

remind enthusiasts in the sport that the horse is not yet a back number and may some day be needed to help them.

Complete illustrated descriptions of the Ford-Cooper racer and of the Franklin car have already been published in our issues of January 31 and April 11; and by reference to these numbers, any of our readers interested in the construction of the machines can obtain full particulars concerning them.

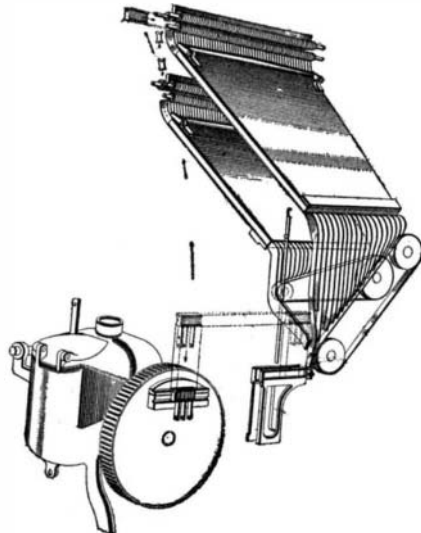
**A MULTIFACE LINOTYPE MACHINE.**

The original linotype machine, illustrated in the SCIENTIFIC AMERICAN, vol. LXX., page 17, is adapted for composing solid matter in one face or style of type only, without italics or small capitals, and to this end it contained a single set or font of matrices, each representing a single character. These matrices were selected by means of a finger-key mechanism, assembled in line with expanding spacers, in the order in which the characters were to appear in print; the composed lines were transferred to the front of a slotted mold and there justified by adjusting the spacers through the line to increase their thickness; the mold was closed at the front by the line of matrices, and was filled from the back with molten type metal issuing from the mouth of a melting pot provided with a pump or plunger. The result was a slug, or linotype bearing on its front edge in relief the characters formed thereon by the matrices.

After the casting of a slug the matrices were lifted to the top of the machine, and returned through distributing mechanism to the upper ends of the channels in the magazine from which they were delivered.

In the progress of the art it became necessary to adapt the machines to produce italics and small caps or black faces, in connection with the body faces. This was in order to adapt them for the demands of the book offices. This result was accomplished by providing each matrix with two characters, separately usable. A switch under the control of the operator was provided for the purpose of directing the matrices to the composed line, at a higher or a lower level, in order to cause the presentation of the upper or the lower character to the mold. By this simple modification of the original machine, it became possible to introduce italics, small capitals, or black letters, in

matrices. Both of these magazines are controlled from the ordinary single keyboard. By simply throwing a lever, the operator is enabled to cause the discharge of matrices at will from either the upper or the lower magazine. The magazines may contain two fonts of similar face differing in size, or fonts of the same size and different faces; or one may carry a font



ARRANGEMENT OF THE MAGAZINES.

of matrices for body faces and the other an assortment of black letters, arbitrary characters, etc. Matrices for three hundred and sixty characters are carried at one time in the machine, and the operator is thus enabled to set matter in one face or another at will. The matter may be composed wholly of characters represented in the upper magazine, wholly of those represented in the lower magazine, or in part of each. By means of this remarkable machine, it becomes possible to set a page of any ordinary book, including a large body face, a different face for foot notes, extracts, etc., or chapter heads, side heads, etc., together with italics and small capitals, at approximately the speed of ordinary or straight composition. In short, this is the first and only machine by which compli-

sembling belt, from which they are delivered into the assembling elevator.

As shown in the accompanying illustration, the lower magazine delivers its matrices through guide channels to a second carrier belt, which, in turn, delivers them through a special guide or channel into the assembling elevator. After being used in front of the mold, the matrix lines are lifted to the level of the upper distributor. Matrices belonging in the upper magazine pass through this distributor to the magazine in the usual manner. On the other hand, matrices belonging in the lower magazines are permitted to fall from the line to a lower distributor, which delivers them to a second distributor overlying the lower magazine, to which they are delivered. The two distributors are alike in all respects. The matrices for the lower magazine differ from those of the upper only in having a distinguishing notch in the lower end.

