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# SPACEOMETER

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## HEARING BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-EIGHTH CONGRESS  
FIRST SESSION

ON

THE DEVELOPMENT OF A SAFETY DEVICE TO AID  
MOTORISTS

SEPTEMBER 9, 1963

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THE HISTORY OF

THE UNITED STATES OF AMERICA  
FROM 1789 TO 1865  
BY  
JAMES M. SMITH  
VOLUME I  
1865

## SPACEOMETER

MONDAY, SEPTEMBER 9, 1963

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON PUBLIC HEALTH AND SAFETY  
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,  
*Washington, D.C.*

The subcommittee met at 10 a.m., pursuant to call, in room 1334, Longworth Building, Hon. Kenneth A. Roberts (chairman of the subcommittee) presiding.

Mr. ROBERTS. The subcommittee will please be in order.

This meeting was called today for the purpose of hearing Mr. Charles Adler who has developed a device which is called the spaceometer. After the witnesses are heard, we will then adjourn for a demonstration.

We have with us today many outstanding people in the field of highway safety and highway engineering. I wish that we could introduce them all. We have many people from the Government; we have some from private industry. I appreciate your attendance very much.

I might mention that Mr. Adler is well known and has made many fine contributions. He was born in Baltimore, Md., and I understand he is making a gift of this device to the State of Maryland.

At this time, I think our first witness will be Mr. Paul Burke. I will ask our long-time friend and colleague, coworker in the field of highway safety, Sam Friedel, of Baltimore, if he will introduce our first witness and get the hearing underway.

Mr. Friedel.

### STATEMENT OF HON. SAMUEL N. FRIEDEL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND

Mr. FRIEDEL. Mr. Chairman, I would like to call on Mr. Charles Adler who, I think, is one of the most public-spirited citizens in the State of Maryland. He has done a lot for safety all through the years.

This spaceometer—I had the privilege of riding in his car for a demonstration—will make the public conscious of the need for keeping a safe distance away from the car in front. I was greatly impressed by the effectiveness of this device. To my amazement, I found out that Mr. Adler donated this invention to the State of Maryland. Any royalties on it will all go to the Traffic Safety Commission of Maryland. I know of no greater deed than that.

Mr. Charles Adler, will you please take the stand?

Mr. ROBERTS. I might also say before we hear from Mr. Adler we are honored and privileged to have sitting with us Congressman George Fallon, also of Baltimore, who is the chairman of the Subcommittee on Highways, Public Works Committee. An all-time friend of safety and the sponsorship of the highway legislation, he has done, I think, a very wonderful job for his people and for the people of this country.

George, we are glad to have you with us.

Mr. FALLON. Thank you, Mr. Chairman. Delighted to be here.

Mr. ROBERTS. Mr. Adler.

#### STATEMENT OF CHARLES ADLER, JR., INVENTOR OF THE SPACEOMETER

Mr. ADLER. Gentlemen, it is an honor to be here. I am very, very grateful for the time that you are giving me and the interest that you have shown and for Sam Friedel, especially, for taking that ride with me that Sunday afternoon. I got him up in his bathrobe and put him in my car and took him for a ride. It was wonderful for him to take that much interest. He has been a very great help and inspiration to me.

I am merely going to describe the spaceometer so you will know what you are looking at when you get in the car or bus.

This spaceometer—and, by the way, we have gotten a trademark granted by the Patent Office on that name which is assigned to the State of Maryland, also, as well as the patent.

The spaceometer is a dashboard instrument which shows at a glance (1) the speed at which the car is moving; (2) facsimiles of the car; (3) the car ahead; and (4) the safe space between the cars to avoid a rear end collision.

Just a glance at the spaceometer by the driver when checking the speed, and he is compelled to see also the superimposed two little cars and the space between them. It is impossible to see the speed without seeing the space, also.

Then the motorist, upon looking through the windshield, automatically compares the actual road situation ahead with what he has just seen on the instrument. He asks himself, "Am I as far away from the preceding car as the picture on the spaceometer shows? Do my car, the car ahead, and the space between look similar to the dashboard picture?"

After a little practice, his reflexes and depth perception will enable the driver constantly to gage and regulate spontaneously the safe spacing of his car with the car or cars ahead in accordance with the picture on the dash. He will do this as naturally as blowing his horn, dimming his headlights, or operating any other familiar auto device.

The spaceometer is the first successful graphic means to educate the motorist in safe car spacing at whatever speed he is driving. The dial of the instrument has two scales, one for speed in miles per hour and the other below it for space in car lengths. The speed indicator is an elastic red line. Superimposed on the elastic speed line are two little cars, each scaled to one car length. The car to the left on the dial is stationary. The car to the right, which corresponds to the automobile in which it is installed, moves away from the stationary car in exact proportion to the actual road space as viewed through the windshield.

Mr. ROBERTS. Mr. Adler, we are certainly delighted to have you here with this invention which I understand has been patented and the patent has been assigned to the State of Maryland.

Mr. ADLER. Both patent and trademark.

The trademark has also been assigned but the trademark was granted just last week and will issue in about, I think, 6 weeks.

Mr. ROBERTS. How long have you been testing this or did you test it before you filed for a patent?

Mr. ADLER. I filed the patent before I built and tested it because I had to spend around \$2,300 to get them made.

The patent I got in—the date is on there—I think 1955, 1956. It was granted in 1958; it was filed in 1955 or 1956. It was granted in 1958, so it has 12 more years to run.

Mr. ROBERTS. Now, let me ask you: Do you have any estimate as to what this would cost to be installed on passenger and other type vehicles?

Mr. ADLER. Mr. Roberts, the only way to put this over on private automobiles would be to have it installed by the manufacturer at the factory on the car before it is shipped out because there is no point in that car having a speedometer and the spaceometer when the spaceometer has both. Therefore, the only practical way is for the manufacturer to include this in his list of accessories on the automobile as standard equipment. In that way, it will cost no more or very, very slightly more than an ordinary standard speedometer because all this is is a speedometer with little decals put on the cylinder and an extra dial; that is all it amounts to.

Mr. ROBERTS. What about the matter of calibration? Is it difficult for this to get out of order or would it be candidly, in your opinion, difficult for it to get out of order?

Mr. ADLER. It has never gotten out of order, sir, because it uses standard speedometer parts. It is an actual standard speedometer with these decals put on it. It is installed in a scenic-cruiser bus which has gone over 20,000 miles with it and it is in perfect condition.

It has been on two of my cars for over a year and still is functioning perfectly. It is on a State car. It has been on for about a year and it is still functioning perfectly.

We have had no trouble and any service on it could be taken care of and is taken care of by standard speedometer agencies.

Mr. ROBERTS. I believe you testified that you obtained your patent prior to the time that you built this particular device.

Mr. ADLER. Yes.

Mr. ROBERTS. Is this the only one that you have built so far?

Mr. ADLER. No. I have 10 of them built.

Mr. ROBERTS. You have 10 of them?

Mr. ADLER. Yes.

Mr. ROBERTS. And you think that, as far as the item of cost is concerned, if it is built into the regular speedometer it would cost no more for the manufacturer to do this?

Mr. ADLER. Yes. Negligible; yes.

Mr. ROBERTS. Mr. Friedel?

Mr. FRIEDEL. Mr. Adler, I understand that you turned the patent over to the State of Maryland for traffic safety.

Mr. ADLER. Yes.

Mr. FRIEDEL. And any royalties would go to the State of Maryland?

Mr. ADLER. Yes; for traffic safety purposes.

The assignment was made by Tom Finnan and duly recorded in the U.S. Patent Office.

Mr. FRIEDEL. For the record, could you say what the royalty would be on this spaceometer?

Mr. ADLER. No, sir, because we don't know.

Mr. FRIEDEL. You don't know?

Mr. ADLER. No; we take what we can get.

Mr. FRIEDEL. It would not mean very much, would it?

Mr. ADLER. Whatever the State decides it wants or what the traffic would bear we would take, but our primary purpose is to get this on the market, not to make money. This is not a moneymaking scheme. Even though the State benefits from any money that would be made, it is not primarily a moneymaking scheme, it is to save lives 100 percent. That is the primary object of it.

Mr. FRIEDEL. You are to be commended for your spirit.

That is all, thank you.

Mr. ADLER. Thank you, sir.

Mr. ROBERTS. Mr. Brotzman.

Mr. BROTZMAN. Thank you, Mr. Chairman.

I regret I didn't hear all of your initial statement. I just wanted to ask you one thing. I understand that this records the speed and the space between the vehicle in which the device is placed and those in front, is that correct?

Mr. ADLER. The space that should be maintained, not the space that actually is. It is a purely mechanical device but shows you what the space should look like diametrically and you try to maintain that space. In other words, to make a driver conscious that some space should be maintained so that he does not tailgate, that is, the only purpose of this device.

Mr. BROTZMAN. If the safety laws vary in the various States as to the recommended distance to be maintained, is this capable of being adjusted to show the different spaces?

Mr. ADLER. Yes, you can have it made, sir, by merely putting these little cars, these little decals, in different positions. There is a cylinder in here. This is a standard speedometer mechanism and this cylinder is partly read to show the speed.

