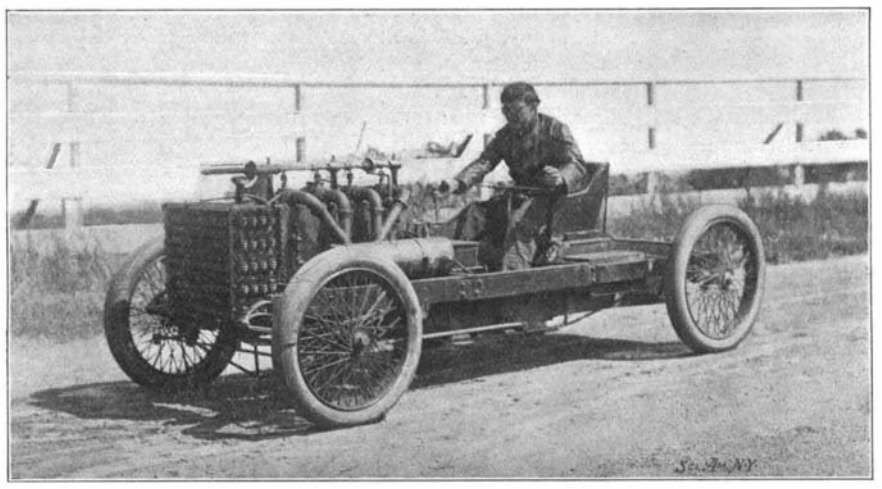
## RECENT AUTOMOBILE TRACK RECORDS.

The midsummer automobile race meet at the Empire City Track, Yonkers, on the 25th ultimo, was devoted exclusively to the lowering of records by gasoline racers, although several of the events were open to machines of any kind of power.

Barney Oldfield, on the Ford-Cooper racer with which he has been steadily lowering track records since he first drove it a mile in 1 minute, 1 1-5 seconds on December 1, 1902, once more reduced by three-fifths of a second his previous record of 56 2-5 seconds, made on the 4th of July last, at Columbus, Ohio. His new time is accordingly 55 4-5 seconds, or a rate of speed of 64½ miles an hour. This is faster than most express trains go on a straight line of rails, and what it means to ride on a machine that turns sharp corners while going at this rate, can scarcely be imagined by one who has not seen it actually done. Every time Oldfield's racer started to make a turn, even though he kept close to the outside fence and turned the front wheels very gradually, the rear end of the machine would skid around so far that the whole car appeared for the moment to be aiming straight for the inner fence. In an instant it would straighten out again, however, skim round the bend, and dart along the farther side of the course at more than express train speed, only to be seen a few seconds later making its last turn amid a cloud of dust, and then its final rush down the home stretch. Recognizing the tremendous speed at which Oldfield was running his machine, the spectators cheered him as he finished, and a moment later, when the time was announced, all present realized that they had seen a new world's record made. Oldfield rounded the course a second time at high speed and coasted up to the starting point. This was invariably the custom, in bringing the fast machines to a stop. The new record was made, of course, with a flying start, the racer having been first towed backward to the end of the track, where the motor was started and the machine got up to speed in the quarter of a mile before it crossed the line.

