

several chimneys at Aix in France, and was taken for an earthquake.

There are several theories in regard to meteors, but the most plausible one is that they are small planets revolving around the sun in very elliptical orbits, and that occasionally they come so near the earth as to be drawn within the limits of the atmosphere, when they are heated by the joint action of the condensation of the atmosphere and the checking of their velocity; that this heating causes them to throw off scales from the surface which fall to the ground, while the principal body keeps on in its swift flight. Sometimes the heat becomes so great through the whole mass as to cause it to fly to pieces; one writer supposes, even, into fine dust. We hope, by the time of our next issue, to collect sufficient facts in regard to the meteor which recently passed over this city, to enable us to give a pretty full account of it. It was one of the most remarkable which has ever been seen.

GLASS-DRILLING.

Messrs. Editors:—In your last issue I noticed an article entitled "To Bore a Hole through Glass;" and as a variety of opinions are supposed to be better than a single one (if based upon experience), I venture the liberty to express mine. A short time since, I had occasion to bore some holes through a piece of French crown glass, one-quarter of an inch in thickness. The glazier who cut it for me assured me that *nothing* but a round bar of lead used with emery and water would bore the desired holes. And (by the way) I think lead is preferable to iron, as emery adheres to it much better. But not fancying his slow but sure process, I determined to perform the work more expeditiously. Accordingly I procured a small Stubbs' file, and grinding the point to what I thought the proper shape, bored four holes, one-quarter of an inch in diameter, in the short space of half an hour. By trying the same thing since, I am confident that a triangular file of Stubbs' manufacture will never fail, if used with water or turpentine, either of which I consider equally good. H. W.

Jackson, Mich., Nov. 21, 1859.

RABBITS AND TREES.

A simple and perfectly efficacious recipe for preventing rabbits and hares from barking trees, is to take as much thoroughly skimmed milk as required, and mix it up with soot, till about as thick as paint. With this, paint over the tree with a whitewash brush. It is done very quickly, at little expense and trouble. It lasts well one season.—*Agricultural Gazette.*

[As the season is at hand when trees should be treated to protect them from being girdled by rabbits and mice in winter, the above may be very useful to farmers who live in districts where they can obtain coalsoot, but lampblack will answer the same purpose, to those who cannot get the former. We have been assured by those who have tried the experiment, that coal tar is excellent to prevent such animals injuring fruit and other trees. It can be applied warm, with a brush, and now is the time to put it on, before the snow falls. It should be applied close to the root and upwards, to the height of two feet, at least.—Eds.]

DEFECTIVE IRON STEAMERS.—The *Royal Charter*, which was recently wrecked on the coast of England, as noticed by us last week, was an iron vessel, and seems to have been constructed of very poor metal and in the most defective manner. She parted amidsthips so suddenly and broke to pieces so completely and rapidly after she struck, that we are confident no American wooden ship would have done so under the same circumstances. Every ship should be constructed like a bridge—capable of sustaining all the strain placed upon it, even if it were suspended by the extremities. The iron screw steamer *Indian*, belonging to the Liverpool and Canadian Steamship Company, was wrecked on the 21st ult. on the coast of Nova Scotia. She was driven on shore in a gale and broke across in the middle like the *Royal Charter*.

ALUMINA AND MERCURY.—The properties of an amalgam of aluminum are very remarkable. Under the influence of mercury it ceases to be a precious metal, and acquires the properties of an alkaline earthy metal. When exposed to the air the amalgam instantly loses its lustre, becomes heated and oxidizes rapidly, and is converted into alumina and metallic mercury. Water decomposes it with evolution of hydrogen, formation of alumina and deposition of mercury. Nitric acid attacks it with violence.—*Comptes Rendus.*

ADULTERATED OIL OF PEPPERMINT.

The following useful information has been communicated by Dr. C. Bullock to the *American Journal of Pharmacy*, regarding adulterated oil of peppermint:—

"An article of oil of peppermint has been sold in the Philadelphia market within the past fortnight. It is of a light yellow color, but considerably darker than is usual with freshly distilled oil of mint, and presents the following characteristics: When evaporated from a piece of white unsized paper it leaves a yellow mark. Dropped into alcohol of 95 per cent, it does not disseminate itself, but falls to the bottom of the glass in broken globules, and collects in a distinct stratum.

"Agitation produces dissolution, but the solution is turbid, with an amount of oil which should dissolve freely. It presents no re-action with chromic acid, but when dropped on a crystal of iodine, the iodine intumesces and fumes. No such reaction is produced by a pure oil of peppermint. The density of the oil is 0.870. A recent sample of Borton's oil gave a density of 0.90. These characteristics would point to turpentine as the probable adulteration. It has been suggested by a practiced distiller of oil of peppermint that the adulteration was the essential oil of fireweed. This supposition was based on the peculiar strong smell left after most of the oil was volatilized from paper.

"Recent oil of peppermint should volatilize completely from the paper without leaving a mark; when dropped into alcohol of 85 per cent, it should dissolve completely without agitation."

WEEKLY SUMMARY OF INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

IMPROVEMENT IN FLOATING BATTERIES.

This invention consists in the construction of a floating battery of circular form, with a central upright shaft, by which it is capable of being anchored in a tide-way, and around which it can be made to revolve while at anchor, to bring all its circular series of guns, in succession, to bear on any object. It also consists in a certain arrangement of screw-propellers in the circular battery, whereby provision is made for giving it a rotary motion about its central shaft when at anchor, or for propelling and steering it from place to place. Epenetus A. Willis, of Cold Spring, L. I., is the inventor.

