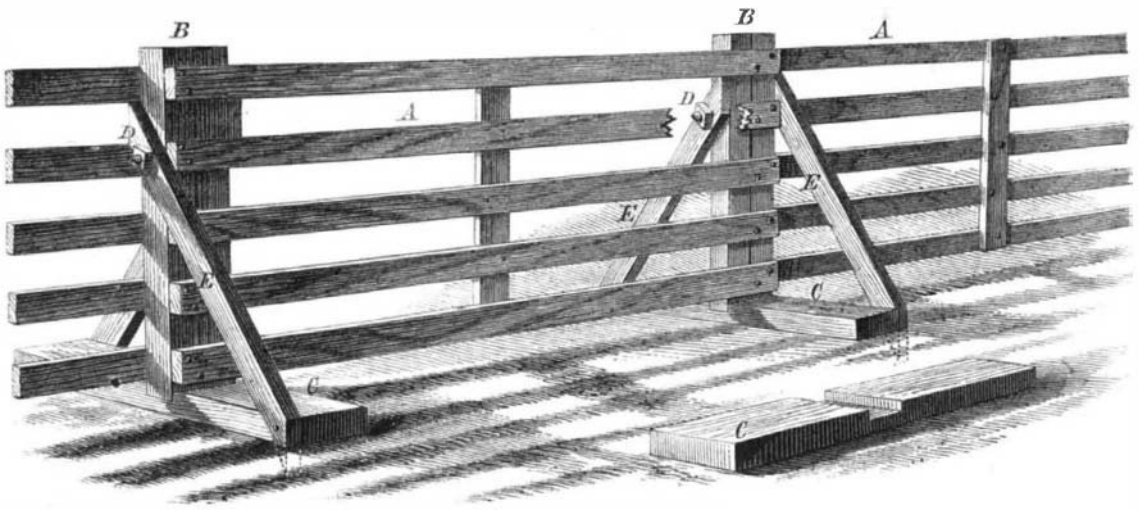
IMPROVED PORTABLE FENCE.

The invention herewith illustrated is an improvement in portable fences for farm or other purposes, which, it is claimed, is durable, substantial, and requires very little labor to construct or set up in place.

The panels, composed of rails, A, and posts, B, are fastened together by nails or in any suitable manner. The posts may be placed both on one side, or one on each side of every panel. C are the bed pieces, one of which is shown separately in the foreground, in the upper side of each of which a gain is cut to receive the bottom ends of the posts. The latter stand up in the gain in contact with each other, as, indicated in the engraving, and are fastened together by a bolt and nut, D, the former of which is made of suitable length, so as to allow of proper separation of the posts at top or bottom, in case the fence be extended over undulating ground. The same bolt serves to secure the upper ends of the braces, E, which continue below the bed piece and enter the earth, as shown by the dotted lines. By removing the bolt, the panels, as well as the braces and bed pieces, are left free and may be readily removed. If desired, the braces may be fastened to the bed pieces in any suitable manner.

This device appears to be a convenient and economical arrangement, which can doubtless be employed in a variety of places by farmers and others.



PORTER'S IMPROVED PORTABLE FENCE.

Patented through the Scientific American Patent Agency, by Samuel S. Porter, of Broad Ford, Fayette county, Pa., who may be addressed for further information.

Hawley's Kiln.

We learn that some very important features have been added to the Hawley kiln (for burning brick, tile, pottery, etc.) since our illustrated descriptions published April 27, 1872; one of which consists in utilizing the heat to a room ahead, while burning, thus drying off the compartment in advance of the already burning chamber. This effects a saving of the surplus heat, which would otherwise escape up the chimney during the process of burning, and after the contents of the burning chamber have been thoroughly dried off and heated through.

Again, in utilizing the heat contained in the incandescent mass remaining in the already burned chamber, the cooling off process is carried on from above downwards, in the same direction pursued during the process of burning (instead of by reversing the current of air as previously described); thus exposing the contents of the oven alike throughout, both in burning and cooling.

