THE NEW ORLEANS TERMINAL COMPANY.

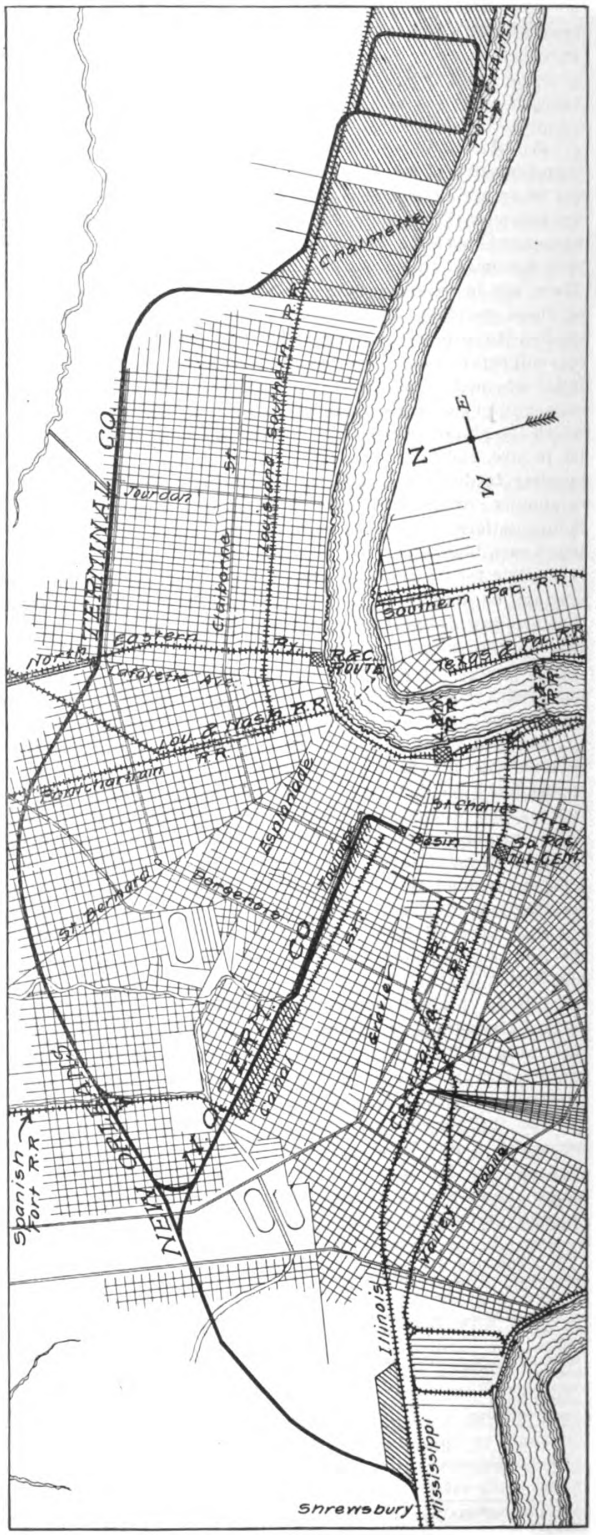
The enterprise which is known by the name of the New Orleans Terminal Company has for an object the introduction of the 'Frisco system into the city of New Orleans and an improvement in the terminal facilities of the New Orleans & Northeastern Railroad, which latter line, although independently operated, furnishes the Southern with its New Orleans connection. Properly speaking, there are two great questions presented here, the first of which involves the local freight and passenger business and the second a freight terminal. By reference to the accompanying general map of a part of New Orleans the mutual relations between the passenger and freight terminals may be seen, as well as their relation to other passenger and freight terminals of the city. On this map the portions acquired by the New Orleans Terminal Company are single hatched, while the passenger terminals of the other railways are cross hatched.

Passenger Terminal and Local Freight Stations.

The center of New Orleans may be taken as at the corner of Canal and Saint Charles, along which latter street passes every line of street cars operating within the city limits, and three blocks from this point, on the corner of Canal and Basin streets, the New Orleans Terminal Company has located its passenger station, with the front on Canal street. From Canal street to Toulouse street, the company's line proceeds northeastward, where it makes something more than a right angle toward the northwest and then proceeds nearly straight until it reaches the Belt Railroad, which is a part of its assets. This runs from Shrewsbury, west of the city, to Port Chalmette, east of the city. Along the line just described the company has purchased a very large amount of property, consisting of about 50 city blocks, bordering its right of way, which will be used for freight houses, stock yards and other local necessities. Four surface tracks will enter the passenger station, and these expand to six tracks on the curve uniting Basin street with the northwestward line. In the external angle, with a view both southwestwardly and northwestwardly, an interlocking tower will be located, from which the system of switches governing the entrance to the passenger station will be controlled.

