

### GIVE UP SECRET OF U. S. BALLOON WORK

Entz Transmission Biggest Factor in Successful Solution of Winch Centre.

The authorities at Washington have disclosed another war secret—the secret of the wonderfully successful operation of observation kite balloons.

R. M. Owen, through the N. C. L. Engineering Corporation of Providence, R. I., got permission yesterday from Washington to make public the story.

In brief, the record of another great American achievement consists of the remarkable work of the Entz transmission in a specially constructed winch that controlled captive United States army balloons with amazing precision and smoothness.

The N. C. L. winch, as this wonderful mechanism is called, may be seen this week in the army exhibit at the Aero Show, mounted on the regulation F. W. D. truck, a completely self-contained piece of apparatus, ready for service.

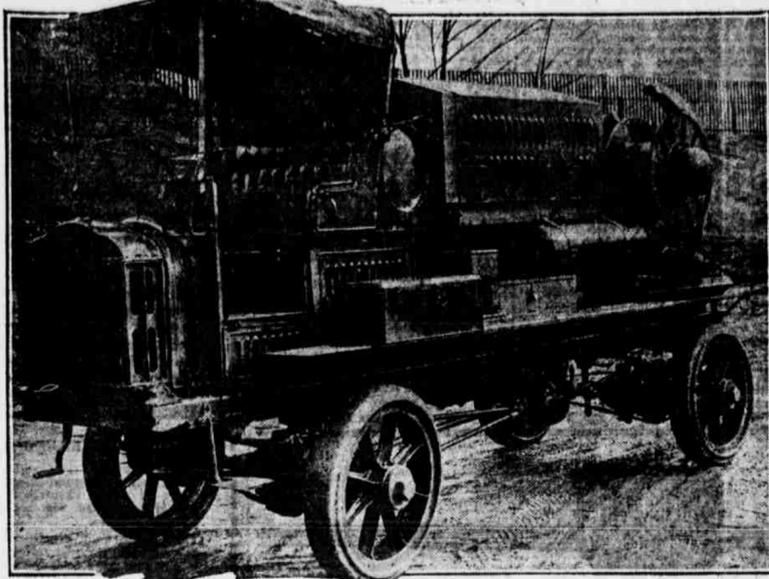
Shortly after the entry of the United States into the war the Army and Navy departments asked the N. C. L. Engineering Corporation to design a special type of gasoline driven high speed winch for hauling observation kite balloons. A gasoline driven winch was designed, equipped with planetary transmission and reverse and a few of these machines were built and put into service.

It was quite apparent, however, that the ideal power plant for such service, in which the possibility of swift attack by enemy planes and the much needed balloon-down in a hurry had to be considered, was one with the ability to deliver maximum torque at starting speed, to maintain torque over a wide range of speed, to provide sensitive speed control and especially to provide magnetic braking. It was at this point that the engineers of the Providence concern got into touch with the Owen magnetic organization and where R. M. Owen stepped in with his Entz transmission to supply the much needed mechanism and to help materially in baffling the German airmen.

The Entz transmission not only gave speed and power range in infinite gradation without cessation of torque but furnished also the magnetic braking which had worked out so successfully in Owen magnetic cars and which was so necessary to the successful operation of a balloon winch. The power plant as finally adapted consisted of a Herschell-Spillman eight cylinder 1 1/2 h.p. motor with a regular Entz transmission as used in the Owen magnetic cars.

The problems connected with the development of a satisfactory kite balloon

### Entz Transmission Assembly in U. S. Balloon Service



This self-contained unit, consisting of an F. W. D. truck and the N. C. L. Winch, with the Entz transmission is being shown in the army exhibit at the Aero Show.

winch were more difficult of solution than might at first glance seem apparent. The specifications required recovery of the cable at a rate of 1,200 feet per minute against a pull of 2,000 pounds with a maximum hauling capacity of 5,000 pounds at low speeds. Starting and stopping had to be easy and under perfect control. The load on the braking system was exceptionally heavy and a holding brake had to be provided to permit a certain amount of slippage under gusty conditions, to eliminate any sudden jerk or strain on the cable. The size of the cable was strictly limited in order not to overload the balloon and so cut down the useful height attainable. The winch had to be able to correctly spool 5,000 feet of quarter inch cable, and to accomplish this it was necessary for the hauling strain to be handled by separate grooved hauling drums and the

cable to be stored on a separate drum under light and adjustable tension.