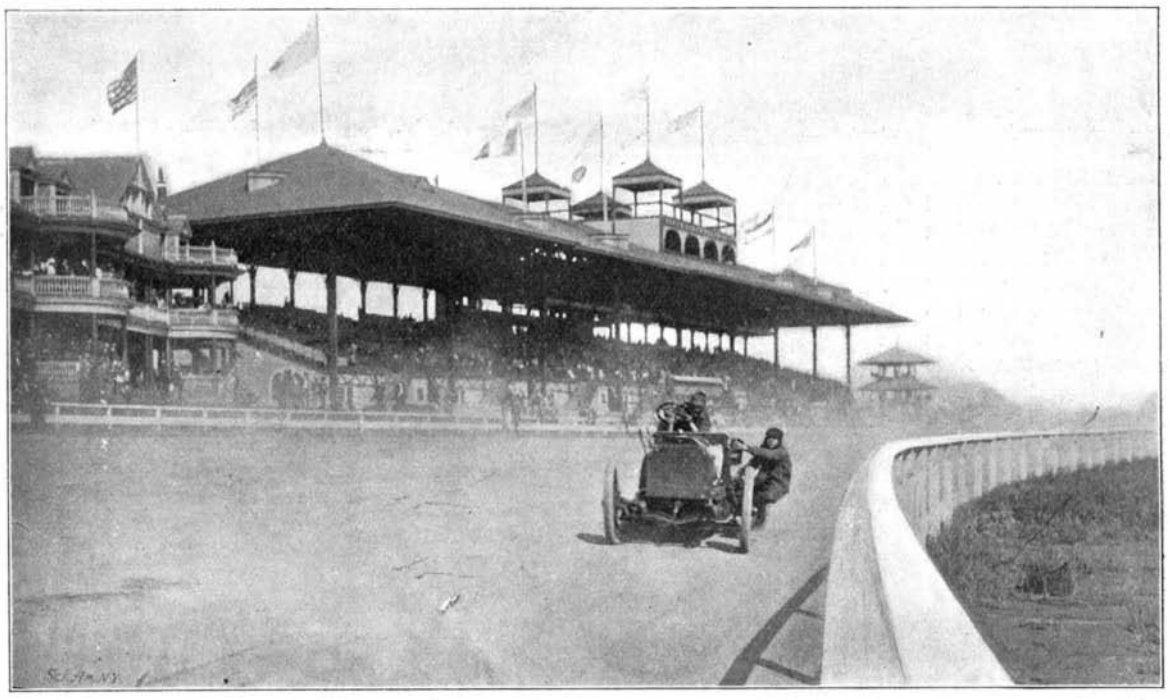


Barney Oldfield on the 70 H. P. Ford-Cooper Racer, which made a Record Mile in 55⅘ Seconds.

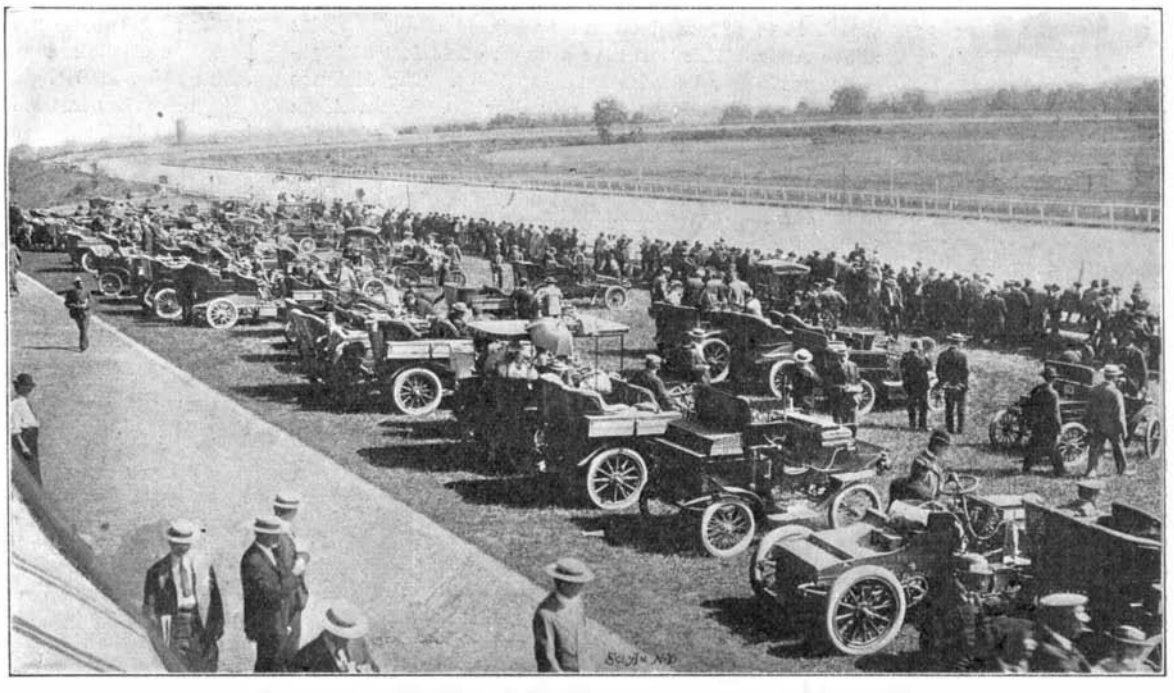
Oldfield's race against time was the second event of the meet, the first being a five-mile race for machines of any motive power weighing less than 1,200 pounds. This brought to view another American triumph in the perfecting of automobiles, in the shape of a Franklin 10 horse power, four cylinder, air-cooled racer of 900 pounds weight, which won easily in 6:54 2-5, making the fastest time on the third mile, which was covered in 1:21 3-5. The time for each mile and for the entire distance was a new world's track record for light-weight machines. Darracq racing cars of 16 and 12 horse power were second and third respectively, while the little Orient buckboard, propelled by a 4 horse power air-cooled motor, took fourth place. As the Franklin, driven by John Wilkinson, its designer, also won a 10-mile race from Joseph Tracy in a 10 horse power Renault (time 15:50 1-5) besides making a mile from a flying start in 1:20 2-5, it can easily be seen that the day was one of victory in the racing line for the air-cooled motor, which, though discarded by its originators, the French, has been brought to such a state of perfection in America as, after completely demonstrating its practicability for touring, to be able to win against one of the fastest French light cars of equal power in a race 10 miles in length.