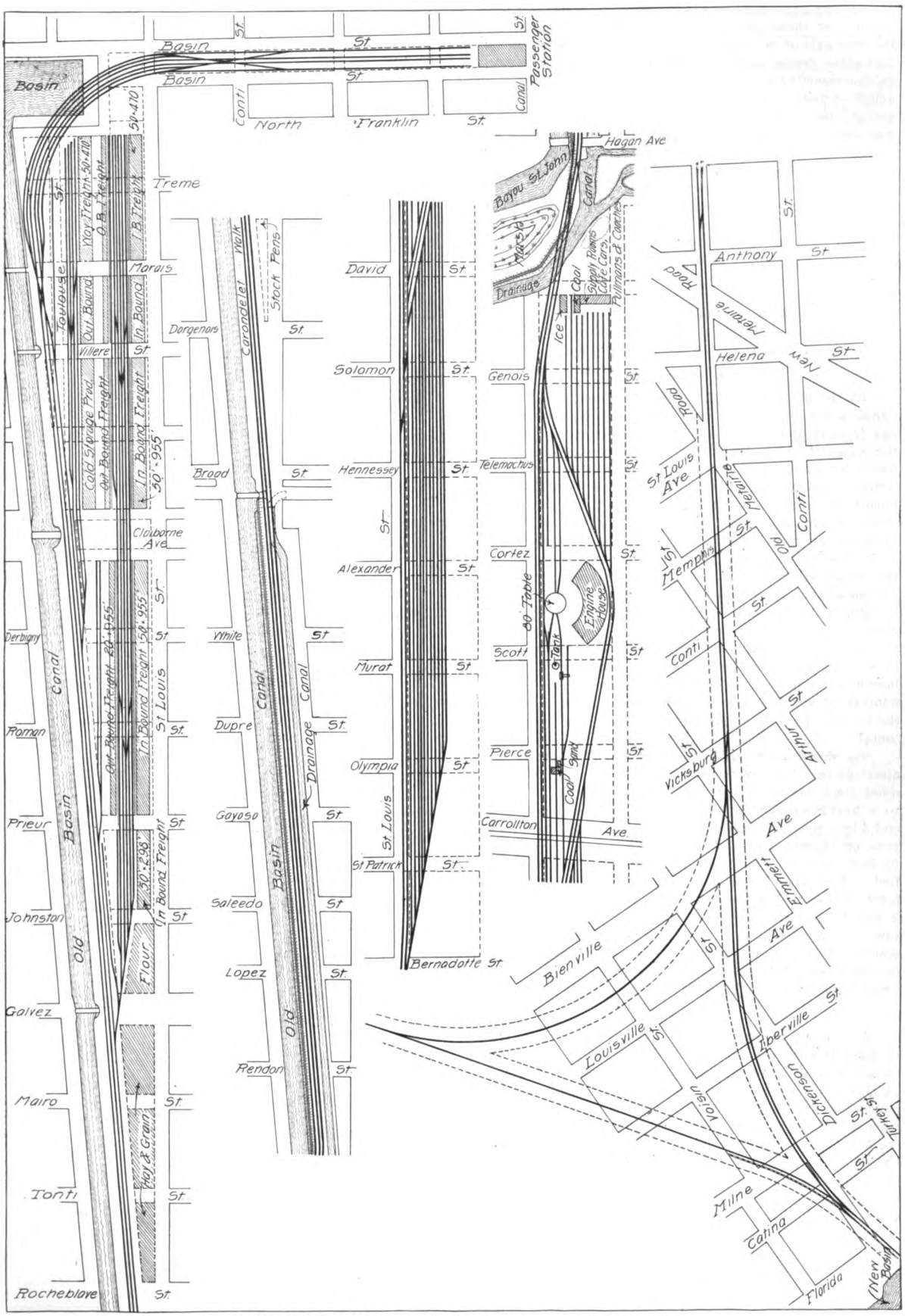
From Basin street to Dorgenois street there is now or will be a continuous succession of freight houses, and for the greater part of this distance they extend on both sides of the freight yard. A yard of six tracks extends for about ¾ mile, bordered on each side by warehouses, through the most northerly of which a continuous driveway extends; and north of this again is a system of four tracks of about the same length. The peculiar value of this location lies not only in being at the center of the city, but in the presence of the canal on its northern border. Through this canal enter large numbers of small sloops and schooners, which ply through the streams and bayous of the surrounding country, bringing into and taking out of the city large quantities of freight. On the same line are located the passenger yard, consisting of nine tracks, with an average length of about 700 feet each, with ice and coal houses and a supply house for Pullman and day coaches. An engine house of 14 stalls, served by an 80-foot turntable, has in connection with it a coal handling plant, provided with bucket conveyors, into which the coal drops by gravity from cars and is raised from the storage bin to the top of the building by a Fairbanks-Morse gasoline engine. A water tank and cinder pit are located close by, which latter is operated by compressed air, and was illustrated in The Railway Age of December 13, 1901. In this device, a metal car receives ashes from a locomotive firebox by gravity, and is elevated by means of a wire rope and air hoist on inclined rails to a point where it dumps automatically into a car. The general contractor for all of the machinery and buildings on this line was the George B. Swift Company of Chicago, and the construction is of the highest character.

