

This is the description of the one and only first prototype that Alvaro Silas Krotz built in 1907 first mentioned in Vol 1 No.2 and also in the in the last issue. Its being restored by HCC member Karl Chulick of San Jose, CA who found it in SD. Its obvious that the parts were not factory made, and because of the extra holes in the frame, that experimenting had been done. It probably had little road use, especially with its original friction wheel built of wood. Of course there is no sign of a VIN on any parts of the frame. Its engine is only like the later prototypes in that its a 2 cylinder opposed with twin fans and exhausts.

After comparing the two, my car and the production Sears, I could see the progression from prototype development, to the present production Sears. If you look at the parts used you can see this logical progression to solving the problems encountered. Although I am not yet finished I have learned a great deal on the building and construction of the autobuggy. I only wish that Alvaro Krotz could be here to see the buggy finished.

Enclosed you will find the photos of my prototype Sears / Krotz autobuggy. There are a lot of differences about this car from the production Sears and you can see the problems which had to be overcome on the production models. There is a lot of similarity as well. I will go on to explain these differences as i describe the photos. You will note that these photos are numbered on the back side for reference.

Photo #1.

This is a shot taken from the upper rear right side of the car, looking toward the left front. It shows the friction drive wheel, newly machined, with the friction discs in place. The flywheel with the aluminum plate installed is in view. The aluminum plate is held in place by 6 bolts which are not equally spaced apart, in both angularity and diameter. The mounting holes vary by about (.100") or, 1/10" or one tenth of an inch in diameter, and the angle of the hole spacing varies about +/- one degree.

This was most definitely not done on a machine, it had to be done by hand. The aluminum plate is new and the holes had to be matched exactly to the hole pattern in the flywheel. This new plate was carefully balanced prior to bolting it to the flywheel. This aluminum plate could not have been turned over as in the production Sears, as the hole pattern would not align properly. There is only one set of holes in the flywheel. It appears to have been done by hand and the possibility of reversing the plate was only accomplished on the production Sears. This is possibly the first thing that i noticed about the Sears that was different and was corrected on the production Sears cars.

Just as I was getting ready to mail this issue, I found this page and the other side which I thought Mr. Chulick had sent me, but I had mislaid them or lost them. So instead of undoing each copy, I slid it in for the final staple. I'm very sorry.

Photo #2.

This photo shows the friction drive wheel, newly machined parts, with friction paper discs are installed and are ready to go. The center hub is machined out of steel and the outer hub with the spokes, is machined out of a 2" thick piece of 6061-T651 aluminum alloy. This outer piece is hard black anodized for wear and durability and has been stress relieved at various points during machining. The weight and strength of this part is designed to be of the same weight and strength of the production Sears, and have the same basic dimensions as the cast iron wheel used on the production Sears. There are 4 socket head cap screws 3/8" diameter which hold the center hub to the outer pulley. These are for strength and the four bolts act in shear to transmit the torque to the jack shaft.

As you can see the keyway goes nearly all the way across the jackshaft. The jackshaft on my car, is 1" diameter, this is smaller than the production Sears, which have a larger diameter jackshaft. This is another difference in the production Sears, and my car.

The original key which slides in the slot in the jackshaft on the friction drive wheel, is about 9" long on my car. This key bolts to the side of the hub and turns around 90 degrees, and enters the keyway slot. This key and friction drive wheel on the original slide together as a unit. This key as well as the friction drive wheel, I have kept aside for display to show how it was used on the original car. The new key installed in the slot now runs across the jackshaft and has the indents as on the production Sears. This is another difference in my car and the production Sears.

Photo # 2A.

This photo taken from the right side, shows the side view of the new friction drive wheel installed on the jackshaft. Visible is the jackshaft attachment hanging brackets. Also shown is a view of the chain sprocket on the end of the jackshaft. You can also see a partial view of the engine. Also note that there are two sets of holes in the side of the frame for adjustment of the jackshaft forward and backward. Also if you look you may note that I covered the wrong set of holes when I painted the frame. oops!

Photo # 3.

This is a view looking from the left side toward the front. You can see the hanging brackets for the jackshaft. The bearings inside the jackshaft are roller bearings, with five rollers per set. One interesting note is that each roller has a spiral groove cut around the bearing and on one bearing the spiral goes one way and the next one goes the opposite direction, possibly to flow the oil or grease back and forth across the bearings. The ends of the bearings had a seal on each end and leather washer, which were old and deteriorated. The bearings appeared to be greased as I received them, but the rollers were in good shape with no pitting, but some signs of wear. The outer sleeve that the bearings roll on inside, has a groove cut into the spiral sleeve to distribute the lubrication across the rollers. Quite an interesting approach. I have greased the bearings and replaced the seals at this time. The inside of the rollers role directly on the jackshaft. It appears that the production Sears had a babbitt bearing which was oiled, another deference found between my car and the production cars.

