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Light Colored Copal Varnish.

Take one pound of pale African copal, fuse t in an iron pot, then add a quart of clear hot linseed oil; stir well, then boil until the mixture is stringy. When cool, add two quarts of turpentine and mix well.

Improved Force Pump.

Force pumps in which the piston rod passes through the air chamber, are to some extent objectionable, because the air, after a time, escapes from the chamber through the water and packing, and the pump must then be opened so as to admit a new supply. This objection is entirely removed in the present improvement. The inventor provides the air chamber with a tube, through which the piston rod moves without coming in contact with the contents of the chamber.

In the engraving A is the air chamber, B the tube which separates the piston rod, C, from the air chamber. D is a cup, which receives the lower end of the tube, B; E E is the water line in the chamber; the cup is always below the water, and is thus kept tight, so that neither liquid nor air can ever reach the piston rod from the air chamber.

Another valuable feature of this pump is the cheapness with which it is constructed.—The shell, F, is all cast in one piece, and requires little or no machine finishing; the same may be said of the bed plate, G, and valve plates, *e e e;* in fact, almost the only part that need to be placed in the lathe is the pump barrel, I.

The operations of this pump are as follows:—When the piston rises, the water enters through supply pipe, M, and valve, *f*, into the pump barrel, I. Any water that remained in the pump barrel above the piston, is, by the rise of the piston, forced out through valve *g* into the exit nozzle, J, as shown by the arrow.

When the piston descends the valve, *f*, closes, valve *h* opens, and the water is forced up out through the nozzle, as indicated by the arrow at valve *h*. The descent of the piston causes a vacuum above, valves *f g*, are closed and valve *i* opened; the water rushes in through valve *i* to fill the vacuum; thus a double action of the piston is obtained, which both lifts and forces in its ascent and descent.

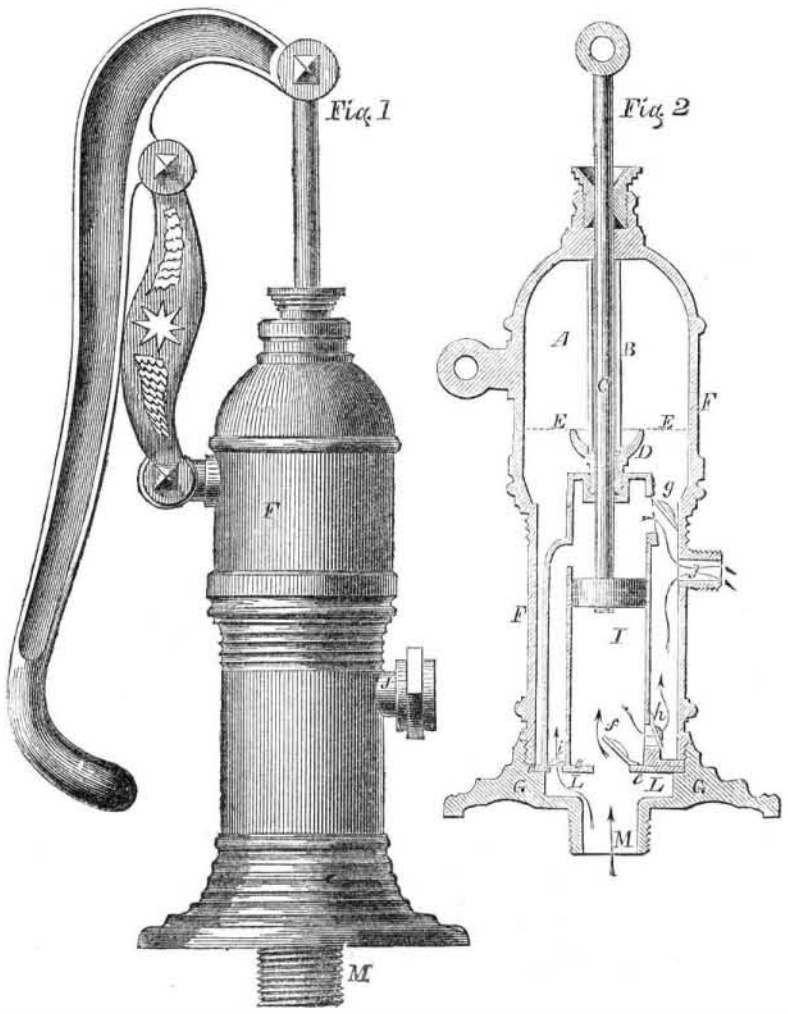
The bottom valve plates, *e*, it will be seen, are detached pieces, yet they are held firm by the combination of the bed plate, G, and shell, F; being thus detached, the valve plates and valves can be fitted much more easily and cheaply than if the whole pump had to be handled; the necessity of a dry sand core in order to form the water chamber, L, is also avoided, and the casting cheapened.

The working parts of the pump are nearly all under water, whereby they are rendered more than ordinarily tight and effective; the water is also received and transmitted in a very direct and effective manner, the openings being all of them easy and liberal; violent agitation and unnecessary movement is thus done away with, and the motive power required to raise the water is lessened.