Along Basin street there is a large sewer, above which the railroad runs, and this sewer is covered with a heavy concrete floor, in which are imbedded transverse I-beams, varying in depth from 12 inches to 20 inches. The new structure is an addition to an original open waterway, and the method



NEW ORLEANS TERMINAL IMPROVEMENTS—GENERAL PLAN.

of reconstruction is clearly shown on one of the accompanying engravings. The old brick walls remain in place, but are recessed in such a way as to receive a bond with the new concrete, which is reinforced by means of ½-inch bars, placed 12 inches center to center, in a single row, in the direction



NEW ORLEANS TERMINAL IMPROVEMENTS—GENERAL PLAN OF YARD FACILITIES.

of the long axis of the masonry, and in double rows at the bottom; of these double rows, the upper are parallel with the long axis of the canal and the lower row perpendicular to that axis. Owing to the peculiar character of the soil in the neighborhood of New Orleans there is no advantage in great depth of foundations, hence in this work much reliance is placed upon piling. Here, too, the concrete is composed of washed gravel (by order of the sewerage and drainage board), although in every other structure slag is used and preferred.

Atlas Portland cement was used exclusively on this work, with lake sand and Birmingham slag for concrete in a mixture of 1, 3 and 6. The main tracks are laid with 85-pound rail, 33 feet long, of the American Society of Civil Engineers standard section, and the joints are 4-hole suspended angle bars, with alternate oval and round holes. Sidetracks are laid with 60-pound rail and much the same form of joint. Crossties are of cypress, 7 inches by 9 inches by 9 feet, 3,168 to the mile on main line and 2,640 to the mile on sidetracks. Frogs, switches and switch stands are furnished exclusively by the Elliott Frog & Switch Company of East Saint Louis.

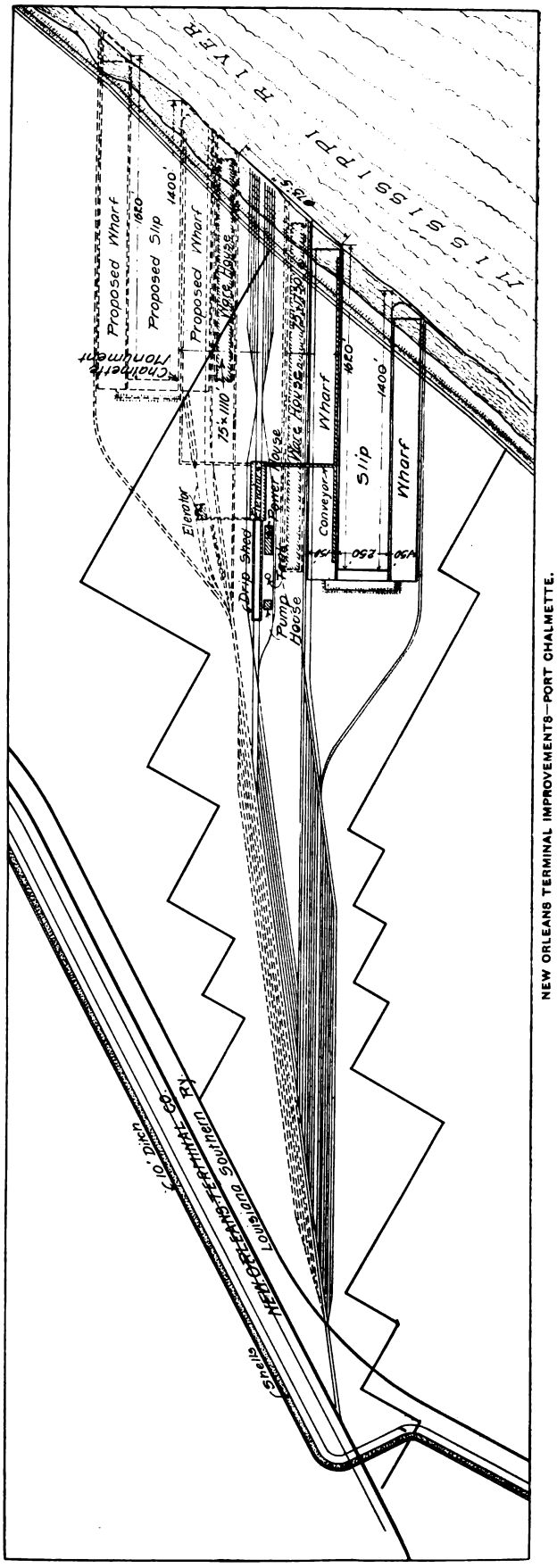
New Basin Bridge.

At the point where the railway crosses the New Basin Canal, a double track, bascule drawbridge of somewhat peculiar form is placed. This bridge was designed and built by the Missouri Valley Bridge & Iron Company, and several unusual features occur here which are worthy of particular mention; among these is the method of counterweighting. By means of castings, weighing about 3,000 pounds each and suspended in three rows within the plane of the tower, the bridge is not only counterweighted for its maximum pull, but, as it rises, the weight is decreased automatically until when the bridge approaches the vertical it amounts practically to nothing. This is accomplished by suspending the weights serially from each other on short, stiff rods, which, as the weights successively reach a bearing during the opening of the draw, project upward through slots which are molded in each weight. Conversely, as the bridge lowers, with each increment in the length of the sustaining rope and rods, the number of weights increases and serves gradually to meet the increased weight of the girders as they approach the horizontal.

