applied by means of a very simply contrived machine. A crank is connected with a fly wheel, and works an iron framing backwards and forwards, forming a rocker. To the rocker is fastened a shaft, which is connected to a large block covered with felt, on which putty powder or rouge and water has been sprinkled. The block is dragged backwards and forwards over the surface of the marble, and in no other way can a good lasting polish be produced. Acids are frequently employed to get up a superficial polish, but this method is utterly destructive in its results. A very short space of time is required for the acid to eat away into the surface of the marble and a dull speckly appearance is produced. No acid should be brought into contact with marble in the working, on any pretence whatever.

Numerous machines have been invented for the purpose of carving; but as far as carving in the round is concerned, their history has been nothing but a history of failures. All of them seem to have been on much the same principle. Two or more points were fixed in a frame, which could be moved in every direction. One point was fixed; the others were made to revolve at a high degree of speed. They were all so arranged in the frame that the position of each was always the same in relation to the other. The manipulator placed a piece of finished carving under the stationary point, and as many rough blocks of stone as he wished to make into copies, one under each of the revolving points or chisels. As the stationary point was passed over the surface of the finished carving, and raised, or lowered, as it was brought into contact with each portion of it, so the revolving chisels followed the position of the stationary point over the model, and cut away the stone placed underneath them into a corresponding shape. In some of these machines the table itself moved as well as the frame, but in all of them some modification of the same plan was adopted.

Mr. Gerald Lomer, 43 St. Sacrament street, Montreal, has recently received the Canadian agency for Otis Bros. & Co.'s elevators, Richey, Brown & McDonald, Brooklyn, Ornamental Iron Workers, and Dexter Bros., Boston, shingle stains.

The Fort Erie Jockey Club are about to construct a large track and grand stand at Fort Erie, Ont., the contracts for which have recently been let. The grand stand will be 311 feet long by 115 wide. There will be eighteen terraces of seats with folding chairs. In the front of the stand there will be twents-four boxes, each containing eight chairs. The buffet will be forty-five by fifty feet, and the restaurant thirty-six by fifty feet. The house of the superintendent of the track will contain eight rooms. Underneath the stand will be the betting ring, which will be two hundred and ten feet long by sixty-eight feet wide. This will have an arched roof, thus doing away with columns.

REPAIRING FRESCO PAINTINGS .- The old fresco paintings are to be washed off with clean water. If this does not remove the dirt sufficiently, a little hydrochloric acid should be added to the wash water, but it is better to rinse off two, three and even four times with water containing too little of the acid than to spoil the picture altogether by using too much acid. After washing off with the hydrochloric acid water, the painting should be rinsed off twice with clear water. If it has to be painted over in places, only lime-proof colors should be used. These are ground in limemilk diluted and mixed with finely powered sharp sand immediately before use, and should not be applied too thin upon the wall, which is moistened previously. The wall, upon which the painting has been done, should also be kept moist for some time yet, for only as long as the mixture is wet, the lime will enter into an intimate combination with the sand. For this purpose a wooden frame is made around the picture, upon which, in a little distance from the picture, firm sack cloth is stretched, preferably double, before the whole picture, so that no air can strike the picture directly. The sack cloth should be kept quite moist for two to four days.

## NEW PLUMBERS' ASSOCIATIONS.

THE master plumbers of Stratford and vicinity have shown themselves to be in accord with the objects of the Dominion Master Plumbers' Association, and on March 3rd a meeting was called by Mr. Wm. Smith, vice-president of Ontario, for the purpose of organizing a local association for that district. The following were enrolled as members : J. A. Castlake, A. Ward, A. Smith, F. Sylvester, and McDonald Bros., of Mitchell. The officers elected were : President, J. A. Castlake; 1st vice-president, A. Ward; 2nd vice-president, A. McDonald; secretary-treasurer, A. Smith; sergeant-at-arms, F. Sylvester.

The master plumbers of Winnipeg, Man., met on the 20th of March and organized a local branch, to be known as the Master Plumbers' Association of Winnipeg. It comprises eight out of the nine established plumbing firms doing business in the city, and starts out with good prospects of becoming an active and useful organization. Officers were elected as follows: President, T. A. Irvine, of T. A. Irvine & Co.; vicepresident, T. Cotter, of Cotter Bros.; recording secretary, Jos. Turner, of the Manitoba Plumbing Co.; treasurer, W. Stephenson, of Stephenson & Co. Committees on arbitration, legislation, sanitation and auditing were also appointed, and the constitution of the Montreal Association was adopted, with the necessary changes to apply to the city of Winnipeg. A meeting will be held shortly, when a regular meeting night will be arranged.

The officers of the new association at St. Catharines, Ont., the organization of which was briefly mentioned in our March number, are as follows: A. Chalfield, president; A. Riddell, 1st vice-president; S. P. Gourlay, 2nd vice-president; T. Parnell, treasurer; C. Beard, secretary; T. Patrick, sergeant-at-arms; H. Bald, associate member on committee.

L. H. Gaudry has started business in the city of Quebec as a dealer in plumbers' supplies.

Mr. J. W. Hughes, of Montreal, who was one of the promoters of the Dominion Master Plumbers' Association, was, at the last meeting of the American Public Health Association, appointed chairman of a new committee on "Sanitation, with special reference to drainage, plumbing and ventilation of public and private buildings." Mr. Hughes has always taken an active interest in sanitary matters, and fully deserves the honor conferred upon him.

SALT IN SAND .- A writer in one of the London architectural papers presents some interesting remarks relative to methods by which salt may be detected in sand. He says that if the sand is not contaminated with decaying organic matter the easiest way is undoubtedly to put a few grains in the mouth, or to taste the water in which some of the sand has been stirred. If this test is objected to put some of the sand in a wine-glass, cover with distilled water, and, after agitating for some time, dip a piece of clean platinum wire into the water and hold it in a colorless Bunsen gas flame. A persistent deep yellow color imparted to the flame will indicate the presence of sodium. Another method is filter off the water from the sand by means of blotting paper, and to the liquid add one drop of silver nitrate solution. A curdy white precipitate will at once betray the presence of common salt. In ascertaining the presence of salt in sand, it is assumed that the object is to discover any tendency to absorb moisture, and consequently to cause damp walls. This could be equally well ascertained by drying some of the sand for some hours at a temperature of 212° F. Its weight should then be accurately taken and the sand exposed for some days to a moist atmosphere. Any increase in weight at the end of the period would be due to water absorbed from the air, probably owing to the presence of common salt.