

**A STEAM OMNIBUS IN LONDON, 1833.**

The accompanying illustration, for which we are indebted to the St. James's Budget, represents the steam omnibus Enterprise, built for the London and Paddington Steam Carriage Company in 1833. This horseless carriage, suggestive as it is of many of the recent attempts to attain a practical motorcycle, was one of the various efforts made to utilize the steam engine in its early days, before the development of the railway system had been marked out on comparatively fixed lines.

**THE ELECTRIC SELF-PLAYING PIANO.**

We illustrate in the present issue an electric apparatus for attachment to any ordinary piano, enabling it to be played by electricity without the intermediation of any performer. The characteristic features of the appliance are found in its simplicity, its capability of attachment to any piano without injury to the same, and its use of standard perforated music, thus placing at the disposal of its possessor a practically unlimited and thoroughly up to date musical library.

Directly under the keyboard is attached the music holder, consisting of the rolls upon and from which the perforated music sheets are fed. Electric contacts are provided for each note, which contacts operate through the perforations in the music sheet, so that each perforation closes an electric circuit. From the electric contact wires run to a series of electric magnets placed below and spaced from each other exactly as are the keys of the instrument, one magnet corresponding to each key. When the current passes a magnet attracts its armature, this occurring of course when one of the perforations of the music sheet closes the circuit. A small sectional drawing shows in section the apparatus by which the work is done. At the bottom of the section is seen the end of a long brass drum which runs across the bottom of the apparatus and which is kept in constant rotation by an electric motor; this drum is also shown clearly in the perspective view. Extending from the end of the armature of each magnet is a metal friction shoe, the lower end of which forms a segment of a circle and is arranged to be brought in contact with the brass roller. A piece of rawhide is stretched over and cemented to the outside of the segment. When the armature is depressed, no direct effect is produced upon the action of the piano. All the depression of the armature does is to bring the rawhide-covered face of the circular segment into contact with the rapidly rotating drum. At once the friction throws the arc forward. From the upper end of the metal shoe a short arm projects at right angles, like the arm of a bell crank. From this a vertical striker arm rises and presses against the inner end of the key. It is evident that as the shoe is thrown forward the striker rod is forced upward; this raises the inner end of the key, depressing the outer end exactly as a performer would do, and

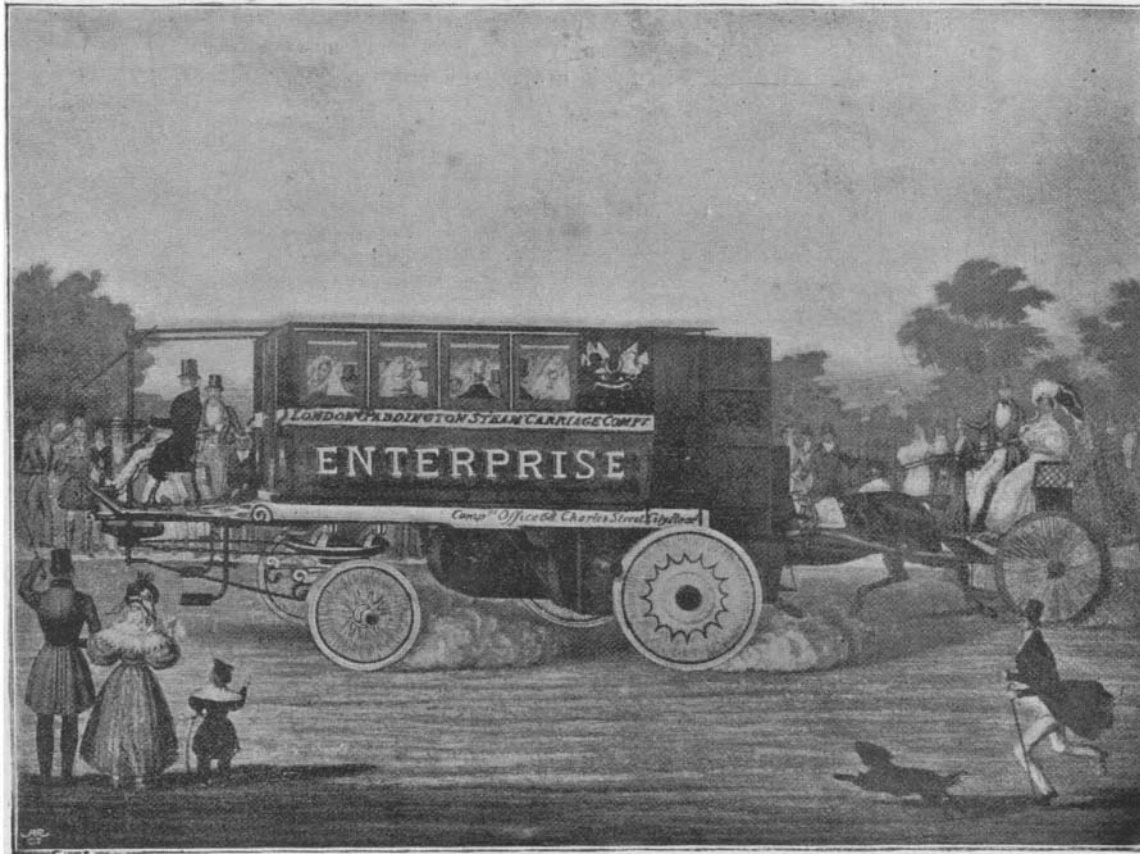
the note sounds. It will be observed that the action of the piano is absolutely unaffected by the apparatus, whose motions bear the same reference to the piano as do those of an accomplished performer. This is so far true that a piano fitted with this apparatus is absolutely unaffected as regards its capacity for being played by hand. In the sectional view, the music

