unloaded promptly. Thus a higher percentage of the fruits were ripe on arrival. This accounts in some measure for the increase in pressure-bruising. The lug boxes were secured by double strips in the cars, and there was less box-rubbing injury than in those shipped by trucks. Box-rubbing injury was worse on fruits in field boxes shipped by rail than on those shipped by properly-loaded trucks. The higher box-rubbing value of 12.7 percent for the field box in the 1950 and 1951 tests by truck, compared with the 5.5 percent in 1949 (Table 1), was influenced considerably by the 27.9 percent box-rubbing in one truck shipment in which slack developed. The box-rubbing in the other three test shipments in 1950 and 1951 averaged 7.5 percent. The heavy paper liners in the wirebound (TAB) and nailed boxes did not protect tomatoes against box-rubbing injury as effectively when they were shipped by rail as when they were shipped by truck.

SIMULATED TRANSIT TESTS

MATERIALS AND METHODS

To eliminate many variables in evaluating tomato containers used in commercial shipments, simulated shipping tests were made in 1951 under controlled laboratory conditions. An apparatus which simulated the vibrations and shocks normally occurring in rail cars was constructed (Figures 11 and 12). It consisted of a 68 x 24″ platform, mounted on four steel wheels, with end supports to permit loading the various types of boxes three, four or five high, according to commercial practice. The simulator car moved back and forth, 15 times per minute, on two steel rails. Two steel cleats 3/16″ high were welded to each rail so that the front and rear wheels would each receive one jolt for each trip of the car. The speed of 30 trips per minute was found to produce approximately the same percentage of injured tomatoes as actual rail shipments.

Eight replicated tests, in which there were 146 containers of tomatoes, were made between January and June under the following controlled conditions: The room temperature was maintaned at 60° F. and the relative humidity at 80 to 85 percent. Only sound, medium-size, mature-green fruits were packed in the test containers. Each type of container was packed with a uniform number of pounds of tomatoes. As ripeness affects certain transit injuries, the tests were extended over a normal