[FROM THE SCIENTIFIC AMERICAN of June 5, 1880.]

EDISON'S NEW ELECTRICAL RAILWAY.

But for the chronic aptitude of this generation never to wonder at anything, we might expect to witness expressions of surprise as it becomes known that we are to be whisked through the country at the rate of thirty, forty, or fifty miles an hour by an agent invisible and unknown save by its effects; but the moment electricity is suggested as a motive power for railways, the never to be surprised public say, "Why not?" Nevertheless, the practical application of the electric current to this purpose seems never to have had a prospect of success before the experiments of Dr. Siemens, in Berlin, in 1879, and the present extended experiments of Mr. Edison. It is a subject fraught with difficulties, and while it has always offered a seemingly promising field for inventors, the expense attending experiments of this class has been a most effectual barrier to progress.

Mr. Edison, more fortunate in this respect than many of our experimenters, has not been hampered by monetary difficulties, and having had ample means for carrying out his ideas in practice, he has been enabled to develop his inventions more rapidly perhaps than any other man living.

His new electric railway at Menlo Park is built ov r natural ground, with little or no grading, and with no regard for curves or grades. It is at present something over half a mile long, and is soon to be extended to form a mile circle. The present rolling stock consists of one electric locomotive and one open car. The general appearance of the railway and its equipments will be seen in our engraving. The motor is precisely like one of Mr. Edison's electrical generators, figured and described in our columns some time since, and the motive power is supplied by his stationary engine, the power being converted into electrical energy by a single generator.

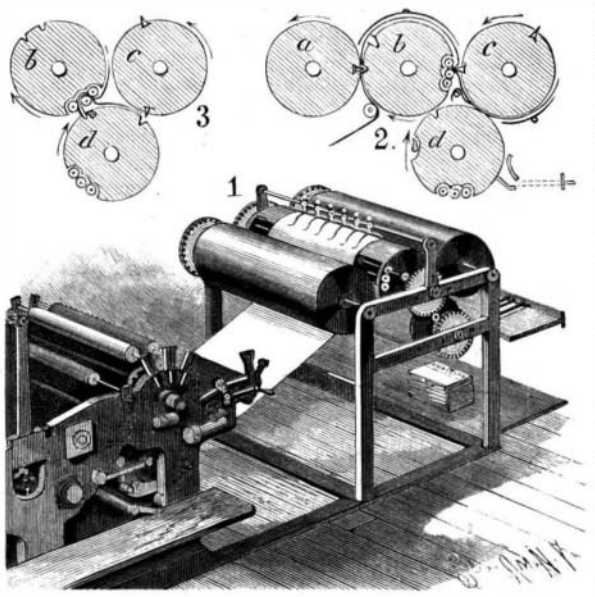
The current thus created is conveyed to the track by two copper wires, one wire being connected with each rail. The armature of the locomotive makes four revolutions to one of the drive wheels. The machine is managed about like a steam locomotive, and it pushes ahead with wonderful energy.

By invitation of Mr. Edison, representatives of this journal were present at a recent trial of this novel motor, and had the pleasure of riding, with some twelve or fourteen other passengers, at a breakneck rate up and down the grades, around sharp curves, over humps and bumps, at the rate of twenty-five to thirty miles an hour. Our experiences were sufficient to enable us to see the desirableness of a little smoother road, and to convince us that there was no lack of power in the machine. Mr. Edison says that he realizes in the locomotive seventy per cent of the power applied to the generator. He will soon add four more cars, and apply improvements which he has in contemplation.

This grand experiment is designed to test the applicability of the electric current to this purpose and to develop a railway system suitable for plantations, large farms, and for mining districts, and perhaps it is not entirely visionary to expect that our street and elevated railways may at no very distant day be successfully operated by electricity.

A ROTARY NEWSPAPER FOLDER.

This is a very simple machine, adapted to fold papers as they come from any kind of a press in a continuous