Now we put the decals of the miniature automobiles on the cylinder and then they can be placed anywhere. They can be made different colors as the distance increases, as a matter of fact. There are any number of them on there and sometimes the decals are inside the red line showing the speed and sometimes beyond the speed when the speed gets above 60 miles an hour. There are any number of combinations that you can get with this.

Mr. BROTZMAN. Thank you very much.

Mr. ROBERTS. Any comment, Mr. Congressman?

Mr. FALLON. I would like to congratulate Mr. Adler because the testimony before our committee—it will be shown that on the new speed highways such as the Pennsylvania Turnpike you learn a great amount of accidents are rear-end collisions. They way you describe your device here it would certainly be a great deterrent to people who are used to driving on highways at low speed limits and are not used to the braking at certain points and in time if there is an emergency



ahead. This device, it seems to me, if put in practice, could eliminate many, many deaths that are caused by read-end collisions.

Mr. ADLER. That is a fact, sir. Actually, we had a very interesting experience. We put this device on the bus and the bus had different drivers and was sent 20,000 miles to various parts of the country. It was a privately owned corporation but Trailway busdrivers also used it. It was in view of the passengers as well as the driver and they found that the driver was constantly watching it and slacking up when it would get too close and he was also conscious that the passengers were watching it and watching him, so it was a deterrent to him and the thing actually worked beautifully.

It is still in service in the bus as you will see, so the thing is psychological entirely. It is nothing radical, it is purely a psychological thing to get a driver to become space conscious in driving his car, something which has not been done before.

Mr. ROBERTS. Thank you very much, Mr. Adler. I, too, would like to join the members in commending you for your effort and time and your wonderful ability in making this device available in the unselfish way in which you have sought to do so. I personally am very happy that the subcommittee can give this time to this project. We thank you for your appearance and hope that the manufacturers or someone will look into the merits of this device and that it may be used to save lives as you desire it to be.

Mr. ADLER. I am grateful to you, Mr. Roberts. If the Government at some future time could say that all Government cars should be equipped with a device of this sort, it would be a very, very great help in putting it on the market because without the automobile manufacturers the thing is dead. Let's face it, that is a fact, without the cooperation of the car manufacturers.

Mr. ROBERTS. I might say I think that practically all of the manufacturers are represented here today and some of them, I am sure, will see this device demonstrated. We are very happy to have had the services of this subcommittee available to you for this purpose.

Mr. ADLER. Thank you, sir.

Mr. ROBERTS. Our next witness is Mr. Paul Burke, Sr., chairman of the Maryland Traffic Safety Commission, who has long been interested in this matter of highway safety, one of the first witnesses that I remember appeared before the special subcommittee on traffic safety which was created back in 1906 and who has throughout the years devoted a lot of time and effort in trying to do something about this traffic problem.

Mr. Burke, it is a pleasure to welcome you to the committee.

#### STATEMENT OF PAUL E. BURKE, SR., CHAIRMAN, MARYLAND TRAFFIC SAFETY COMMISSION

Mr. BURKE. Thank you, Mr. Roberts. I certainly recall very well being here. There were two of us present at the first hearing, Mr. Adler and myself. I think if you would not object I am going to call on one of the owners of the bus coach company who has made quite a test of this spaceometer, but before I do I wonder, Congressman, since there are so many fine people here if we would not ask them to identify themselves. Would you object to that? I think it will only take a minute.

Mr. ROBERTS. All right.

Mr. BURKE, Senior. Will you stand and identify yourself now, please, for the record?

Mr. ADLER. Harry Adler.

Mr. ADLER. Charles Adler, Jr.

Mr. SHUGER. J. O. Shuger, member of the Maryland Traffic Safety Commission.

Mr. FORD. James A. Ford, Jr., Delaware Safety Council.

Mr. ROSSI. Frank L. Rossi, Harford Motor Corp.

Mr. BURKE, Junior. Paul E. Burke, Jr.

Mrs. McCORMICK. Mrs. Elizabeth McCormick, Maryland Traffic Safety Commission.

Mrs. WARBURTON. Mrs. Henry A. Warburton, Jr., Maryland Federation Women's Club and Eastern Shore Safety Council.

Mr. MARTIN. B. B. Martin, vice president, Eastern Shore Safety Council.

Mr. ELLISON. Anthony L. Ellison, Chief, Office of Traffic Safety, Department of Motor Vehicles, District of Columbia.

Mr. KRENDRICH. Howard Krenrich, Office of Traffic Safety Education, Department of Motor Vehicles, District of Columbia.

Mr. RAY. James B. Ray, chief of police of Aberdeen, Harford County, Md.

Miss BROWN. Nancy Ann Brown, member of Maryland General Assembly.

Mr. BURKE, Senior. Mr. Chairman, on that I believe we have one of the youngest members of our house of delegates. I think Miss Brown was only 21 when she first went in there, so we are rather honored to have a young lady here who is so young in politics.

Mr. ROBERTS. Glad to have you, and I can certainly see that her looks are not doing her damage in the political world.

Mr. WHITE. E. Homer White, Jr., speaker pro tem of the State of Maryland House of Delegates, and I am looking out for Miss Brown.

Mr. CRACK. Richard N. Crack, captain, U.S. Park Police.

Mr. WRIGHT. Grant Wright, captain, U.S. Park Police.

Mr. WILLIAMS. James K. Williams, Office of Highway Safety, Bureau of Public Roads.

Mr. WHITTON. Rex M. Whitton, Federal Highway Administration, Bureau of Public Roads.

Mr. EAMES. Wendell G. Eames, Chief, National Driver Register, Bureau of Public Roads.

Mr. WHITE. Mel White, information officer, Division of Accident Prevention, U.S. Public Highway Service.

Mr. JOLIET. Paul V. Joliet, Chief, Division of Accident Prevention, U.S. Public Highway Service.

Mr. BLOCK. L. Robert Block, Chemstrand Co.

Mr. MANSFIELD. Dick Mansfield, representing the Washington Evening Star, in cooperation with the Maryland Traffic Safety Commission.

Mr. RASKIN. Carl L. Raskin, American Motor Sales Corp.

Mr. FISTE. William R. Fiste, Section of Motor Carrier Safety, Interstate Commerce Commission.

Mr. TAMM. Quinn Tamm, executive director, International Association of Chiefs of Police.

Corporal BROOKS. Cpl. W. E. Brooks, Maryland State Police.

Mr. DeFILIPPO. Frank DeFilippo, the News-Post, Baltimore.

Mr. KUMPA. Peter J. Kumpa, the Baltimore Sun.

Mr. BURKE, Sr. Is there anyone else that would like to state their appearance?

We have with us a very unusual gentleman that came down here this morning. I don't know what time I got him out of bed. I am not going to call on him, Mr. Chairman, but I think it would be well to know that that old gentleman there is the chief of police from Aberdeen. Not too long ago I think he celebrated about his 50th anniversary as chief of police of the city of Aberdeen, and somebody from the newspapers asked him at that particular time, "Chief, are you the oldest chief?"

He is working every day in the police department of the United States. He said, "I don't know if I am or not, but if I am not I am going to stick around until I am."

I want to thank him for getting out of bed at 5 o'clock this morning.

Take a look at this old gentleman.

How old are you, Chief?

Mr. RAY. Seventy-eight. [Applause.]

Mr. BURKE, Sr. He started young in the business. He works every day and he has a pretty busy job up there on Pulaski Highway where there is a tremendous amount of death and injury.

Mr. Chairman, I am not going to go into a lot of business about safety because I think you know more about it now than I do.

We were very fortunate in being able to have a gentleman who has had some experience in the highways in connection with the use of this bus. I am going to ask Mr. Rossi to come over and describe the bus to you gentlemen after he traveled some 20,000 miles or more throughout the Nation and using the spaceometer.

Mr. Rossi.

Mr. ROBERTS. Sir, will you identify yourself?

#### STATEMENT OF FRANK L. ROSSI, PRESIDENT, HARFORD MOTOR COACH, INC.

Mr. Rossi. Frank L. Rossi, president, Harford Motor Coach, Inc.

Mr. Chairman, back in August, Mr. Adler approached us along with Mr. Burke as to the installation of one of these spaceometers in one of our coaches. Our coaches are of the double-decker types, scenic cruisers, and we agreed to install one of these spaceometers in one of our coaches.

First, we had to have the regular tachograph and the spaceometer calibrated together which was done by H. R. Borg & Co., who are specialists in the field of calibration. Then we had to run the cables from the transmission to the spaceometer in three sections so that in the event one of these were installed into a complex unit such as a bus or a truck, should it break down or cable crack or something, it would be a very simple matter for the operator to replace a section of the cable as opposed to an entire length of the cable which would run 35 feet.

Upon installation of this spaceometer into the coach, at first the operators were all very inquisitive; they wanted to find out what it was. I didn't give any information at all; just told them, "Don't worry about it; just drive the coach the way you would under normal conditions."

Prior to the installation of the spaceometer into this one coach, I had taken the tachograph out of the vehicle reading 63, 64 miles an hour. After the installation of this spaceometer into the coach, the tachographs coming out of the vehicle were reading 59, 58, 57; very rarely did one of them touch 60.

