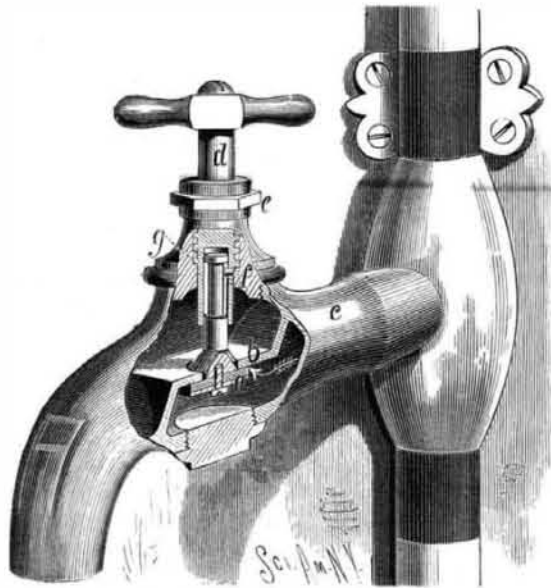


COMPRESSION COCK.

In the compression cock herewith illustrated, the valve, *a*, is closed up under the partition, *b*, by the pressure of the water under it, and falls and vents the pipe, *c*, so that the water will drain out whenever the supply is shut off in the mains, and automatically closes the passage when the water is turned on. The valve has a stem extending up through a socket in the lower end of the handle stem, *d*, that screws down in the cap to open the valve against the pressure of the water, by the upper end of the valve stem coming in contact with the bottom of the socket. The valve stem



BARR'S COMPRESSION COCK.

has a recess turned in it below the upper end for connecting it to the stem, *d*, by a set screw, *f*; which is so placed that it will limit the fall of the valve by the collar, *g*, which will lodge on it and thus prevent the valve from falling so low that it will fail to close by the pressure of the water. The stem, *d*, is packed by a cap, *e*.

This invention has been patented by Mr. James S. Barr, of Wheeling, W. Va.

The Old Locomotive "Arabian,"

After nearly fifty years of faithful service, was at last destroyed in the burning of the Pittsburgh Exposition building. The "Arabian" was not the first locomotive, but it was among the first, which did practical service in hauling trains on a railroad, and the excellence of its construction is attested by the fact that it was still at work after so many years of rough service. One or two older engines survived, but they were laid up and carefully preserved as curiosities, while the "Arabian" could claim without contradiction that it had been steadily at work longer than any other locomotive in the world, and could be considered as the stillactive grandfather of the numerous family of its kind now running in this country. It was exhibited in Chicago, and on its return the Baltimore and Ohio Company allowed it to remain in Pittsburgh during the local exhibition there.

Microscopic Organisms in Building Materials.

An article in the San Francisco *Chronicle* by W. W. Goodrich, is as follows: "Having occasion to examine a brick that was taken from an old ruined and forsaken building, which was being torn down, I was somewhat startled, upon adjusting a microscope upon a fragment, to see each pore of the brick inhabited by a peculiar rod-like animalcule of the genus *bacilli*. These insects cannot be seen except by aid of the microscope, even when they live in the human system and prey upon our vitality; neither are they visible in the soil or substances in which they may live and hive, except through a powerful glass.

"Their motions when they were agitated by blows were as the links of a chain, reminding one of a system of joints to be extended and contracted. They were semi-transparent, with a light, scintillating column nearly two-thirds their length, extending from near their head to their pointed tails, probably their spinal column. As this brick was from the foundation, and being underground and next to the street sidewalk, it illustrates forcibly the fact that, however hard burned and well made, porous substances should not be put underground for foundations or sewers. Solid rock or concrete or terra cotta are the only proper building materials below the level of the sidewalks.

