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## THE GRAVES ELEVATORS.

The extent to which elevators have become a necessity is a conspicuous feature of modern city life, and yet, so rapid has been their introduction, not a few of those who daily use them are constantly looking with interested curiosity, if not with apprehension, to take rapid note of their working mechanism, the safety appliances visible, etc. We illustrate herewith a few of the most recent styles of these constructions, as manufactured and put up by a company which has made a specialty of this business since 1875.

In the double hydraulic engine shown, the arrangement of the machinery for running elevators according to this system is made with one engine over the other, to accommodate buildings not having sufficient room in the proper location. The two engines are entirely separate and independent in their action, and the cars can be run separately or together. Elevators operated on this system are used in the tallest buildings, and for safety, speed, noiseless running, and long use without getting out of order, they have no superior, as they have but comparatively few parts, all strongly made, and open at all times for inspection at a glance. They are automatic and self-regulating in their operation, using steam only when the elevator is required, and pumping the same water over and over again. For extra high buildings, with high speed passenger elevators, a hydraulic engine pull machine is built, fitted with two heavy piston rods, forged wrought iron yoke, traveling sheaves carried on a four-wheeled truck, sheaves self-oiling and fitted with loose bushings, and altogether forming an extra strong and durable machine. It is claimed that this machine will operate a passenger car more miles with speed and safety than any other machine. Among the special features in these engines

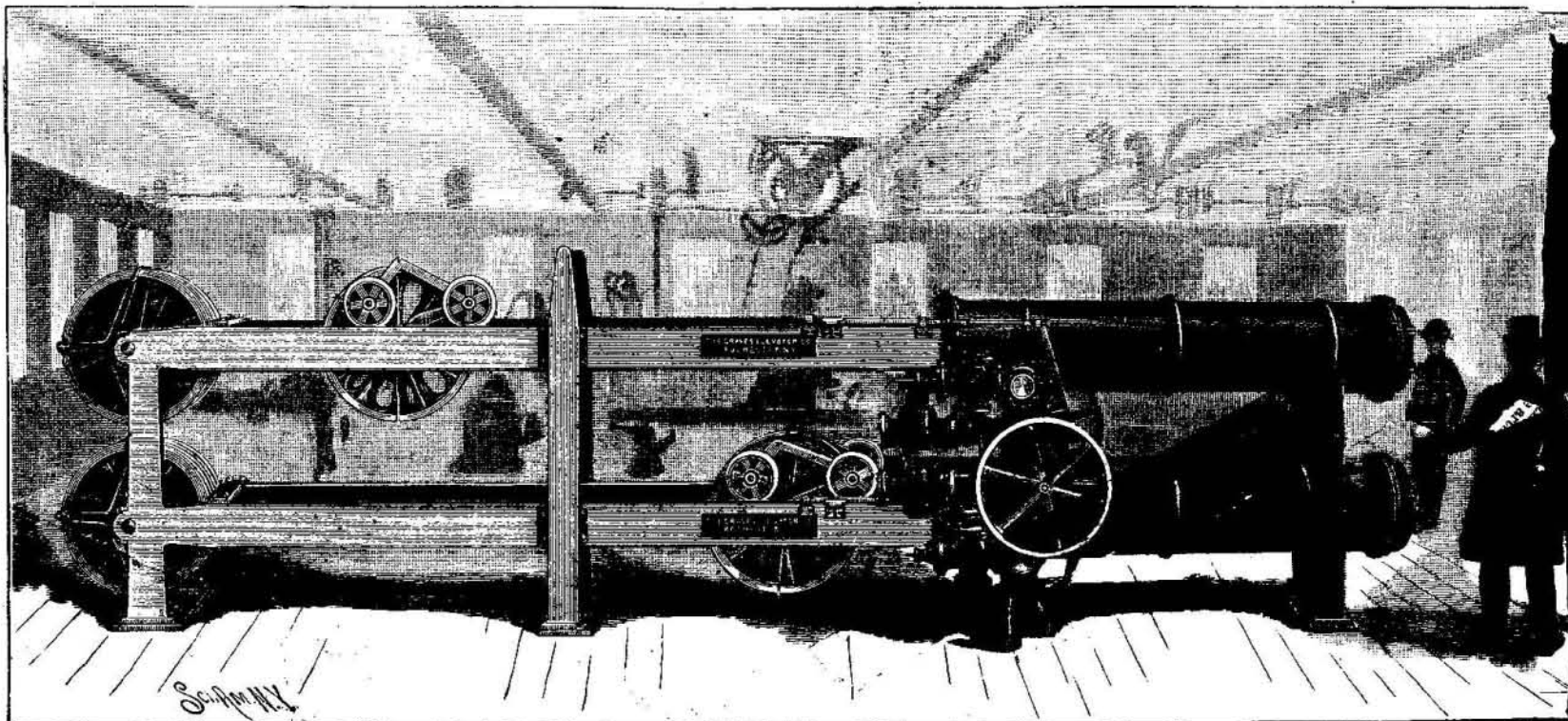
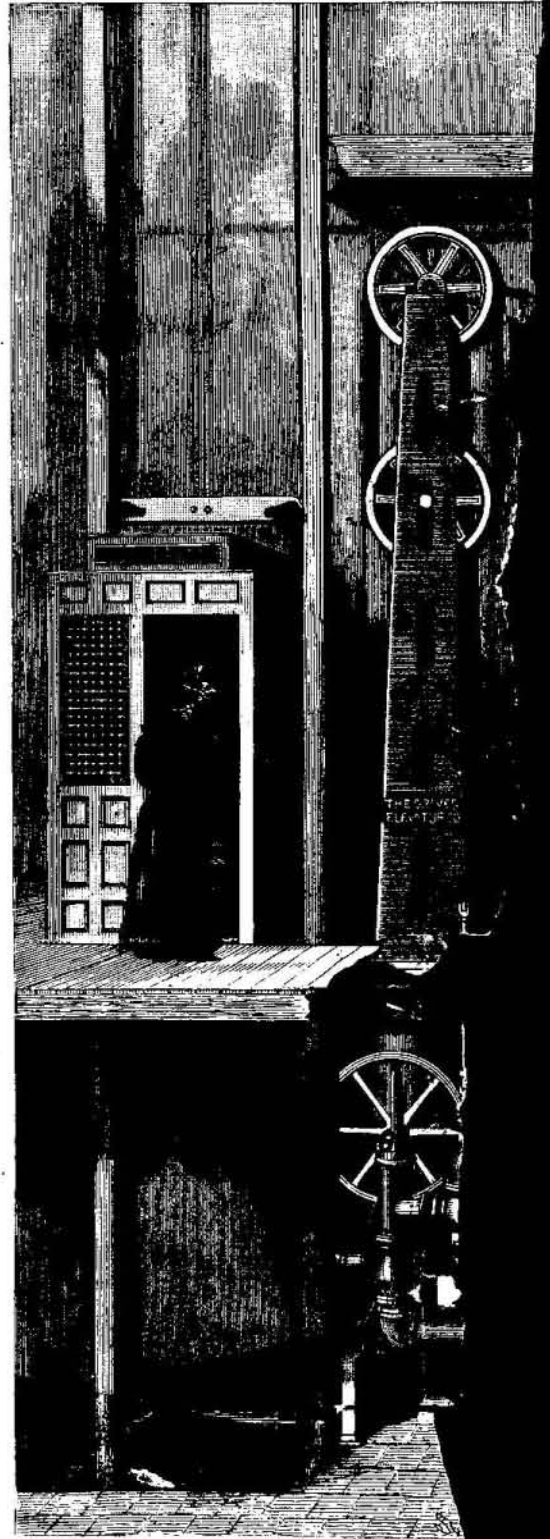
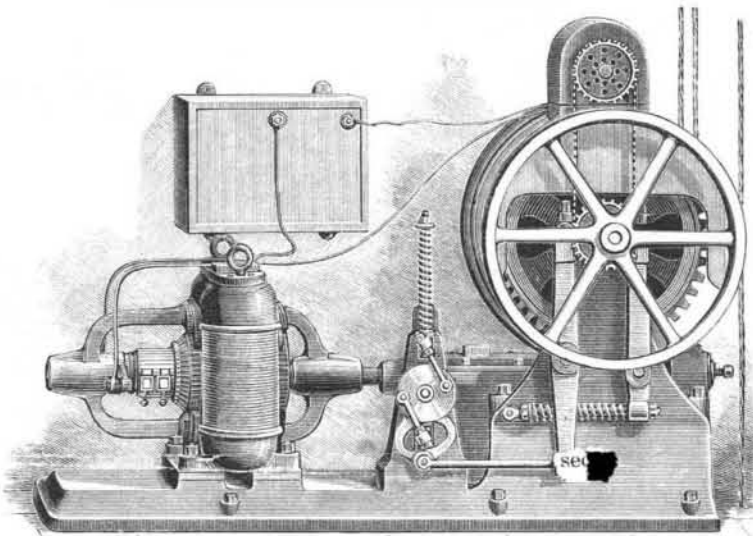
are improved hydraulic valves fitted with graduating piston, whereby the flow of water is cut off gradually, preventing injury to water pipes and obviating jar as the car comes to a stop. They also have a patent valve-centering device, which stops and holds the valve with water passages entirely closed, so that the car will not creep up or down.