We placed this directly in the center of the coach in the front and where everybody on the coach could see it very easily.

The operator at that time knew that his passengers were watching the spaceometer as well as he was watching his tachometer. Therefore, that made him hesitate as to his speed, made him slow down; where normally he would accelerate, he decelerated.

The overall picture was that the coach traveled about 21,500 some-odd miles from the 15th of August through today.

On the fifth of September, we took the unit out and had it recalibrated, rechecked. The mechanical working end of the device was perfect; very little maintenance. It can be repaired very easily. There will only be one change that will have to be made.

In the commercial vehicles, the space in the head of the spaceometer that you have in your hands, the little piece on the end there is the only change that would have to be made. That would have to be made just a little heavier for commercial vehicles. Other than that, the spaceometer is a mechanically perfect device.

The general comment from the public was that they thought it was a very good idea; as a matter of fact, had a couple of them say they would like to buy one right away and put it in their automobiles. It does really tell you how far you should be behind the vehicle in front of you at various speeds.

I feel that inasmuch as highway deaths cause our country about 40,000 human beings a year, with the installation of this device in automobiles alone that figure should be able to be cut in half, at least.

As far as our own operators are concerned, they are very, very well pleased with it and especially at nighttime or early dusk where driving does get most difficult. When the lights are on in the spaceometer, the little red car will tell you at a glance; you don't even have to take your eyes off the highway; just sort of an attraction to it.

As you gentlemen all know, all speedometers are under the steering wheel or behind the steering wheel, and it is very easy for the operator of an automobile to see the little red car.

Where normally a driver won't pay too much attention to a speedometer which is just going back and forth like this needle, I don't know about you gentlemen, but I have found myself unconsciously driving the turnpike in my own car without looking at the speedometer and without realizing it I was up to 70 miles an hour because I didn't pay any attention to the speedometer needle.

This device, when you get up to 60 miles an hour, the little lead car is practically waving to you to get back. That is exactly what happens. The little white car comes up and just more or less tells you to slow down.

Now, the question has been brought to me: What would happen if someone would dodge in front of you, cut in in front of you? Under normal conditions, I would have seen drivers speed their cars up to cut you out, squeeze you out, and keep you out in the outside lane. With this device, you look down and immediately you see possibly you are going a little bit too fast. You would normally then decelerate your car and therefore avoid a collision.

You gentlemen also probably know what tailgating is. It is done by thousands and thousands of motorists every day. I won't say especially busdrivers or truckdrivers. That would not be fair. This device would serve to cut down on tailgating.

As far as maintenance is concerned, I think you will find the spaceometer is as economical to maintain—as a matter of fact, I think it would be cheaper to maintain than a speedometer, as far as the cost. The initial installation in automobiles on a mass productive thing, I think it would be just like Mr. Adler said, about the same cost as a speedometer.

Mr. ROBERTS. Does that conclude your statement?

Mr. ROSSI. Yes, sir.

Mr. ROBERTS. Thank you very much.

Now, how many of these devices have you tested?

Mr. ROSSI. We have tested only the one, sir.

Mr. ROBERTS. Only the one?

Mr. ROSSI. Yes, sir.

Mr. ROBERTS. That was over how many miles?

Mr. ROSSI. Approximately 21,000 miles.

Mr. ROBERTS. Over what period of time?

Mr. ROSSI. From August 15 through today.

Mr. ROBERTS. August 15 last year?

Mr. ROSSI. Yes.

Mr. ROBERTS. Through today?

Mr. ROSSI. Yes, sir.

Mr. ROBERTS. Now, what effect did you observe that the use of this device appeared to have on the driver of the vehicle?

Mr. ROSSI. Like I stated before, sir, that the tachograph cards which we took out of the car prior to the installation of the spaceometer were reading 60, 61, 62, 63 miles an hour. After the spaceometer was installed, it dropped down as low as 57 and never above 60.

Mr. ROBERTS. Now, is the tachometer a recording device that observes the highest speed obtained in the vehicle?

Mr. ROSSI. It records not only the speed, sir, but the time, the number of stops you make and the driving time through the city. It has a little needle inside. If you care to see a little photograph, I have one here.

Mr. ROBERTS. Well, I think it might be helpful if it is not too much trouble.

Mr. ROSSI. All right.

May I have the circular paper?

Mr. ROBERTS. Mr. Rossi, did you actually make any of these trips when the device was being used on the buses?

Mr. ROSSI. Yes, sir. I purposefully went on three different charters on the coach as a passenger merely to find out what the opinion of the passengers would be on this spaceometer. Like I said, I said nothing to anyone about what it was, the purpose of it, or anything,

until I was approached and asked what the object of the spaceometer was. I mentioned nothing before coming to the hearing or anything at all; I just wanted a general opinion.

The professional drivers, the Trailways men especially heard about it and they kept climbing on and off the bus; they wanted to see it to determine if they wanted to have it on their buses or not.

Mr. ROBERTS. Do you have any financial interest in this?

Mr. ROSSI. No, sir; none at all. None whatsoever.

Mr. ROBERTS. How was it that you were selected as the party to conduct this test?

Mr. ROSSI. Well, Mr. Paul Burke and I have worked very closely on safety through a number of years. I do believe it was through Mr. Burke that we were approached to be the company to test this thing out for Mr. Adler, and I am very honored that we had the privilege to do that.

Mr. ROBERTS. Did you receive anything for conducting the test?

Mr. ROSSI. No, sir; nothing at all.

Mr. ROBERTS. Thank you, Mr. Rossi.

Any questions?

Mr. ROGERS of Florida. Did you find that with the use of a spaceometer you took longer to make your trips? Was there a change in the time element to the point of leaving and the point of destination?

Mr. ROSSI. The longest continual run that we used the spaceometer on was about 311 miles, and I would say that the spaceometer slowed the trip down about a half an hour.

Mr. ROGERS of Florida. Thank you very much.

Mr. ROBERTS. Mr. Brotzman?

Mr. BROTZMAN. No; thank you.

Mr. ROBERTS. Thank you, Mr. Rossi.

Mr. ROSSI. Thank you, sir.

Mr. ROBERTS. Mr. Burke, do you have other witnesses?

Mr. BURKE, Sr. Mr. Chairman, I wish, on behalf of you and Mr. Adler, that we will extend an invitation for everybody here to ride in the bus.

I think Mr. Young, your secretary, who I want to thank for his cooperation, and Mr. Friedel, for your cooperation, that the bus will be right outside. I think everybody here will fit in the bus. It holds 41.

We also have outside the House Office Building there Mr. Adler's car. I think, Mr. Roberts, several of you Congressmen, we would like for you to ride out in the bus and come back in the Cadillac so you can see how it is in the smaller automobile.

Now, on that point, we have one more report which I think would be advisable because since we had this in a commercial vehicle and a bus and traveling to a number of States we had another spaceometer installed in a State-owned vehicle which we loaned to a group of what they call buffs, safety buffs.

I am going to ask, since we have the oldest policeman here working and the youngest member of the house of delegates in Maryland here, a young lady, I have my boy along with me, he wants to keep me straight, he is a young lawyer in Baltimore who has been working on safety with me since he went to high school. I guess it kind of rubbed off on him about safety, so he is going to report on the results of a spaceometer in a car.

My son, Paul Burke.

Mr. ROBERTS. Mr. Paul Burke, Jr.

Mr. FRIEDEL. You said the car was outside of the building. Where is it?

Mr. BURKE, Sr. We have one car which has the spaceometer. That is Mr. Adler's. It only holds four. And we have the bus right outside of the House Office Building to take you out for a ride in the bus and you can look at it in operation and from there to the Skyline Restaurant, Mr. Roberts and your committee, and we are set up for you to ask any more questions over there.

Mr. BURKE, Sr. We have the bus parked at the foot of the hill. The District of Columbia officer went to get the bus. Walk out of this elevator and get the bus.

Mr. FRIEDEL. Right in front of the building?

Mr. BURKE, Sr. Yes, sir.

Mr. ROBERTS. All right.

Mr. Burke, Jr.

#### STATEMENT OF PAUL E. BURKE, JR.

Mr. BURKE, Jr. My name is Paul Burke, Jr.

I wish to submit a report about the Route 416 Highway safety unit research and development buffs. This report was addressed to Congressman Kenneth A. Roberts, chairman, Subcommittee on Health and Safety, House of Representatives, Washington 25, D.C.

DEAR CONGRESSMAN ROBERTS: Mr. Charles Hagan and I have tested the spaceometer, and in the interest of public safety I herewith submit my report.

From my experience on the Maryland State Police and now as an adjustor for the Selected Risk Insurance Co. of New Jersey, I have come in contact with various types of accidents and found that the head-on and rear-end types of accidents to be the worst. Corrective measures are now being taken. Seat belts are being installed to protect the driver and passengers. I feel the spaceometer would also be a boon to all safety-minded persons.

The spaceometer, I feel, would save lives and prevent accidents. While driving along the highway, the operator of a vehicle can not the proper and safe distance which he is to be following the vehicle in front. If by chance vehicles stopped suddenly, the operator with a spaceometer installed in his car would be a proper and safe distance to stop safely and without damage to his vehicle and injury to himself.

