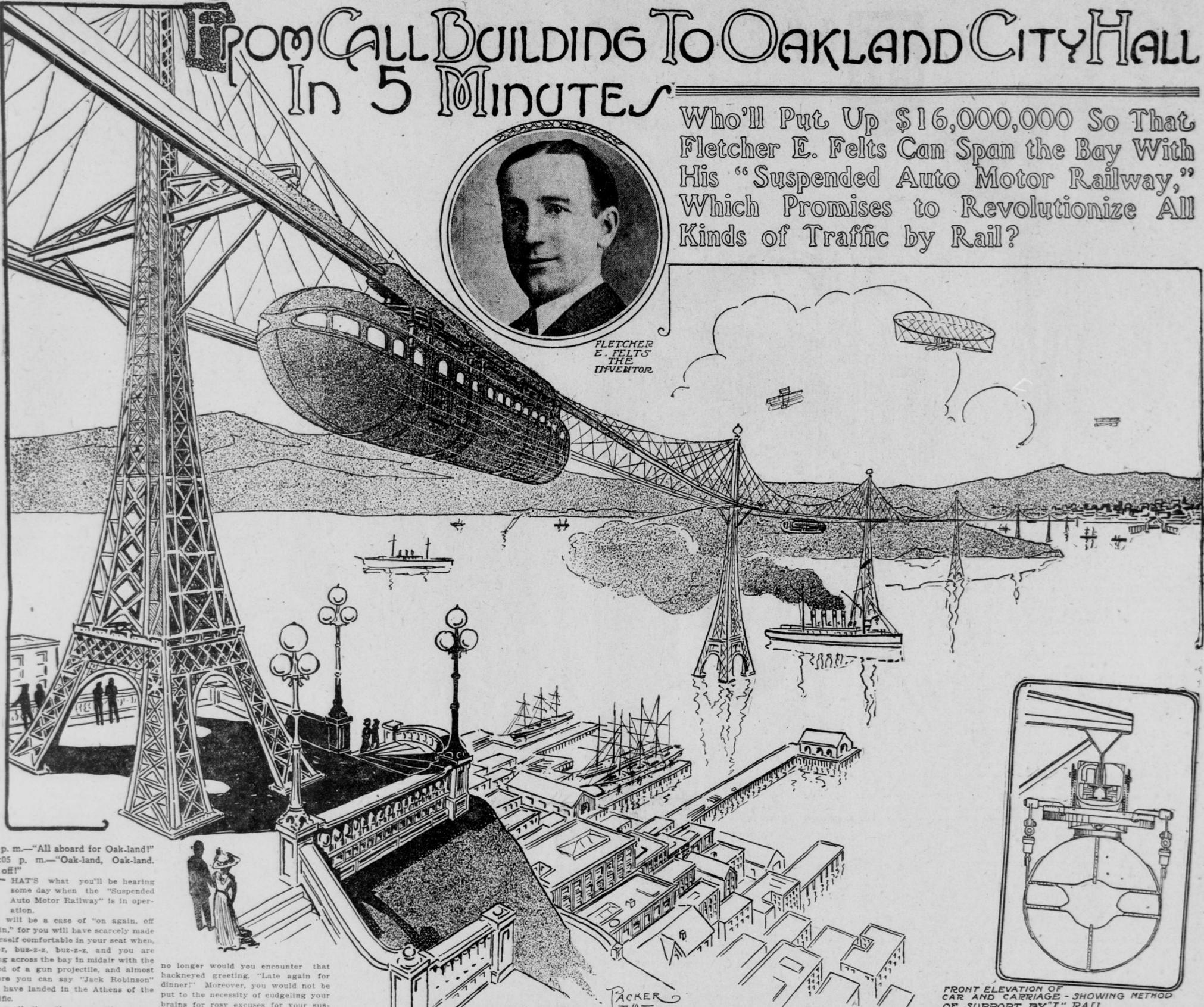


# From Call Building To Oakland City Hall In 5 Minutes

Who'll Put Up \$16,000,000 So That Fletcher E. Felts Can Span the Bay With His "Suspended Auto Motor Railway," Which Promises to Revolutionize All Kinds of Traffic by Rail?



FLETCHER E. FELTS THE INVENTOR



3 p. m.—"All aboard for Oak-land!"  
3:05 p. m.—"Oak-land, Oak-land. All off!"

