at 25-ft. intervals by means of tar-paper tins and 8d. nails, the nails being driven through the tins and into the asphalt sidewalk on the exact 25-ft. line. This gave the contractor a good chance to place his forms on the exact line of the back of the curb, there being no possible chance to be out in distances less than 25 ft. Instead of measuring every 25 ft., a batter post was often put in every 200 ft. and a cord stretched between them. The line was hardly necessary every 25 ft., but in putting in the grade plugs, which are necessary every 25 ft., the extra alignment points proved very handy.

After the points were in, the contractor simply had to measure 10 ft. from them, which would give him the location of the front of the curb, it being decided by the city that a 30-ft. roadway would be allowed. This gave 18 ft. of sidewalk from the front of the curb to the house line, the streets being 66 ft. wide.

The alignment of the curb being established, the next thing was to determine the grades and elevations of the combined curb and gutter and to establish them. In Fig. 1 is shown the profiles on the different blocks on Regent St., there being 3 profiles of each block in the determination of the grades and elevations, one on each side of the street and one in the middle of the roadway. The level readings were taken every 25 ft., and after being plotted up, the grades, as shown in Fig. 1, were determined upon. The only parts that needed much judgment were at George St. and the block from Needam out.

At George St., as seen from the profile, there was a sudden rise which looked strange, whereas the rest of the town was level. It was decided that it would be best to cut this hill down, making a gradual slope which would be much easier on traffic than the sudden rise, a gradual 0.6% slope was put in from Brunswick to George St. After the road was completed it was seen that this was by far the best thing that could be done both from general appearance and the ease with which big loads were handled. From Union St. out one side of the road was much higher than the other, so that the combined curb and gutter had to be put in so that it fitted both in the best way possible.

Catch-basins were put in where necessary and are marked in Fig. 1 by small circles. These were built with loose rock with only a sand bottom, and each was therefore more of a cesspool than a catch-basin, the water draining out through the loose rock and the sediment being held in the basin.

**Construction of Curb and Gutter.**—The combined curb and gutter was constructed by J. M. Chappell, Esq., of the City of Fredericton, N.B., and his method of constructing is well worthy of comment, he having a system of forms which cuts down the cost of construction materially, as will be seen.

Fig. 2 is a drawing of a section taken through the curb and also giving a plan and elevation of one 8-ft. block showing another joining on each end. This shows the expansion joints which, in past years, has been a great trouble to get in correctly and cleanly. First, the trench has to be dug out to a depth of 30 in. below the top of the grade plugs. In this trench is placed about 16 in. of broken stone or field stone and tamped tightly into place, forming the foundation and underdrainage for the curb and gutter. Next, the cinders; these are simply coal clinkers and provide an even bed or "cush" for the concrete. (Gravel or sand would answer the purpose just as well but would make a difference in the cost, the gravel costing $1.25 per yard and the coal clinkers 50 cents.)

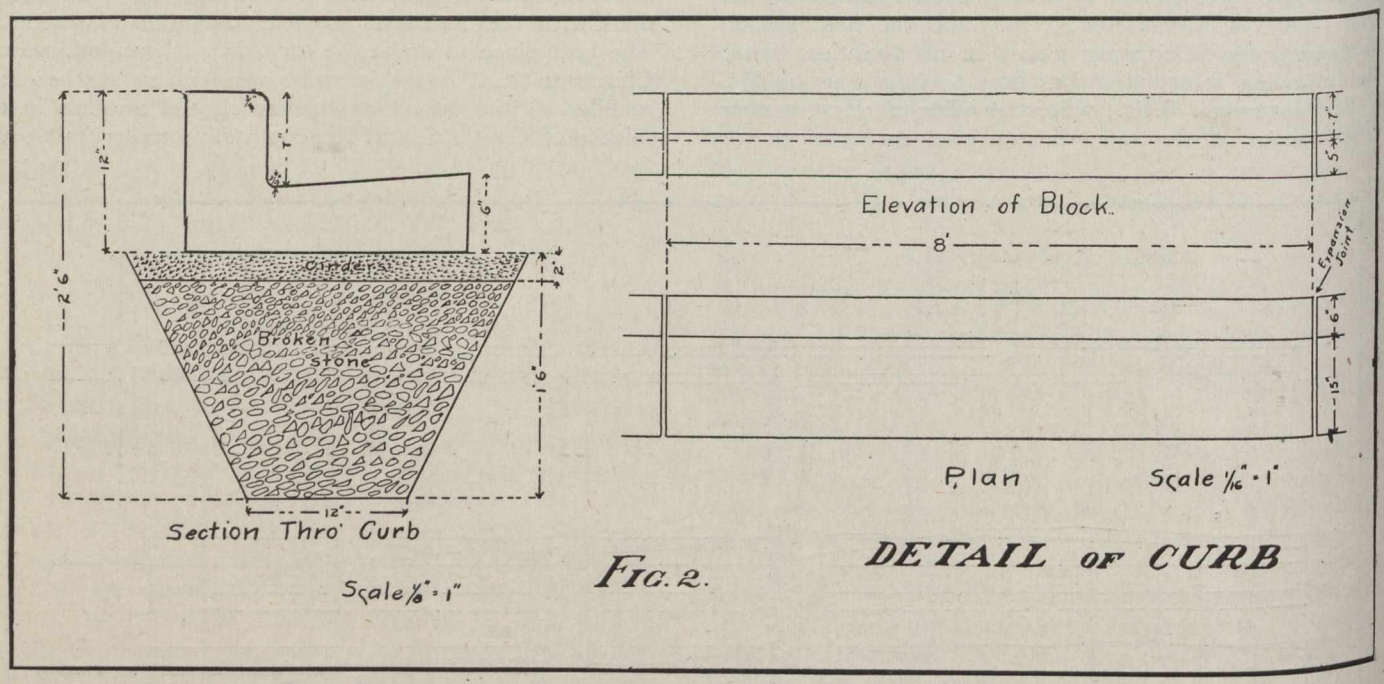


FIG. 2.

**Plan, Elevation and Cross-section of an 8-ft. Length of Curb.**

The form for the back of the curb is now put in place. This should be the most carefully done of any of the form-placing as on this all the rest of the form-placing hinges. If it is correctly done, all of the forms must, as a matter of course, come to their place. This form is a 2-in. plank 12 in. wide and of any convenient length. It is placed on the line of the back of the curb and just so that the top of the plank is level with the grade plugs. This brings the cinder "cush" just up to the bottom of the plank. It is then nailed and braced into place.

Next the steel forms that make the expansion joints are put into place. These are made of ⅛-in. steel and are the shape of the section of the curb. They are the same size as the curb and gutter except that they are just a little longer to supply a hold to enable them to be