The spaceometer would certainly contribute to the safety of the commercial driver. The long hours of driving at high speed would give the operator of a truck or bus an indication of safe stopping distances. The spaceometer will not stop all accidents from happening, but I feel its use will contribute greatly to the safety of all motorists everywhere and lead to safer driving habits.

We organized this unit as a result of one of the Nation's worst automobile accidents which occurred on June 7, 1954, on Route 416 in southern Maryland in which 10 people lost their lives in one accident. This prompted my group to exert efforts in helping to prevent highway injuries and deaths and the attendant causes. When we find corrections can be made, we notify the officials concerned. We report our findings to the Maryland Traffic Safety Commission for its study and action.

Very truly yours,

WALTER S. MALINOWSKI, JR.

Mr. Chairman and members of the committee, I would like to add that this report was to be submitted by the president of this organization, Mr. Charles H. Hagan, but, due to illness, he is unable to attend. I would simply ask to read it to you so it can be made a part of the record of this hearing.

The Route 416 highway safety unit research and development buffs also did a research job on the Congressional Record dealing with the hearings before this committee that were conducted in 1956, and I believe that copies have been distributed. I would not attempt to submit my opinion when the committee has the benefit of persons far more expert in this area than myself.

I would call your attention to the excerpts of your meeting in 1956 and to some of the comments at that time that simply presented a picture then of what has certainly developed, particularly to the comment by Mr. James P. Economos, director of the traffic program of the American Bar Association, Chicago, Ill., where he states, and I quote:

The old intersection collision will give way to two other kinds—following too closely on your high-speed highways and operating too fast for conditions.

I submit, gentlemen, that this condition is most definitely occurring and it is occurring with great speed as the Federal highway program with limited access roads are spread throughout the country.

Thank you very much.

There are additional copies of this excerpt if anyone needs one.

Mr. ROBERTS. Thank you very much, Mr. Burke.

We are glad to have your statement made a part of the record.

Mr. BURKE, Sr. Mr. Chairman, I thank you very much.

This concludes our part of it.

I put strong emphasis on the fact we are set up for lunch for everybody here, newspaper people and everyone. I understand that there is a fine restaurant not too far from here and those who will ride the bus will certainly be taken right to the restaurant and be our guests at the luncheon.

If there are any other questions that the Congressmen here would like to have answered, I am sure Mr. Adler will be the best-qualified gentleman to answer them because it was through his effort, his money, and his time that he has made this possible. As you can see there, he has contributed not thousands but millions of dollars to the Federal Government. He is the one who invented the light that goes on and off in airplanes which has saved thousands of lives and has put in the hands of our Federal Government millions of dollars.

Thank you again, Mr. Roberts. I hope I will be certainly in another one of your meetings.

I will follow you very close because the Nation, Mr. Chairman, is looking forward to you and your committee to do something about this terribly daily occurrence. While it is true, Mr. Chairman, that there are some \$5 billion going to be spent to hit the moon, there are going to be about 200,000 Americans in 5 years, about the time they are going to do something about hitting and finding the moon, that will not be around.

If it keeps on the way it is, 200,000 people will be dead; killed in highway accidents; and I would say somewhere upward of 10 to 15 million Americans who may be finding out about the moon from hospital beds.

Thank you very much.

Mr. ROBERTS. Thank you, Mr. Burke.

I certainly would like to commend you, Mr. Burke, and your colleagues, for your appearance here today.

I might say that this is a very unusual type hearing in that in the past we have rarely ever held a meeting with this subcommittee to



look at a particular device. Because of the interest of Congressman Friedel and because of the fact that Mr. Adler has contributed greatly, in my opinion, to the saving of lives through many devices on railroads, in the field of aviation, highways, and has made most of these—I won't say most of them, but a good number of these devices he has donated to the U.S. Government.

I am going to put into the record a copy of the "Charles Adler Story," but I would like just to name a few of the things that this wonderful gentleman has done and has contributed to the safety of our people.

In 1933, he developed double filament signal lamps for running lights.

In 1941, he developed flashing position lights which are still in worldwide use. This was a gift to the U.S. Government.

In 1941, he developed aircraft fluid drive.

In 1943, he developed aircraft landing indicators.

In 1944, he developed the retractable mirror; this was a gift to the U.S. Government.

In 1944, he developed the anticollision lighting system.

In 1944, he developed the wide-angle sealed-beam lamp; this was a gift to the U.S. Government.

In 1944, he developed the open-face reflector bulb, used in rotating anticollision and running lights. This was a gift to the U.S. Government.

In 1946, he developed the aircraft horn. This was a gift to the U.S. Government.

I could go on with about three pages of the wonderful things that Mr. Adler has developed.

I am delighted, Mr. Friedel, that you requested this meeting of the subcommittee.

I commend Mr. Adler for his many developments and also his wonderful interest in saving lives which started, I think, when he was about 14 years old with his first invention at that time.

It is a pleasure to have all of you wonderful people here from Maryland, and we are delighted that the committee could give you this time.

I would also like to put into the record two telegrams which have been received, one from Mr. Walter D. Hyle, Jr., national commander of Catholic War Veterans; and one from Mr. O. Davies. I believe one is from New York City and one from Baltimore.

("The Charles Adler Story" and the telegrams referred to follow:)

#### THE CHARLES ADLER STORY

THE BIOGRAPHY OF A MAN WHO HAS DEVOTED HIS LIFE TO SAVING YOURS

Ever flown in an airliner?

Wheeled a car through city traffic?

Then, perhaps you owe your life to an inventor who's earned the title "Mr. Safety" for his ingenious contributions to safety on railroads, highways, and in the air.

What's more, this remarkable inventor has donated most of his major aviation inventions to the U.S. Government for a token \$1 apiece, giving up millions of dollars in royalties.

"Mr. Safety" is Charles Adler, Jr., flamboyant Baltimore inventor who has dedicated his life to help other people stay alive.

Why does he give away some of his inventions?

"If they can save lives," Mr. Adler says, "I want everyone to have them."

Mr. Adler doesn't know just when or how this singlemindedness about safety began. Possibly because he was born the son of a famous Baltimore physician, who likewise pursued a career of saving lives.

Charlie—to distinguish him from his father and to use the name he prefers—was born on June 20, 1899, and his passion for inventing things gripped him early in life. In fact, he filed his first invention, an electric brake for autos, in 1914—when he was 14 years old.

This was while he attended Baltimore's Park School and before he enrolled at the John Hopkins University. He never finished college, and there are rumors that his inventiveness was responsible, but Charlie refuses to confirm or deny any of them.

He admits, though, that he wasted no time in returning to the railroad station at Towson, Md., where he had spent time while in high school.

It wasn't long after he began "working on the railroad" that Charlie met the late Charles W. Calloway, a Baltimore & Ohio Railroad vice president, and sold him on the idea for a flashing relay for railroad highway-crossing signals. That was in 1920, when Charlie was 21 years old, and that system became one of the earliest of its type in this country.

As more and more inventions popped into Charlie's imaginative mind, Mr. Galloway decided to give the colorful inventor a workshop in Baltimore's Mount Royal Station—there to create to his heart's content.

The inventions came with even more astounding rapidity:

The world's first traffic-actuated traffic signal in daily public use, installed on Baltimore's Falls Road in 1928;

A traffic light for the color blind, on which the red lens has a horizontal stripe, the green a vertical one, and the amber a diagonal, on 1933;

A double filament signal lamp, also in 1933;

Charlie turned his attention to aviation in 1939. Recognizing the need for flying safety—and recognizing, too, that he would need to know firsthand the problems that existed—he promptly learned to fly a plane. He won his license at the age of 41 and his aviation inventions began reeling out of his fertile mind almost immediately.

In that same year, he invented his now famous aircraft flashing position lights, standard equipment on aircraft the world over.

Then came the retractable mirror to check landing gear before landing; a landing indicator that tells the pilot automatically when to level off, and a horn for private planes.

His imaginativeness—and a narrow brush with death while piloting his own plane—brought about the aircraft proximity indicator in 1948.

Let Charlie tell it in his own words:

"I was piloting my Temco Swift on a clear, sunny day, but the very presence of the sun limited my visibility—the rays were shining directly into the windshield.

"Suddenly, I sighted a DC-4 airliner heading in my direction. The transport was so close that only by diving under it did I escape being hit."

That sort of experience is not uncommon among pilots. But for Charlie the difference was that he thought seriously about doing something to alleviate this hazardous flying situation.

He figured out a simple, yet far-reaching way to reduce the danger from mid-air collisions, and filed for a patent in 1948. When his patent (No. 2,560,265) was granted in 1951, he handed it over to the Government.

The aircraft anticollision device being developed today—spurred by the tragic Grand Canyon collision of two airliners with a loss of 128 lives—owes a debt to Charlie's original concepts.

Even more tangible, the aviation industry will realize an immediate saving of \$15 million in inventor's royalties.

Four years ago, Charlie decided to move out of his laboratory at the Mount Royal Station. He took over second floor offices at 1417 North Charles Street in Baltimore, there to let his creative mind flourish in relaxed, but cluttered surroundings.