THAT'S what you'll be hearing some day when the "Suspended Auto Motor Railway" is in operation. It will be a case of "on again, off again," for you will have scarcely made yourself comfortable in your seat when, b-r-r, buz-z-z, buz-z-z, and you are flying across the bay in midair with the speed of a gun projectile, and almost before you can say "Jack Robinson" you have landed in the Athens of the Pacific.

Now, that's rather a startling statement, isn't it? But Fletcher E. Felts, who has looked into the future, says we are going to have such a railway. "Oh, pshaw!" you say contemptuously, "it's only a dream." But, you know, some dreams come true. Who ever thought men would be able to sail through under the waters of the ocean in safety? They have done so in submarines. Or, whoever thought that men would ever be able to sail through the air at dizzy heights with ease? They are doing so in flying machines. Well, now that these supposed to be impossible feats have been accomplished, why be skeptical about anything?

Fletcher E. Felts is an inventor—one of the successful kind. He has lived in this city, but is now a resident of Los Angeles. For many years he has believed that his fellow man loses entirely too much time when he travels about the land and that railroads should be constructed that will annihilate both time and space. Felts, imbued with the spirit of Puck, who declared he would "put a girdle round about the earth in 40 minutes," studied mechanics and railroad construction from boyhood. As he grew older, speedy and safe transportation became a hobby with him, and he kept planning and scheming with a view to having this realized some day.

Today, this man who has not yet passed the fourth decade of his life, feels that in his "Suspended Auto Motor Railway" he has a system which mankind should have been blessed with long ago. The inventor of this system, which he believes will revolutionize railroading the world over, is neither boastful nor aggressive. He is hopeful and convincing. He would like to see such a line of road running from the Ferry to the Cliff, or, one from the city spanning the bay, to provide the people with rapid transit that would be rapid in more than name only.

When you ponder over those aggravating delays to which you are subjected by the United Railroads every day—and some nights—you will say that it is "a consummation devoutly to be wished."

"It would add to the joys of shopping," declares your wife, who could linger at the bargain counter to study the \$2.95's and the \$4.95's, and yet be home in a jiffy.

You, too, could linger a bit, yourself, with "the boys," and be speedily whisked to the family fireside. And

no longer would you encounter that hackneyed greeting, "Late again for dinner!" Moreover, you would not be put to the necessity of cudgeling your brains for rosy excuses for your suspicious tardiness.

How would you like to get aboard a train for Los Angeles, which is 471 miles away by the Shore line, and land in the southern city in about three hours?

Think of boarding a train for New York, 3,000 miles away, this afternoon at 1 o'clock, and stepping off at your destination at half past 3 tomorrow afternoon—26½ hours! In the unacademic language of the street, that's "going some." Felts promises just that sort of transportation when his "Suspended Auto Motor Railway" is in operation.

### The Bullet Car

This is the way Felts explains the important features of his aerial railway system: "The car, which is bullet-shaped, lays in surcingle which terminate in springs and plungers. The operator sits in a conning tower in the top of the car. Levers run back over his head to the engine. In place of trucks beneath the car there are steel carriages above. These steel carriages will encircle the eyebeam tracks and all the wheels and rollers will be slotted at their tops, wide enough only to permit the passing of the drop arms. Should the wheels or rollers be removed by any cause, the carriages would clutch the track, preventing the car from falling, or, if any portion of the track should be taken away and the cars running at full speed the front carriage only would leave the track, causing the rear carriage to clutch the track before traveling the length of the car. This would prevent the car from plunging into space.

"The drop arms are capable of standing a strain of 47 tons each, but there would be only one-third of the weight of each car on a drop arm at a time.

"The system would be double track—a track being on either side of the towers. If two cars should be running in the same direction at a high rate of speed and the first car should for any reason become stalled where it could not be seen by the operator of the second car, the batteries are so arranged that there would be a short circuit and the second car would come to a dead standstill. This arrangement eliminates the possibility of collision. Every wheel on the cars would be fitted with roller bearing rollers, practically dust-proof and oil-proof. This means that there will be no hot boxes.

"Where one track passes the other at a crossing, say a street crossing or any other place, it is necessary to have a gap of 3 feet 4 inches cut away from each track to permit the steel carriages to pass through. To jump this gap the carriages are fitted with two rollers on the extreme front end of each carriage. Six rollers equally spaced in the carriage hold the front two rollers up until they reach across the gap and form a rest on the opposite track. When those two rollers are over the gap they and the rear four hold the second two up until they reach the opposite side. When the front four rollers are across the gap they, with the rear two, hold the third set up. When the six are over the gap the rear

two rollers stand out without dropping. There are idlers on both sides of the eyebeam track, which prevent the carriage from swinging from side to side. The rollers on the bottom which extend across each eyebeam prevent the carriage from rocking. So the gap of 3 feet 4 inches is jumped at any rate of speed without jarring the car or without any danger whatever.