The vertical hydraulic engine system is especially designed for use where the room is too valuable or when it is not convenient to use the horizontal system. The illustration represents the latest improved self-contained vertical hydraulic engine. It has been proved to be a thoroughly practical and durable machine in every respect, and many of them are in use. The working parts, piston, crosshead, stationary and traveling sheaves are contained in a heavy cast iron guide frame, which cannot get out of line or fall down through the car. The machinery does not occupy any room outside of the hatchway above the first floor. The construction is on the same general principles as that of their standard horizontal hydraulic machines.

The direct connected electric passenger elevator, which forms the subject of one of the illustrations, is made from entirely new patterns, and is designed to offer a good combination for any reasonable speed and capacity. These elevators are not designed, at present, to supersede the hydraulic elevators, but they may be used in many places where it is not possible to employ any other description of elevator. The company has, within the past two years, installed many highly successful electrical passenger and freight elevators, and it is believed the latest improvements presented in this line are sure to greatly enlarge the field in which electric elevators will be employed.

The Graves Elevator Company, of Rochester, N. Y., is a corporation succeeding in a direct line to the machinery business established in that city by Mr. L. S. Graves, in 1863. A new fire-proof boiler plant has just been completed and put in operation, as also a five-story addition, 60x100 feet, to the buildings, the latter structure to be devoted especially to the building of elevator cars, for the company make all the necessary machinery and cars for their various styles of elevators.

FULLER THAN ANY OTHER.—The English, in its phraseology, is far richer than other languages. The total number of the words of the German, French, Italian, and Spanish speeches, combined, is about 180,000, while the English contains 250,000, or 70,000 more words than the total of the four tongues above named.



ELEVATORS MADE BY THE GRAVES ELEVATOR COMPANY ROCHESTER N. Y.