Although he still devotes much of his time to his inventions, Charlie now finds more opportunity to participate in the affairs of the organizations and commissions to which he has belonged most of his adult life.

He's an active member of Maryland's State Aviation Commission and a vigorous participant in the activities of the Maryland Traffic Safety Commission. He is a life member and national counselor of the National Aeronautic Association, and holds memberships in the Society of Illuminating Engineers, the Institute of

Traffic Signal Engineers, the Association of American Railroads, and the Institute of the Aeronautical Sciences.

As if all this weren't enough, Charlie also has found time to author numerous magazine and newspaper articles and has appeared frequently on radio and television, always plugging his dream to "make America safe."

#### INVENTOR DONATES HIS AIRPLANE PROXIMITY INDICATOR TO AMERICAN PEOPLE IN 1951

"Please accept my sincere thanks for your assignment to the Government of your patent No. 2,560,265, covering an airplane proximity indicator. The action of public-spirited men like yourself is making available to the Government the fruits of your inventive ability contributes materially to safety in air commerce and I would like you to know, that on behalf of the agency charged with the responsibility for maintaining that safety, I deeply appreciate your generous gift."—C. F. Horne, Administrator of Civil Aeronautics, Civil Aeronautics Administration, August 22, 1951.

A device based upon the principals invented and patented by Charles Adler is being rushed into production today to safeguard aircraft from midair collisions.

Because the basic patent was assigned by Charles Adler as a gift to the American people \* \* \* the aviation industry will realize an immediate saving of \$15 million in inventor's royalties.

#### THE INVENTIONS OF CHARLES ADLER

##### Aircraft safety devices:

- 1933—Double filament signal lamps for running lights. Manufactured by General Electric and Westinghouse. Several million used.
- 1941—Flashing position lights, still in worldwide use. Gift to U.S. Government.
- 1941—Aircraft fluid drive.
- 1943—Aircraft landing indicator.
- 1944—Retractable mirror. Gift to U.S. Government.
- 1944—Anticollision lighting system (nonrotating).
- 1944—Wide-angle sealed beam lamp. Gift to U.S. Government.
- 1944—Open face reflector bulb, used in rotating anticollision and running lights. Manufactured by the Grimes Manufacturing Co. (royalty free) and in widespread use. Gift to U.S. Government.
- 1946—Aircraft horn. Gift to U.S. Government.
- 1947—Studded reflector tail light. Manufactured by the Grimes Manufacturing Co.
- 1948—Aircraft proximity indicator. Gift to U.S. Government.
- 1951—Anticollision light. Manufactured by the Grimes Manufacturing Co. and widespread use (royalty-free to Government; royalties on other orders).
- 1956—Synchronized flashing anticollision and position lights. Manufactured by the Grimes Manufacturing Co. (royalty free). Gift to U.S. Government.

##### Railroad signaling devices:

- 1920—Rotating railroad-highway crossing signal.
- 1923—Adler flashing relay for operation of railroad-highway crossing flashing light signals. Used on over 30 railroads.
- 1933—Double filament signal lamp. Manufactured by General Electric and Westinghouse and put into widespread use.

##### Highway traffic control devices:

- 1914—Electric brake for autos. This early power brake was designed when the inventor was 14 years old.
- 1928—Designed, built and installed world's first traffic-actuated traffic signal in daily public use. Located on Falls Road, Baltimore, Md. February 22, 1928.
- 1933—Traffic-actuated sound detector.
- 1933—Double filament signal lamp.
- 1933—Color-design traffic signal lenses for color-blind motorists.
- 1936 and 1938—Traffic-actuated speed control signal systems. Manufactured by Automatic Signal Division, Eastern Industries, Inc., and placed in widespread use.
- 1950—The Adler diverter light.

## CITATIONS THROUGH THE YEARS

"This is to express appreciation on behalf of the Civil Aeronautics Administration for your assignment to the United States of the patent covering your synchronized system of anticollision light with the flashing position lights.

"This assignment without cost to the Government represents a continuation of your longstanding service to aviation and your efforts to improve safety. May I also express my personal appreciation for your contributions."—James Pyle, Acting Administrator of Civil Aeronautics, Civil Aeronautics Administration, August 15, 1956.

"Once more my attention has been called to the assignment to the United States of another of your inventions; namely, an aircraft precision flight indicator, as set forth in letters patent of the United States of America, No. 2,353,380, issued July 11, 1944.

"This, with the assignments of other patents which you have heretofore made to your Government, makes it somewhat difficult to express appreciation of the concrete evidence of your deep interest in the welfare of the United States. Your deeds in this respect furnish an example of unselfishness which could well be followed by more of us.

"It is with a genuine sense of pleasure that I convey to you on behalf of the Civil Aeronautics Administration and the U.S. Government, sincere thanks."—F. B. Lee, Administrator of Civil Aeronautics, Civil Aeronautics Administration, October 29, 1953.

"The Bureau of Aeronautics notes with pleasure the release to the United States of America of your patents RE 22,497 and 2,365,504 covering the invention of two lamps to be used as safety devices on aircraft, and desires to take this opportunity to express its appreciation for this action. The Bureau also wishes to thank you for your continued interest in the improvement and safety of naval aircraft."—Rear Adm. Thomas S. Combs, USN, Chief of the Bureau of Aeronautics, Department of the Navy, January 21, 1953.

"The Bureau of Aeronautics notes with pleasure the release to the United States of America of your patents RE 22,497 and 2,365,504 covering the invention of two lamps to be used as safety devices on aircraft, and desires to take this opportunity to express its appreciation for this action. The Bureau also wishes to thank you for your continued interest in the improvement and safety of naval aircraft."—Rear Adm. Thomas S. Combs, USN, Chief of the Bureau of Aeronautics, Department of the Navy, January 21, 1953.

"Again it gives me real pleasure to be able to thank you for your generous act of assigning to the United States of America your patents Nos. RE 22,497 and 2,365,504 covering the invention of two lamps to be used as safety devices on aircraft. Your continued interest in safety in aviation gives us a sincere feeling of gratification and I am glad to have the opportunity to express it."—C. F. Horne, Administrator of Civil Aeronautics, Civil Aeronautics Administration, November 5, 1952.

"Your generosity in assigning your patented aircraft position light to the Government has been called to my attention.

"Inasmuch as the AAF Air Transport Command, with its more than 2,000 major transports, will be one of the biggest users of the flashing taillight, may I take this opportunity to express the gratitude of our entire command.

"Such unselfishness on your part is indeed an expression of true patriotism. Your contribution furthermore seems bound to be helpful toward greater safety in aviation."—Lt. Gen. H. L. George, USA, Commander, Air Transport Command, Army Air Forces, August 1, 1945.

"Mr. D. M. Stuart of the Technical Development Division has informed me of your generous assignment of your patents concerning aircraft position lights to the Government, now in use.

"This contribution of yours cannot fail to be very helpful toward the achievement of greater safety in aviation. Your unselfish interest as indicated by your action in this connection is appreciated."—T.P. Wright, Administrator of Civil Aviation, Civil Aeronautics Administration, April 17, 1945.

## QUOTES

*CAA specialist forecasts development of collision warning devices*

"INDIANAPOLIS (special).—The prediction that within a few years all airplanes will be equipped with collision warning devices for en route operations as well as periscopes for protection during terminal operations was made here yesterday by T. K. Edwards of CAA's Technical Development and Evaluation Center. \* \* \*

"\* \* \* Original patents for a warning device by Charles Adler, Jr., of Baltimore, who later donated them to CAA, would probably be the basis for continued work, Edwards said."—American Aviation Daily, May 27, 1954.

*The Washington Merry-Go-Round (By Drew Pearson)*

"Congressman Sam Friedel, Maryland Democrat, will ask Congress to create a new Cabinet post—Secretary of Traffic. The idea was first suggested to President Eisenhower by Charles Adler, Jr., inventor of highway safety devices, who argued that automobiles have cost America more lives than wars."—December 2, 1955.

*Inventor asks traffic safety Cabinet post*

"President Eisenhower today was urged by a Baltimore inventor of numerous aviation safety devices to establish a Cabinet-level Secretary of Traffic Safety in an effort to help reduce the number of lives lost each year in automobile accidents.

"Charles Adler, Jr., responsible for the blinking lights of airplanes passing overhead in darkness, made the plea in a telegram sent to the White House this morning. The telegram read:

"In the interest of traffic safety, I respectfully urge the appointment of a Secretary of Traffic Safety of Cabinet rank to establish and enforce standards of drivers' training and behavior and automobile safety design.

"More motorists' lives are lost in the course of a year than are the lives of our soldiers in a major war. We have a Secretary of Defense who is a member of the Cabinet. So why not have a Secretary of Traffic Safety who would also be a member of the Cabinet?"—Baltimore Evening Sun, November 4, 1955.

*CAA officials credit city inventor with air-collision warning ideas*

"Mr. Adler has a hazardous tale of his own. While piloting a small single-engine plane from Harbor Field, Dundalk, to Rutherford Field, Woodlawn, half a dozen years ago, he had such a near miss with a commercial airliner in mid-air that he was able to read 'City of Syracuse' on its nose as he dived a split second before it passed over his head.