"The eyebeam, which are 4½ inches each across the top, give a 9 inch bearing, whereas on a steam track there is only a 14 inch bearing.

"In place of traction wheels there are rollers, to which I have already referred, which are keyed on to one end of a shaft. This shaft extends through the steel carriage, which holds the roller bearing rollers, and the driven wheel is keyed on to the other end of the same shaft. If the engine makes 7,800 revolutions a minute it will turn these rollers 1,800 times a minute on top of the rails, and if the rollers are 14½ inches in diameter, as is contemplated, the car would travel a little over two miles a minute.

"Now, one would imagine that in traveling at such a speed there would be considerable discomfort, but it would be even less than you get in a standard Pullman, for the reason that the car lies in surcingle which terminate in springs and plungers, as I have already stated, and which are housed in, with an air duct on the bottom of each housing, causing the housing to fill with air when the spring collapses and allowing the car to ride back on air cushions. The arms that extend from the turntables fitting over the flange of the carriage holding these springs and plungers are fitted with roller bearing rollers, so that the cars swing forward and backward without any jar whatever.

"It is planned to have telephone connection with each car on the line, thus permitting a passenger to communicate with the next car ahead or, in fact, any place on the line. Each car will be fitted with a dynamo, which furnishes its own light, block system, etc.

"In coming to a street crossing there is a turntable suspended in the center of the street. A car coming down one street and wishing to turn a corner, jumps the gap, which I have mentioned, and runs on to the turntable; the operator pulls a lever, which engages a gear. This turns the table around with the power of the car, and thus, curves are done away with."

Felts said something about spanning the bay with his proposed system. When asked concerning such a project, he said:

"The bay can be spanned easily without interfering with the shipping in the least. I have figured with the best engineers on the coast. Suppose we were to start, say at the Phelan building and run up Grant avenue to Union street and up Union street to the summit of Telegraph hill, from the top of this

hill to Goat Island, and then on to Oakland. That's about the way it would be done, and I'm sure we could give a fine one minute service.

"This is what would be required for such a line:

"About 125 stations or towers with concrete foundations for the towers; 2,000 cubic yards of concrete for each, at \$10,950 each; \$1,268,750. Tubing for the caissons, 8 feet in diameter, \$1,600 each, \$200,000. Structural steel, 1,200 tons, \$1,200,000. Ten miles of three inch cable and four miles of four inch cable, 2,800 tons, \$2,800,000. Masonry for four terminals—one at Telegraph hill and one at Oakland and two at Goat Island, at \$35,000, \$140,000. Supporting cables or braces, 1,500 tons, \$150,000. Equipment, barges, drivers, steam tugs, dredges, divers, apparatus, etc., \$500,000. Labor for a period of five years, on a basis of \$2,000,000 per year, \$10,000,000. "Approximate total, \$16,358,750."

### Five Hours to Los Angeles

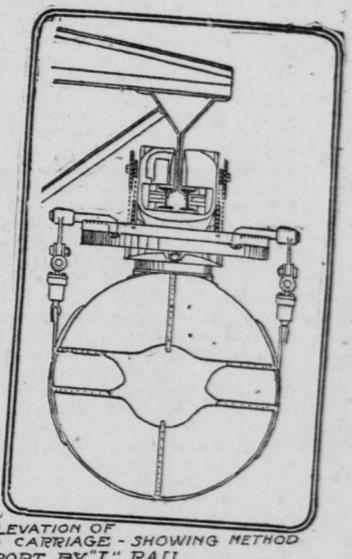
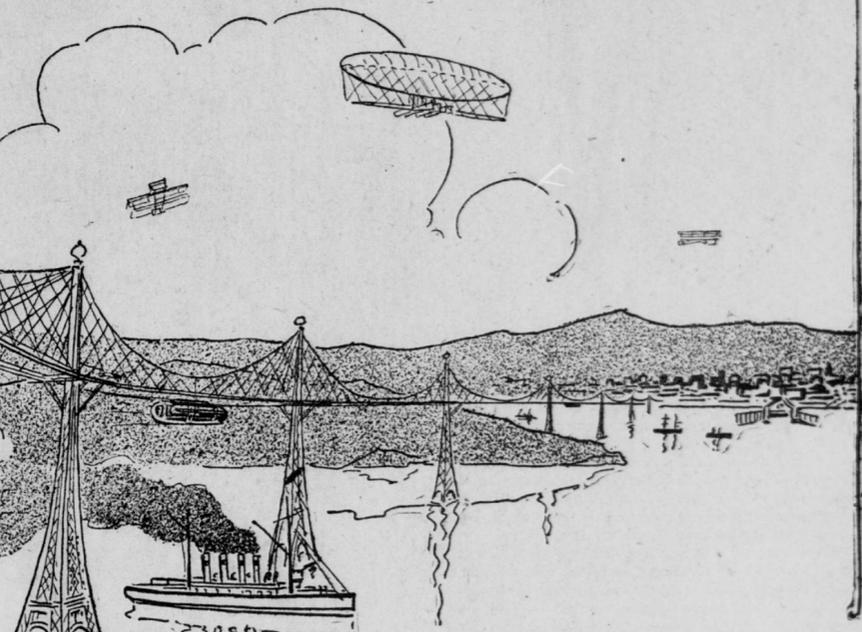
The present surface steam railway, coast line, San Francisco to Los Angeles, is 471 miles; running time is 13½ hours, including four stops.