The drawbridge proper consists of a plate girder bridge, about 68 feet long, with transverse floor beams and longitudinal track stringers. On the main abutment it is hinged to a heavy wrought shoe by a 7-inch pin, and at the outer end 4-inch pins are provided as connections for the operating rope of 1¾-inch Hercules wire and the counterweight rope, ¾ inch in size. The operating sheave has a diameter of 3 feet and is supported at a point about 70 feet above the rail level, while the sheaves for the counterweight ropes are 7 feet in diameter and are placed on the very top of the tower, at an elevation of 104 feet above rail level. Immediately under the largest sheave, just mentioned, is a latch, operated from below, to insure the stability of the girders when in an upright position.

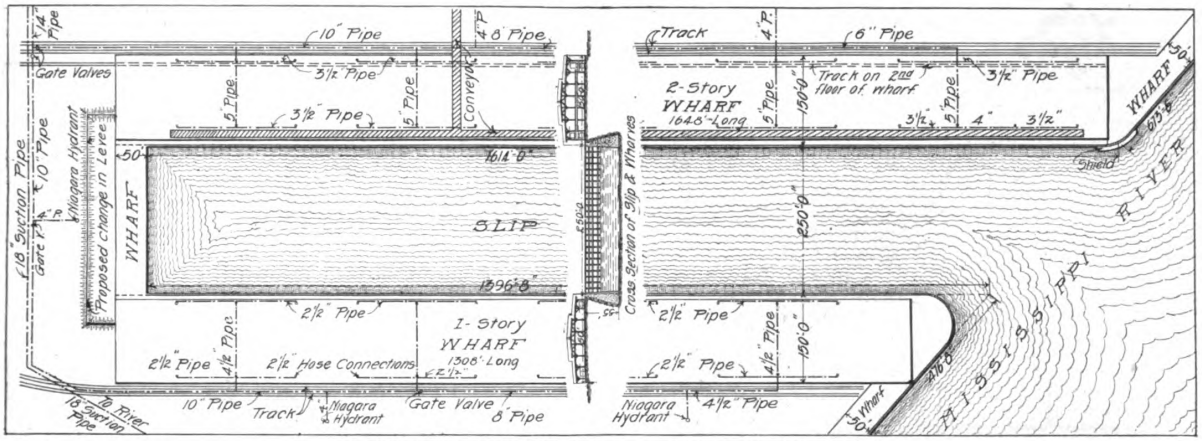
Chalmette.

At a point 6 miles down the Mississippi River and east of New Orleans, the New Orleans Terminal Company has located a great property, consisting of about 8½ square miles of land, with a river front of 2½ miles. Here already is located a considerable plant, including an elevator with a capacity of 500,000 bushels of grain and a fine system of tracks. This property was partly developed by the Belt Railway, but the new plans contemplate much greater arrangements, some of which are entirely novel as applied to the Mississippi River. Most important of these is a great slip, lying at an angle of 49 degrees with the current of the river, with its entrance downstream, with an effective dock room of nearly 3,000 feet and a width of 250 feet. The contract for this dock has been let to Stewart Bros. of Chicago and involves an expenditure of about $2,000,000, but another slip of the same dimensions and closely adjacent is contem-

