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BRIDGE WITH MOVABLE FLOOR SYSTEM.

The engraving upon this page represents a bridge of most unique and interesting design, intended for the transfer of railroad trains, wagons, and foot passengers over streams upon which the passing of vessels is so frequent as to prevent the use of a drawbridge, and also where the banks of the river are of such a nature as to make it impracticable to construct a bridge of sufficient height to admit of ships passing under it. Although the bridge is shown, in the engraving, over the Hudson River opposite this city, it is applicable to all streams where the banks are low and traffic upon the river is extensive; for instance, such a region as the southern part of the Mississippi and its branches flow through.

The piers may be of iron or masonry, alone or combined, and are placed at suitable distances apart (those shown are 500 feet) for sustaining the superstructure. They are arranged in pairs, and are built to such a height that the elevated structure upon them will not interfere with navigation. Vertical trussed girders, placed parallel to each other upon the piers, are firmly united by transverse trusses. The floor beams are laid parallel with the chords, instead of at right angles as usual, and upon the beams are laid stringers which carry rails placed at any convenient distance apart.

Suspended from trucks formed with grooved or flanged wheels (the construction of this part is clearly shown in Fig. 1) is a platform, or movable floor system,

sustained at the grade level of the railroad or street at the ends of the bridge. The suspender rods are properly braced transversely and also longitudinally of the platform by a storm brace. The length of the platform is equal to the distance of three piers, so that it will at all times be held laterally against wind pressure by the divided piers between which it passes; and to prevent it rubbing against the piers, friction rollers are provided, as shown in the cross sectional elevation and plan view, Figs. 2 and 3. From the trucks ropes pass to suitable winding machinery operated by stationary engines for moving the trucks and suspended platform from side to side of the river.

The platform being at one side of the river, the train or other load is run on, when the trucks are started. When the other side is reached the train is run off, and the platform is ready for a return load. In this manner the transfer of passengers and freight can be readily and quickly accomplished without impeding navigation, as the spaces between the piers will be free except during the passage of the platform, and without the expense of building long and high approaches in order to give space for vessels or to clear floods and ice.

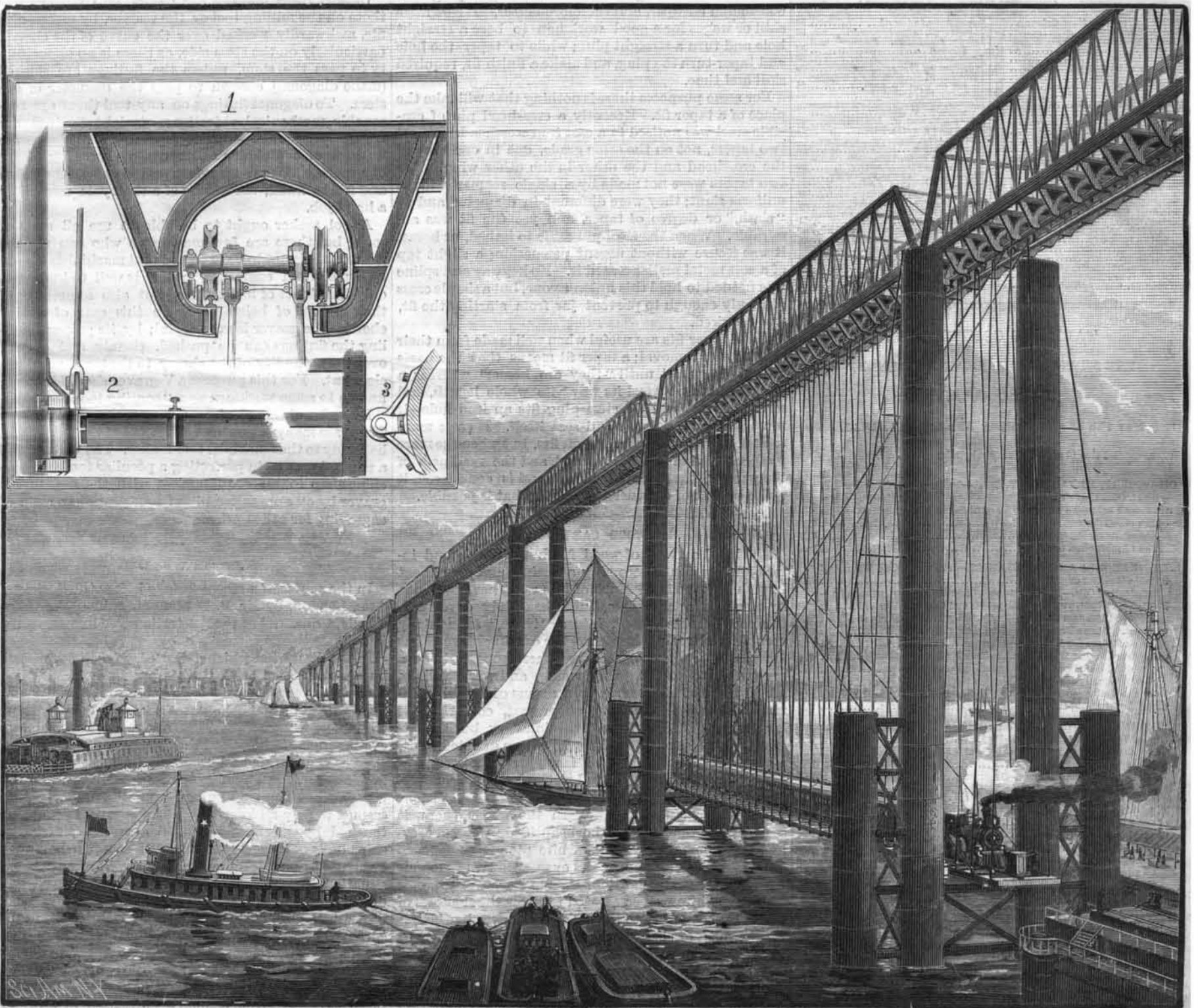
In certain localities exposed to high winds, side supplementary piers, united to the main piers by bracing and guy rods extending to the top, may be necessary. These piers may be placed at any suitable distance, to the side of the central ones, in order that the guys leading to the tops may better resist lateral strains.

By the new method of dredging, cylinders for piers have been sunk to a depth of 125 feet, and yet the limit has not been reached. By this plan the depth of water causes but little or no hinderance, and the cost is so small in comparison with former methods that piers can now be placed at points where work of this kind has been heretofore thought impossible. The field for undertakings of this kind is, therefore, very much enlarged.

This bridge was designed and has been patented by Mr. John F. Anderson, of Room 12, Tribune Building, New York city.

Stopping Vibrations.

In an establishment where numbers of sewing machines are used there was much annoyance from the ring and singing of the machines in motion. The manager raised them from the floor, and put slips of rubber under the legs. The device was useless, and bits of lead were substituted with no relief. An intelligent mechanic was called in, and he drilled holes in the legs, and even in the tables of the machines, countersunk them, introduced plugs of soft bar lead, and riveted them in. There were no more noisy vibrations. To determine the place of the vibration, he used an ordinary spirit level in an iron case, and holding it against an upright portion, as a leg, so that the bubble was visible, he detected the vibration by the change in shape of the bubble.



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