

Four feet is about the limit for distance between studs or tie braces. Concrete should not be made with sharp corners, and fillets should be placed in the molds at all sharp angles. No corners should be sharper than two inches, and, if stone larger than two inches is used, the corner should be as wide as the largest stone. Molds should not be removed for at least two days after the last concrete is put in. Before the concrete is put in the molds should be wet down on the inside. This will prevent the wood of the mold from absorbing water from the concrete next the planks. The chemical action between the cement and water can then take place. The absorption or evaporation of the water before chemical action takes place accounts for the crumbling of the outside of mortar which is strong in the interior of wall. When the concrete is being dumped in molds, men should be put to ramming the concrete in the mold so that the mortar will fill all voids between the stone. Nine inches is about as thick as it is possible to ram properly, and if there is not enough concrete mixed to fill out a layer in the mold a plank should be put across the mold and the layer tamped up square instead of sloping down. If the concrete is allowed to slope, the slope will not ram properly, and when the next layer of concrete is put in it does not join chemically with the under layer, and there will be a tendency for the upper concrete to slip on the slope.

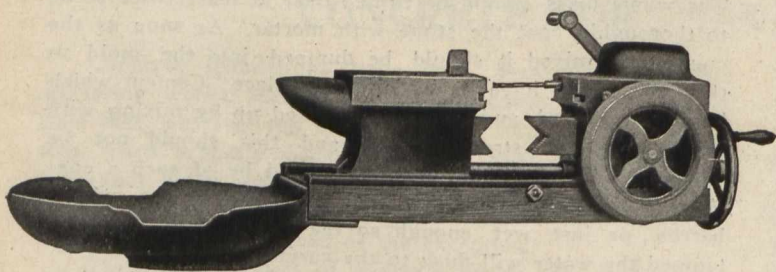
Concrete which is exposed to air and weather should have a Portland cement mortar finish on the outside. This finish can be put on when the mold is removed, but a better way is to put on the facing as the concrete is built up in the mold. If a concrete foundation is faced off in this way, it is then possible to use Puzzolan cement for mixing the concrete.

The manner in which a mortar facing may be put on when filling the mold is as follows: Take a piece of sheet iron, say six feet long and ten inches wide, bend up one and a half inches of the ends at right angles and set the plate in the concrete with the bent-up ends touching, the proportion of one of cement to two of sand, and tamp the mortar in with a trowel or shovel. Then fill in the concrete. When the concrete is as high as the mortar the sheet iron can be removed and the concrete tamped. The mortar should be stiff so that the stones will not penetrate to the mold when being tamped. The mortar facing and the concrete centre being carried up together make a monolith of the whole. When the concrete is completed the top should be faced the same as the sides, and then covered with old bagging or the like, which should be kept damp for a few days, or until the cement has had time to set properly. The engines should not be put on the foundation for at least a month. When an engine is bolted to a well-made concrete foundation it has to stay there, and cannot go meandering around the room.—Engineer's Review.



A COMBINATION TOOL.

A more useful tool than the one illustrated has seldom, if ever, been placed on the market. It combines a drill, an ordinary vise, a pipe vise, an emery wheel, an anvil, a forge, and a blower for the forge. The Detroit Tool Company,



Detroit, Mich., are to be congratulated on their new product. The device consists of a steel-faced bed, or base; at one end is a stationary head stock, at the other a moveable tail stock and an overhung forge pan. The head stock contains the mechanism of the rotary blower, drill-grinder, and the

stationary part of the vise and pipe vise jaw. The tail stock serves as an anvil, support for work being drilled, and the moveable member of the vises. This part slides on the bed between two adjustable guides, and is moved by a screw operated by a hand-wheel at the outer end of head stock. The air from the blower is conveyed through a channel in the base to the forge at the opposite end. The fan shaft of the blower projects through the air intake at the front side of the gear case, and is fitted to receive an emery wheel, the intake being located as to form a current of air, drawing the emery dust into the forge away from the operator. The blower and emery wheel are operated by a crank wheel located on the rear side of the gear case, which wheel is fitted with a pulley for the application of power when so desired. The fan and emery wheel are geared 12 to 1, and may easily be run by hand 2,000 revolutions per minute. The drill is operated by the same driving wheel, being fitted with a clutch arrangement so that it may be thrown in and out of gear at the will of the operator, so that either the drill or the blower may be operated independently of each other. The emery wheel is of special construction, having an open centre, with the spokes beveled propeller fan fashion to throw the air into the blower intake. With this unique appliance are furnished: (1) Drills, (2) blacksmith's hardy and tongs, (3) crucible holder for holding a crucible or metal ladle, or for holding a soldering iron over the forge fire.



INTERNATIONAL WATERWAYS COMMISSION.

The International Waterways Commission held a short session in Toronto recently, the discussion resulting in anything but a roseate proposition for the people of Ontario. From what can be learned there is a disposition on the part of the American Commissioners to "grab everything."

The American Commissioners want to preserve the scenic beauty of the Falls, and are agreeable that no more power concessions shall be granted, placing the Province of Ontario in the position of having to cancel some four or five charters that have been made for the manufacture of power at Niagara. This would throw the control of the electrical power situation over to the American capitalists, who have the right to generate 200,000 horse-power on the American side, while contracts have been made for the sale to the United States of half the power generated by companies on the Canadian side.

Politics In It.

The American Commissioners state that from 27 to 33 per cent. of the water of Niagara is now used, and that any further use of it will impair the beauty of the place.

The master hand of the American politician is seen in the whole transaction, and the charge is made by Canadians who are familiar with the situation that one of the power companies has the New York Legislature at Albany by the throat, and is able to get about what it wants. This means is being taken, it is said, to force out competition and give all the benefits to the present companies, while two-thirds of their product will go over into the United States.

Want a Treaty.

The American Commissioners desired to secure a report of the commission which might form the basis for a treaty between Great Britain and the United States regarding the waters of the Falls and the Niagara, as the greater volume is on the Canadian side. This the Canadian Commissioners declined to do unless specially instructed by the Canadian Government. Another meeting will be held at Washington, D.C., on April 24th next.

A resolution of condolence was passed by the commission and ordered to be forwarded to the family of the late Hon. Raymond Prefontaine, Minister of Marine.