

## THE HYDROSTATIC LEVEL IN BUILDING CONSTRUCTION.

By OWEN B. MAGINNIS.

The science of modern building construction necessitates the introduction of such instruments, tools and appliances as will expedite the work and lessen expense by economizing time. Such an implement is the hydrostatic or water level. The instruments most popular for leveling in laying out large works are the engineer's transit, theodolite or architect's Y level, all of which are of the utmost utility for mechanical operations. However, the form of improvised water level is, perhaps, most adaptable, as it can be easily and cheaply made, is accurate in its action and simple in its application. It consists of a long piece of ribbed rubber hose or pipe, half an inch internal diameter, with pieces of transparent glass tubing, 12 or 18 ins. long, inserted at each end. These glass tubes should, if obtainable, be graduated into inches and parts of inches down to sixteenths, but if graduated tubes are not to be had, smooth tubes of clear, thick glass of chemical tubing will do, and a quarter or half-inch section can be cut off the end of the rubber pipe and set over the glass tubes, which will slide up or down so as to form a gauge.

Water is poured into the rubber hose pipe and glass tubes till the ends overflow, when they are kept full by placing a small tip or faucet at the ends of the tubes. When in use, the faucets must be opened in order to allow the water to find its own level. One glass tube is placed against the wall which has been built to the required height, being held firmly against the face of the wall with the gauge set 4, 6 or 8 inches from the top as desired, the gauge being kept at the edge of the brick or stone wall templet, from which the required level is to be measured. Here it is held by one man, while another carries the other glass tube to the object to be measured. When the water is exactly on the line of the gauge the level point is determined, and the distance of the detail above or below the gauge will denote the discrepancy in the relative heights.

Many masons use this instrument with a rod for finding depths of trenches for walls, piers, etc., for leveling for templets, sills, water tables or other details, especially in an excavation which is crowded

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with piers, shores, derricks or appliances, which, of course, render the use of the transit or Y level impossible.—Scientific American.

## CHINESE BUILDING.

In the course of an article on Chinese architecture by the Rev. W. Hoekyns Rees in the Magazine of Art, he says: "The walls are constructed of kiln-made bricks, which cost 10s per 1,000, or of sun-dried bricks, which cost about 2s 6d per 1,000. The latter, after setting, make firm walls, unless exposed to rain and wind and sun, so, to guard against these evil effects, the walls on the outside are plastered over with a double coating of chaff and mud or mud and lime, and this process has to be repeated annually. The doors have two leaves, having a pin above and another below to serve as hinges. Door-sills are movable, with holes in the centre to admit cats and dogs. These doors can never be made to close tightly, so there is plenty of fresh air. The windows are made of wooden gratings, fixed in the wall to prevent their being stolen, and are covered with oiled paper. The beds are of adobe, and the quilts of all the occupants are piled upon them, whilst the cooking is done in a large iron pot near the bed, so as to allow the heat to curl up the flues under the bed. The only chimney is a small hole at the corner of the roof to allow an exit for the smoke; but the rooms are suffocatingly stuffy, and the whole house is festooned with black webs, and the ceiling has a thick coating of creosote, all of which are allowed to remain with no effort to remove the obnoxious things except at the Chinese new year, when a brushing, not by any means thorough, takes place.

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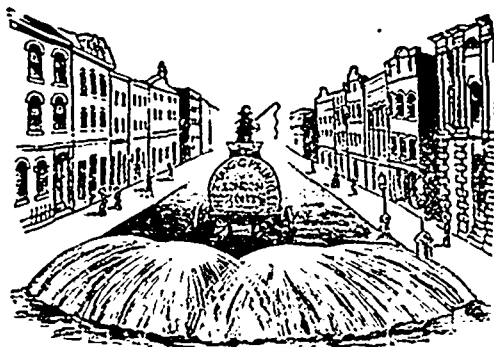
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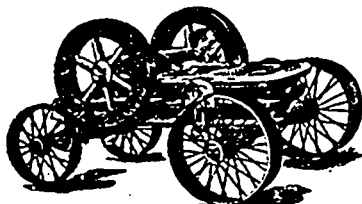
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