can be played again. This ordinarily, in the past type of automatic instruments, has been effected by hand, but this apparatus does that work also automatically. When the end of the piece is reached, the detent seen at the back of the music is caused to release the end of the carrier, which drops, and the rollers immediately begin to revolve with reverse motion, and in less than a minute the piece of music is rolled back on its original roller, ready to be put away in its case or to be played again.

The tempo of a piece is fixed by shifting a belt which works on two cone pulleys. In this way the speed can be regulated with the utmost delicacy, the coning of the pulleys preventing all sudden change of time. The motor is seen in the base of the piano. It consumes from five to ten amperes at a pressure of four volts, ten amperes being required when several notes at once are sounded, as in chords.

The apparatus can be put in any piano without moving from the house, and the motor can be operated directly from the electric house supply or from a primary or secondary battery.

This wonderful piano is manufactured and sold by the Electric Self-playing Piano Company, 333 West 36th Street, New York.

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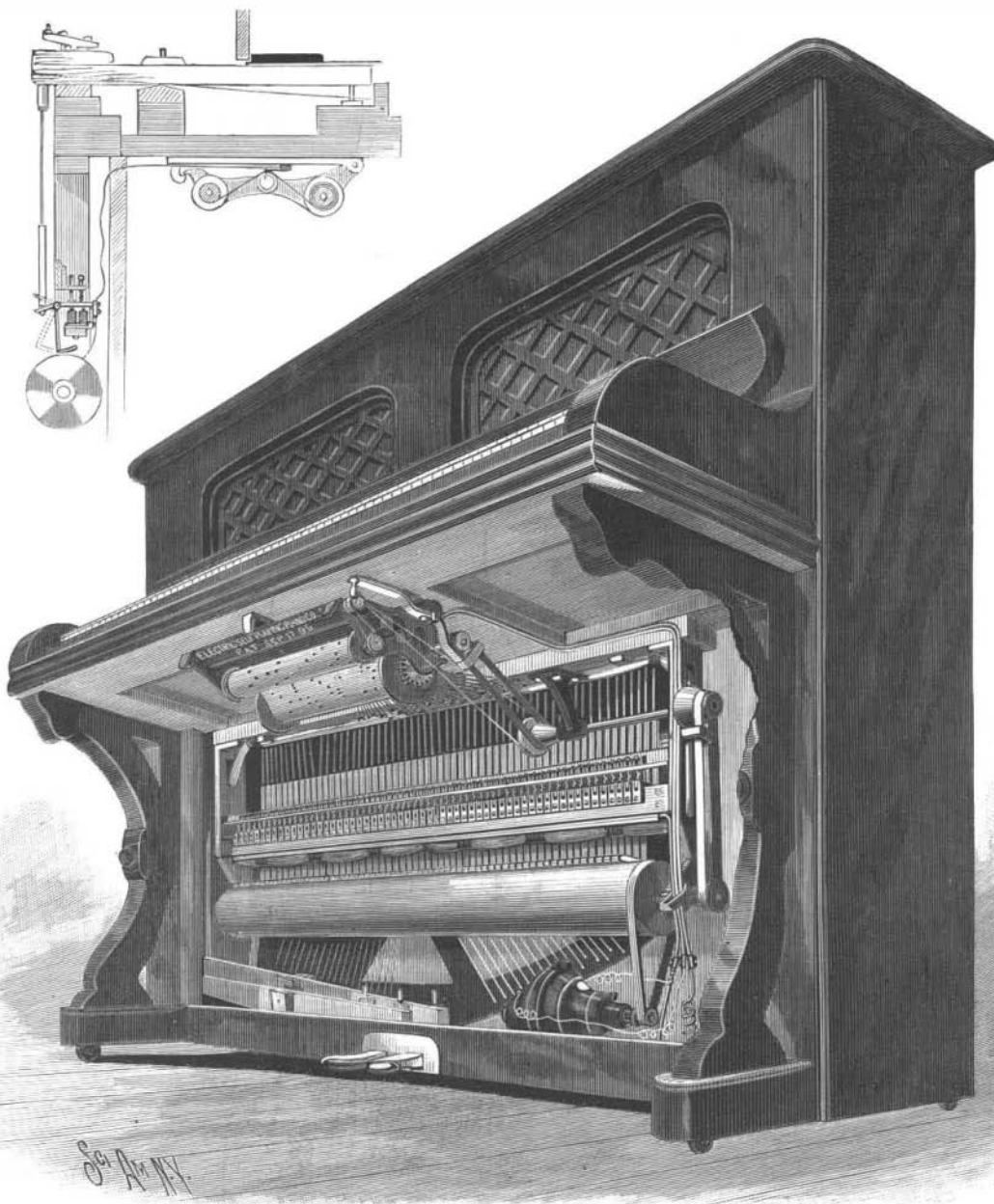
holder can be seen, and one of the electrical contacts is shown pressing upon the sheet as it passes over a small central contact roller. Within the short width of the sheet of music are contained all the electric contacts, of which only one is shown in the sectional view. In operation, the music is wound off of one roller and on another. When the roll of music is exhausted, it has to be rerolled before the piece

missioner of Police of the Metropolis for 1894 shows that the authorized strength at the end of last year was 15,216. The number available for service, exclusive of those specially employed, whose services were paid for, was 13,497. The Metropolitan Police district embraces over 688 square miles. The mean ratable value of this area was £37,913,956; but of the enormous actual value of the property in charge of the police it is impossible to form any estimate. The report refers to the steady decrease in the number of felonies. While the population exceeded 6,000,000, the proportion of crimes against property per 1,000 of the population was but 3.106. The cases of murder were but 13, which is considerably below the average; and of these, 7 were due to insanity.

The cases of attempts to murder, wounding, etc., rose to 243, which is unusually high. The total number of criminal offenses of all kinds reported to the police was 20,970—a decrease of 497. The apprehensions numbered 14,902. As regards police work generally, including crime, the number of persons apprehended was considerably in excess of any previous year, and as compared with 1893 there was an increase of 3,346. The summary convictions showed an increase of 1,948, and were more numerous than ever before.

**The Brooklyn Institute Museum.**

The corner stone of the great museum building of the Brooklyn Institute of Arts and Sciences, on the Eastern Boulevard, Brooklyn, N. Y., facing Prospect Park, was laid on December 14 by the mayor of the city with appropriate ceremonies.

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