30-TON STEAM HAMMER.

At the works of Sir William Armstrong & Co., at Elswick, England, is a thirty-ton steam hammer, which was constructed by the Messrs. Thwaites and Carbutt, of Bradford, England. The hammer has a 30-ton tup with 12 feet stroke, and the steam cylinder is 48 inches in diameter. As will be seen in the engraving (taken from *Engineering*) the frame is of a very simple and massive design, it consisting of two standards of circular section, slightly tapering in diameter and inclined inwards towards the top. These standards, which are each made in two sections, are 25 feet high, and the total height of the hammer, from floor line to top of cylinder cover, is 42 feet 9 inches, a dimension which will give some idea of the enormous size of the structure. The clear span between the standards at the floor line is 19 feet 10 inches.

IMPROVED THIRTY-TON STEAM HAMMER.

STEVENSON'S SUSPENSION RAILWAY.

At a meeting of the British Association, Mr. G. Stevenson read a paper on "Street Locomotives," in which he described the somewhat singular system of constructing railways, of which we copy an illustration from the *Engineer*. The engraving almost explains itself. The rails are supported by strong wrought iron clips suspended from brackets projecting from upright columns fixed on the out edge of the pavements in streets, while the cars are also suspended from the rails by means of steel carrying rods descending from the axles of small traveling wheels. Either horse or steam power can be used, the engine being suspended in the same manner as the cars. Among the advantages claimed for it are that the roadway is not cut up, and that the resistance to draught is materially reduced.

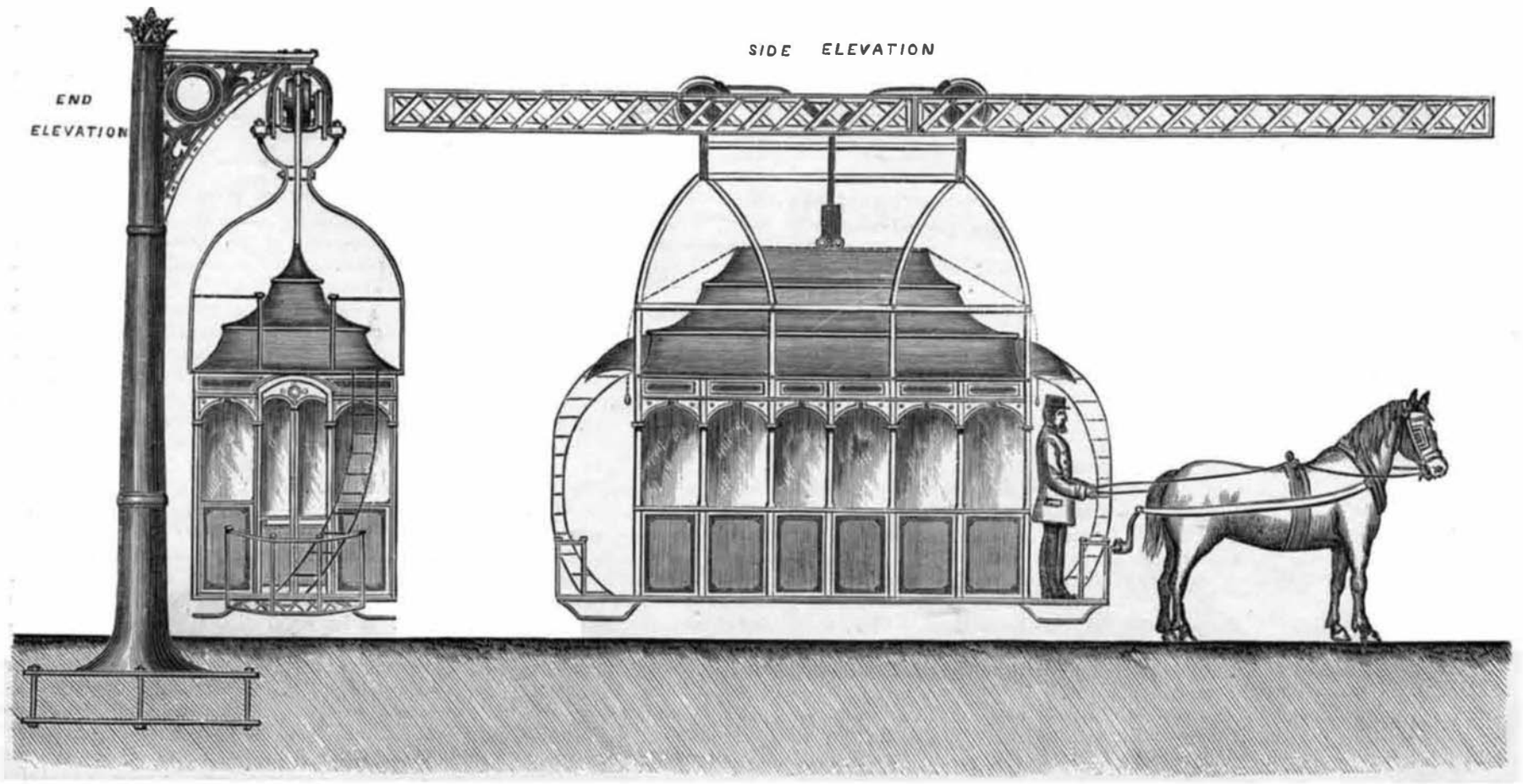
Rhizopods.

Professor Joseph Leidy, the eminent comparative anatomist and microscopist, made his second visit to the West the past season, under the auspices of the Hayden survey. He made a careful exploration of the country about Fort Bridger, the Utah mountains and the Salt Lake basin, in search of rhizopods. He has been engaged for a long time on a memoir on this subject, which will eventually form one of the series of the quartos of the survey.

The rhizopods are the lowest and simplest forms of animals, mostly minute, and requiring high power of the microscope to distinguish their structure. While most of them construct shells of great beauty and variety, their soft part consists of a jelly-like substance. This the animal has the power of extending in threads or finger-like processes, which are used as organs of commotion and prehension, often branching. From the appearance of their temporary organs, resembling roots, the class of animals has received its name of rhizopoda, meaning, literally, root-footed. In compensation of the smallness of these creatures, they make up in numbers, and it is questionable whether any other class of animals exceed them in importance in the economy of nature. Geological evidence shows that they were the starting point of animal life in time, and their agency in rock making has not been exceeded by later and higher forms. With the marine kind, the foraminifera, we have been longest familiar. The beautiful, many-chambered shells of these—for the most part just visible to the naked eye—form a large portion of the ocean mud and the sands of the ocean shore. Shells of foraminifera likewise form the basis of miles of strata of limestone, such as the chalk of England, and the lime stones of which Paris and the pyramids of Egypt are built. Fresh water rhizopods, though not so abundant as marine forms, are, nevertheless, very numerous. They mainly inhabit our lakes, ponds, and standing waters, but they also swarm in sphagnous swamps, and ever live in newest earth. Professor Leidy has devoted several years of study to the fresh water rhizopods of the eastern portion of our country, and his especial object in the past expedition was to investigate those which are to be found in the elevated regions of the Rocky Mountains.—*Mining and Scientific Pre s.*

THE San Francisco mint is the most productive institution of the kind in the world. Its coinage last year amounted to $42,704,590 more than the aggregate production of the three largest mints in Great Britain.

IT takes 80,000 feet of lumber per day to run the Consolidated Virginia and California mines. One half of this goes down the old shaft and one half through the C. & C. shaft. The total requirements are 2,400,000 feet per month.



STEVENSON'S IMPROVED SUSPENSION STREET RAILWAY.