Embodied in the design of this machine are several features all of which proved most necessary for practical operation and which have never before been embodied in a winch. They consist of instruments recording at all times speed of intake and pay out, the amount of free cable and the strain on the rope at any one time.

There is not room in a short description to take up all the mechanical features incorporated, but two points should be noticed, viz.: The extremely novel application of thin wedges of thermoid fabric moulded on the hand brake and an energy governor controlling the momentum of the heavy storage drum which facilitates quick starting and stopping.

**Pedal Rest.**

A very satisfactory foot rest or accelerator extension may be made from an ordinary strap hinge. One half of the hinge is fastened to the floor boards, while the other rests on the accelerator. All that is necessary to operate the accelerator is a slight pressure on any part of the free half of the hinge.

**Heavy Oil Faucet.**

Many motor car users have experienced difficulty in getting heavy oil to flow from the storage tank in which it is kept. A way around this is to solder what is known as a molasses faucet on a five gallon can. This faucet works on the principle of a gate valve and the heavy oil will be found to flow easily.

### TIRE BONUS PLAN GIVES BIG RESULTS

Goodrich Company Offers System That Aids Driver and Owner.

Surprising reductions in the operating expenses of motor truck fleets have been reported by the owners to the B. F. Goodrich Rubber Company, who have made extensive inquiries into systems of paying truck drivers bonuses for efficient and economical operation of their machines.

Two successful bonus plans have been made public by Goodrich: one on the saving effected in the use of oil and gasoline, and the other on the ton mile basis. These plans work admirably where the operator has standardized on one particular brand of trucks or where units of the fleet are of one make.

But for the fleet owner employing trucks of different makes the Goodrich company offers a new and different bonus plan which has proven substantially profitable in different sections of the country. It is based on the driver's saving in tires.

**How the Plan Works Out.**

Operators have found it very hard to fix a bonus plan on an equal basis as regards oils and gasoline used where various makes of trucks are employed. One truck might be quite different in fuel consumption, making an accurate cost difficult to compile.

Here is how the tire bonus plan works: For every thousand miles a driver uses a tire over the maker's guarantee give him \$1 on a single tire and \$2 on a dual or heavy rear tire. If, for instance, the driver of a truck runs his tires 7,000 miles above the maker's guarantee, which is not uncommonly the case, according to nationwide reports, he will make \$7 on each front wheel and \$14 on each rear wheel, or a total of \$42.

A big Eastern motor truck operator whose fleet is made up of various makes of trucks said the following when asked for his opinion of the tire bonus plan: "The highest mileage attained since we put in the system three years ago was 21,000 miles on a front tire and 18,000 on a rear tire. Considering that we pay from \$12 to \$22 per thousand miles for our tires we are spending \$1 and \$2 for an extra thousand miles and earning with that dollar or two dollars \$18 to \$22—a pretty good investment."

"It is not only the additional mileage that results. When the rear tires run more miles it stands to reason that the differential is going to run more miles. Our drivers very seldom spin their rear wheels, for it means grinding off dollars

### New Roamer Collapsible Town Car



This attractive car has just been received by the Roamer Sales Company at 1794 Broadway. At the same time this car arrived Harry Everall, manager, received the following telegram from Bakersfield, Cal.:

"On February 22, Roamer car driven by Rosco Saries won the Washington Birthday Sweepstakes. The Roamer led the entire distance of fifty miles, not making any stops."

