

into the concrete. These bars are of square steel, with the ends bent in hook shape to give secure anchorage in the concrete. They are built into the walls in pairs, as shown in Fig. 2, and give the walls not only great bridging strength, but also truss them both ways against side or lateral strains.

The size and spacing distance of the truss bars would depend upon circumstances, as a structure for deep water would need greater strength than one for shallow depths, but in all cases the walls must be built or trussed to resist lateral strains from both sides, for, when the concrete sections are floating the outer walls are exposed to a heavy in-

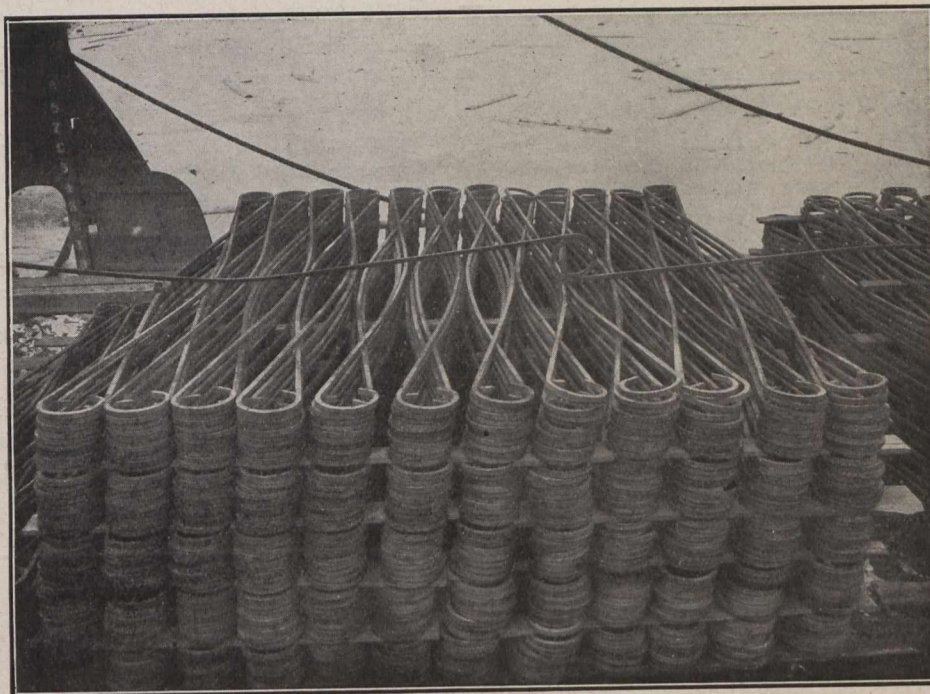


fig. 3.

At all intersections of the walls the hooked ends encircle vertical round steel bars, which feature practically links the entire wall structure into an unbroken chain of reinforcement.

ward hydrostatic pressure, but when sunk and filled with ballast and water, this is reversed and the heaviest pressure is from the inside. The system of reinforcement is fully covered by patents.

THE GROWTH OF THE WEST.

The end of a calendar year, as a rule, is a signal for municipalities to strike and publish a balance. A compilation of municipal and provincial statistics of such items as are of interest to the engineer will show in a tangible manner the growth of Western Canada.

According to the official figures issued by the census commissioner, the population of Western Canada has increased in ten years 174 per cent., as compared with an increase of 17 per cent. in the East. Of the western provinces Alberta has made the greatest gain; Saskatchewan is a very close second and British Columbia and Manitoba both have records that compare favorably with any eastern province. In the decade under review the eastern half of the Dominion has added to its population 721,722 souls as compared with 1,045,717 by the west. Saskatchewan has added the greatest number and of these most of them belong to the farming community which speaks well for the future of that province. The following table shows the changes in population within the period 1901-1911 by provinces divided into eastern and western sections:

West—	1911.	1901.	Increase.	Per cent.
Alberta	372,919	73,022	299,897	424.0
British Columbia	362,768	178,657	184,111	103.0
Manitoba	454,691	255,211	199,480	80.0
Saskatchewan	453,508	91,279	362,229	386.0
	1,643,876	598,169	1,045,717	174.0

East—				
New Brunswick	351,815	331,120	20,695	6.0
Nova Scotia	461,847	459,574	2,273	0.0
Ontario	2,529,902	2,182,947	346,955	13.0
Prince Edward Island ..	93,722	103,259	—9,537	—
Quebec	2,000,697	1,648,898	351,799	21.0
	5,437,983	4,725,798	721,722	17.0

Total for Canada 7,081,869 5,323,967 1,767,439 33.0

Twelve representative cities of the Canadian West show a gain of population within five years of 93.6 per cent. and a gain in ten years of 301.5 per cent. These are official figures and do not include all the people that, properly speaking, belong to the community of which the cities named constitute the real city centre. Edmonton's figures for instance do not include Strathcona, which is practically a part of that city. Those of Winnipeg do not include the populous suburbs of St. James, St. Boniface, Norwood and other communities that adjoin its borders. Strictly speaking, therefore, the actual increase of the urban population is greater than the figures represent.

In the case of practically every city, with the exception of Regina, complaints are made as to the inaccuracy of the official figures. Municipal censuses have been taken which show larger populations, but inasmuch as the complaints are general, and that municipal recounts have not been made in every case, the official figures have been used to