"Neither pilot saw the other until the last minute, Mr. Adler said, because both had the sun in their eyes.

"As a result of the episode, Mr. Adler, who is presently a member of the State aviation commission, sat down and drew up plans for what he termed an 'aircraft proximity indicator.' The invention was granted \* \* \* in December 1948, and subsequently assigned gratis to the Federal Government."—Baltimore Evening Sun, July 2, 1954.

*Plane proximity warning*

"Patent No. 2,560,265 covers a device known as the aircraft proximity indicator (API). It is designed to advise pilots in flight, day or night and in any kind of weather, when the location of their aircraft with respect to others in the sky presents the possibility of a midair collision. If all aircraft were equipped with Adler's device that warns pilots of the nearness of other aircraft, midair collisions might just not happen any more."—Skyways, March 1952.

[Telegram]

BALTIMORE, Md., September 9, 1963.

Congressman KENNETH ROBERTS,  
Chairman, Public Health and Safety Subcommittee,  
New House Office Building, Washington, D.C.:

We congratulate you and your committee for calling your meeting following the highway death toll over the past Labor Day holiday. Hope some drastic action will be taken to combat this disgraceful killing. We believe that today's demonstration describing the new approach to car spacing will prevent chain reaction accidents occurring from vehicles following too closely. We are familiar with the success of this device and you will be able to see for yourself the value of it. It is at least one positive attack against the country's mounting traffic death toll. Fifteen State Governors are on the board of directors of the Miss National Teenage Safety.

O. DAVIES, President.

[Telegram]

NEW YORK, N.Y., September 9, 1963.

Hon. KENNETH ROBERTS,  
 Chairman, Subcommittee on Health and Traffic Safety,  
 New House of Representatives Office Building, Washington, D.C.:

The sudden death of Msgr. Edward J. Higgins, the beloved founder of the Catholic War Veterans of the U.S.A. prevents my appearance before your august body today. The Catholic War Veterans have had for many years a continuing traffic safety program—"Let God's speed guide in your travels." Because of the nationwide acceptance of this program on the moral aspects of traffic safety, the Catholic War Veterans wish to go on record as being in favor of any device such as the spaceometer that will act as a deterrent in a war against highway accidents and deaths. It has been my personal privilege to observe the spaceometer in use and I am certain that it will prevent many rear collisions and save lives. On behalf of the Catholic War Veterans of U.S.A. I wish to thank you and your committee of your untiring efforts to protect the health and welfare—life and limb of the people of our great Nation.

WALTER D. HYLE, JR.,  
 National Commander, Catholic War Veterans, U.S.A.

Mr. ROBERTS. If there is no objection, I would also like to have this paper entitled, "The Spaceometer" with several attachments included in the record. Also I have a collection of excerpts from the traffic safety hearings in the 84th Congress. This will be included at this point.

(The material mentioned follows:)

#### THE SPACEOMETER<sup>1</sup>

(By Charles Adler, Jr.)

The spaceometer is a dashboard instrument which shows at a glance (1) the speed at which the car is moving, (2) facsimiles of the car, (3) the car ahead, and (4) the safe space between the cars to avoid a rear-end collision.

Just a glance at the spaceometer by the driver when checking the speed, and he is compelled to see also the superimposed two little cars and the space between them. It is impossible to see the speed without seeing the space also. Then, the motorist, upon looking through the windshield automatically compares the actual road situation ahead with what he has just seen on the instrument. He asks himself, "Am I as far away from the preceding car as the picture on the spaceometer shows? Do my car, the car ahead, and the space between look similar to the dashboard picture?" After a little practice his reflexes and depth perception will enable the driver constantly to gage and regulate spontaneously the safe spacing of his car with the car or cars ahead in accordance with the picture on the dash. He will do this as naturally as blowing his horn, dimming his headlights, or operating any other familiar auto device.

The spaceometer is the first successful graphic means to educate the motorist in safe car spacing at whatever speed he is driving. The dial of the instrument has two scales; one for speed in miles per hour and the other below it for space in car lengths. The speed indicator is an elastic red line. Superimposed on the elastic speed line are two little cars, each scaled to one car length. The car to the left of the dial is stationary. The car to the right, which corresponds to the automobile in which it is installed, moves away from the stationary car in exact proportion to the actual road space as viewed through the windshield.

<sup>1</sup> Owned by the State of Maryland.

2,845,721

**THE UNITED STATES OF AMERICA**

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

Whereas Charles Adler, Jr.,  
of  
Baltimore, Maryland,

Assigned to the State of Maryland

PRESENTED TO THE **Commissioner of Patents** a PETITION PRAYING FOR THE GRANT OF LETTERS PATENT FOR AN ALLEGED NEW AND USEFUL INVENTION THE TITLE AND A DESCRIPTION OF WHICH ARE CONTAINED IN THE SPECIFICATION OF WHICH A COPY IS HEREBY ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH ALL VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whereas UPON DUE EXAMINATION MADE THE SAID CLAIMANT IS ADJUDGED TO BE JUSTLY ENTITLED TO A PATENT UNDER THE LAW.

NOW THEREFORE THESE **Letters Patent** ARE TO GRANT UNTO THE SAID

Charles Adler, Jr., his heirs

ONE ASSIGNMENT

FOR THE TERM OF SEVENTEEN YEARS FROM THE DATE OF THIS GRANT

RIGHT TO EXCLUDE OTHERS FROM MAKING, USING OR SELLING THE SAID INVENTION THROUGHOUT THE UNITED STATES.

In testimony whereof, *These benefits of my hand and caused the seal of the Patent Office to be affixed at the City of Washington this fifth day of August, on the year of our Lord one thousand nine hundred and fifty-eight, and of the Independence of the United States of America the one hundred and sixty-third.*

*Attest:*  
Mark H. Osborn  
Acting Director

Robert C. Watson  
Commissioner of Patents

FORM No. 1774  
18-75-521

HARFORD MOTOR COACH,  
Baltimore, Md., September 9, 1963.

Congressman KENNETH A. ROBERTS,  
Chairman, Subcommittee on Health and Safety,  
House of Representatives,  
Washington, D.C.

DEAR CONGRESSMAN ROBERTS: Some time ago I was approached by Mr. Paul E. Burke, executive director of the Maryland Traffic Safety Commission and Mr. Charles Adler, Jr., regarding a device called spaceometer. After a lengthy discussion with Mr. Burke and Mr. Adler I agreed to install a spaceometer in one of our scenic cruiser highway type buses to give this a thorough testing on this type of unit, which installation involved considerable expense. Mr. Adler agreed that actual use under normal conditions would be a fair test for his spaceometer.

In order that calibration and installation would be properly administered we then had H. R. Boyd Co. calibrate and authenticate the spaceometer in regard to r.p.m.'s. We then removed this coach from service for 2 days while Air Brakes & Control, Inc., experts in this type of installation, installed the spaceometer in this coach.

Our operators, being fully schooled in the operation of the spaceometer, all agreed that it is a very helpful and necessary part of highway safety. Our organization has been operating coaches throughout the entire United States since 1912 and our safety record is outstanding. We deem highway safety and the safety of our passengers as the most important part of our operation. However, we do feel that the spaceometer would add additional safety measures, not only in coaches, but in automobiles as well.

I am Frank Rossi, one of the owners of the Harford Motor Coach and have been engaged in the transportation business all my adult life. We operate a large fleet of interstate buses which have traveled some 50 million miles throughout the Nation. I am giving this honorable body a copy of my statement.

Very truly yours,

FRANK ROSSI.

#### INVESTIGATION OF HIGHWAY TRAFFIC ACCIDENTS

[Excerpts from traffic safety hearings before a subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, 84th Cong., 2d sess., July-September 1956]

MR. ROBERTS. This subcommittee is meeting this morning to begin hearings on one of the most important problems facing the country today—wholesale slaughter on our highways which has taken nearly 40,000 lives a year. The tragic annual loss from traffic deaths and injuries staggers the imagination.

Senator PAUL H. DOUGLAS (Illinois). In my opinion, the time has come for the American people to declare war on traffic injuries and deaths—to mobilize our resources and manpower and laws to secure improved auto design.

MR. ROBERTS. As you possibly know from the resolution that I introduced which was adopted by the House, and in implementation of that resolution, this subcommittee has set up certain general areas for investigation. Those are five in all: the human factor, vehicle design, highways, and law enforcement.

JAMES P. ECONOMOS (director of the traffic court program of the American Bar Association, Chicago, Ill.). The old intersection collision will give way to two other kinds—following too closely on your high-speed highways and operating too fast for conditions.

