

out the partition piece, would sometimes occur when lead balls were used.

When a ball cartridge, constructed as above specified, is fired from a gun of straight bore, it is found that the balls will scatter very slightly; that is to say, they will be confined within a circle of about two feet six inches in diameter when projected to the distance of three hundred paces, thus being very destructive. By giving the grooves a twist the balls will scatter less. It is intended that the gun shall be sighted accurately for one of the grooves that one ball may strike the mark at which aim may be taken. The balls are all thrown about the same distance.

If the piece employed to project the cartridge contains more than four or five grooves, a sufficient space will be left in the center to contain a central ball of greater diameter than the others. The inventors of the above improvement have already patented a number of other valuable and ingenious inventions relating to fire-arms.

**Machine for Making Hollow Bricks.**—By Ambrose Foster, of New York City, and G. M. Foster, of Fairhaven, Conn.—Consists in the employment of a sliding hopper, plunger, and vibrating box, so arranged and operated that the clay or other mixture is taken from a hopper, pressed into the mold, formed into hollow bricks, pushed from the molds and from the machine, without being touched by the attendants. A good idea of the general principles on which this invention operates may be obtained by reference to the large engraving of Messrs. Buck, published in No. 34 of our present volume. The two improvements are somewhat analogous.

**Improved Harvester.**—By Stephen R. Hunter, of Cortlandt, N. Y.—Consists in the employment of rotary cutters fitted within slotted fingers, and attached to curved plates, which are hinged together by a joint and fastened to the axle in such a manner that the cutters may be made to conform to the inequalities of the ground. An improvement of this kind has long been needed in many sections of the country.

**Fly Trap.**—By Joseph Hyter, of Kent, Ind.—Consists in so constructing the trap that the flies, after being decoyed by a bait into it, through a small opening at the front, shall be deluded by a very strong light above, to ascend until they arrive over a trough filled with strong soap suds, into which they foolishly precipitate themselves, and are drowned. A gentleman of our acquaintance who uses one of these patent traps says it is a good thing.

**Improved Steam Engine.**—By William Darter, Jr., West Philadelphia, Pa.—Consists of an oscillating piston arranged within a steam box, which is provided with a partition, and with suitable packing; also with a suitable arrangement of valves and passages. Without drawings it would be difficult to convey an intelligible idea of the construction. Suffice to say that it is extremely simple and cheap in construction, while leakage of steam is very effectually provided against by interposing water between the steam and all the working parts of the engine. The water also serves to lubricate the working parts.

**Self-Acting Ship's Pump.**—By J. Stever, of Bristol, Conn.—Consists in attaching a series of pumps to a frame, which is secured to a hollow vertical shaft, the latter being allowed to turn freely in its bearings. The pumps communicate with the hollow shaft, and have weights connected by gearing and levers with their pistons, so that the pumps will be operated by the motion of the ship as it rises and falls, or rolls on the sea. The hollow shaft serves as the force and suction pipe. Many plans have heretofore been devised to take advantage of the motion of vessels to pump water from their holds; but this is the most ingenious and practical of any that have come under our notice.

**Improved Water Wheel.**—By A. Munroe, of Worcester, Mass.—Consists in placing the wheel within a spiral sluice or scroll, having deflecting or guide plates attached to it, for the purpose of causing the water to act in the proper direction against the buckets. Also in having concave buckets attached to the wheels, and inclined plates attached to its arms,

whereby the greatest effective force of the water is obtained, and the water so discharged from the center of the wheel as to allow a free and unobstructed current to pass through the spiral or scroll sluice.

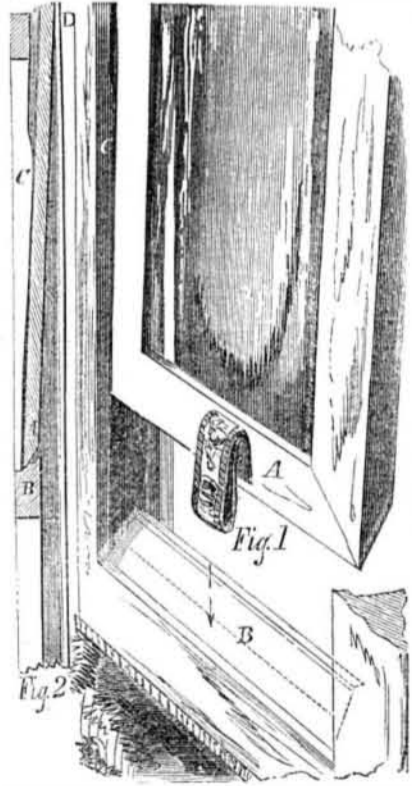
**Double-Acting Planing Machine for Metal.**—By Joshua Mason, of Paterson, N. J.—Consists in placing the cutter stock inside of a ring, which is hung upon journals within a frame, so that the stock may oscillate therein. Also in operating or adjusting the stock and regulating its position so that the cutter may cut while the bed and work is moving in either direction, and also cut at different heights, according to the formation of the work which it is required to plane.