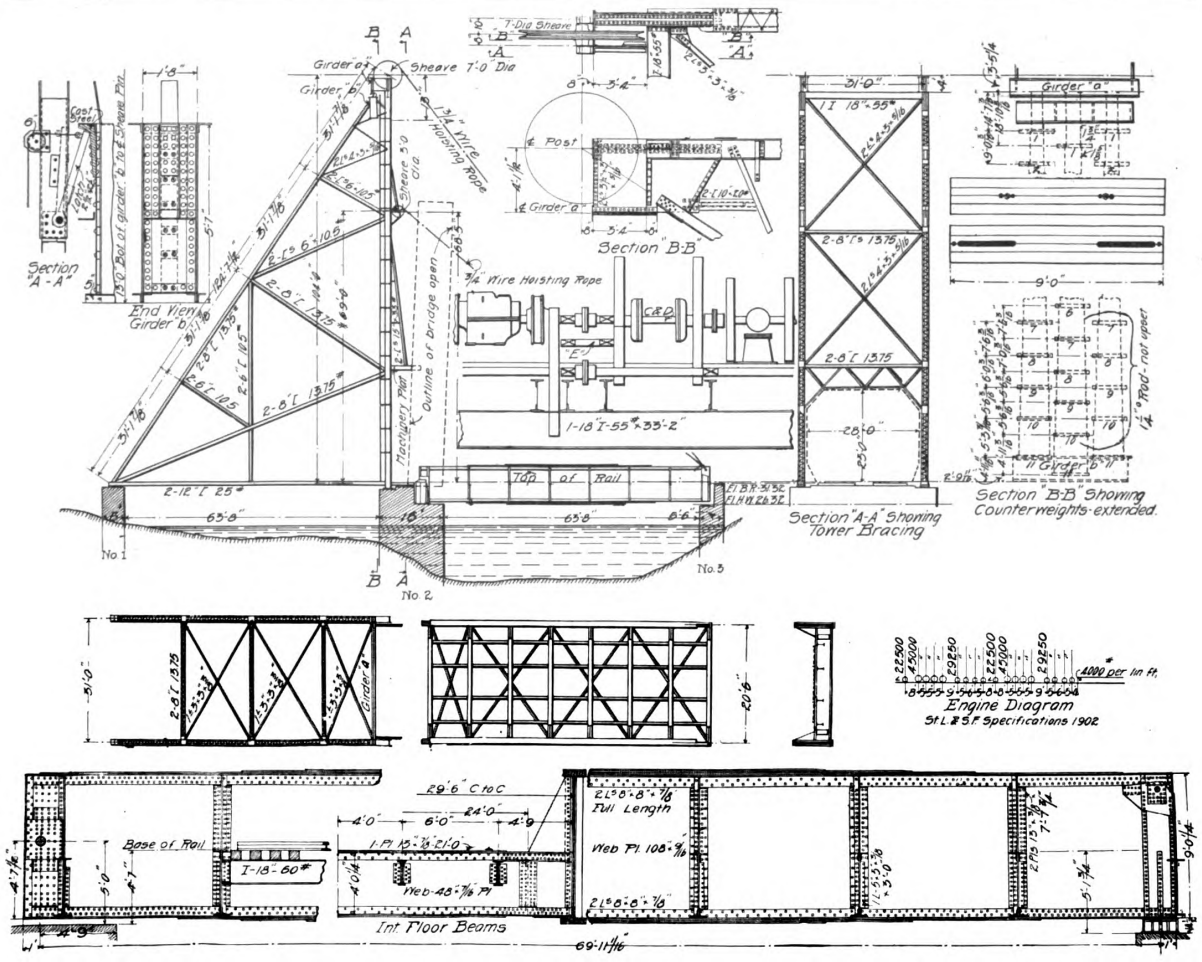


NEW ORLEANS TERMINAL IMPROVEMENTS—PORT CHALMETTE.

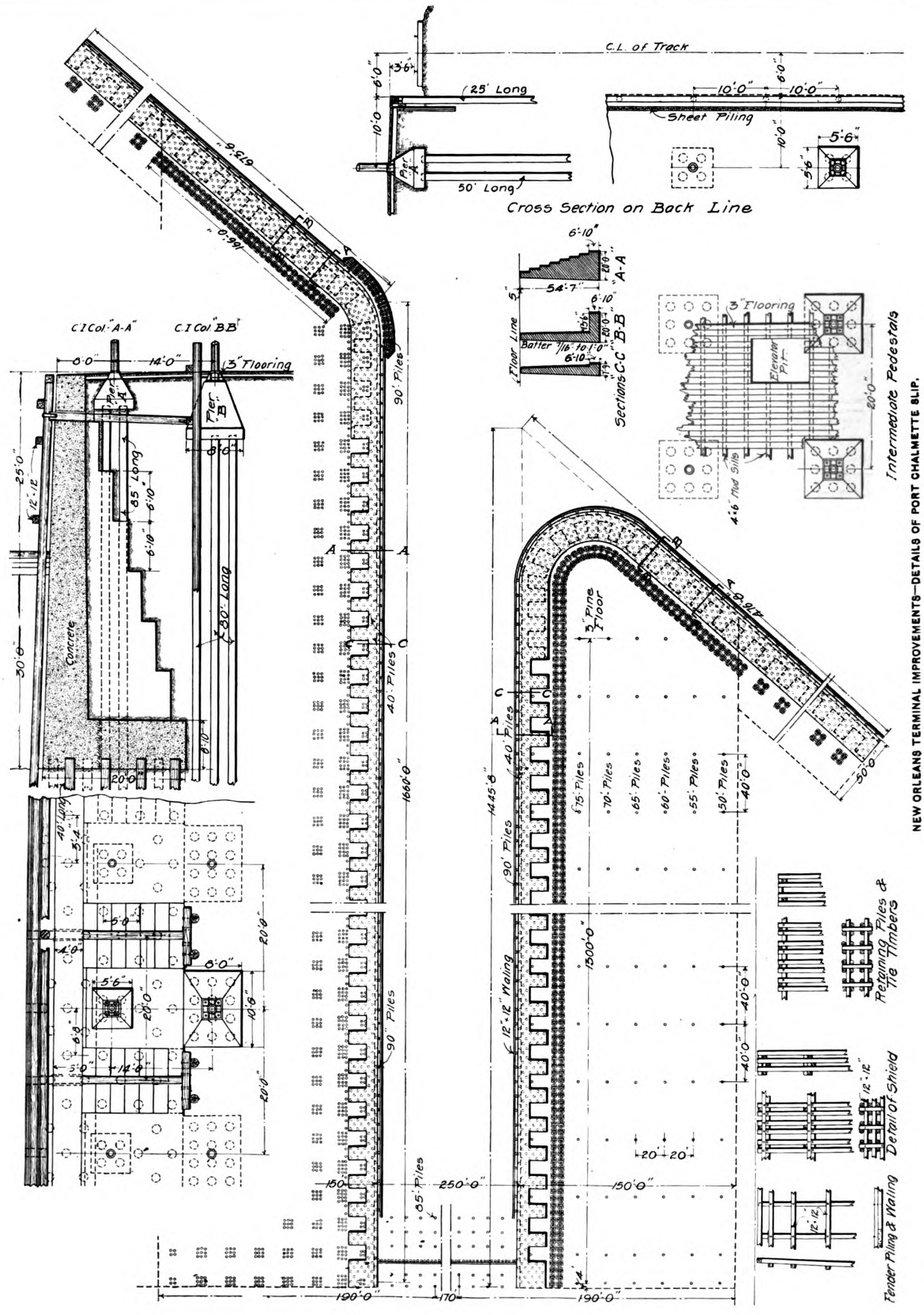
plated in the near future or as soon as it may be made necessary by a growing business. In connection with the elevator there is a drip shed 500 feet long, and besides this are a power house, a tank and a pumping plant, with high pressure lines throughout the whole area and with frequent connections in all buildings, terminating in Niagara hydrants. Upon the eastern side of the slip a two-story warehouse of concrete will be built, and on the west side a single story warehouse of the same material. These are of great size and communicate on their land sides with double tracks. Originally these warehouses were to be of wood, but the recent destruction of the Stuyvesant Docks caused a change in the plans. Their total length along the slip is more than 3,000 feet. In the two-story warehouse, elevators will communicate between the first and second floors and a conveyor connects the elevator with the eastern side of the slip and extends along its whole front.