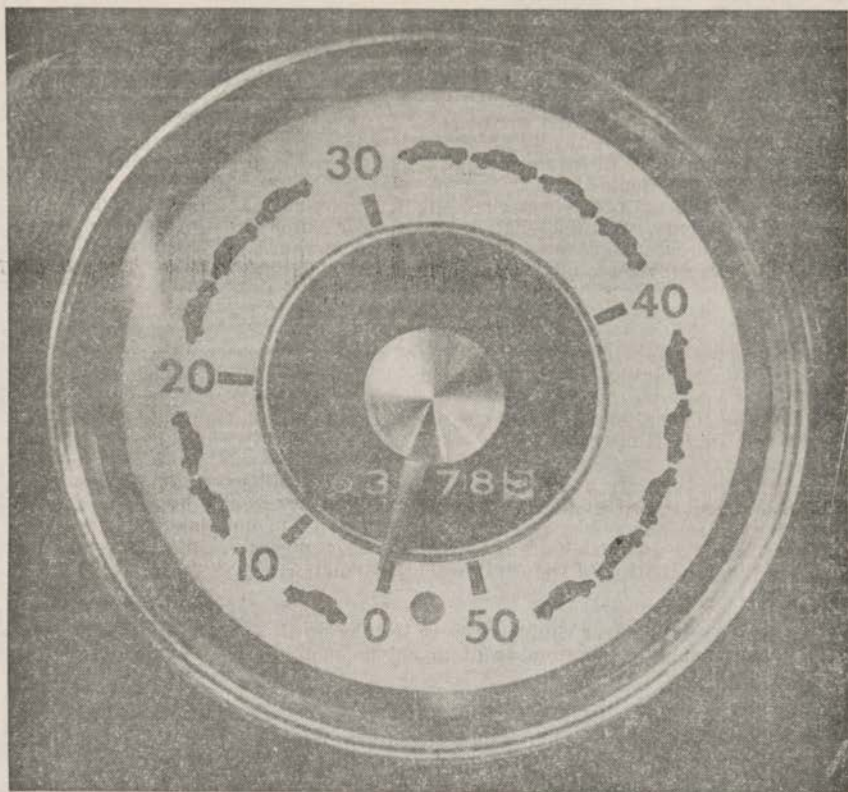
RAY ASHWORTH (acting director of the Northwestern University Traffic Institute). Certainly, the vehicle can be safer, and certainly a lot more things can be done, and if you pin me down I cannot name them, simply because my mind does not run that way. But people are going to develop better containers for passengers.

\* \* \* \* \*  
I do not think that there is any question but what real accident-prevention devices on automobiles should be on all automobiles. I do not see how anyone can get away from that.

Senator DOUGLAS. Your resolution, H.R. 357, has given you a broad and comprehensive commission to study this field. Without detracting from the importance of the other factors you will study, however, I would like particularly to stress the need of going into the question of auto design. \* \* \* Senate Resolution 270, I was convinced that this is one of the most important areas to be investigated.



[Advertisement appearing in Sports Illustrated and Time magazine]



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The tragic and bloody figures of these losses from traffic accidents are well known to members of this committee, but need constant repetition until they are seared into the minds and hearts of the American people.

It is easy to add up the sad box score of daily losses. It is a much tougher job to ascertain the causes—as this committee proposes to do—and then plan to deal with them.

(From resolution on national regulation of automobile safety standards, introduced by Dr. Clarence I. Owen for the Michigan delegation:)

"Whereas this death and accident toll could be materially reduced through improvement in automotive safety design and construction \* \* \*"

Dr. Frank H. Mayfield (American College of Surgeons). "I hope this will launch a program of competition between the various manufacturers to make the automobiles \* \* \* a safer vehicle."

(From the Journal of the American Medical Association, Nov. 5, 1955, vol. 159, pp. 981-986, Dr. C. Hunter Sheldon, Pasadena, Calif. :)

"In the case of automobile safety devices the need is recognized and the design changes are known, but there the whole program grinds to a discouraging halt. The known hazards to interior design should be eliminated immediately. Over the years, new and better methods can be developed, tested, and installed to replace the earlier methods \* \* \*. Every facet of automotive safety does not have to be statistically proved before improvements in design are made. Every possible source of injury should be considered and some attempt made to eliminate each particular case."

(From the Journal of the American Medical Association, June 11, 1955, editorials and comments, "Wanted—Safety Devices for Automobile Passengers" :)

"The widespread adoption of other suggested measures to improve the safety of automobile travel would require appreciable changes in the conventional automobile.

\* \* \* \* \*

"Nevertheless the widespread adoption of safety devices would not cost much, comparatively speaking, when introduced on a mass-production basis, and probably not as much as changing the style contours periodically."

(From the Journal of the American Medical Association, Nov. 5, 1955, vol. 159, pp. 981-986, Dr. C. Hunter Sheldon :)

"Neurosurgeons are not bent on criticism of the automobile industry. Our purpose is to stimulate greater appreciation of the problem and to recommend and insist upon such design changes as are necessary, based upon our clinical experience. We hope our suggestion will serve to point out the structures most in need of change and stimulate the automotive engineers to concentrate greater effort on the elimination of the faulty and hazardous features in design.

\* \* \* \* \*

"If research automotive engineers were to take up this project in earnest, one could hardly imagine the number of ingenious methods they could design for safety.

\* \* \* \* \*

"Pressure is developing that will bring about adequate improvements. Unfortunately, to date there has been much smoke but no fire. Many articles have been written, much scientific investigation has been carried on, and any number of new ideas have been developed. However, almost no progress has been made.

\* \* \* \* \*

"It is the aim of the medical profession to have as much concentrated effort spent on improving the safety design as is spent on the rest of the car.

\* \* \* \* \*

"The industry could decide the entire matter without outside intervention, but considering their past performance with regard to safety devices, I doubt seriously if there is any likelihood of such an occurrence. If left to them, a new but minor change would be made each year as fitted their overall plan, as has been done in exterior styling and design. Such a delaying action may be a satisfactory policy in business but not in a matter of health and public safety. Translated into medicine, it would be comparable to withholding known methods of lifesaving value. In medicine the need is recognized and probable solutions to the problem investigated, developed, and tested. If these prove to be effective and nontoxic, they are employed immediately, even though at the moment there may be limitations to their therapeutic value."

From the Journal of the American Medical Association, June 11, 1955, editorials and comments, "Wanted—Safety Devices for Automobile Passengers" : "The people of the United States are immersed daily in a blood bath of automobile-inspired tragedy. \* \* \*

"These grisly figures and estimates—and they cannot be adequately interpreted and measured in blood, tears, or dollars, stress the urgent need for doing something tangible about a perennial national disgrace. Fortunately the medical profession, which has been among the first to use the automobile in a professional capacity, has been intensely interested in the development of a safe automobile. Proposals have been advanced in various quarters for the purpose

of dealing with the mounting carnage, among them the need for incorporating certain basic safety measures in all types of automobiles. Obviously one of the most important ways of improving safety is to design automobile equipment in terms of human capabilities and limitations."

(From the Chicago Bar Record, May 1956, by Harold A. Katz:) "Engineers studying fatal accidents in Indiana in 1951 decided that at least two-thirds of the victims could have survived if the design of the car had been better."

\* \* \* \* \*  
"The frequent concomitant of the rear-end collision. \* \* \*"

HON. SAMUEL N. FRIEDEL. I want to compliment the Senator for the great study that he has made of this very serious problem. I, too, concur with a great many of your statements. There is one thing I would like to mention. We have in our audience today Mr. Adler from Baltimore, who is a great inventor, and he has turned over many safety inventions for just \$1 to prove that he wants to save many lives. I concur in what you have said, and I like what you have said about more horsepower and speed and beautiful cars and less safety. I think this is one of the things we are definitely going to try to correct.

(From the Chicago Bar Record, May 1956, by Harold A. Katz:)

"It is clear that the manufacturer's negligence may lie in unsafe design as well as unsafe construction. Moreover, the failure to provide a safety device on a machine or the failure to make it more safely may constitute negligence."

MR. ROBERTS. Senator, there was one part of your statement that I thought was very significant. That is with reference to the matter of automobile design. Do you think perhaps there has been a tendency on the part of the industry which we recognize is or has been highly competitive—a tendency to put perhaps greater emphasis on speed and power and beauty rather than on features of safety or features that make for safety?

Senator DOUGLAS. I do, most emphatically, Mr. Chairman.

\* \* \* \* \*  
Senator DOUGLAS. I want to thank you for the courtesy with which you have treated me and also to say that I am a little bit envious of this committee because I had hoped that I might have the chance to carry on a similar study on our side of the Capitol.

HON. LOUIS S. ROTHSCHILD (Under Secretary of Commerce for Transportation, Department of Commerce). It is indeed a privilege to appear as the first witness before this important committee. Your work should lead to great humanitarian benefits in the saving of lives and the prevention of injuries.

\* \* \* \* \*  
It is estimated that more than half the civil suits that clog the calendars of our courts have their origin on our streets and highways. In addition, many millions of traffic court actions take place each year; in urban traffic courts alone about 11 million cases annually are handled.

PAUL BURKE (chairman of the Maryland Traffic Safety Commission, Baltimore, Md.). I gather from the tone of the questions that your committee has asked this morning, that this is going to be a do-something committee that will get into action. I know from past experience with you gentlemen that you certainly will.