A 10-mile race for machines under 1,800 pounds was won by a 40 horse power Darracq in 10:52 4-5—a world's record for this class. A 40 horse power Decauville came in second in 11 minutes, 26 seconds. Both of these cars were survivors of the Paris-Madrid race, and were run on this occasion by the same chauffeurs who drove them in that event. A 35 horse power Darracq and a 35 horse power Panhard were third and fourth respectively.

One of the most interesting events of the afternoon was an international 15-mile race, in which Mr. O. W. Bright's new 60 horse power Mercedes—a duplicate of the machine that won the Gordon Bennett race—represented Germany; the 40 horse power Paris-Madrid Decauville racer, France; and Louis P. Mooers' 80 horse power Gordon Bennett cup racer, America. The Mercedes took first place at the start and held it to the end. The steady, smooth, quiet running of this car is remarkable, and stamps it at once as a perfect piece of mechanism. It reeled off the miles at the steady pace of 1:04 3-5 with but fractions of a second variation, save once or twice. The first, sixth, and eighth miles were the slowest, being run in 1:10 2-5, 1:05 1-5, and 1:05, while the twelfth and thirteenth were each covered in 1:03 4-5, and the fourteenth and fifteenth in 1:04 and 1:03 2-5 respectively. The times for the last five miles were all world's track records. With the completion of the 15 miles in a total time of 16:10 4-5, Fournier's record for this distance was beaten by 3 minutes. The French Decauville finished second, tieing Fournier's old record of 19:10 4-5, after having made as good a performance as the Mercedes in proportion to its power. The highest-powered car of all took third place, and was beaten a full mile by the winner. It seemed to miss fire considerably, and consequently did not have very much speed.



O. W. Bright's 60 H. P. Mercedes Car Making a World's Record of 15 Miles in 16 Minutes, 10⅘ Seconds.



The Large Assemblage of Automobiles seen from the Grand Stand.

THE MIDSUMMER AUTOMOBILE RACE MEET AT THE EMPIRE CITY TRACK.

The second great event of the day was two 5-mile heats between Oldfield on his Ford-Cooper racer and F. A. La Roche on an American-built Darracq. The machines were started at the half and mile posts respectively. They had to be started a second time, owing to the engine of Oldfield's racer missing fire badly in the first mile. The latter finally won both heats in 5:09 1-5 and 4:55 respectively, for, although La Roche's machine was a fast one, it seemed not to be in the same class with the Ford-Cooper racer as run by its dare-devil chauffeur.

The final race was a 15-mile one for machines of any weight or motive power. It was won by the 40 horse power Decauville, driven by Henri Page, who brought it again to the finishing post in the fast time of 16:39 2-5. A 35 horse power Darracq came in second, and a 40 horse power Darracq third. The latter stood every chance of winning the race when M. C. Herman's 70 horse power Panhard dropped out on account of a loose valve spring, after leading during the first mile, until a punctured rear wheel tire gave out during the sixth mile and caused it to fall behind. Jules Sincholle, its driver, pluckily finished the race, however, with the spectators fearing an accident every moment from the rapidly demolishing tire.

The mile speed trials, made from a flying start, concluded the meet, and resulted as follows: 60 horse power Mercedes, 1:03 1-5; 70 horse power Panhard, 1:05 2-5; 40 horse power Decauville, 1:07 1-5; 80 horse power Peerless, 1:09 3-5; 35 horse power Darracq, 1:15 2-5; 10 horse power Franklin, 1:20 2-5.

The races were the most successful yet held in this country. Five or six thousand people witnessed them from the grand stand, and many rode to the track in their automobiles, and viewed the events from the seats of their vehicles, which filled the lawn near the track. Over three hundred machines were present in the inclosure, and the only horses seen were attached to two watering carts, which slowly sprinkled the course before the big events. It seems quite time for the firm that manufactures these machines to make them self-propelling, now that automobile lawn mowers, etc., are on the market, and this it ought easily to do, as it is turning out electric automobiles already. Then, in future meets, the horse will have vanished entirely, and none of the animals will be present to

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.

