

less well known to everybody that the surfaces of all flour grinding stones are grooved over by means of chisels, so as to leave a large number of sharp edges to assist in the fine pulverization of the grain. When these edges become dulled from use it is necessary to renew them by regrooving. Until within a few years this labor was always done by hand, with mallet and chisel; but mechanism is now quite extensively employed for the purpose.

The present invention consists of a grooving apparatus to be attached by means of gearing to the spindle of one of the stones, in such a manner that when the device is made to move it will travel around concentrically, and cut concentric grooves upon the stones. Another feature of this improvement consists in a novel means of regulating the length of the arm to which the stone pick is attached; also in a method of regulating the force of the blow given to the pick.

Improved Fire Engine.—By John P. Cowing, Philo Cowing, and George Cowing, of Seneca Falls, N. Y.—The prominent feature in this improvement relates to the manner of operating the pistons. The piston rods instead of being made in one piece, are divided and jointed so as to form the well-known toggle joint. The toggles are connected by suitable levers to the brakes, and the whole apparatus thrown into a very compact form. The inventors allege that a fire engine made on their plan will surpass, in power and ease of operation, any other machine of the same capacity. It is also alleged that when the pistons reach the point where the greatest force is required, the toggles are almost straight, and that no more power is therefore needed at the end than at the beginning of the stroke.

Bolt Heading Machine.—By Henry M. Clark, of New Britain, Ct.—This invention has for its object the formation of screw and bolt heads of various kinds, by upsetting the blank of round, bar, or rod iron of which the screw or bolt is formed. The invention consists in a novel arrangement of dies to upset and form the heads; also in certain means of operating the dies and gauging the position of the blanks previous to the heading operation; also in a peculiar way of discharging the headed blank from the dies. Drawings would be necessary to describe the precise operation of the parts.

New Mortising Machine.—By J. A. Merriman, of Hinsdale, Mass.—This invention embodies a peculiar method of operating a reciprocating cutter and a pair of chisels, whereby mortises of varying sizes may be cut in a perfect and very expeditious manner. The machine may be operated either by hand or steam power. We regard the improvement as one of the best of its class.

New Wash Board.—By Ira S. Parker, of Sharon, Vt.—The common wash board may be described as a piece of flat wood, serrated or grooved upon its surface. Mr. Parker combines a series of small round bars, so that when put together they present as good a rubbing surface as the common boards. Each bar has a number of round beads turned upon it, so that the wash board, when complete, bears some resemblance to the counting bead frames used in schools. The inventor alleges, that in the use of wash boards thus constructed, the water is not splattered around during the process of rubbing the clothes, as it falls through the spaces between the beads into the tub.—The clothes also, in consequence of the beads, are rubbed over the ends of the grain of the wood, and thereby subjected to more friction than the ordinary corrugated boards present; thus effecting a saving of labor.

Hat Body Felting Machine.—By James S. Taylor, of Danbury, Conn.—This invention is an improvement upon a hat felting machine, formerly patented by Mr. Taylor, and which consisted of a number of rollers placed diagonally to each other within a vat. The rollers were so arranged as to form a chamber between them, of sufficient size to receive the hat body, which was forced through the whole length of the rollers by the rotation of the same and, by repeated rolling and rubbing, elted up or shrunk. All of the rollers above mentioned turned on a fixed axis, and had only one motion.

The present improvement consists in giving some of the said rollers two motions, viz., a

lateral as well as a rotary motion. This simple change, we are told, accomplishes a highly useful result, by improving the quality of the work turned out. Hat body makers will understand and appreciate the invention.

NOTE.—Patents for all the foregoing inventions were granted by this government Jan 15th, 1856. For claims of the patentees see the official list on another page.

Recent Foreign Inventions.

WORKING STEAM EXPANSIVELY IN ONE CYLINDER.—E. Carrett, of Leeds, Eng., has taken out a patent for such an arrangement of cylinder and piston as will cause the elastic force of the steam to operate twice, by being admitted first at high-pressure on one side of the piston, and afterwards on the opposite one, which is of a much larger area, where its expansion is completed before being finally condensed or discharged into the atmosphere. The trunk is made of such convenient size as to slide inside a suitable guide or chamber in the end of the cylinder, in such manner that the steam may act on the effective area, simultaneously with the area remaining of that side the piston; being thus guided and supported on both sides against the oblique pressure of the connecting rod, while the total surface of one of its sides is not lessened, upon which the steam acts on its second entrance into the cylinder. This is accomplished by constructing the cross-sectional area of the smaller ram of a different form to that of the closed chamber in which it slides, and by which it is guided, so as to allow the steam to pass freely from the cylinder into the vacant space between the two. The sides of the chamber, or hollow guide, can also be made adjustable, so as to compensate for the wear, in lieu of the piston rubbing against the actual sides themselves. To compensate for the inequality of pressure in condensing engines, which would otherwise be felt on the piston in the two directions of its motion, from the united effect of the steam and vacuum, the trunk is made a ram on that side the piston on which the steam first acts to work steam-tight in a closed chamber, the inside of such chamber being kept open by a pipe leading to the condenser, maintaining a constant vacuum inside.

