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A WONDERFUL CLOCK.

A short time since we gave a brief description of a clock made by Mr. Felix Meier, of Detroit, Mich. We now present our readers an engraving of this curious piece of mechanism, which is said to eclipse all former achievements in this direction, without excepting even the Strasbourg, which for so many years has been regarded as the great clock of the world.

Mr. Meier's clock is the result of nearly ten years of patient labor and the expenditure of \$7,000 in cash. The clock is eighteen feet in height, eight feet wide, by five feet deep, and weighs 4,000 lbs. It is of handsome proportions; the framework is entirely of black walnut, elegantly carved. Above the main body of the clock is a marble dome, upon which Washington sits in his chair of state, protected by a canopy, which is surmounted by a gilded statue of Colum-

bia; on either side of Washington is a colored servant in livery guarding the doors, which open between the pillars that support the canopy; on the four corners of the main body of the clock are black walnut niches containing human figures, emblematic of the march of life; the two lower ones are supported by two female figures with flaming torches; one of them contains the figure of an infant, the second the figure of a youth, the third of a man in middle life, the fourth of an aged graybeard, and still another, directly over the center, contains a grinning skeleton representing Father Time. All of these figures have bells and hammers in their hands. The infant's bell is small and sweet toned; the youth's bell larger and harsher; the bell of manhood strong and resonant; that of old age diminishing in strength, and the bell of the skeleton deep and mournful.

The astronomical and mathematical calculation, if kept up, would show the correct movement of the planets for 200 years, leap years included.

The clock shows the time at Detroit in hours, minutes, and seconds; the difference in time at New York, Washington, San Francisco, Melbourne, Pekin, Cairo, Constantinople, St. Petersburg, Vienna, London, Berlin, and Paris. The day of the week, calendar day of the month, month of the year, and seasons of the

year. The signs of the zodiac, the revolutions of the earth on its own axis and also around the sun. The revolutions of the moon around the earth, and with it around the sun; also the moon's changes from the quarter to the half, three-quarters and full. It also shows the correct movement of the planets around the sun.

There is a movement in this clock which cannot regularly be repeated more than once in eighty-four years.

The inventor has a crank attached to the clock, by means of which he can hasten the working of the machinery in order to show its movements to the public; by turning continuously twelve hours a day for sixteen days and eight hours, a perfect revolution of the planet Uranus around the sun would be made.

At the end of every quarter hour the infant in his carved niche strikes with a tiny hammer upon the bell which he

holds in his hand. At the end of each half hour the youth strikes, at the end of three quarters of an hour the man, and at the end of each hour the graybeard. Death then follows with a measured stroke to toll the hour, and at the same moment a carved cupid projects from either side, with wings to indicate that time flies. At the same time a large music box, manufactured at Geneva expressly for this clock, begins to play, and a surprising scene is enacted upon the platform beneath the canopy: Washington slowly rises from the chair to his feet, extending his right hand, presenting the Declaration of Independence. The door on the left is opened by the servant, admitting all the Presidents from Washington's time, including President Hayes. Each President is dressed in the costume of his time. The likenesses are very good. Passing in file before Washington, they face, and raise their hands as they approach him, and, walking naturally across

the platform, disappear through the opposite door, which is promptly closed behind them by the second servant. Washington retires into his chair, and all is quiet save the measured tick of the huge pendulum and the ringing of the quarter hours, until another hour has passed.

Traction Engines on Common Roads.

At a recent meeting of the Institute of Mechanical Engineers, Mr. R. E. B. Crompton, of London, read a valuable paper, showing the results and economies of traction engines, as used upon the common roads in India, derived from several years' experience. His general conclusions are:

1. That on the level roads of India traction engines can be relied on to work a service of trains with great regularity and at a fair speed; and that goods can be carried at four miles an hour, and passengers at eight miles an hour. At these speeds, the cost of a train containing 15 tons of goods, or about 7 tons of passengers, was about 2s. 2d. per train mile.

2. That the rubber tires, as used in such running, are of great service in reducing the cost of the ordinary engine repairs and in giving uniformity of adhesion, without in the least degree damaging the surface of the roads; that in return for these advantages the cost of maintaining these tires does not exceed 1½¢. per train mile.



MEIER'S NATIONAL AND ASTRONOMICAL CLOCK