"My suspended auto motor railway, at the rate of 100 miles per hour, would run the same distance of 471 miles in 5 hours, including five stops of five minutes each," said Felts. "This distance between San Francisco and Los Angeles could be shortened to 400 miles with the suspended auto motor railway, and the speed easily increased to 150 miles per hour, making the time between San Francisco and Los Angeles 3 hours and 14 minutes. Five stops of five minutes each would make it 3 hours and 19 minutes. The stops would be San Jose, Paso Robles, San Luis Obispo, Santa Barbara and Los Angeles.

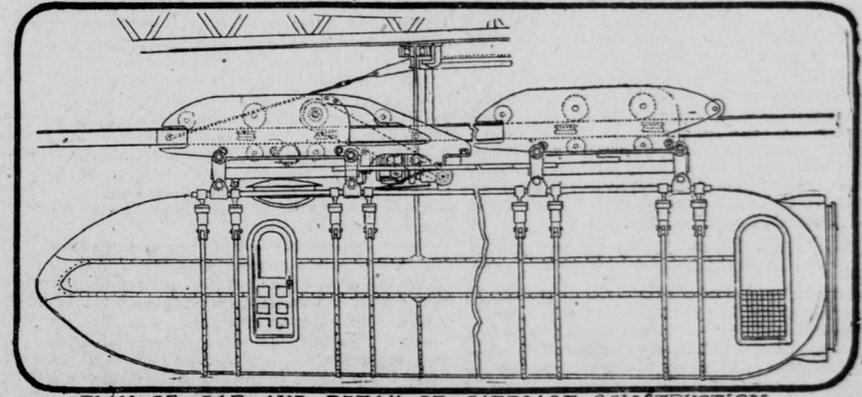
"The present surface railway, via Bakersfield, is 480 miles; the time is 13 hours and 43 minutes. The suspended auto motor railway over the same route would make the distance in 3 hours and 20 minutes, or 3 hours and 40 minutes, including four stops of five minutes each. This line could be shortened by the suspended auto motor railway 125 miles, leaving a distance of 355 miles between San Francisco and Los Angeles, which could be traveled in 2 hours and 30 minutes. With four stops of five minutes each it would make the time 2 hours and 50 minutes between San Francisco and Los Angeles.

"The present surface line from San Francisco to New York makes the distance of 3,234 miles in 90 hours and 10 minutes by taking advantage of the difference in time. To reduce this time by the present system would necessitate the straightening of many miles of track, which would mean the filling up of many valleys, innumerable bridges and cuts, with countless tunnels. With the existing curves faster time is impossible on account of the friction of the wheels against the rails.