IMPROVED TROTTING GEAR.

Mr. Henry Schmalhausen, of Bridgeport, Ill., has recently patented an elastic trotting gear for horses, the object of which is to enable the animal to trot faster, and raise his feet higher, and also to prevent him from balking, kicking, backing, or rearing.

The apparatus consists of an elastic strap so constructed as to be adjustable in length, and which is passed and plays easily through the hame ring which guides the lines. The ends of the strap are attached to bolstered bands, which may be readily buckled, one to the fore and the other to the corresponding hind leg. The gear may be so applied that the knee joint will be raised to a level with the shoulder joint, which throws the fore leg on the forward step into nearly a

horizontal position. By shortening or lengthening the adjustable portion, A, any degree of elevation, from a low to a high step, it is stated, may be obtained. The device is claimed to be especially useful for the breaking of colts, as it will develope the formation of the joints, produce a free action of the legs, and give increased strength to the muscles and ligaments.

Focal Differences in the Eyes.

A writer in *Science Gossip* speaks of the difficulty which some persons experience in the use of binocular microscopes, owing to a focal difference in the eyes. In a case mentioned one eye was far sighted, while the other was near sighted. For reading purposes, this person wears a pair of spectacles in which the one glass is made for the far sight, while the other is a plain glass, the left eye being near sighted, and consequently requiring no aid from spectacles with which to read. Instances are cited of persons who, while employing both eyes for ordinary vision, usually employ only one in reading. If any difference of the kind exists between the visual powers of a pair of eyes, it may be readily detected. Hold up a piece of card before one eye, so as to cut off its field of view, and then look at some object before you with the other. Then gradually bring the card before the other eye, and view the same object. If the object is seen with the same distinctness in each case, then your eyes are perfect as regards the balance of their foci; if not, then there is focal difference more or less decided. It would no doubt be advisable to take account of this very frequent difference of focus, in selecting a pair of spectacles.

IMPROVED ATOMIZER.

The ingenious little arrangement represented in our illustration is designed to distribute perfumes in the form of spray. Its simple and inexpensive construction renders it applicable to the stopper of every perfume bottle, so that the purchaser, instead of buying vaporizer and liquid separately, as heretofore, is now enabled to purchase both together at a cost very slightly increased above that of the extract singly.

There is a hollow collapsible bulb attached to the top of the hollow stopper, by stretching its mouth over a groove in the latter. Extending up from the liquid is a tube, A, the end of which is bent at right angles and terminates in a small nozzle which is surrounded by a hollow projection, B, of the stopper. It will be observed that there is an opening between the stopper and interior of the bottle at B, so that, on compressing the bulb, air is forced down upon the liquid, which is thereby caused to rise up through the tube, A. A small part of the air pressure only, however, serves this purpose, and hence the greater portion escapes through the projection, B, surrounding the fluid, escaping from the nozzle of A, with an annular jet of air which converges at a point a little beyond the two nozzles. The effect of this is to break the liquid up into spray or vapor and also to distribute it much more effectually than the similar apparatus depending upon a cross jet to draw up and expel the fluid.

The invention, which we have recently had occasion to examine, seems to us a desirable article which might form a profitable addition to the stock of druggists generally.

Patented September 23, 1873, by Mr. John N. Gerard, 139 William street, New York city.

The Phœnix Post not an European Invention.