NEW ORLEANS TERMINAL IMPROVEMENTS—SLIP AT PORT CHALMETTE.



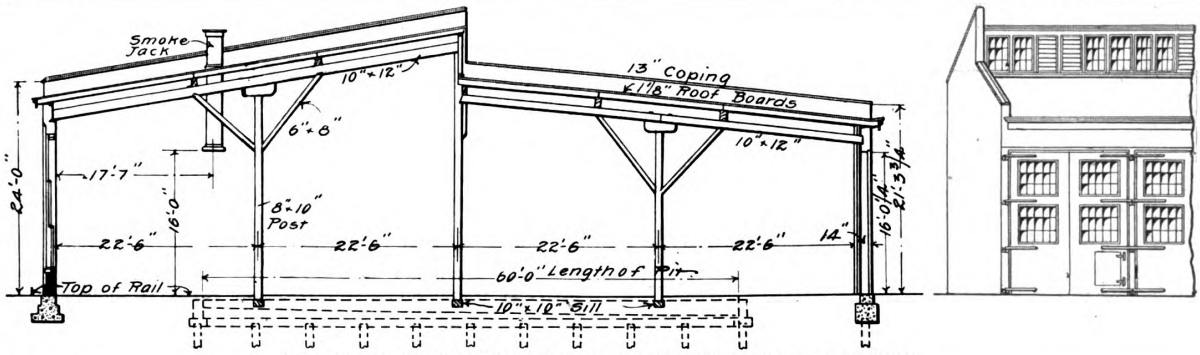
NEW ORLEANS TERMINAL IMPROVEMENTS—NEW BASIN BRIDGE.



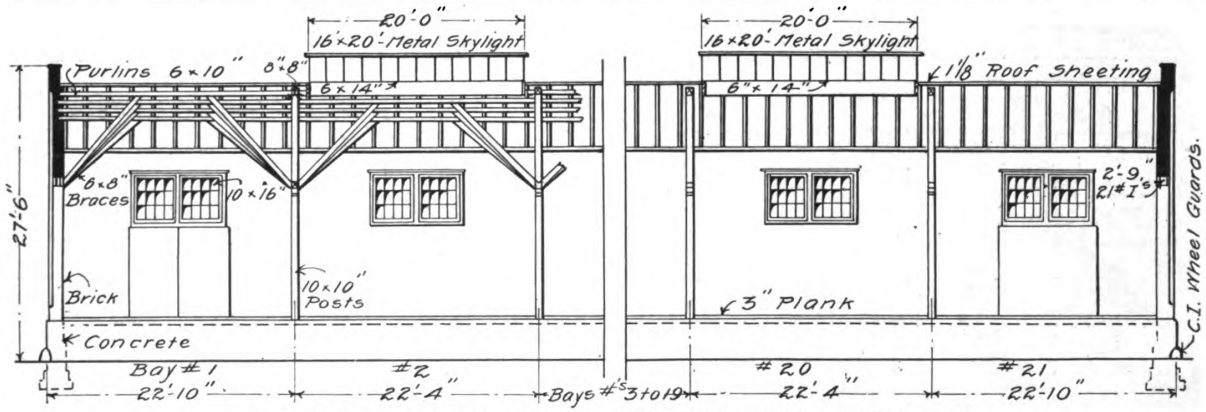
NEW ORLEANS TERMINAL IMPROVEMENTS—DETAILS OF PORT CHALMETTE SLIP.

of material carried in the river is very heavy and previously has led to the abandonment of the slip idea, owing to a fear that it will be difficult to maintain sufficient depth for ocean-going steamships at a point where an eddy must be expected to form. But contravening this, it is held confidently that, although a deposit is certain to take place, a very small amount of dredging will be sufficient to maintain the required depth of water. A less evident objection is suggested in the difficulty which a large vessel may find in entering the slip through such a current as prevails in the Mississippi River. But here again a reasonable amount of care in entering should serve to obviate any trouble of this sort.