"A road of the suspended auto motor railway over the following route would shorten the distance between San Francisco and New York 574 miles, leaving 2,650 miles, which, traveled at the rate of 100 miles per hour, could be made in



FRONT ELEVATION OF CAR AND CARRIAGE - SHOWING METHOD OF SUPPORT BY "I" RAIL



PLAN OF CAR AND DETAIL OF CARRIAGE CONSTRUCTION

26 hours and 50 minutes, making the following stops:

Miles.	Min.
From San Francisco to Stockton.....	65 30
From Stockton to Yosemite park.....	92 40
From Yosemite park to Hawthorne.....	60 40
From Hawthorne to Mantoloking.....	385 231
From Mantoloking to Glenwood Springs.....	238 143
From Glenwood Springs to Denver.....	130 78
From Denver to Holdrege.....	310 188
From Holdrege to Hastings.....	83 52
From Hastings to Lincoln.....	93 52
From Lincoln to Omaha.....	128 77
From Omaha to Des Moines.....	159 95
From Des Moines to Davenport.....	151 81
From Davenport to South Bend.....	74 44
From South Bend to Toledo.....	144 88
From Toledo to Sandusky.....	45 27
From Sandusky to Cleveland.....	51 31
From Cleveland to Franklin.....	96 57
From Franklin to Williamsport.....	149 89
From Williamsport to Wilkesbarre.....	60 36
From Wilkesbarre to New York.....	108 65

"This makes a total of 2,650 miles in 29½ hours.

"From Market, near The Call building, up Grant avenue to Union street, up Telegraph hill, thence across the bay to Oakland, the distance is about five miles. The running time would be about five minutes.

Felts' system was to be given a trial in Mexico. Death intervened, however, and the matter is now in abeyance. The government is anxious to have the channel at Mazatlan closed in with a jetty. For this work it was figured that the cofferdams alone would cost \$175,000, whereas Felts demonstrated that he could build the short line necessary for a dump system for some \$50,000 less. The plans, as laid before the Mazatlan officials, contemplated the extension of the system along the boulevard which skirts Mazatlan's water front, converting it into a scenic railway. The papers in the transaction were all ready for signature when the governor of the state, the reader will say to himself, perhaps, that he has read of other monorail systems, but it will surprise him to learn that there are only two of the

suspended class in existence. "One of these," said Felts, "is at Dresden, but it is only two blocks long. The cars hang from beams, but the motive power is a cable, and while one car goes down the other comes back. The other monorail system is at Berlin. It is some four or five miles in length and is a double rail affair. The carriages that hold the cars hang on either side of the rails. At a high rate of speed not only are the rails loosened, but the other fastenings are affected, because of the fact that the friction is not overcome. In my system the friction is entirely eliminated."

### Fourteen Feet in the Air

The average cost of building a railroad is about \$35,000 per mile, where the line of road is over comparatively level ground. Where cuts, fills, bridges and tunnels are to be considered, the cost per mile might run to several hundred thousand dollars. Felts' "Suspended Auto Motor Railway" system, of course, would eliminate all the obstacles that are encountered in steam railroad building, and he figures that a double track line in city or country would cost about \$50,000 per mile. He thinks that the height of such a road, either in the city or across the country, should be about 14½ feet from the ground, that is, the bottom of the cars should be that distance above the ground, thus allowing adequate space for any kind of a vehicle to pass under the cars.

Felts always has been of an inventive turn of mind. Even as a boy he was continually planning to make something do something. Nothing in the shape of wood or metal ever went to waste around that boy's home. Young Felts always would put it to some use—that use, in many instances, providing the family and the neighbors, too, with numerous surprises. There wasn't one of the neighbors who did not say, "That boy will make his mark as a

conqueror of the air."

Everything in the way of mechanics interested young Felts, and he spent much time reading works devoted to the mechanical world, and also was interested keenly in the world's scientific progress. Improvements in steam engines, railways devices, electrical instruments, automobiles and, in recent years, flying machines have all been closely watched by Felts.

One of the earliest and most practicable of his inventions was a combination last for shoes. It proved an instantaneous success, and now is used generally by high grade makers of footwear all over the United States.

To indicate the versatility of Felts in his inventions it might be mentioned that only recently he secured patents on a spring cast wheel which he has invented for automobiles. This new wheel unquestionably will create a real stir in the benzine wagon world by reason of the fact that, if it comes into general use, to use Felts' own words, "it will do away with rubber tires entirely." One of these wheels, according to its inventor, can be put on an automobile for just one-third the cost of a rubber tire. Felts expects to find this invention most profitable, as a number of the largest automobile firms of the country are already negotiating for its use. Felts also has devoted his inventive mind to airships, and he has succeeded in creating a dirigible motor balloon with "traveling wings," as he calls them. He is confident that this ship of the air, which can be operated easily, can be taken in any direction, and at a speed that will equal, if not exceed, that of the aeroplanes and biplanes that have been used recently in Europe and in America, causing the whole world not only to "sit up and take notice," but to look up in astonishment at and with admiration for the conquerors of the air.