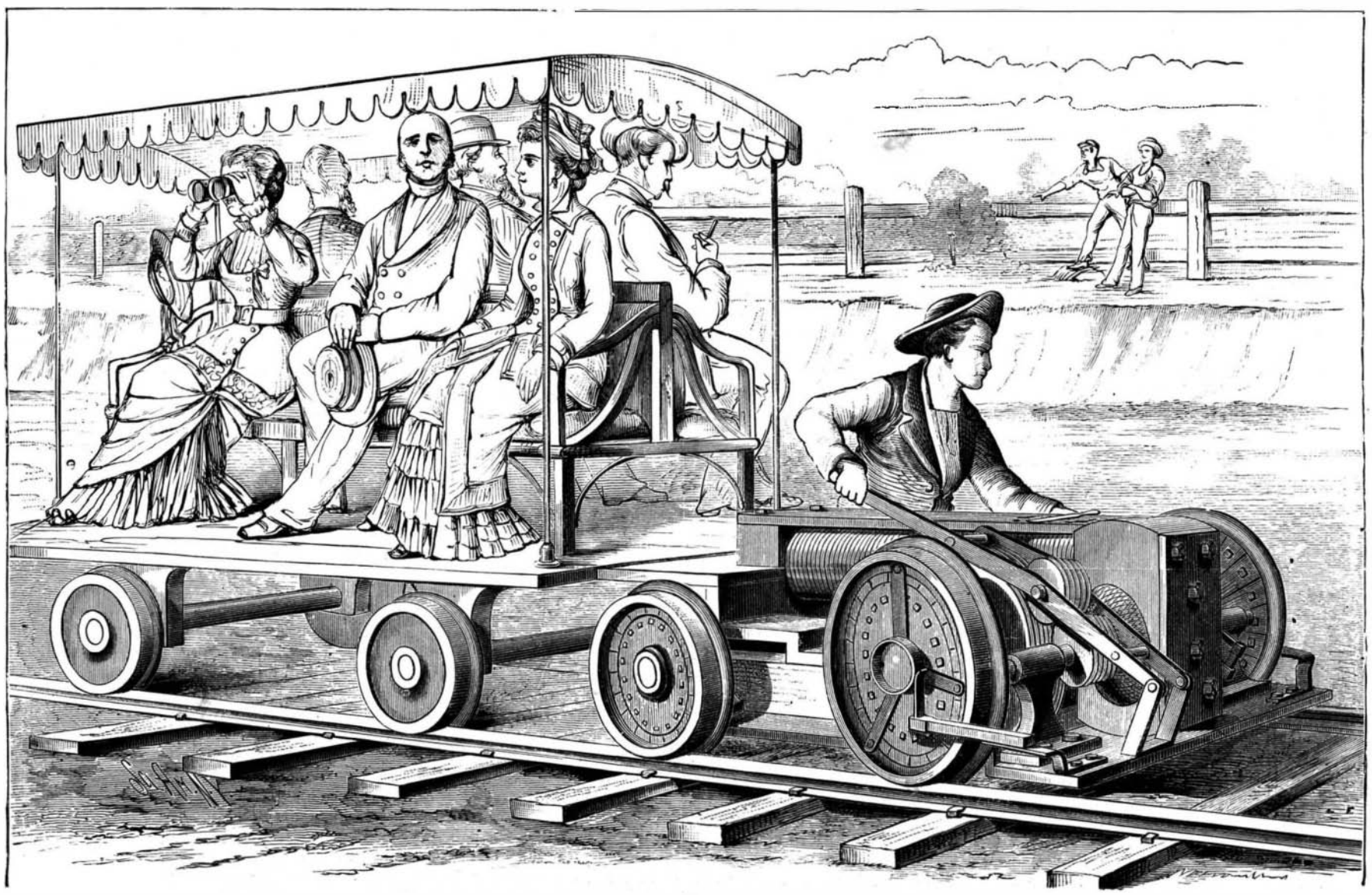


CARR'S ROTARY NEWSPAPER FOLDER.

web, cutting the sheets the correct size, and without employing knives which move in relation to the cylinders. The improvement has been patented by Mr. E. W. Carr, of No. 110 Fifth Avenue (room 3), Chicago, Ill. Fig. 1 shows the machine in position at one end of a press, Fig. 2 representing the folding cylinders with the web being cut and the position of the severed sheet as the first fold is being made, and Fig. 3 showing the sheet while the first fold is being rolled down and the sheet carried forward. Cylinder *a* serves in connection with cylinder *b* as a cutting cylinder, while cylinders *b*, *c*, and *d* serve as folding cylinders, there being in the first cylinder a fixed knife which registers with a groove in the second cylinder, so that at each revolution of these two cylinders the web will be severed, the size and speed of the cylinders being such that the sheet will be cut the proper size. In a recess in the face of cylinder *b*, opposite the knife registering groove, is a series of parallel folding rollers, between which the paper is forced by a folding blade in cylinder *c*, making the first fold, after which the paper is engaged by grippers on cylinder *d*, there being also in this cylinder folding rollers between which the paper is forced to make the second fold by means of a second blade in cylinder *c*. On the back side of the lower and last roller is a chute into which the paper is delivered after being twice folded, being carried forward against an abutment and supported on the usual parallel rods until pushed down between them to make the final fold in the usual manner. The folding rollers are preferably turned by a gear mechanism, and above cylinder *b* are curved finger rods to prevent the paper from rising, while above cylinder *d* is a spring guide pressing the paper against cylinder *c*, the several guiding devices holding the web snugly against the faces of the cylinders.

Pneumatic Wheels.

It is not a great while since pneumatic tires were introduced with the view of giving a maximum amount of elasticity to wheels. These were succeeded by wheels having pneumatic hubs, or naves, of which there have been at least three brought out within the last few months. The next step is to make the whole wheel pneumatic, and this is now done in the wheels made by the Pneumatic Wheel Company, of London. The new wheel consists of a flattened spherical chamber filled with compressed air. The outer shell is made of a material which is slightly yielding in itself, but exceedingly tough, so that it is with difficulty broken or cut into. Inside is an India rubber chamber conforming to the shape of the shell, which is inflated from outside the wheel with air under pressure. A pair of metallic plates are affixed to the wheel, one on either side, there being an open tube connecting the plates and passing through the center of the wheel. The axle passes through this tube, and is secured to the wheel. There is a small valve in the side of the wheel connected with the air chamber, so that the wheel can be deflated at any time, or if deflated by long use or other cause it can be readily inflated. A dog-cart mounted on a pair of these wheels, but having also a pair of light springs, was the vehicle by which the pneumatic system was tried. The wheels are 26½ inches diameter by 5¼ inches broad. The vehicle ran very lightly, the crossing of tram rails at right angles being scarcely perceptible, while granite pitched roads were as quietly and as smoothly traversed as those of well leveled macadam. The company are adapting these wheels to cycles and horse vehicles, and are about to supply them to an electrical omnibus shortly to be run. These wheels will be 31 inches diameter by 11 inches thick, and 26 inches diameter by 6¼ inches thick when inflated.



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