

top of the beam at points four feet from each end. The men conducting the tests watch the beam very closely while it is in the testing machine, and examine its surfaces with magnifying glasses in order to locate the fine cracks as they appear. In the beginning a load of about 5,000 pounds is applied and the machine is stopped with this load on the beam. After the observers have examined the beam carefully and made a record of the cracks appearing at that time, the load is increased, and, after every 1,000 pounds

In beginning tests of reinforced concrete, simple round rods were used, as it was thought that more uniform results could thus be had than if any of the patented systems were used. After a complete series of tests with the round rods has been made, it is proposed to take up tests of the different forms of bars that are used in practical work, and the results will be published from time to time by the Geological Survey. Tests will be made of beams ranging from six to twelve feet in length, and because of longer span

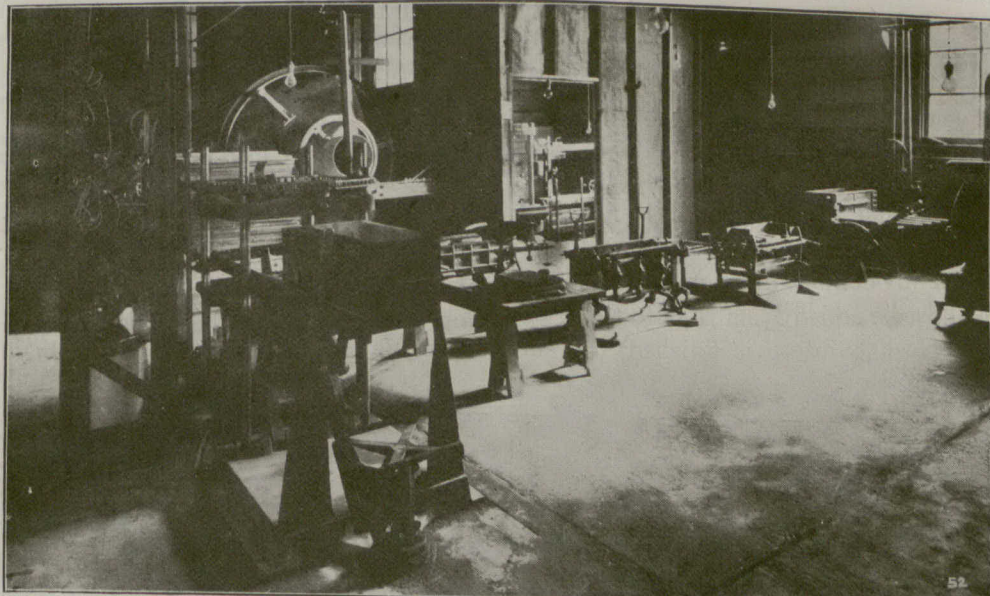


FIG. 4.—CEMENT BLOCK MACHINE.

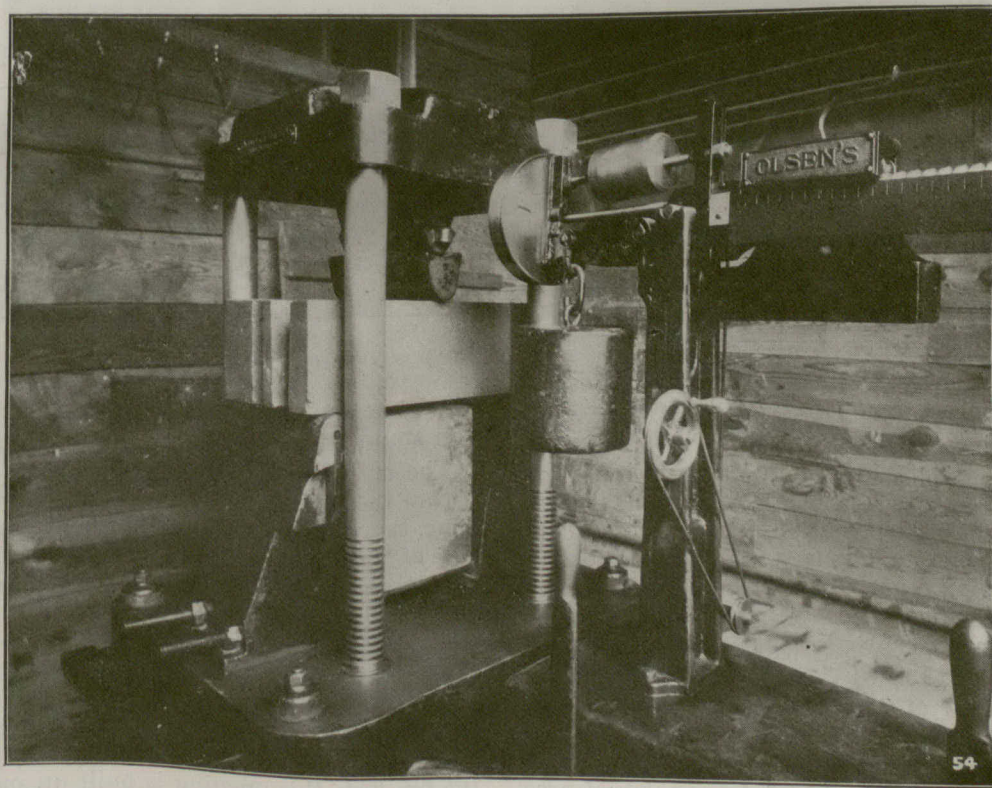


FIG. 5.—TESTING CONCRETE BLOCKS.

additional, the beam is again examined until the maximum load is applied.

In a very large number of tests the beam shows no cracks that are visible to the eye until the maximum load is reached, when the steel reaches its elastic limit and begins to stretch fast, this result ending the test. The cracks that appeared on the beam and the loads at which these cracks appeared are recorded by photographs.

will be tested later, if necessary, in order to get results that can be applied to almost all practical conditions.

The concrete used in the different beams tested, as described above, is moulded into cylinders and cubes, which are tested in order to get the direct strength of the concrete. These cylinders and cubes are all tested at different ages, generally at ages of 7, 28, 90, 180 and 360 days. The cement, sand, stone, gravel, or