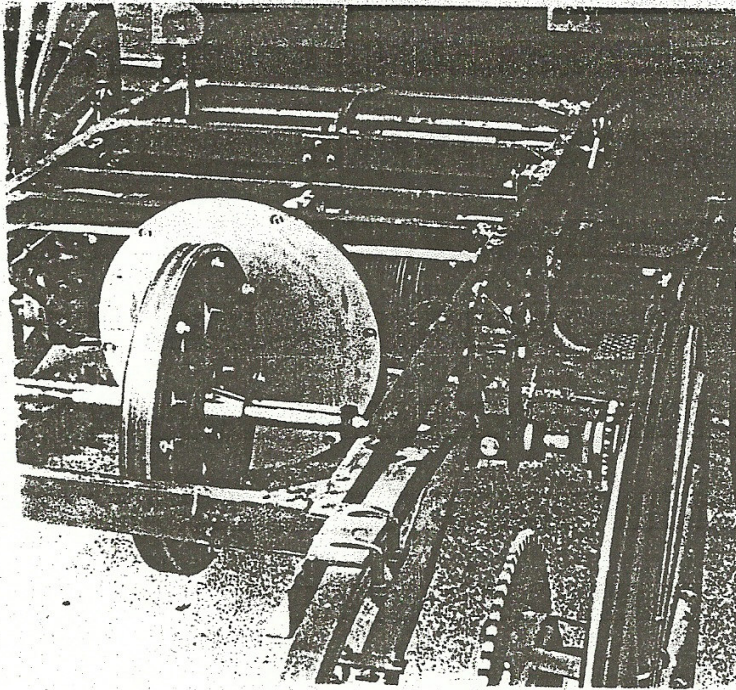
You can see the yoke assy, newly machined hanging down by the friction drive wheel. The side rods, from the clutch to the jackshaft assembly, have been newly machined to replace the original ones which had no adjustment. The shifting rod is not installed at this time. On the original friction drive yoke assy (aluminum hub bolted to the friction drive), it appears that they had some sort of split piece which wore badly into the aluminum. Much galling and scoring on the original. This original piece is set aside for display only. I have machined a new yoke assembly as done on the production Sears. This new assembly is the one that I intend to use for touring.

Photo # 4.

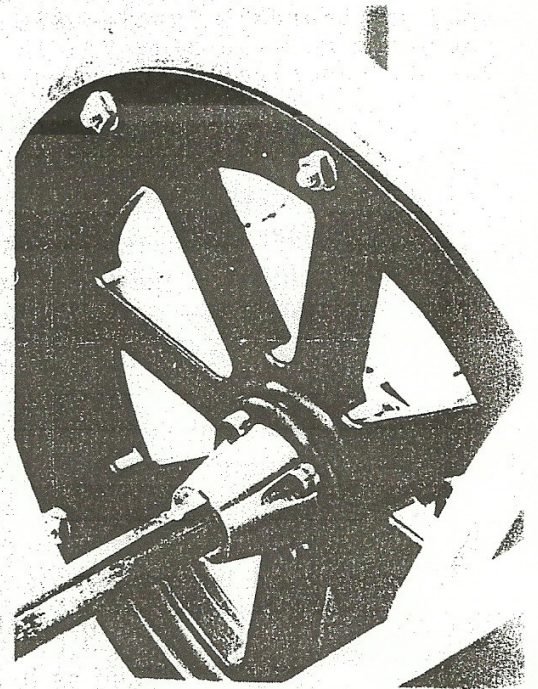
In this photo you can see the friction disc for the end of the jackshaft. This part has been newly machined to fit onto the existing jackshaft and will not damage the jackshaft in any way. The sprocket is larger diameter than the original but I will have the speed shift lever at a lower setting for use. I can set the tension on the sprocket to any torque friction value from 5 ft lbs to 190 ft lbs, and this will be adjusted when the car is first driven by me.

Color reproductions of these six photos would cost \$3.50 postpaid.