PROPELLING VESSELS.—James Pettigree, of Drumcree, Ireland, has obtained a patent for propelling vessels by means of a solid piston working in a cylinder at the stern of the vessel, to which the water has access—the piston acting to propel the vessel by thrusting against the water. The claim is for an arrangement of mechanism to operate the piston, as the principle of propulsion is not new.

COMBINED IRON AND TIMBER GIRDER.—R. McConnel, of Glasgow, Scotland, has obtained a patent for a girder or beam composed of two malleable iron bars or narrow plates connected together with stay pieces of wood, and with spaces for transverse joints.

PAYING OUT TELEGRAPH CABLES IN THE SEA.—R. S. Newall, of Gateshead, Eng., has secured a patent for preventing submarine cables from kinking while being laid down, a great deal of trouble having been experienced in their getting twisted.

The cable to be laid down is passed around a cone, or several cones, so that while it is being drawn off the coil the cone prevents kinks forming. The cable passes over a pulley above the cone, and on to a brakewheel, around which it takes several turns, and then passes down into the ocean.

PACKING FOR SPIRIT LAMPS.—A patent has been obtained by G. T. Bamsfield, of Brixton, Eng., for the use of granulated pumice-stone as a packing for spirit lamps, or any other vessel containing inflammable hydro-carbon.—This packing is stated to insure greater safety.

PERMANENT BLACK DYE.—T. Richardson, chemist, Leeds, Eng., has obtained a patent for producing a permanent black dye on woolen cloth, by mordanting the cloth with bichromate of potash first, then submitting it to a bath composed of sulphate of indigo and other suitable dyeing materials. The words in italics are those used in the *London Mechanics' Magazine* from which we condensed the above. The bichromate of potash is a common mordant for a black color on woolen goods, and sulphate of

indigo is a fugitive coloring ingredient for dyeing blue. We would like to know what "the other suitable dyeing materials" are, which render this color permanent. It would be a very useful receipt for many of our woolen dyers. We can suggest to them the use of camwood with the sulphate of indigo as being in all likelihood the dyewood to accomplish the object.

BREECH LOADING FIRE-ARMS.—C. C. E. Minie, the inventor of the rifle bullet which bears his name, has obtained a patent embracing two claims for breech loading rifles. The first is for a swiveling piece, to which is attached a device that holds the breech and barrel firmly and solidly. The second is for placing the cartridge into a recess without the necessity of inserting it in the barrel, to load the rifle.

SIDE SCREWS FOR STEAMERS.—An English patent has been granted to Capt. Whittaker, of Buffalo, N. Y., for the application of screw propellers to the sides of steamers instead of their stern, combined with high pressure engines on the hull. This new mode of steam propulsion is familiar to our readers, having been described in our last volume. It is the application of locomotive engines and side screws to steam vessels.

NOVEL SYSTEM OF PRINTING.—Joseph Silbermann, of Paris, has obtained a patent for printing by producing a pressure of air, gas, steam, or a liquid, through one or more mediums in the interior of an elastic holder for inking and printing on surfaces, especially those which are curved.

PURIFYING OILS AND FATTY MATTERS.—A patent has been granted in England to A. F. Cossus, of Sardinia, for purifying oils and fats by agitating them with turf charcoal and schist. They are then filtered through several thicknesses of cotton cloth, and at last through unsized or filtering paper. The oils thus treated are stated to be very pure.

[The above are mostly condensed from the *London Mechanics Magazine*.

Preserving Animal and Vegetable Substances for Food.

The following specification is taken from Newton's *London Journal* of arts and science. It has been secured by patent to E. Hartnall, of St. Mary Axe, England. If it is as good an invention as it is stated to be, and from the nature of the material used we think it is, it will prove to be of immense benefit to our ham makers. The patentee describes his process of preserving animal and vegetable substances as follows:—"1. Take two-thirds gelatine and one-third treacle (thick molasses,) and place both together in a vessel heated by steam; the gelatine must be previously soaked in water to enable the two to unite; add a small portion of spirit to remove the watery particles. 2. Have another vessel at hand containing a composition or two-thirds treacle and one-third gelatine; this, having once boiled, must be kept in a liquid state, by the smallest degree of heat being applied necessary for that purpose. Raise No. 1 composition up to the greatest degree of heat without its actually boiling; then immerse the meat therein, and there let it remain for a time sufficient to neutralize the gases; which time must be determined by its size and weight, and the quantity of bone it contains.

