BETTER CONTROL IS PURPOSE OF BRAKE

Electrical Mechanism Said to Eliminate Chance of Harsh Braking Effect.

WEIGHT IS 35 POUNDS

Patented Controller Is Considered Most Important and Novel Part of E. V. Hartford's New Invention for Auto.

When George Westinghouse gave to the mechanical world his air brake he practically revolutionized railroading. His device insured greater safety, reduced operating cost, increased efficiency and practically limited the manual labor necessary to bring the brake shoes in contact with the moving wheel.

Edward V. Hartford's latest invention, the Hartford electric brake, should be of even greater importance than the air brake, because it will do more, while the entire mechanism weighs only a fraction of the most approved air apparatus.

If the foot or hand-operated brake is antiquated on the railway vehicle, why should it not be just as much out of date on the modern automobile? Every automobile engineer has admitted it by the mere fact that he employs brake lining. This brake lining is employed not actually to form a gripping surface, as there is no better gripping surface than metal to metal, under sufficient pressure, but to cause sufficient friction between it and the metal band to slow down the moving wheel without binding.

Usual Method Is Reversed.

Every motorist knows how inefficient his brakes become when once the lining is worn through. It becomes almost impossible to slow down without locking the wheels.

This sudden locking of the wheels could be overcome by the presence of oil between the brake drum and band, and allow gradual slowing down, but the presence of the oil would make it almost impossible to bring the vehicle to a dead stop, owing to the fact that sufficient pressure could not be applied by either foot or hand levers.

Thousands of dollars have been spent in designing automobile axle housings and parts to prevent the grease and oil necessary for the life of the axle from coming into contact with the brake drums and shoes.

The Hartford brake completely reverses this order of things. The brakes are oiled, with the result that a film of oil between the parts coming in contact must necessarily be squeezed out by the pressure of the brake so that the car is gradually slowed down automatically, and as the pressure overcomes the resistance of the oil, the brake becomes proportionately more effective.

Harsh Braking Eliminated.

This eliminates any possibility of the harsh braking effect noticeable in the use of the ordinary type of brake mechanism which is so destructive to the tires.

It is said to be possible with this electric brake to drive an automobile at a speed of 50 miles per hour up to within about 35 feet of a right angle turn and easily make the turn at 15 miles an hour.

Another result of this gradual but quick and effective operation of the Hartford brake may be seen in its relation to skidding on wet pavements. The car is slowed down gradually before the wheels are locked, so that the momentum is reduced to such a degree that there is practically none left when the wheels are stopped, whereas, with the brakes now in use, the wheels are suddenly locked and the momentum of the car produces the skid.

System Compact and Light.

The complete system is compact and light, weighing only about 35 pounds, consisting of a small type of the Hartford electric reversible motor, with a worm and worm wheel attached to a drum. To this drum is attached a steel cable, the other end of which is fastened to the brake equalizer arm.

The most important and novel part of the brake is said to be the patented controller. It is small and compact and placed within easy reach of the driver's hand.

By this new device any desired nicety and fineness in braking effect is obtainable by purely electrical means. By actual demonstration a car of 60 horsepower weighing more than 4000 pounds may be controlled by the mere pressure of one finger on the operating lever.

With this type of switch a two-point control is given. The first point supplies enough braking power for service purposes and the second for an emergency stop. Pushing the switch back to its original position immediately disengages the brake.

Powerful Pull Possible.

The brake motor has on the end of its armature shaft a worm, which, through a reduction of 100 to 1, drives a gear. This gear in turn operates a drum by an internal gear through a reduction of 4 to 1. This gives a total reduction of 400 to 1. On the drum is wound a steel brake-pulling cable which directly transmits the pull of the motor to the braking mechanism.

When running idle the motor is capable of 10,000 revolutions per minute and when under load it can apply 1000 pounds pull at about the same speed as would be the case with a quick application of the hand emergency brake. After 1000 pounds pull is exerted on the cable, a slipping clutch prevents any further pull and a ratchet prevents the brake from slipping off.

Because of the powerful pull on the brake cable the brakes run in oil. The ampere draw in putting a 1000-pound pull on the cable is 40 for two-fifths second, and the weight of this equipment for an automobile is about 35 pounds. The net weight would be less than this because the emergency brake lever and much of the linkage would be removed.