**Roof Platform for Shingling.**—By J. W. Rodefer, of Abingdon, Va.—Consists in having a platform hinged to a small angular frame which rests on the roof. The platform is so arranged that it may always be adjusted to a horizontal position, whatever the pitch or inclination of the roof may be. There are spurs in the bottom of the frame, which prevent the contrivance from slipping.

#### Improvement in Coach Windows.

A variety of means are in use for preventing the rattling of coach and car windows, but hardly any of them accomplished the purpose successfully. Springs and wedges, which are most generally used, have a tendency to bind on the window frames and render them difficult of movement. Alterations in the form of the window have been used, but without much success.

The Paddington, Oxford Street, and other kinds of omnibuses of London, in order to prevent as much as possible the intolerable noise of rattling windows, and the rapid wear caused by their constant vibration, are arranged with half the usual number of windows, the space ordinarily occupied by the other half being used for cases into which the window frames slide latterly. In this way they are, in a measure, partially relieved from the noise, but the bus is rendered dark and gloomy. This plan is also used to some extent in Paris. In the more northern cities of England—Liverpool, Manchester, Birmingham &c.—it is customary to insert plate glass solid into the coach frames, so that they cannot be opened, and depend for ventilation upon openings at the top of the coach, in the form of blinds, similar to the way that some of our railroad cars are ventilated.



Our cut illustrates a plan patented by Thos Silver, of Philadelphia, Pa., June 13th, 1854, and which has been very thoroughly tested in several omnibus lines of that city.

The window sash, A, is beveled at its lower part, and the frame, B, is also correspondingly beveled. The frame of the window bulges a little at C, so as to form a bearing for the sash, and the upper part of the sash touches also at D. When the window is closed, therefore, it has three bearings, B, C and D, as

shown in section, fig. 2. The bevels of A and B, combined with the other bearings, C D, cause the window to wedge itself firmly, so that it cannot rattle. The weight of the window frame is thus taken advantage of to make it rest firmly in its place, and the necessity of springs wedges or other mechanical device is avoided, and the window frame is left free to be moved when desired, &c.

It is no more expensive to arrange windows on the above plan than upon any other plain method. Any wear upon the bearings can have a tendency only to improve the solidity or firmness of the frame in its seat. The wearing of gutters in the coach body is also prevented.

The improvement is equally useful for all windows that are not balanced by weights, as in manufacturing establishments, where a rattling noise is frequently heard that far exceeds that caused by the machinery, to say nothing of the destruction of glass. For further information address J. W. Harrison, 92 Chestnut street, Philadelphia, Pa.

#### Notes on Patented Inventions.—No. 16.

**Cider Wine.**—The wine made from cider at present, however good, is certainly inferior in astronomical relationship to that for which a patent was granted to Jacob Hugus, of Hempfield, Pa., in 1832. It was made by adding five gallons of very strong cider brandy to the barrel of sweet cider, which in the specification is stated "must be made during the decrease of the moon." The moon, we believe, does not influence the planting of potatoes, the making of cider wine, &c., so much as it used to do, when intelligence was less universal.

**Self-Igniting Segars.**—In April, 1834, John March, of New York, was granted a patent for attaching any of the chemical compounds that ignite by friction to the end of segars, to which was also added a piece of tinder. Such segars had their day. How immeasurably inferior is this plan of lighting segars in comparison with the lucifer match, now so common.

**Bronchitis Cure.**—Peter Faulkner, of Rockville, Pa., secured a patent in September, 1843, for an elixir to cure that troublesome and somewhat wide-spread disease, bronchitis. It is made as follows:—Two pounds of dried sweet apple bark are boiled in six gallons of soft water until it is reduced to one gallon, and then strained. To this are added 2 1-2 oz. of pulverized jalap, half a pound of nitrate of potass, one pint of spirits of camphor, and half a pound of loaf sugar. All these are well incorporated together, and bottled for use. Mr. Faulkner stated he had discovered that this elixir was excellent, not only for bronchitis, but sore throats, asthma, croup, whooping cough, and dyspepsia. A teaspoonful of this elixir is enough for a dose.