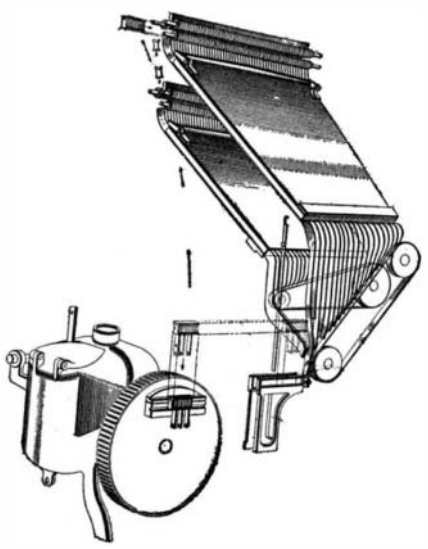
### A MULTIFACE LINOTYPE MACHINE.

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 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 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 complicated 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 assembling 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.

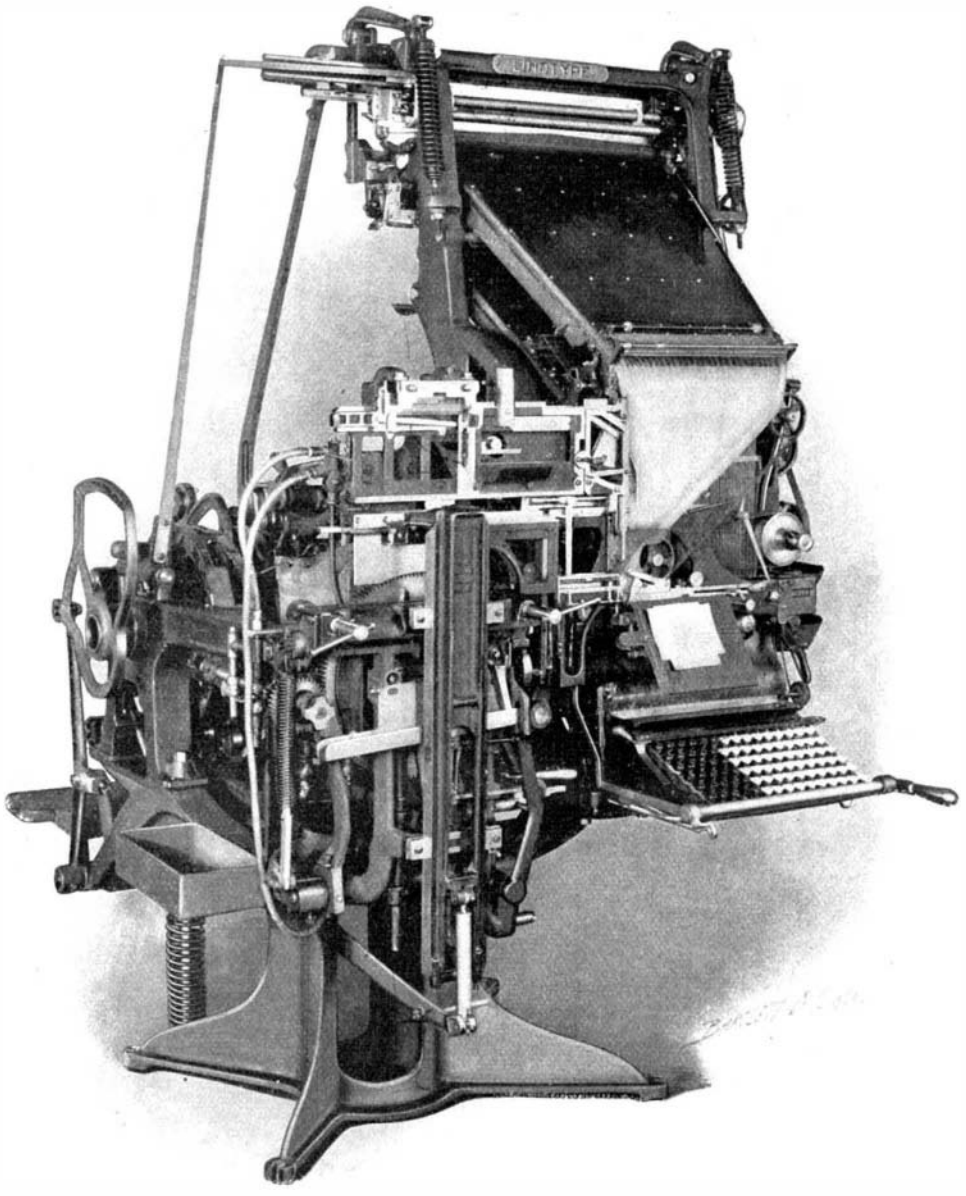
The linotype machine is so complicated, both as to its construction and operation, that we have not attempted in the limits of this article to do more than outline the new features of the machine.