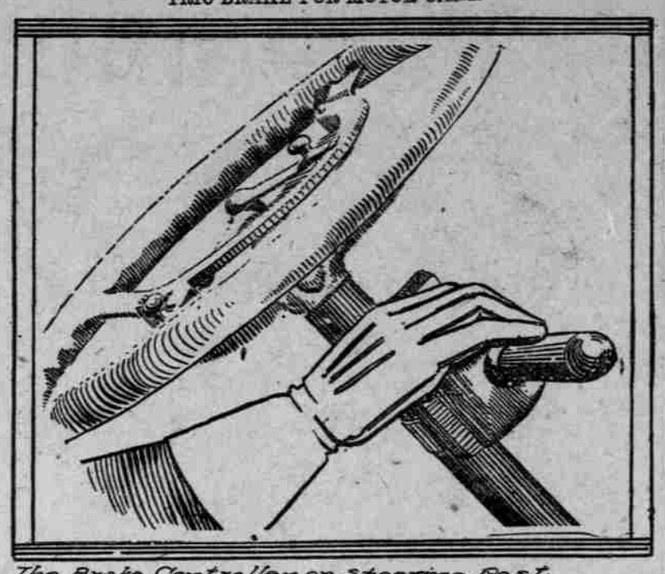
Courtney to Drive Kissel Kar.

Charles Courtney, of Hartford, Wis., has completed plans to drive a Kisselkar truck, with carryall body, across the continent. It is Courtney's intention to start late in the Summer, visit local fairs and conventions on the way and pull up at San Francisco in the Spring of 1915 for the Panama-Pacific Exposition. Cortney's truck has been in service three years, running between Wisconsin Summer resorts.

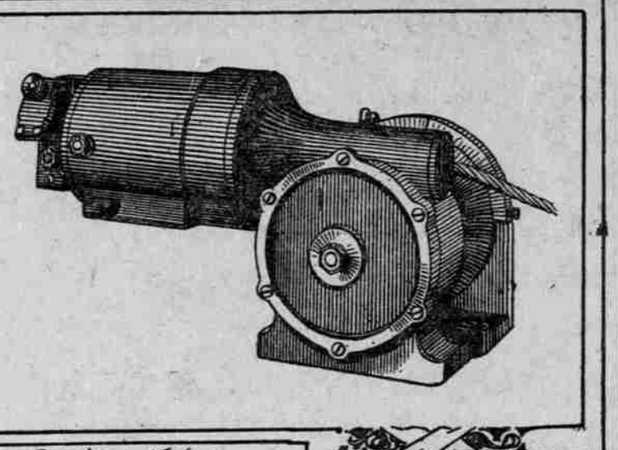
Car Used as Locomotive.

Recently when members of the Harris Hardware Company, of Washington, N. C., went to the railroad yards to superintend the unloading of a carload of automobiles, they found the car so placed that the work could not be accomplished. They promptly hooked their machine a Studebaker "four," to the freight car and drew it up a stiff grade to an unloading platform.

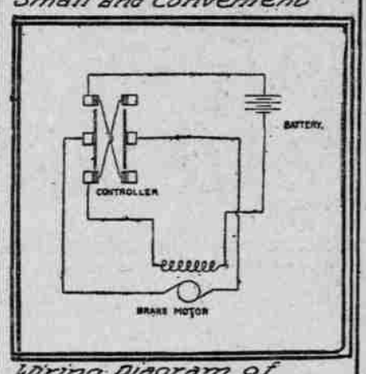
WELL-KNOWN AUTOMOBILE MAN COMES FORWARD WITH ELECTRIC BRAKE FOR MOTOR CARS.



The Brake Controller on Steering Post



The Braking Motor Small And Convenient



Wiring Diagram of Hartford Electric Brake

Edward V. Hartford, The Inventor

HARD TRIP IS MADE

Adventurous Motorists Come From Salina, Kan.

RUNNING TIME IS 12 DAYS

One Blowout, Two Punctures and No Repair Bill on Journey of Nearly 2000 Miles—Hudson Weathers Jaunt Well.

Designating this as the hardest trip he had experienced in over eight years' driving an automobile, D. A. Nelson reached Portland last Monday with a party of five other adventurous motorists en route from Salina, Kan., to Sedro-Woolley, on Puget Sound, where the party will spend a considerable time fishing before returning either by the Northern trail or by the Santa Fe to their homes. This is one of the earliest tourists from a distance to reach Portland.