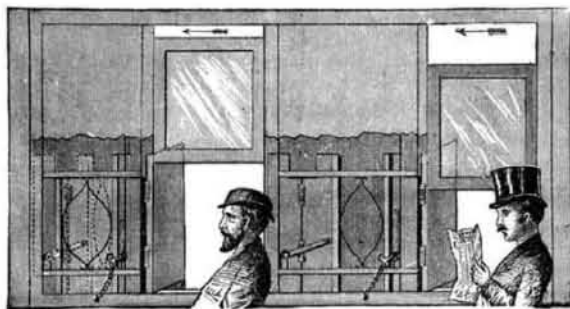
"If we wish a healthfulness we must have healthful homes, healthful business houses, and healthful apartments. It has been said that the fetid breath of any person disseminates the floating germs of the disease that caused that foul breath, and if so of a person, the same will be true of any porous building material where the dampness of any soil or subsoil has sufficient moisture to generate the germs, and there is putrescent matter floating and dropping about continually to keep the germs in active principle. Buildings should have stone foundations where exposed to any possible seepage from any drainage or from sewers."

Writing to the *American Architect*, he adds: "I have repeatedly examined porous building materials, and in all cases where subject to human or animal evacuations I have found the organisms mentioned. The *bacilli* are the same

that I have seen from human kidneys affected by Bright's disease, and more especially after persons had died, and where uric acid had been very prominent. In one case of Addison's disease an examination indicated the same animalcules. I have a fondness for the curious, and mere accident caused me to examine a brick, and following up the clew thus obtained I have discovered the same conditions of life to exist in several instances."

DUST AND CINDER DEFLECTOR.

The accompany engraving represents an automatic dust and cinder deflector, applied to the windows of a car, which prevents those annoying particles from entering the car and at the same time keeps up a circulation of air. A steel elliptical spring, 14 inches long, has a bar of wood the same length attached to the center and outside of one leaf. To the outside of this bar is attached a strip having a width sufficient to reach just outside the window, and having a height equal to the raised window, and having a rebate cut in the outer edge of its top. To the outer edge of this strip the deflector is secured by coil spring hinges. The deflector has a height equal to that of the strip, projects 2 1/2 inches beyond the body of the car, and is kept at an oblique angle by the springs and a stop block attached to the sill. In the top and bottom of the bar are grooves, so that the combination may slide forward and backward along horizontal bars placed across the space in the side of the car. The device is pressed outward by the elliptical spring. The deflector may be moved inward and retained at the angle required by the levers operated by a key from the inside of the car. The deflectors are arranged on both sides of the windows, so that one set may be used when the train moves in one direction and the other set for the contrary direction; when not in use the deflectors remain in the recesses provided for them. The device prevents cinders from entering the window and creates a draught which relieves the car of impure air. By a slight change in the device the windows may be held at any



MEARS' DUST AND CINDER DEFLECTOR.

height, thereby doing away with the common catch spring. Further information can be obtained from the inventor, Mr. H. B. Mears, Santa Cruz, Cal.

FOLDING TABLE.

The table is designed for use in cars, steamboats, houses, and other places where it is desirable to have a table that may be readily set up in position for use and as readily put away compactly. In the engraving the table is represented as in use and also (in the sectional drawing) when put away. The table top, *a*, has a hinged extension, *d*, on one side and a jointed brace, *b*, attached to the under side, and is fitted to slide endwise up and down in a vertical case. The end opposite the one having the jointed section may have a knob



ABBOT'S FOLDING TABLE.

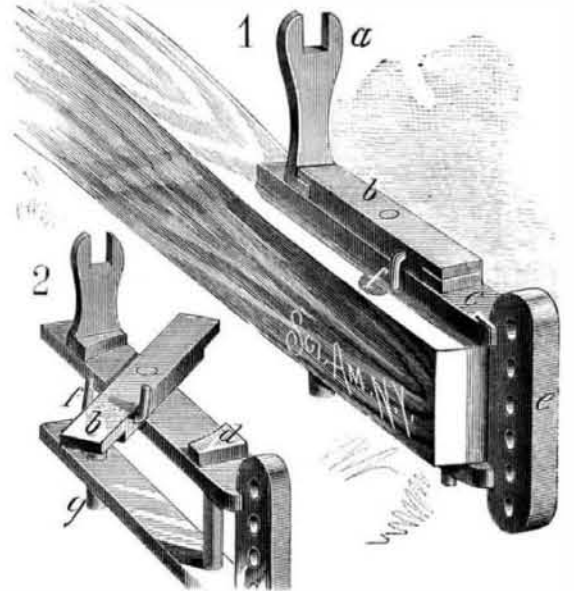
as *e*, or an ornamental moulding. To adjust the table for use the top is raised until the joint reaches the top of the case, when it is swung down to a level position, where it is supported by the brace whose end is placed in a rocket, *c*. Any suitable stops may be provided in connection with the jointed section to prevent it from being drawn out of the case. The under side of the top has a groove in which the brace sinks flush with the surface. To fit the table into a perfectly flat surface or into a wall, the top may be made without tongues to slide in grooves in the case, so that it