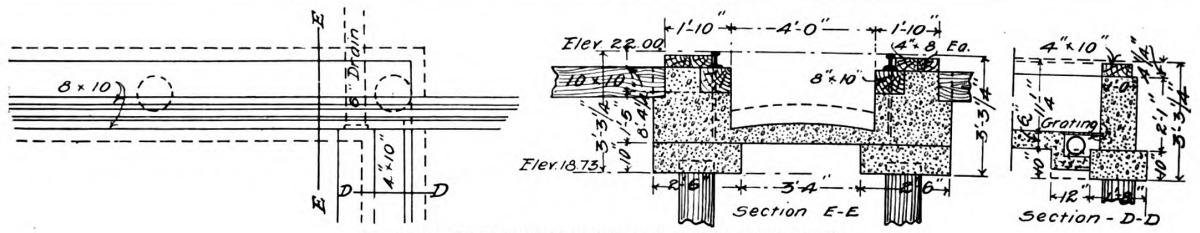
Since most of the surface is unstable, piles are freely used and extend to a depth varying from 70 to 90 feet, depending upon location. The slip and river front are protected by a concrete retaining wall of peculiar form which has a height of about 55 feet and a base, in alternating wall and buttress forms, of 27 feet 6 inches. This, as an added security, is tied back to a series of piles extending along the rear of the retaining wall and continuously throughout its length. For the support of the warehouse floors and roof a series of nine piles, arranged in squares with 20-foot sides, are capped by concrete blocks and these again by cast-iron columns. A protection of great strength is placed at the entrance corner of the slip formed of three rows of piles 90 feet long, heavily joined by longitudinal and transverse 12-inch by 12-inch tim-



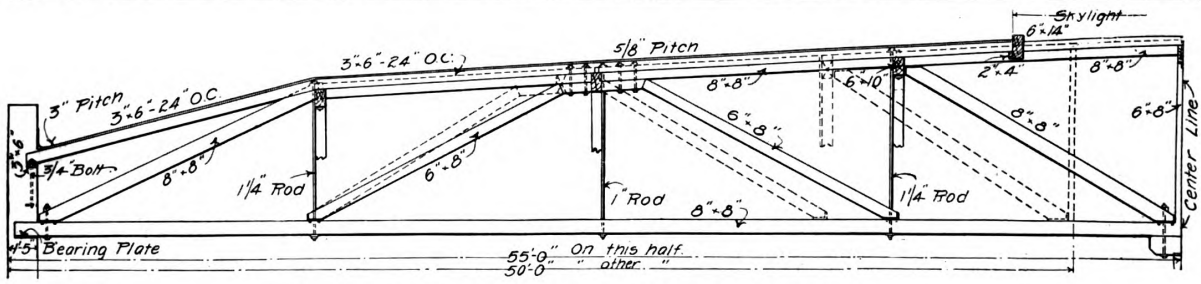
NEW ORLEANS TERMINAL IMPROVEMENTS—ROUNDHOUSE SECTION AND ELEVATION.



NEW ORLEANS TERMINAL IMFROVEMENTS—PARTIAL LONGITUDINAL SECTION OF FREIGHT HOUSE

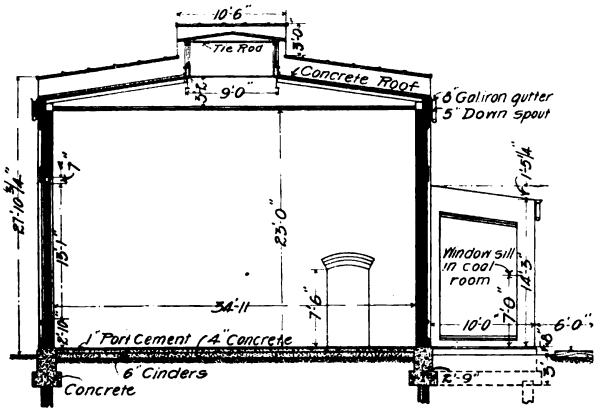


NEW ORLEANS TERMINAL IMPROVEMENTS—ROUNDHOUSE PITS.



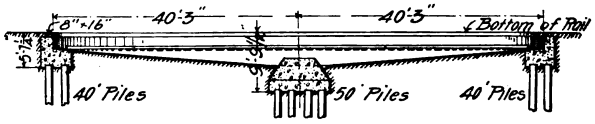
NEW ORLEANS TERMINAL IMPROVEMENTS—HALF ELEVATION ROUNDHOUSE TRUSS.

bers, while as a shield outside of the concrete retaining walls, 12-inch by 12-inch timbers in the form of string pieces are



NEW ORLEANS TERMINAL IMPROVEMENTS—CROSS SECTION PUMP HOUSE.

bolted to 90-foot piles at intervals of 10 feet. On the western side of the slip and along the whole river front an additional

