erials or to the method of laying. Of course, some masons can do as good work in this direction as in their regular line of laying up walls, but too often there is a considerable waste of time and of cement, and the resulting floor is not finished so as to properly stand the wear and tear of heavy work.

It is the purpose of this article to describe the process of laying cement walks in sufficient detail to serve as a guide for anyone who wishes to lay a basement or other ground floor having the greatest possible durability. Floors of this kind are occasionally laid. We see them most noticeably in the train sheds and other buildings connected with some of our large city railroad stations, and many railroads use this material exclusively for their platforms.

In brief, the work of laying a floor of this description consists in the preparation of a good foundation, the mixing and placing of a layer of concrete about three inches thick, and the covering of the surface with about one inch of rich mortar troweled on.

A GOOD FOUNDATION THE FIRST REQUISITE.

The work will now be considered in detail. The first requisite is a good foundation. If the ground where the floor is to be laid consists of porous sand or gravel in its natural state, and if this material is dry the concrete can be laid directly upon it without further preparation. If, as is sometimes the case in mill construction, the ground has been filled in at a comparatively recent date, it should be thoroughly puddled by means of a fire hose, so as to ... all of the open spaces or voids which will naturally occur in filled ground. If the filling has been sand or gravel, it can be graded up with the same material, rammed with hand rammers, and the concrete laid directly upon. Wherever, either on natural ground or in filled ground, the earth is of character which will not provide perfect drainage for all of the ground water, or water from the mill, which will naturally soak into it, it should be brought to a grade about 4 inches below the grade of the bottom of the concrete, thoroughly rammed, and covered with a layer 4 inches thick, after ramming, of cinders, porous gravel, broken stone or broken brick. Some of the cities require in sidewalk work that this layer should be as thick as 12 inches, but in a building where the action of frost is slight a 4 inch layer is amply sufficient. This foundation material should be thoroughly rammed, and the surface should conform to the grade of the bottom of the concrete. A convenient rammer for this, and also for the concrete, consists of a square plate of cast-iron with a socket in the top to receive a wooden handle or a piece of gas pipe.

The concrete itself consists of two distinct layers. The first layer, called the base, which is placed directly upon the natural or prepared foundation just described, varies in different specifications from 2½ inches to 4 inches in thickness. A good thickness for mill floors is 3 inches. The top, or wearing surface, varies from