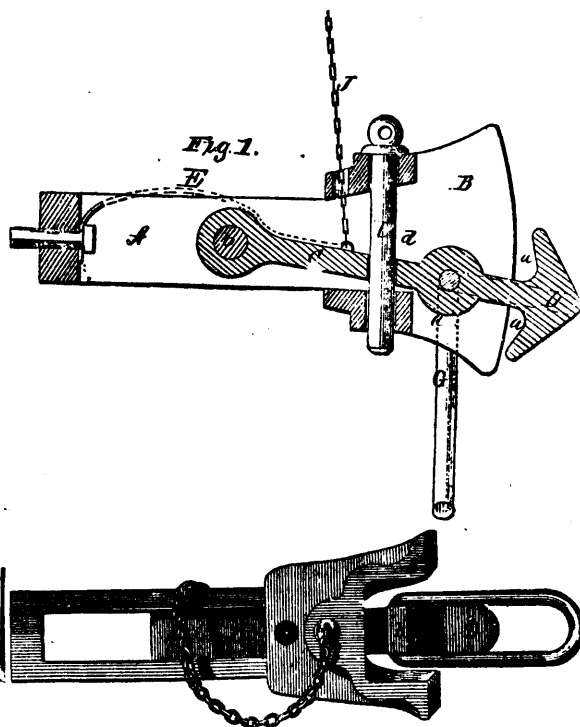


Mechanics.

AN IMPROVED CAR-COUPLER.

The accompanying illustrations represent what appears to be a simple and effective improvement in car coupling devices, the construction and operation of which will be understood from the following description. In the engravings, *A* represents the ordinary draw-bar, and *B* the buffer; the latter being provided (as shown in Figs. 2 and 3) with an opening or recess of suitable depth, extending from top to bottom. In the draw-bar *A* the coupling-bar *C* is seen (Fig. 1), pivoted at *b*, and provided with a spear-shaped head *D*, bearing at top and bottom the hooks *a a*. The above-named recess in the buffer permits the coupling bar to have free movement in a vertical plane; a provision which, as will shortly appear, renders possible the adaptation of this device to cars of different heights. In the operation of coupling the device is self-acting—no setting or fixing of parts, links, etc., being necessary. When the spear-heads meet, the one which happens to be the higher of the two slides up over the other until the heads have passed and then drops, and the hooks having then engaged, the cars are coupled without human intervention. The depth of the recess in the buffer is just sufficient to allow for the necessary lateral play incident to the turning of curves, but of course not sufficient to make it possible that uncoupling could occur in this direction.



The operation of uncoupling is accomplished with the aid of the chain shown in Fig. 1, attached to the coupling-bar. This chain is designed to be connected with a pivoted lever, so that by a single movement it will raise the head *D*, and disengage it from its neighbor. The coupling may be made of wrought or cast-iron. To accommodate the device to meet all the demands of practice, it is provided also with the common link and pin.

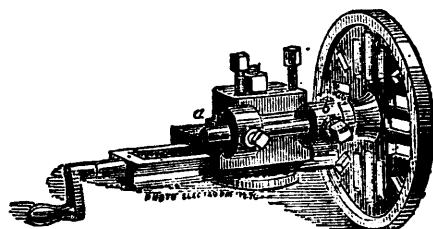
[EDITOR'S NOTE.—Although we give this illustration for the information of our readers, we may state that we recently have seen a new car-coupler, in use by the Northern Railway Company, Toronto, which far exceeds this one in simplicity, strength and cheapness, and which, in some future number, we will illustrate and describe.]

TURNIPS and carrots contain about 90 per cent. of water. Their chief value is as a divisor of more nutritious food, to allow the gastric juice to act on it more readily, and as a relish.

RAW OYSTERS are more digestible than cooked ones. It is believed by some that there is a true gastric juice in an oyster's stomach, which assists in digesting them. This, however, is not known with certainty.

LATH ATTACHMENT.

I send a photograph of an easily made lathe attachment, which will be found useful for holding work while drilling, &c., in lathes not fitted with an overhead motion. It is simply a bracket *a*, *b*, fitted to the tool-box of the slide rest, carrying a spindle with one end screwed to receive any face-plates or chucks that fit the mandrel. The bracket is kept in position by two pins in the under-side of it, fitting into holes in the bottom piece of tool box. If it be required to drill a straight row of holes the spindle is fixed by the set screws in its bracket, and the work is bolted to the face-plate at the proper level, and traversed across opposite the drill in the lathe mandrel, by the cross-screw of the slide-rest while it is fed up to the drill by the upper screw or the rack and pinion.



For circular rows of holes the centre line of the spindle is adjusted parallel with, and at a proper distance from that of the mandrel. The holes may then be spaced by a division-plate, fixed on the spindle. For holes in the edge of the work the whole top of slide-rest is turned round till the spindle is at right angles with the mandrel.

Work merely requiring to be held fast for drilling is bolted on one side of the face-plate, and can then be adjusted exactly to the drill by the combined motions of the cross-screw, and the face plate on its centre; small round work while drilled in the end can be held in a scroll chuck screwed on spindle same as face plate in figure. Other uses will suggest themselves, and possibly the device is old enough, but as I have not seen it described or mentioned anywhere I send it.

Belfast, October 14.

J. BROWN.

A PLANING MACHINE FOR GRANITE.

The Boston *Advertiser* for January 2nd contains, under the head of "Granite Planed Like Wood," an article on a new machine for planing stone rapidly, built on the principle of the wood-planing machine. The article begins by saying that when swiftly revolving knives were first made to do the work of horizontal planes upon plank and board, great wonder was expressed, and the planing machine came at once to be the talk of town and country. We have all become used to that and see no impracticability in the use of steel vs. wood in the rapid displacement of the rough surface of the latter.

Next in order one might reasonably expect that some ingenious man would devise a method for the cutting of soft stone, such as freestone, sandstone, and the like, but that chisels or tools of any sort that could be made, would, when driven, dull quickly, and render the operation practically of little value. Such a plan for the cutting of marble could not be entertained, for the hard material must be removed by well directed strokes from a powerful arm. The inventor of the above mentioned machine has now shown what may be accomplished. Disdaining, as it were, to meddle with softer substances, he selects for the test of his invention the hardest of all—granite, and the hardest granite at that—Hollowell. Easily and simply as the surface is removed from a pine board and caused to fly off in chips, the flinty roughness is made to leave the face of the great block, and only a fine powder remains to prove that a strange work has been done by the ingenious application of steel. "If there could be made a tool that would not require constant watching and very frequent sharpening, you might plane granite," said a practical granite cutter. The inventor showed him that for 45 minutes his machine could run continuously and the tools be uninjured, and he was not a little surprised to note the amount of work done by the machine in that short space of time. The tools can be changed in a few minutes, and the whole machine at once put into operation.