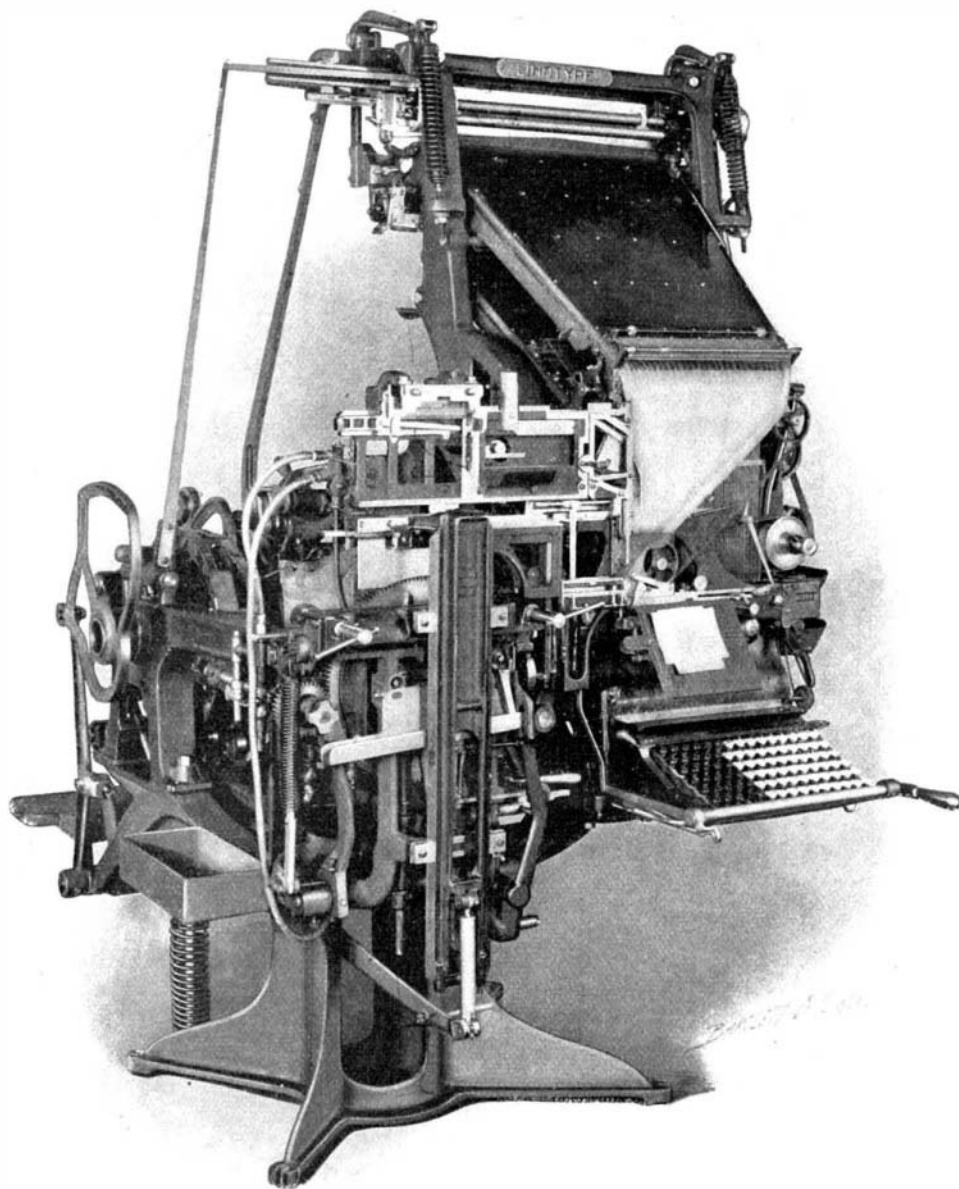
The linotype machine is so complicated, both as to its construction and operation, that we have not attempted in the limits of this article to do more than outline the new features of the machine.