In the last number of the *Medical Reporter*. (Richmond, Va.) Jackson's 'Pectoral Syrup' is described by F. Sterns, pharmacist, Detroit, Mich., and he states it to be a favorite prescription with many physicians where he resides. It is composed of one ounce of ipecacuanha, seneka, 3 ounces, refined sugar 2 pounds, sulphate or muriate of morphia, 16 grains, oil of saffras, 10 minims. These make two pints of syrup. The ipecacuanha in coarse powder is steeped for fourteen days in a pint of diluted alcohol. The seneka is digested in water, 10 oz., alcohol, 2 oz., at a heat of 104° Fah., for six hours, then strained. This is mixed with the ipecacuanha extract and the other drugs, and the sugar dissolved in them at a gentle heat. From one to two teaspoonfuls is a maximum dose.

**Burning Fluids.**—Many persons suppose that camphene is an explosive burning fluid, but this is a mistake. Camphene is simply rectified spirits of turpentine; its vapor mixed with a certain portion of air, is, no doubt, explosive, but not the fluid. The common burning fluids—known by the names of phosgene, &c.—which burn with a clear flame, emit but little smoke, and are so cleanly to use in lamps, are composed of alcohol and turpentine. Were it not that this hydro-carbon compound fluid is so volatile, so liable to assume the gaseous state, become saturated with the oxygen of the atmosphere and thereby rendered dangerously explosive, it would be preferred to all other fluids for artificial illumination. But dangerous though it is, and in spite of the

great number of accidents which have taken place from its use, it goes on superseding all kinds of oils with astonishing rapidity.

To Isaiah Jennings, of New York City, belongs the credit of introducing this burning fluid. In October, 1830, he obtained his first patent. It is described as follows:—To produce light from alcohol and spirits of turpentine, mix unequal parts of them and agitate for a short time; then let them stand a while, when the alcohol will be found combined with a small quantity of turpentine, forming about the eighth part of the mixture. This is drawn off, and is ready for use in lamps with or without wicks. He used wire wicks in some of his early lamps. He claimed a mixture of alcohol and turpentine applied to common lamps.

In March, 1834, Samuel Casey, of Lebanon, Me., was granted a patent for a burning fluid compound, composed of one gallon of alcohol, one pint of turpentine, and half a pound of camphor. This fluid will, no doubt, emit a very pleasant smell, but it has no advantage over common alcohol and turpentine.

In December, 1839, Mr. Jennings secured another patent for a mixture of the oil of whiskey, (fusel oil) spirits of turpentine, and alcohol. The benefits of using the fusel oil is stated to be the saving of alcohol. The use of fusel oil is rather to be avoided, we think.

The use of alcohol turpentine burning fluids in common lamps is now public property.—About 9 parts of alcohol to one of turpentine makes a good mixture. They are shaken together, and the clear liquor alone employed. The vessels and lamps containing such a fluid should be kept perfectly air-tight and in a cool place. With care, this fluid may be employed with safety.

[For the Scientific American.]  
To Make Ink.

Seeing in your column "To Correspondents" your answer to a communication from C. C., of Ohio, I send you the enclosed circular, which I received from Detroit, in answer to a note "enclosing stamp." If C. C. wishes a good ink let him try this.

1. Take three ounces of best galls and 1-4 of an ounce of cloves, bruise to a coarse powder, and boil over a slow fire in a pint of water for a few hours, stirring frequently; then set aside in a covered vessel till cold; then strain, and supply the place of the water lost by evaporation till it measures one pint. 2. Now dissolve 1 ounce and 1 dram of best copperas in 1-2 pint of water and strain; then dissolve 5 drams of gum arabic in 1-2 pint of water, and add to the copperas solution and 1-2 pint of good cider vinegar. Now mix 1 and 2, and add 1 ounce of liquid blue. Use soft water. Let your ink be exposed to the air and you will have a black ink. T. E. K.

Boston, July, 1856.

#### The Expected Comet.

M. Babinet, a member of the Academy of Sciences, Paris, says that the comet expected the present year is one of the largest comets described by Europeans or Chinese observers, and that its periodical course is three hundred years. It was seen the last time in the year 1556, shining with extraordinary brilliancy. M. Boune, an eminent astronomer, assisted by Mr. Hind, has gone over all the calculations pertaining to the comet's re-appearance—making a new estimate of the separate and combined actions of all the planets upon this comet, of three hundred years, the result of which is, that in 1858—or somewhere between 1856 and 1860—it will again be visible.

#### Glass Ballot Box.

A transparent ballot box, made of glass, has been on exhibition at the Mayor's Office, this city. Every ballot, as it is deposited, can be seen. Its object is to prevent ballot stuffing, or the introduction of false votes. With corrupt inspectors of election no ballot box is safe.

#### Southern Wheat.

Some of the planters in the State of Mississippi devoted themselves this season to the cultivation of wheat for the first time, and with great success. Twenty-five barrels of flour, made from Mississippi wheat, were recently sold in Natchez, and were pronounced the best ever sold in that city.