"The official time of the race was 42:19, which is a new track record at this place. The fastest mile covered was done in 42 seconds, which now stands as the world's one mile record on a dirt track."

for them. On the truck on which one tire ran 18,000 miles we had no trouble with the differential until it had gone 26,000 miles.

**Bonus for Protecting Springs.**

"Sadd chains are carefully put on at the top of hills and removed at the bottom—at the expense of the driver's own time, because he has a real interest in saving his tires."

"We have still another bonus for springs. A man gets \$3 a month bonus if he does not break a spring. This has not only greatly reduced spring breakage, which used to run as high as two a month on several trucks, but also has the advantage of careful driving over bumps, which if severe enough to break a spring often causes other and greater damages to the truck."

"The bonus system not only enhances the life of the truck, saves fuel and tires, but also greatly reduces the cost of repairs. Bonuses makes the driver feel that every dollar he earns for the owner by his added effort and vigilance means dollars for him. In other words, bonuses mean giving the driver a part of the profit he rightfully earns."

**Sediment Bulb.**

When it is desired to remove the sediment bulb from a Ford gasoline tank without draining out all the contents of the tank, a half inch spark plug will be found convenient for plugging the hole. As the sediment trap is removed have the plug ready and it will be found that little gasoline will get away during the exchange.

### BRISCOE MAKES A HIT.

Much Interest Shown in Low Priced Car.

"Automobilists are giving more attention to upkeep costs than ever before; buyers are no longer looking for the biggest possible automobile for the smallest outlay as they were a few years ago, but the matter of upkeep cost is now receiving greater attention," says George Garland of the Garland Automobile Company, who has just added the Briscoe to his Vello line.

The Briscoe sells for less than \$1,000 and Mr. Garland reports an unusual interest in its performance and the low figures on its upkeep.



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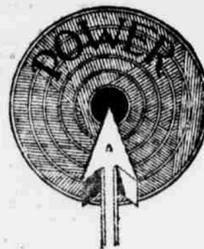
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rate and distinct ranges of power, the Peerless Closed Cars of today maintain their leadership.

In substantial comfort they are not to be surpassed.

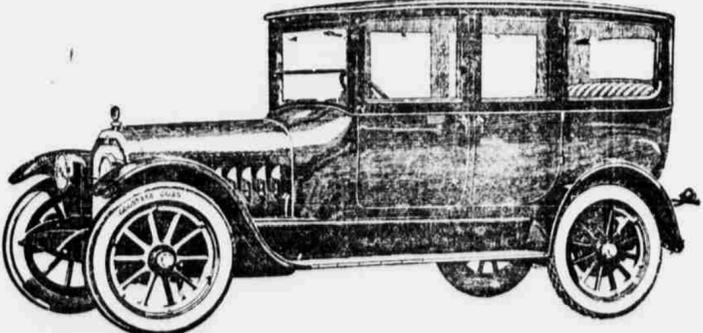
In operation they give the most distinctive performance yet attained by motor cars.

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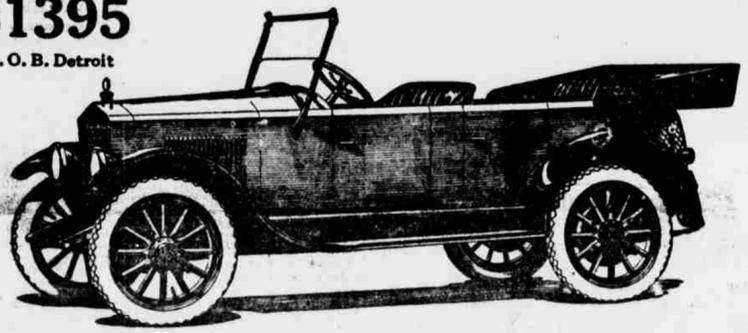
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who fail to buy now may be disappointed later in the season. Probably half a million people have recognized the unusual worth of the Essex. They have made it the chief topic of automobile conversation. Salesrooms have been crowded. Waiting lists have had to be established for those who wish delivery at the earliest possible date.

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