**The Monument of Mont Pelé.**

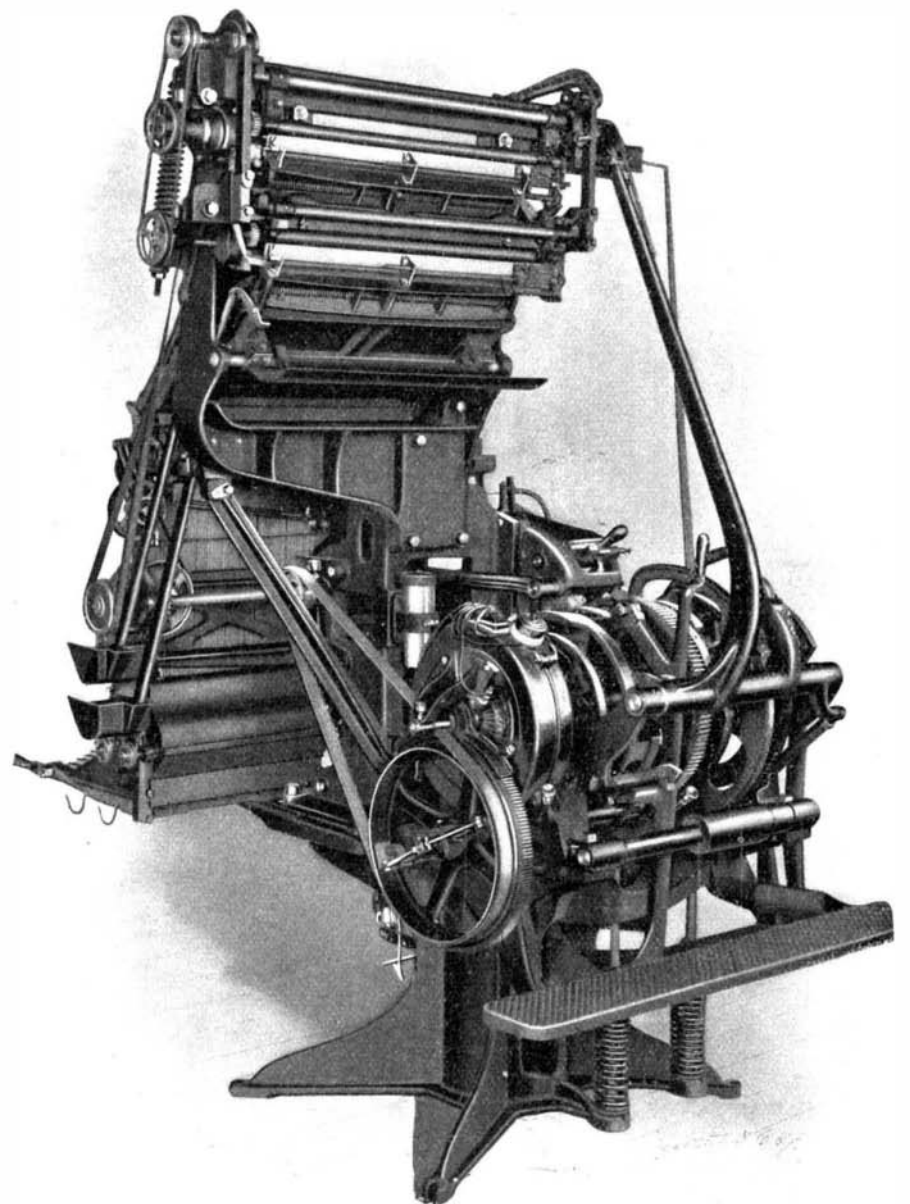
Prof. Angelo Heilprin, whose work in studying the Martinique eruptions is doubtless well known to our readers, announces a most curious and wonderful phenomenon which he had the opportunity of studying on Mont Pelé. He states that from the crater of the volcano there has been forced up a column 840 feet high, having a diameter of about 300 feet at the base. Prof. Heilprin asserts that he himself witnessed part of the upward movement of this enormous mass. He noted that in the space of four days there had been an elevation of 21 feet. It seemed to him, however, that the upward movement of the mass had slightly subsided, and that it had at one time been very great.

This natural monument, according to Prof. Heilprin, must have been twice as high and at least four times as thick as the Washington Monument.

Just what caused the upward projection of this material cannot very well be explained. Prof. Heilprin suggests that the internal stresses of the earth have forced out molten lava, which cooled sufficiently to solidify when it emerged. The phenomenon was all the more remarkable because no lava whatever was



DOUBLE MAGAZINE LINOTYPE COMPOSING MACHINE.



REAR VIEW OF DOUBLE MAGAZINE LINOTYPE COMPOSING MACHINE.

connection with the body matter, without appreciable loss of time.

Within the present year a linotype of radically new design has been developed. This machine is provided with two magazines, each of which is adapted to carry a complete font of either single letter or double letter

ated composition, involving a combination of different sizes or styles of type, ordinarily known as "two-price" matter, may be composed continuously and at approximately the speed of straight composition.

The matrices from the upper magazine are delivered, as usual, through vertical channels to the inclined as-

ected in 1902. The account then published simply stated that ashes, rocks, steam, and gas had been vomited. It is not, however, impossible that there may have been a slight ejection of lava then, and that the present manifestation is simply proof that the disturbances have not reached low levels of lava.