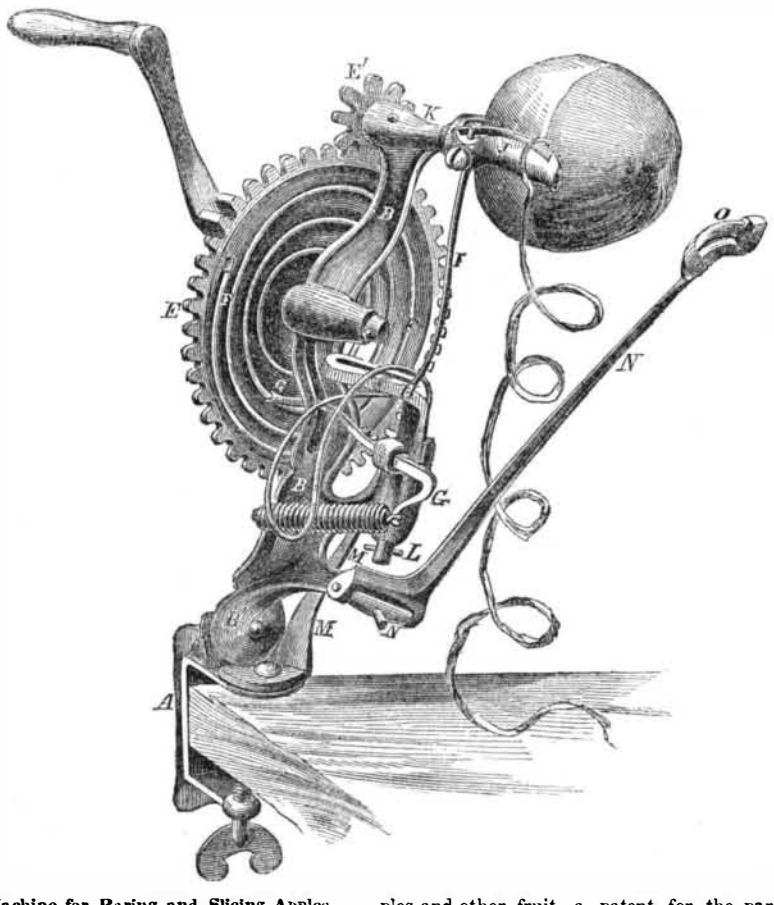
This pump strikes us as being one of unusual excellence. It is simple, and yet, apparently very effective. Large pumps of this kind could, we should think, be made very cheap, and we see no reason why they will not prove, in use, to be equally as effective, durable, and economical of power as any of the more costly pumps having the same capacity.

The inventor is Mr. Charles N. Lewis, of Seneca Falls, N. Y., and of him any further information can be had. His patent bears date Jan. 1, 1856.

IMPROVED DOUBLE ACTING FORCE PUMP.



IMPROVED APPLE PARING AND SLICING MACHINE.



Machine for Paring and Slicing Apples.

The accompanying engraving represents an ingenius machine for paring and slicing apples and other fruit, a patent for the parer having been granted to S. N. Maxam, April 10th, 1855, and measures have been taken to secure a patent for the slicer, that being of recent invention. The machine is small, nearly all its parts being of cast-iron, the whole weighing only 2 pounds 10 ounces.

The contrivance is secured to the table by means of the clamp, A, and to this is attached the standard, B, by means of the strong joint at B', which permits the careening of the machine both right and left. E is the driving wheel, motion being given by means of the crank to all the parts. Upon the face of the driving wheel, E, is an inclined scroll, F, upon which one end of the rack bar, G, slides; this rack connects with, and gives motion to, the loop gear, H, which supports and guides the spring rod, I, upon which is affixed the paring knife, J.

The machine being careened, as shown in the cut, an apple is placed upon the fork, K, when by rotation of the crank the driving wheel, E, gives motion to the pinion, E', and thence to the fork and apple, while the scroll, F, acting through the rack bar, G, upon the loop gear, H, the paring knife, J, is thereby passed, during the rotation of the apple, from its base around to its outer end, and effectually *pares* the apple, when—the outer circuit of the scroll, F, having passed the end of the rack bar, G,—the coiled spring attached to the other or lower end of the rack bar, contracts, and returns the rack bar, loop gear, spring rod, and paring knife to their original positions, in readiness to repeat the operation of paring.

Without removing the apple from the fork the machine is now careened in an opposite direction, when the pin, L, which secures the loop gear, H, within its socket, comes in contact with the tripping post, M, causing the partial revolution of the loop gear, and thereby withdrawing the end of the rack bar, G, from the scroll, F, thus permitting the backward rotation of the crank and driving wheel, together with the fork and apple. The slicing arm, N, which is hinged to the standard, B, and sustains the slicing knife, O, is now swung by the left hand and pressed lightly against the apple, which is thereby cut into one continuous slice or ribbon, leaving only the core, in cylindrical form upon the fork.

The careening of the machine perfectly accomplishes the separation of the slices from the parings, while the parabolic curvature of the slicing knife produces such a formation of slices that they do not pack closely together while drying, and yet are not in the least objectionable for immediate cooking.

This is a novel contrivance; that it works well we know from actual experiment. More information may be obtained, by letter, of the proprietors, Maxam & Smith, Shelburne Falls, Mass.

Saltpeter for Butter and Meat.

What office does saltpeter perform in the preservation of butter and meat that is not as well performed by the use of common salt alone? This is an important question, because, if saltpeter exerts no special preservative influence not to be found in common salt then it should not be used in butter nor in the brine of meat, because it has a bitter taste, and must impart more or less of it to butter, especially. We have been assured by those who have packed butter with and without saltpeter, that it is much better not to use it for this purpose. The best plan of salting butter is to use the purest salt only; heat it on the fire before using it, to drive off all the moisture, and apply it warm, when working the butter.

An antedeluvian duck is stated by a Paris paper to have recently been dug out alive in France while cutting a railroad tunnel. The Paris editors are strange ducks, to give currency to such stories.