When the meat is withdrawn from No. 1 vessel, its internal heat will cause the liquid to run off; it is therefore necessary to immediately immerse it in No. 2 vessel, and there let it remain till it may be withdrawn with safety. On being exposed to the air, the substance becomes hardened, but is as elastic as india rubber. The meat is hermetically sealed. A third coating may be applied when the first has set, and the meat be immediately wrapped in canvas, which firmly adheres to it.

Having thus stated the nature of the said invention, I will proceed more fully to describe the manner of performing the same:—

"1. MEAT.—Have in a vessel treacle and gelatine, in the proportion of three-fourths treacle to one-fourth gelatine; bring this composition up by steam or otherwise to 215 degs. heat. Then, and not till then, immerse the meat therein—keeping it down by means of a weight made to fit the vessel—let the meat remain in this vessel for the space of fifteen minutes to

each pound, when it may be withdrawn. By this process, the decomposing gases in the meat are completely neutralized—and it has, at the same time, undergone a rapid process of curing or pickling. On no account must the composition be allowed to boil, and great care must be taken to have the heat uniform and regular. To improve the flavor of the meat, salt, spices, garlic, &c., may be mixed with the treacle. This meat may be smoked or otherwise dried.

2. When the meat is withdrawn, hang it up in a cool dry place for about twenty-four hours, and wipe off with a sponge the moisture from the exterior; then immerse it in a vessel containing one-half treacle and one-half strong gelatine, with a small portion of isinglass, dissolved together, and sufficiently heated to be kept in a liquid state. This process hermetically seals the meat, and causes it to retain its moisture.

3. When the coating has hardened on the exterior of the meat, re-dip it, and then cover the surface with charcoal powder. This process protects the coat from mildew, and facilitates the handling of the meat in packing.

4. FISH.—Subject mackerel, salmon, cod fish, &c., to the same degree of heat as in No. 1 process, but in olive oil; when cold, hermetically seal them, according to No. 2 process.

5. VEGETABLES coated according to No. 2 are protected, as with a coat of india rubber, from the influence of the external air."

The Philosophy of Sneezing.

A sneeze always indicates that there is something wrong. It does not occur in health unless some foreign agent irritates the membranes of the nasal passages, upon which the nervous filaments are distributed. In case of cold, or what is termed influenza, these are unduly excitable, and hence the repeated sneezings which then occur. The nose receives three sets of nerves—the nerves of smell, those of feeling, and those of motion. The former communicate to the brain the odorous properties of substances with which they come into contact, in a diffused or concentrated state; the second communicate the impressions of touch; the third move the muscles of the nose, but the power of these muscles is very limited. When a sneeze occurs all these faculties are excited in a high degree. A grain of snuff excites the olfactory nerves, which dispatch to the brain the intelligence that "snuff has attacked the nostril!" The brain instantly sends a mandate through the motor nerves to the muscles, saying, "cast it out!" and the result is unmistakable. So offensive is the enemy besieging the nostril held to be, that the nose is not left to its own defence. It were too feeble to accomplish this. An allied army of muscles join in the rescue, nearly one-half of the body arouses against the intruder; from the muscles of the lips to those of the abdomen, all unite in the effort for the expulsion of the grain of snuff. Let us consider what occurs in this instantaneous operation. The lung becomes fully inflated, the abdominal organs are pressed downwards, and the veil of the palate drops down to form a barrier to the escape of air through the mouth, and now all the muscles, which have relaxed for the purpose, contract simultaneously, and force the compressed air from the lungs in a torrent out through the nasal passages, with the benevolent determination to sweep away the particle of snuff which has been causing irritation therein. Such, then, is the complicated action of a sneeze; and if the first effort does not succeed, then follows a second, a third, and a fourth; and not until victory is achieved, do the army of defenders dissolve their compact, and settle down into the enjoyment of peace and quietude.

[This extract is from the *Journal of Medical Reform* published in this city, and is a little bit of philosophy "not to be sneezed at."

Gas in Flushing.

We learn from the *Long Island Times* that the beautiful village of Flushing (L. I.) is now illuminated nightly with gas. The gas was first let into the pipes on the 11th inst.

Alpine Ice.

It is scarcely possible to estimate the quantity of ice on the Alps. It is said, however that, independent of the glaciers, there are 1500 square miles of ice on the Alpine range, from 50 to 600 feet thick.