is much heat-abstracting power exerted, or cooling effect lost, by the opening and closing of the ordinary refrigerator; for example, ice is placed in a refrigerator and in melting it abstracts the heat from the contained air, thus condensing it and rendering it heavier than the surrounding fluid. Of course when the door is opened to remove any article of food or to place anything in to be cooled, out rushes this cold air, and its place

is instantly taken by the warm surrounding air, which has to be cooled at the expense of the ice. If this cold air could be kept in and no ice spent in cooling fresh quantities of air each time the door was opened, a great saving of ice would be effected, and consequently a saving in that tender part of human economy—the pocket. In the invention which forms the subject of our illustration this is done in a simple and ingenious manner.

A shelf-frame, A, is placed in a proper non-conducting case provided with the usual ice-box, C, and this shelf-frame is supported by cords and pulleys concealed in the case, so that when it is raised to place anything upon its wire shelves or take anything off of them, the cold air in the refrigerator is not disturbed but keeps in the case, forming a kind of well of coldness into which the shelf-frame can be immersed. In the ice-chamber, C, is placed a stone water-jar, the tap of which is seen at G. E is a door for cleaning out the bottom of the case, and F is a wine or butter closet distinct from the other part of the refrigerator. The ice-chamber is closed by a door, D, and a similar door closes over A when it is down in the case; a close-fitting top, I, covers the whole, which, when finished and decorated, forms a slightly piece of furniture, suitable for a dining-room.

The inventor is H. L. McAvoy, and for further information address McAvoy & Jenkins, 14 Light street, Baltimore, Md. The patent is dated March 8, 1859.

Concrete Houses.

MESSRS. EDITORS:—I notice an error and an omission in the communication on "Concrete Houses," published in No. 32 of the present volume of the SCIENTIFIC AMERICAN. It says that my roof is "covered with spruce plank, lined over;" it should read "tinned." Again, the types state that "the first floor has dining-room, bedroom, and kitchen;" the words "parlor, hall," being omitted. The first statement conveys but a very vague idea of the kind of roof I use; and the second or additional room and hall make quite an important item in the accommodations of the house.

Yours truly,
F. G.

Huntington, N. Y.

No less than forty-one fires were caused in the city of London last year, by throwing down unextinguished cigars. We have no doubt but a greater number of conflagrations occur annually in New York from similar causes.



INVENTORS, MILLWRIGHTS, FARMERS AND MANUFACTURERS.

FOURTEENTH YEAR

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