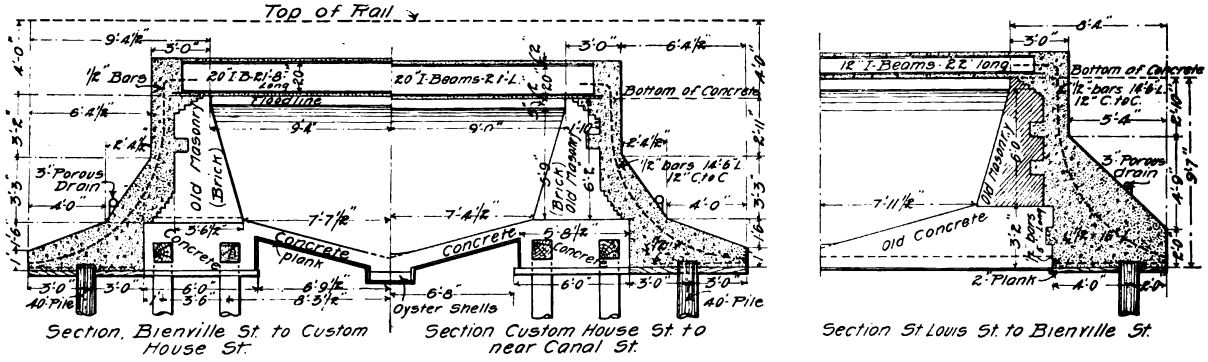


NEW ORLEANS TERMINAL IMPROVEMENTS—SECTION THROUGH TURNTABLE.

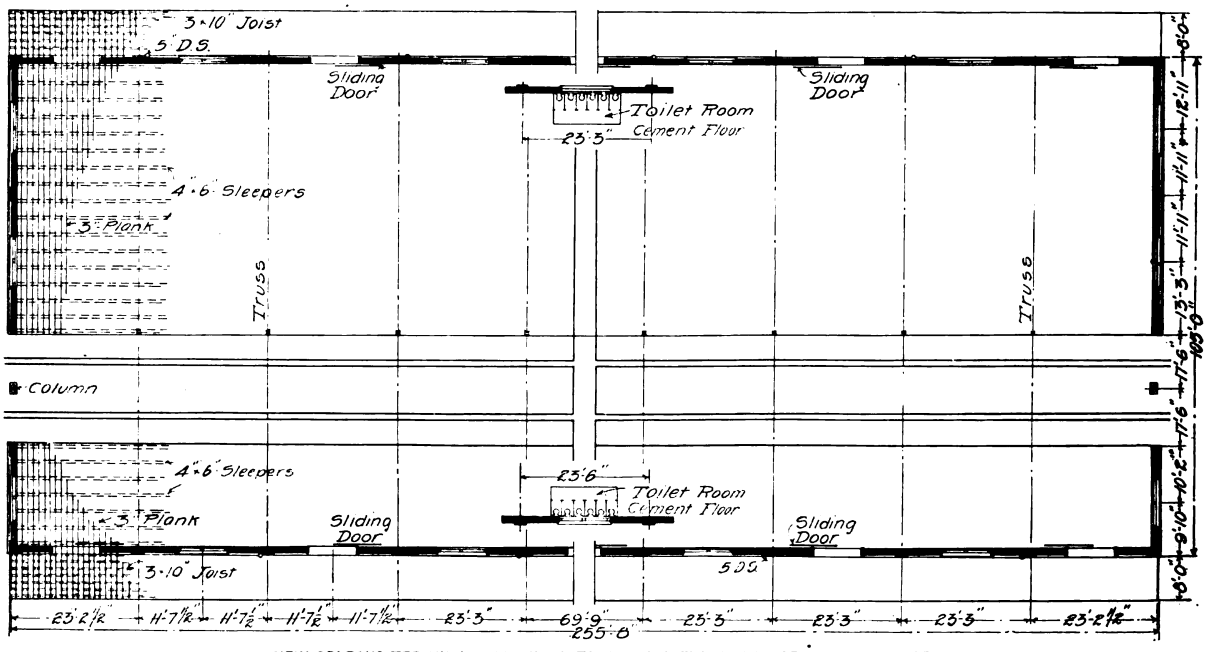
resistance to the thrust of the filling is provided in a series of four rows of 80-foot piles, tied together by 12-inch by 12-inch timbers.

It must now appear that the exploitation of the New Orleans Terminal Company is of great importance, both as improving the traffic arrangements in New Orleans and as a piece of really great engineering. Many troublesome questions were to be solved, yet by a single daring move a passenger station has been located in the very heart of the city; a great freight terminal has been secured at a point which has no superior in the vicinity of New Orleans and little further from the business center than are the Stuyvesant docks of the Illinois Central Railroad. The work has been directly in charge of Capt. J. F. Hinckley, chief engineer; Capt. A. L. Phillips, assistant chief engineer; C. H. Fisk, terminal engineer; E. M. Lisle and O. Moorshead, assistant engineers.

San Francisco Wharfage Toll Complaint.—The Pacific Coast Shippers' and Manufacturers' Association has filed complaint with the Interstate Commerce Commission against the Southern Pacific, alleging that shippers are charged wharfage toll of 5 cents a ton on freight entering San Francisco, although the completion of its coast line enables the company to take the freight into the city by rail. It is alleged that the wharfage charge is not turned over to the state.



NEW ORLEANS TERMINAL IMPROVEMENTS—SEWER SECTIONS.



NEW ORLEANS TERMINAL IMPROVEMENTS—TYPICAL FLOOR PLAN OF FREIGHT HOUSE.