IMPROVED EVAPORATING APPARATUS.

This invention consists in the employment of superheated steam as the heating agent for the evaporation of brine, cane-juice, sirups or other liquids, by allowing it to circulate through pipes surrounded by the liquid in the evaporating-vessel, or through a jacket or false bottom, with which the said vessel is provided, or in any other similar manner. It further consists in superheating the steam generated from the liquid at one stage of the evaporating process, or in one part of the evaporating-apparatus, by passing it through suitable heaters and enabling it, when so superheated, to heat and evaporate the liquid which is at another stage of the process, or in another part of the apparatus. John P. Hale, of Kanawha, Va., is the inventor of the above improvements.

MACHINE FOR SPLITTING SHOE PEGS.

E. T. Weeks, of Franconia, N. H., is the inventor of a machine for the above purpose, which invention consists in the employment of a reciprocating knife, in connection with a peculiar means employed for clamping the bolt and feeding the same to the knife; also, in the employment of a gage, in connection with the feeding-device, for perfectly adjusting the bolt relatively with the knife.

IMPROVEMENT IN STEAM PLOWS.

Joseph W. Fawkes, of Christiana, Pa., has invented and patented an additional improvement in steam plows, wherein he employs a large barrel-shaped or oil-ged driving-wheel for the propulsion of the machine. He avoids the sinking in the earth of the wheels hitherto employed, and is thereby enabled to employ the locomotive in the culture of soft land, or where it is desirable to pass the locomotive over plowed land, in seeding, harvesting, &c.

GRAIN-BINDER.

This invention and improvement relates to the bind-

ing of grain into sheaves before it leaves the platform of the harvester, by a simple automatic arrangement which requires only one attendant, and which will gather the grain as it falls upon the platform of the harvester, and bundle it, and at the same time secure the band around the bundle. It consists in the arrangement of a traveling segment in a fixed frame, operated by suitable gearing so as to have an alternate circular movement. This segment carries a jointed arm around the grain, which arm has on its end a button which is fastened to one end of the band to be secured around the sheaf. It further consists in a novel arrangement of parts for operating the aforesaid jointed (button) arm with an independent movement, so that its motion will be faster than that of the traveling segment. It also consists in arranging near the end of the elevated frame, a peculiar device, which, in connection with a loop-holder and jointed arm, will retain the loop, on one end of the band, in position for receiving the button, and as the button is passed through said loop it will be properly secured around the bundle; said device being operated by a projection on the end of the traveling segment, for retaining the loop on its holder until it is relieved at the proper time by the jointed arm. This contrivance is the invention of C. H. Durkee, of Hartford, Wis.

APPARATUS FOR REGULATING THE PRESSURE OF WATER IN PIPES.

The object of this invention is to regulate the pressure of the water in pipes so that the latter will not be subjected to any more pressure than is actually necessary to force the water to the desired height, thereby guarding against the bursting of the pipes and obviating the employment of those heavier and stronger than is necessary to sustain a pressure due to the requisite height of the columns of water within them. The invention is more especially designed to be applied in certain cases to water pipes which supply buildings in cities, in which pipes the water is not required to be forced up so high as the static pressure in the service pipe will admit of; for instance, in the city of Brooklyn, which is supplied with water under a considerable head and the pipes in low buildings subjected to unnecessary pressure. It consists in the employment of an air-chamber provided with a plunger or yielding bottom to which a valve stem is attached, the air-chamber and valve being arranged in connection with suitable pipes and in such relation with the supply pipe as to effect the desired end. The credit of this invention is due to James Stratton, of Brooklyn, N. Y.

FOREIGN SUMMARY—NEWS AND MARKETS.

It is gratifying to learn that many new American inventions are appreciated in Europe, and some of them more highly than at home. We find this to be the case with Silver's Marine Governor, illustrated and described on page 356, Vol. XI., *SCIENTIFIC AMERICAN*. In a paper read before the late meeting of the British Association for the Advancement of Science, by Mr. James Oldham, he stated that several of these governors were now used in steamships belonging to Hull, England, put up by John Hamilton, of Glasgow, and they were giving the highest satisfaction. They are so sensitive in their action that the slightest pitching motion is at once indicated, and the steam admitted or excluded as the case may be. "By the use of this governor," he said, "the full power of the engines is in immediate and constant requisition, producing a saving of fuel, and also the prevention of breakage from racing of the engines."

It is stated in *Cosmos*, that M. Cornu and M. Demaux have discovered that plaster-of-Paris containing three per cent of coal tar is a most powerful disinfectant. M. Vellepeau, a celebrated surgeon in one of the Paris hospitals, also asserts that he has applied it as a plaster for ulcers, that it is very effective, and that it renders inodorous semi-putrescent masses. It has been recommended by the Academy of Sciences for use in the military hospitals.

Excellent buttons and handsome substitutes for cameos can be made, according to a foreign periodical, of soapstone (steatite). For this purpose it is submitted for several hours to a white heat, after which it is cooled, and is said to become so hard as to resist the action of a file. Of course, the buttons and cameos are cut before they are heated. Such articles may be polished with emery, and colored with chloride of gold, which stains them purple, or nitrate of silver which makes them