### The Monument of Mont Pelé.

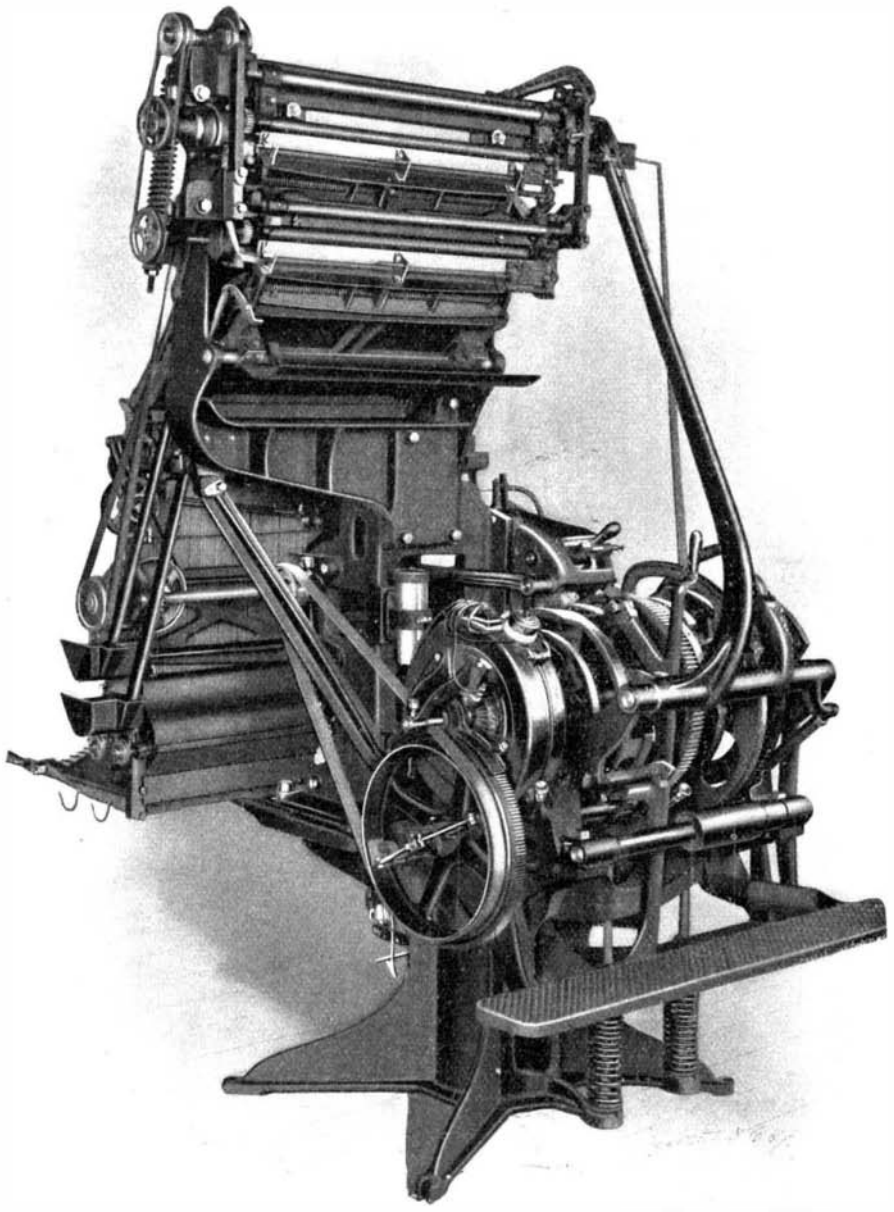
Prof. Angelo Heilprin, whose work in studying the Martinique eruptions is doubtless well known to our readers, announces a most curious and wonderful phenomenon which he had the opportunity of studying on Mont Pelé. He states that from the crater of the volcano there has been forced up a column 840 feet 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 ejected 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.



DOUBLE MAGAZINE LINOTYPE COMPOSING MACHINE.



REAR VIEW OF DOUBLE MAGAZINE LINOTYPE COMPOSING MACHINE.