There were five people in the party, Mr. and Mrs. A. Marshall, Miss Lydia Marshall, Miss Lola Matkins and Mr. Nelson. They left Salina, a city in the middle of Kansas State, on June 6, intending to go to Yellowstone Park by automobile. On learning that the car would not be allowed in, the party decided on a fishing trip and made their way by the Lincoln Highway as far as Granger, Wyo., and then by the old Oregon trail, of Ezra Meeker fame, to The Dalles where they shipped by boat to Portland. Here they will remain for a few days before going on to the scene of their piscatorial picnic.

The trip was made in a Hudson six 54, which weighed 5600 pounds with the party aboard. The trip as far as The Dalles showed speedometer reading of 1885 miles, which was done on 180 gallons of gasoline, or over 10 miles to the gallon, and which would have shown an even better average had it not been for sand and misdirection onto poor roads in and around Pendleton. Fisk tires were used and the party had two punctures and one blowout, which must be considered an unusually good record when the state of the roads is remembered.

"We left our home town on June 6 and in spite of stops at points of interest en route, we reached Portland on June 22, taking actually 12 days for running time," said Mr. Nelson in talking about his trip. "As an actual matter of fact we made the trip about a month too soon, because the roads have not yet recovered from the Spring rains. In most places the streams had run down the roads, leaving nothing but the hard rock bottom, which was exceptionally hard on the car.

"The Lincoln Highway, which we followed as far as Grainger, Wyo., is well marked with sign posts, but it is in poor condition practically all the way from Kansas on westward. The roads in Wyoming and Idaho are the worst, the Oregon roads not being at all bad except for lack of sign posts. We lost our way in Oregon more than in any other state and, through being misdirected around Pendleton, got into some very heavy sandy going.

Work on Oregon Roads Shows.

"From Wasco to The Dalles they are working hard on the road, carrying out some great improvements and widening the road in the narrow parts along the cliff. We went 25 miles out of our way through having to get off the main road where the improvements were in progess and got into some exceptionally bad going, which reduced our mileage for gasoline from about 12 to 10 miles to the gallon.

"Our longest run was on the first day, when we made 245 miles from Kansas, but we did the drive from Pendleton to The Dalles, 161 miles altogether, taking into consideration the amount we went on wrong roads, in the afternoon of Saturday, June 20.

"One hill in the Blue Mountains is nine miles long and the road is nothing but a bunch of rocks, while we found the sand in Wyoming very hard on tires and hard on the car in general.

"We shall leave Portland soon on a fishing trip in and around Sedro-Woolley, near Tacoma, and then we will return home either by way of the Northern trail or by the Southern route along the Santa Fe. In all probability it will be the latter, because I am told that the Northern route is very bad and almost impossible."

Mr. Nelson has toured all over the Central states of the Union and said that he had never has put his car to such a severe test in all his experience as a driver. "But," he concluded, "she went through it all beautifully without any repair bill at all and after all it's not the bumps and the hard road that makes a man tire of motoring, but rather the heavy repair bills. I am fortunate in my Hudson, because her running cost is extremely low."

Among the cities visited en route were Denver, Cheyenne, Laramie, Twin Falls, Boise and Pendleton.

Little Boar's Head May Be Saved.

In order to save historic Little Boar's Head, one of the most beautiful spots along the coast of New Hampshire, Colonel George M. Studebaker, of South Bend, whose Summer home is nearby, has offered to donate funds for the erection of a sea wall. Little Boar's Head is now being washed away at the rate of four feet per year and threatens to topple into the sea.

Use of Aluminum on Increase.

Because of the development of many new uses for aluminum in the automobile industry, the consumption of that metal in the United States amounted to more than 65,000,000 pounds in 1912, as compared with 46,125,000 pounds in 1911. The production of bauxite, the ore from which aluminum is obtained, was nearly 160,000 long tons in 1912, or an increase of 4247 tons over the previous year, and yet this amount was not sufficient to supply the American demand and a large amount of the ore was imported. A large amount of aluminum is being used for tubing for automobile wiring and manifolds. Besides being used to lighten the various parts of motors, aluminum is used as a most desirable material out of which to manufacture automobile and cyclecar bodies.

Ancient Car on Long Tour.

Patrick Kennedy and A. E. Moore are making a tour from Los Angeles to New York in a Studebaker car of the vintage of 1903, which already has a record of 64,000 miles. Under the terms of a wager the men are not to replace a single part on the car and are only to make such repairs as they can make unassisted on the road.

For youngsters, the folding hammocks, self-filling air pillows and little mattresses are invaluable.