Professor W. P. Blake, in a recent report upon the iron and steel department at the Vienna show, published in the *Tribune*, mentions as novelties a series of girders over 60 feet long, and hollow iron posts of the same length, and a foot or more in diameter, made of four flanged pieces riveted together. Mr. John Griffen writes to correct the impression given that these posts or girders are of foreign invention; as he very truly says, they are nothing more than the well known Phœnix wrought iron column, invented and patented by Mr. Samuel J. Reeves, President of the Phœnix Iron Company, in 1862. Mr. Griffen says that, during the interval since its invention, this column or post has been largely manufactured at the Phœnix Iron Works, and many thousand tuns of them have gone into the construction of wrought iron bridges, viaducts, depots, warehouses, and other structures in various parts of the United States, Canada, Nova Scotia, and in South and Central America. All the top chords and posts of the trusses in the International Bridge over the Niagara river, near Buffalo, are made of Phœnix columns. The same can be said of the Intercolonial and all the new bridges on the Grand Trunk Railway in Canada, the Augusta bridge in Maine, the Girard avenue bridge over the Schuylkill, the New River and Greenbrier bridges in Virginia, the three wrought iron bridges at Rock Island, Ill., and scores of others. Many important viaducts are composed almost entirely of these columns—as the Lyman and Rapallo viaducts in Connecticut; the Lyon Brook, Deep Gorge, and Blockhouse in New York; Bullock Run and Bank Lick in Kentucky; the Agua Venugas in Peru. Many of these structures are of great length and depth, the last mentioned being 580 feet long, and crossing a gorge 252 feet deep, over which the Lima and Arroya railroad is carried. The overhead Greenwich street railway, in New York city, rests on a continuous line of these columns, though not by any means a good type, owing to their flaring tops and bottoms, made to suit the peculiar notions of the contractor of the railway.

To this, we may add that the proposed 1,000 feet tower, which Messrs. Clarke, Reeves & Co. have designed, and which is in progress of engraving for these columns, will form one of the most remarkable applications of the celebrated Phœnix posts.

Railroad Tunnel at Richmond.

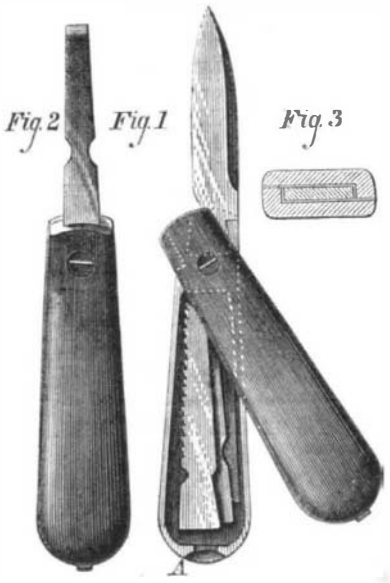
The Chesapeake and Ohio Railroad Company have, for two years, been trying to tunnel through Church Hill, in the eastern part of Richmond, but the work has been attended with unexpected impediments. It was supposed it could be completed for $300,000, as there were no rocks, and the contract was let at that price. The tunnel runs 80 or 90 feet below the surface, through a slippery blue clay, which has the habit of caving in at the most unseasonable times in the most disagreeable manner. The contractors long ago gave up, and the railroad company was compelled to take the work. Six or seven men have been killed, while the repeated cavings have undermined many houses over the line, which is three quarters of a mile long, and is not yet open.

With one of the tunneling machines, such as were used in boring the experimental section of the Broadway Underground Railway, in this city, it would seem as if the above tunnel might have been executed in a very short time, with perfect security against caving.

IMPROVED TOOL HOLDER.

This is a useful little device, by means of which a number of different implements, such as fine saws, knife blades, awls, screwdrivers, gimlets, etc., may be carried in a single receptacle no larger than and resembling in form an ordinary penknife handle, and readily set firmly in place as desired for use.

The handle has a cover, pivoted, as shown in Fig. 1, which may be easily swung open, or, when closed, is held by a



spring catch, A, in the position in Fig. 2. In both cover and box, just outside the pivot, is formed a jaw, so that, when the parts are closed together, a dovetail socket is made, which receives the correspondingly shaped ends of the tools. Fig. 3 is a transverse section of this portion, and shows the shape of the jaws. This invention was patented February 11, 1873, by Mr. Levi L. Lamb, of Chelsea, Mass.