AN APPARATUS FOR ILLUSTRATING LIQUID PRESSURE.

BY A. R. HAGAR.

Physical Laboratory, Manila (P. I.) Normal School.

While teaching physics in the Salt Lake City High School there were frequent questions of a practical nature asked by some of the boys, who had spent their vacations in the mines, which are the chief source of wealth of the region.

One of the boys, who had spent his summer in the vicinity of Park City came up to me one day with a question, as follows: There was a water power (Pelton wheel) located at the base of a mountain fed by a stream originating in the melting snow cap. Part way down, at the highest practicable point, a reservoir had been built, from which the water was brought by a flume to the wheel. The mine manager planned to build another reservoir or enlarge the present one to get *more pressure*, the second or enlarged reservoir to be built at the same altitude as the present one. The pupil said he "couldn't see how this would give any more pressure if the head didn't change, according to the law given in the text book—but still it did seem as though it ought to make some difference." Our high school demonstration equipment did not include a set of Pascal's vases, so we arranged an apparatus, shown in accompanying figure. This, I found, was very easily used and readily understood by the class. Of course, the receptacle *Y*, which is the neck of a broken retort, represented the present reservoir, and *X* the proposed large reservoir. The manometer, with mercury, shows by its level at *H* that the pressure from water in *X*, as shown when cock *D* is opened, is the same as pressure from water in *Y* when cock *C* is opened, or the same as pressure from both vessels, with both *C* and *D* opened. By adding a little water to *Y*, when both cocks are closed, and then opening cock *C*, the added pressure due to the greater head is easily shown. The pupil will see that if the levels of water in *X* and *Y* are the same that the pressure on surface *B* is the same in each case, but that if the water were running through a water wheel at *B* the pressure would be maintained for

Fig. 1.

a *longer time* with a large *quantity* of water, that being the advantage of the large reservoir.