JEROME KAHN (member of the Maryland Traffic Safety Commission). This year it appears all records will be broken with an all-time high of over 40,000 deaths and close to 2 million injuries due to automobile accidents. Are we going to sit idly by, fascinated with this horsepower race and watch today's modern highwaymen slowly destroy a whole populace, because we are unwilling to do something about it? \* \* \* The responsibility for securing traffic safety on the Nation's roads should be assumed by the Federal Government. The Federal Government should lead the way, simply because the safety, welfare, and health of its citizens is most certainly a primary concern of our Government. They have recognized this responsibility in other fields such as the U.S. Health Service, the FBI, and the FCC. We believe the time has come for the Government to realize their responsibility for traffic safety, such as they have for the aforesaid. They have attacked polio, yellow fever, and other plagues, and have permitted this cancerous highway situation to grow steadily worse, until its total destruction exceeds all of the others in deaths, injuries, and economic losses combined. \* \* \* The fact remains that traffic safety has never been approached on a national scale. Traffic safety hasn't even scratched the surface, as far as the Government is concerned. The efforts are too thinly spread out to be effective, as the death

and injury toll clearly indicates. Not until the Government assumes the lead will the traffic safety program produce results on a scale proportional to the problem facing us.

HON. JOHN A. BLATNIK (Congressman from Minnesota). The thing that disturbs me is why some of the auto people themselves, and some are doing it, but why they do not do more of the research on the auto design, and behavior and highway characteristics and some of these more technical and engineering factors. \* \* \* I have a feeling that more money has been spent in research on designing the front ends and the rear ends of automobiles than there has been on basic safety factors. \* \* \* Then there are safety belts and other factors that have to do with other things rather than having to do with the appearance and the exterior little decorative features of an automobile.

MR. ROMNEY. I think it was Walt Whitman who wrote that "Every fruition of success, no matter what, is followed by something to make necessary a still greater struggle.

\* \* \* \* \*

The entire industry will benefit by having an objective research organization conduct the tests, and measure the relative degree of safety or hazards inherent in the various types of vehicles. A reliable evaluation of data on the causes of passenger injuries which would be made available to all companies through the institute should stimulate progress toward the building of safer motor vehicles and help reduce the annual traffic toll.

I think that the analysis you are undertaking is a very fundamental one. I hope you do not stop until you probe all aspects of this elephant, you see.

MR. ROBERTS. I believe there is one of the objectives of the National Safety Council, No. 10, you say: "To make the automobile as safe as possible in terms of both accident and injury prevention, through better design and better maintenance." Now, has the council done any studies as to what type of designing we could do that would improve the car as far as safety features are concerned?

(From Bulletin, American College of Surgeons, Chicago, Ill., May-June 1955): "The American College of Surgeons committee on trauma at its meeting in Las Vegas, Nev., February 5, 1955, passed the following resolution recommending occupant safety as a basic factor in automobile design."

C. A. CHAYNE (vice president in charge of engineering staff, General Motors Corp.). This brings us to the second major vehicle design consideration—those features which maximize the ability of the drivers to recognize hazards and to make safe decisions. To drive safely, especially under today's traffic conditions.

HARLOW H. CURTICE (president of General Motors Corp.). Concern for safety on the part of the men who design and build automobiles is as old as the industry itself. No element of vehicle design is of greater concern to us than safety.

\* \* \* \* \*

My experience in the automobile industry extends over a period of 42 years. Based on that experience I am firmly convinced that while we can take pride in the important progress already achieved—and which you saw demonstrated today—the future will bring further significant advances in vehicle design for improved safety.

THOMAS R. REID (director of the Office of Civil Affairs, Ford Motor Co.). There is already a great deal of evidence that these Ford features have saved lives and have reduced the severity of injuries. We are confident that our continuing research in this area will result in still greater improvements in the years to come.

EARLE S. MACPHERSON (vice president of engineering, Ford Motor Co.). We feel that we have made a start in this field, and have made some major contributions, and we certainly plan to continue developing engineering safety as fast as possible.

FLETCHER N. PLATT (manager of the Traffic Safety and Highway Improvement Department, Ford Motor Co.). As an economic necessity, our target must be an efficient, rapid, and safe highway transportation. There are four basic requirements necessary to hit this target: Safe vehicles, competent drivers, adequate facilities, and controlled traffic. These four segments should be the bull's-eye of our target.

\* \* \* \* \*

I would like to review the general responsibilities of this department with you. (1) Review and evaluate activities of the company relating to product design for the reduction of traffic accidents and crash injuries.

\* \* \* \* \*

If only we did a better job of implementing those practices that we now accept as safety measures, we would do a lot to cut down the number of collisions and casualties on our highways.

Mr. SCHENECK. Certainly there is a responsibility of 1 driver to 76 million other drivers; is that not true? Judgment is something that we cannot legislate, and we cannot legislate reaction time and we cannot legislate behavior to any great degree, but we could control horsepower and we could control speed.

\* \* \* \* \*

Well, the National Safety Council forecast of the future indicates that we are going to fatally injure a tremendous number of people within the next few years. The rate is already higher than the fatalities in war. It would seem to me that some place there is a point where we have got to do something about it.

ROY C. HAEUSLER (automotive safety engineer of Chrysler Corp.). But we know we cannot for a minute relax our efforts to improve automobiles as an effective means of transportation or to improve inherent accident prevention qualities. We also have become increasingly aware of the need for research and design to minimize the result of accidents once they do occur.

ALAN G. LOOFBURROW (executive engineer, chassis, electrical, and truck engineering of Chrysler Corp.). Generally, the things we have done in vehicle design to prevent accidents and to minimize potentially dangerous traffic situations fall into four categories: Vehicle responsiveness, deceleration or braking ability, driver visibility, and car control. In discussing aspects of vehicle safety, we are talking about the car as a logical extension of the driver's mind and body.

HARRY E. CHESEBROUGH (executive engineer, product planning of Chrysler Corp.). Thus there is valid reason for our determined efforts to develop better and better injury prevention designs for the interiors of all our vehicles.

Mr. FRIEDEL. If you knew there was a real safety device, would you consider the cost?

HARRY E. CHESEBROUGH. If we knew of a real safety device that is going to do a good job? In the first place I would like to comment or use your words. We consider everything, known and unknown, as to their merit and virtues. Once we have established their virtues and merits, I can assure you that we bend every effort to make it possible to use those.

Mr. FRIEDEL. There are a few percentage points there that might cause some accidents. That is the point that interests me, and that, I think, you have been a little lax on. Where they are proven to be a known safety device, why can't the industry get together and put it on all of your cars, and not just one do it? Also, if you can put it on mass production, it will lessen the cost considerably.

Mr. ROBERTS. I take it then that you are taking the position that we have certainly not reach the saturation point as far as safety is concerned, or built-in safety?

Mr. CHESEBROUGH. No, sir.

Mr. ROBERTS. We do it with many other types of travel and transportation. in interstate, such as in aviation, and we do it with the railroads, and we do it with the buses and the trucks. I cannot see any reason for any different rule or procedure in this case.

Mr. SCHENECK. I think that the industry can do a better job in informing customers what safety devices they have on the product, and I think that they can emphasize safety features more so as a selling point, I will put it that way, than has perhaps been one in the past.

Mr. FRIEDEL. The only place where I feel that the industry has been lax is when they have known safety devices which they have not installed as standard equipment.

Capt. D. W. UNKLE (staff captain, enforcement, Ohio State Highway Patrol). Next in frequency of accident causes were driving on the wrong side of the road, failure to yield the right-of-way, following too closely, and driving into the path of other traffic.

SAMUEL O. LINZELL (director, Ohio State Department of Highways). With this change in attitude the industry might well consider real honest-to-goodness efforts toward designing safety automobiles. This field, I believe, has just been scratched. Doubtless, there can be many improvements in design of the automobile for safety.

Mr. ROBERTS. I was also quite interested in what you had to say about the effect we might expect if the automobile industry would place more emphasis in its advertising on safety features instead of on speed and acceleration. I certainly agree with what you have said and I was quite interested in what you had to say also about the fact that undoubtedly some progress could be made in the field of designing safer automobiles.

Mr. LINZELL. When proven that it is a good safety device I think they ought to be made standard equipment, recognizing the fact that you cannot expect every owner of an old automobile to junk it. There has to be a period of time for the new device to come into new models, and so forth.

MARVIN PURK (manager, Dayton Safety Council, Dayton, Ohio). Manufacturers ought to be encouraged to make safety features standard rather than optional equipment on their cars.

PHILIP C. JOHNSON (chairman, Legislative Study Commission on Traffic Safety, Mooresville, Ind.). It is gratifying to see that it is finally being given the attention it deserves.

Mr. ROBERTS. And yet we are putting people on our highways who have no reason for being there, and we are putting into their hands a death-dealing weapon. Many times that weapon is being aimed and not driven.

(From a report on the cause and effect of highway traffic accidents, with recommendations for the effective prevention of these occurrences to the Special Subcommittee on Traffic Safety, House of Representatives, Congress of the United States, Washington, D.C., November 18, 1956, by the Association of Casualty and Surety Companies, New York City): "It has become axiomatic in highway safety that no program of traffic accident prevention can succeed without the understanding and acceptance of the public. Experience broadens this position—in States and communities as well as in a nationwide emphasis program such as "Slow Down and Live," the partnership of enforcement and public support has never failed to produce favorable results."

Mr. ROBERTS. This will conclude the hearing.

(Whereupon, at 11:10 a.m., the hearing was concluded.)