may swing forward before rising out of the case. In this form a hook is employed to prevent the table from falling forward. The case may be constructed so as to be self-supporting on its own base for a portable arrangement of the table.

The invention has been patented by Charlotte E. Abbot, of Portland, Maine.

CLEVIS.

The main bar of the clevis is made in the usual form with upper and lower arms and a vertical front bar having a



ROUSE'S IMPROVED CLEVIS.

series of holes for adjustable connection of the draught. The clevis is connected to the beam of the plow by two pins, shown in Fig. 2, the rear pin being made the stronger and having its head elongated and recessed at the top (*a*, Fig. 1) to serve for a wrench which shall always be at hand when required. The pins have heads on which the tongues of the lock bar, *b*, overlap when the bar is swung on its pivot, by which it is swiveled to the upper clevis arm. The pins are thus held securely in place. The parts are held in position by a simple Ω -shaped latch, *f*, that is passed through the lock bar transversely, the arms of the latch passing on each side of the bar and clevis, thereby preventing the bar from turning off the heads of the pins. The joint shoulders of the lock bar and pin heads are made obliquely, as indicated in Fig. 2, so that the bar can swing only one way. This invention has been patented by Mr. R. A. Rouse, of Levee Township, Illinois.

The Largest of Apple Trees.

BY H. C. HOVEY.

In a wild state the apple tree seldom grows to great size, the largest specimen of the American crab apple that I have seen being but twenty feet high, and having a trunk but a foot in diameter. The average size of the cultivated tree, under favorable conditions, considerably exceeds this, and specimens are not rare with a spread of forty feet, and a trunk two or three feet through. Such are to be seen on the old farms of New England, relics of the days of hard cider and the best of vinegar. It has been discovered that these old orchards, whose fruit long ago ceased to be of marketable value, make excellent kindling wood; and it is a fact that many of the largest trees are thus disappearing in smoke.

While visiting such an orchard near New Haven not long ago, the farmer, perceiving me to be taking notes as to the dimensions of his trees, told me that probably the largest apple tree in the world was to be seen on the farm of Delos Hotchkiss, in Marion, Conn. I need not give the size as originally stated by my informant, and which was, like most such matters, much exaggerated; for I have just had exact measurements taken, as follows:

Circumference of the trunk, near the ground.....	15 ft. 3 in.
" " " three feet from ground.....	13 ft. 9 in.
" " " at the fork.....	16 ft. 2 in.
" " 2 main branches.....	10 ft. 4 in., and 8 ft. 8 in.
" " of nine smaller branches, from.....	4 to 6 ft. each.
Height of tree.....	60 feet.
Diameter of tree top.....	104 feet.

A peculiarity of this tree is that it is what is termed "an alternate bearer;" five limbs bearing one year and four the next. The usual yield from the five limbs is about 85 bushels, although in a single instance it reached 110 bushels; and the four limbs vary from 35 to 40 bushels. The fruit is said to be excellent for winter use, though on this point I can only speak from hearsay.

The age of this venerable apple tree is estimated at about 175 to 180 years. Curiously enough the patriotic old tree marked the centennial year by bearing fruit on all its branches, the first time it was known to do so in its life, and it has continued to do so down to the present time. Some of the limbs are now dying, others are broken down; signs of decay appear in many places, and it is thought that this noble specimen of *Pyrus malus* will be numbered among the things of the past.