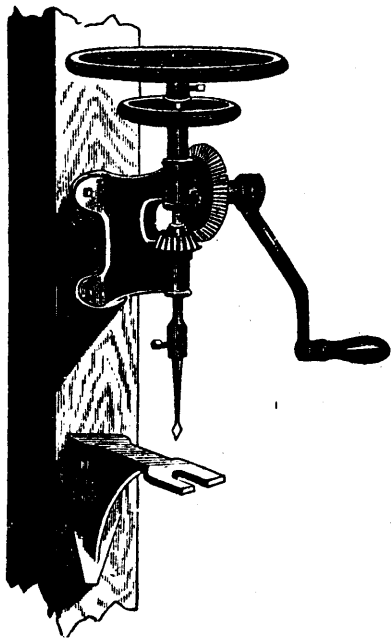


THE BUCKEYE HAND DRILL PRESS.

We herewith present to our readers an illustration of the Buckeye Hand Drill Press, manufactured by Messrs. A. E. Folger & Co., of Springfield, O. There has been a great demand among our blacksmiths, carriage-makers and others, for a first-class drill press at a low price. The manufacturers claim that the "Buckeye" will do as good work as any other drill made. It is said to be well and substantially made, and weighs, complete, 75 pounds, and the manufacturers say it will stand up to the hardest kind of work. The frame is cast in one piece, and is well



proportioned for strength and stiffness. The bearing for spindle, and nut for feed-screw are bored with the same tool and at the same time, thus insuring perfect alignment. The spindle is bored to receive a drill with $\frac{1}{4}$ -inch round-shanks, has $2\frac{1}{2}$ inches vertical travel of feed, and drills to the centre of 17 inches circle. Any further points of interest which our readers may desire to know about, can be obtained, no doubt, by addressing the manufacturers, as above.—*Blacksmith and Wheelwright.*

CEMENTS FOR THE SHOP.

Iron Cement for Closing the Joints of Iron Pipes.—Take of coarsely powdered iron borings, five pounds; powdered sal-ammoniac, two ounces; sulphur, one ounce; and water sufficient to moisten it. This composition hardens rapidly; but if time can be allowed it sets more firmly without the sulphur. It must be used as soon as mixed and rammed tightly into the joint.

2. Take sal-ammoniac, two ounces; sublimed sulphur, one ounce; cast-iron filings or fine turning, one pound. Mix in a mortar and keep the powder dry. When it is to be used, mix it with twenty times its weight of clean iron turnings or filings, and grind the whole in a mortar; then wet it with water until it becomes of convenient consistence, when it is to be applied to the joint. After a time it becomes as hard and strong as any part of the metal.

Cement for Uniting Leather and Metal.—Wash the metal with hot gelatine; steep the leather in an infusion of nutgalls (hot) and bring the two together.

Cement for Leather Belting.—One who has tried everything says that after an experience of 15 years he has found nothing to equal the following: Common glue and isinglass, equal parts, soaked for ten hours in just enough water to cover them. Bring gradually to a boiling heat and add pure tannin until the whole becomes ropy or appears like the white of an egg. Buff off the surfaces to be joined, apply this cement warm, and clamp firmly.

Steam-Boiler Cement.—Mix two parts of finely powdered litharge with one part of very fine sand, and one part of quicklime which has been allowed to slake spontaneously by exposure to the air. This mixture may be kept for any length of time

without injuring. In using it a portion is mixed into paste with linseed oil. In this state it must be quickly applied, as it soon becomes hard.

Turning Cement.—Melt one pound of resin in a pan over the fire, and when melted, add one-quarter of a pound of pitch. While these are boiling add brick-dust until by dropping a little on a cold stone, you think it hard enough. In winter it may be necessary to add a little tallow. By means of this cement a piece of wood may be fastened to the chuck, which will hold when cool; and when the work is finished it may be removed by a smart stroke with the tool. Any traces of the cement may be removed from the work by means of benzine.

Wollaston's White Cement for Large Objects.—Beeswax one ounce; resin, four ounces; powdered plaster-of-Paris, five ounces. Melt together. To use warm the edges of the specimen and use the cement warm.

Gutta-percha Cement.—This highly recommended cement is made by melting together in an iron pan, two parts common pitch and one part gutta-percha stirring them well together until thoroughly incorporated, and then pouring the liquid into cold water. When cold it is black, solid and elastic; but it softens with heat, and at 100° Fah. is a this fluid. It may be used as a soft paste, or in the liquid state, and answers an excellent purpose in cementing metal, glass, porcelain, ivory, etc. It may be used instead of putty for glazing windows.

CORRUGATED BOILER FLUES.—According to *Engineering* corrugated boiler flues are rapidly coming into favor in England. More than 200 have been delivered by the makers this year, and about 150 are at present in course of construction. By repeated tests it has been shown that these flues are much stronger to resist collapse than ordinary flues of the same size and weight of metal, and it is claimed that they have enabled marine boilers to produce considerably more steam. The fact of their great advantage has been arrived at chiefly by comparing the performance of nearly similar vessels with and without corrugated flues. The former either attain higher speeds or use less fuel, the difference being very marked. Not less important than this radical improvement in boiler construction, is the fact that they have been successfully made out of steel plate, welded by a special machine. The plates are of Siemens-Martin steel, and some were as large as 15 ft. long by 8 ft. 9 inches wide. The welding of these plates is certainly a noteworthy event in the manipulating of steel. The Leeds forge company, however, are about to construct machinery for rolling solid steel tubes without weld, 4 ft. 9 inches in diameter by 9 ft. long, from seamless circular blooms, under Mr. S. Fox's patents. When a weldless and seamless steel tube of these dimensions can be made, it would seem as if the very perfection of tube-making had been reached.

THE ABSORBING POWER OF EARTH.—Without obtaining a practical test one can hardly appreciate the absorbing power of dry earth, or the leeching effect of some kind of soils. A writer says: "We once deepened a manure pit that had a blue clay bottom. This pit had been used for years, there was never less than a foot of water in it. After emptying we commenced to deepen it, expecting to find a rich black earth for a foot or two, but to our astonishment, the clay two inches below the bottom was not soiled, but looked as pure and blue as it did two feet deeper. But all kinds of soil are not as impenetrable to liquids as blue clay. By actual experience we have found that dust an inch thick over a dead animal will prevent the escape of bad smells. In hen-houses the effect is magical, preventing not only bad odors, but vermin as well. Even for old running sores and ulcerated wounds when chemical disinfectants could not be had, dry earth or dust has proved highly beneficial. The fact seems to be that neither the liquids nor gases of decaying matter can pass through two inches of earth without losing the greater part of what constitutes its peculiar characteristics, that is, its offensive or valuable portion, as the case may be. Properly used in the stables, cesspools, sink-drains, etc., dry earth will save a vast amount of valuable fertilizing matter, and prevent expensive and life-destroying disease.

TREATMENT OF SIMPLE HICCOUGH.—Dr. Grellety once saw a mother, tender and full of affection for her children, give them a morsel of sugar dipped in table vinegar whenever immoderate or too rapid repletion of the stomach or any other cause had induced hiccough. The latter ceased as if by magic. Since then the Vichy physician has very frequently employed this means on his own account, and has never found it without avail.—*The Pharmacist and Chemist.*