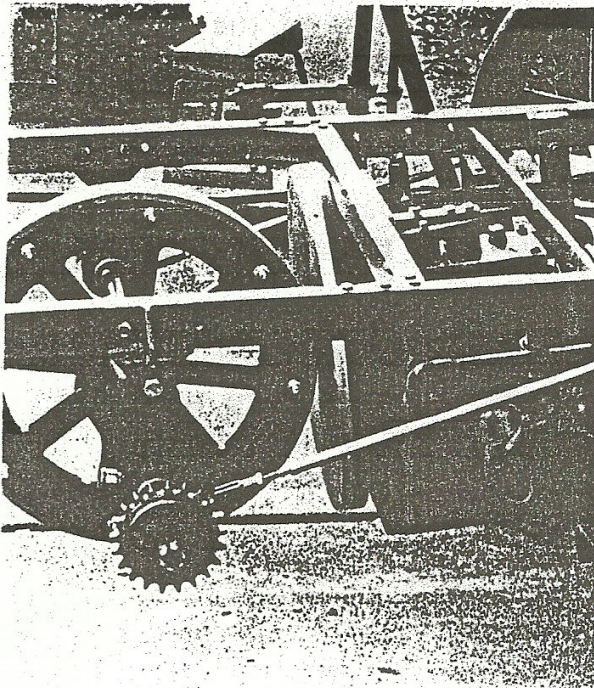
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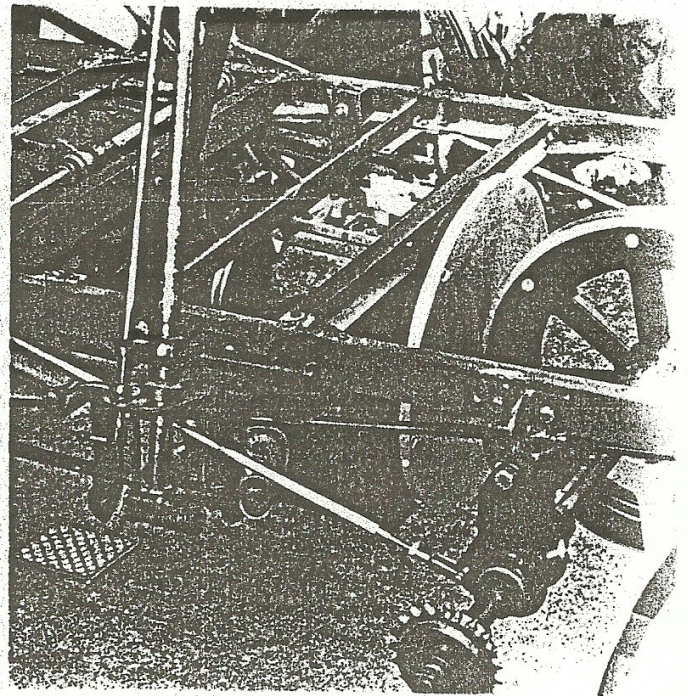
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2A



3



VOL 5 NO 1

SEARSHEET

SUMMER 98

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HCC member E R Baker has Sears H 2888

The calculated ft lbs of torque is 72 ft lbs on each wheel, and it will be interesting to see how close this calculation is compared to the setting needed for the proper torque.

In the friction disc assy used on the original, the back piece was set screwed to the jackshaft to hold it firmly in place, and the outer piece with the gears and friction material was set for tension by adjusting the tightness on the nut on the end of the jackshaft. This is another deference between the production Sears and my car.

Also note the rear brake hub assy, It is not cast as in the production Sears. This was rolled out of about 1/4" thick sheet, and then the area was cut out between the strips which attached to the spokes, or fellows of the wheel with a large disc and U shape bolts threaded on both ends. You can also see the lever for the brake assembly. The brake material appears to be out of a material that looks like a woven fire hose. Material appears to be still usable and i probably will use as it is. I don't intend to be going that fast that i could not stop.

Photo # 5.

This is a view from the back showing some of the wood work being done on the body. Please note that the original color was carmine green and black, as shown on some of the pieces under the seat area. Some of the original paint was still on some of the wood. I have varied from the original color to change the body to black, with carmine red frame and wheels as on the production Sears. This is a variation from the original.

Photo # 6.

This is a view showing the front of the car and some of the wood work. Please note the bicycle grip, most definitely not original, but put on as a necessity. While working on the woodwork the handle which was in an upright position came down and made me much smarter after the lump on my head went down. By the way that was not my only casualty. You get smarter with age, but it seems to take a little longer to learn.

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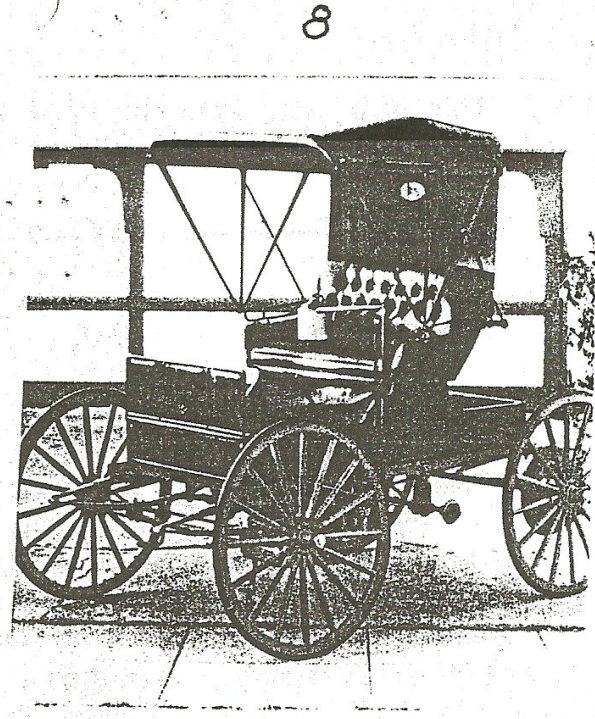
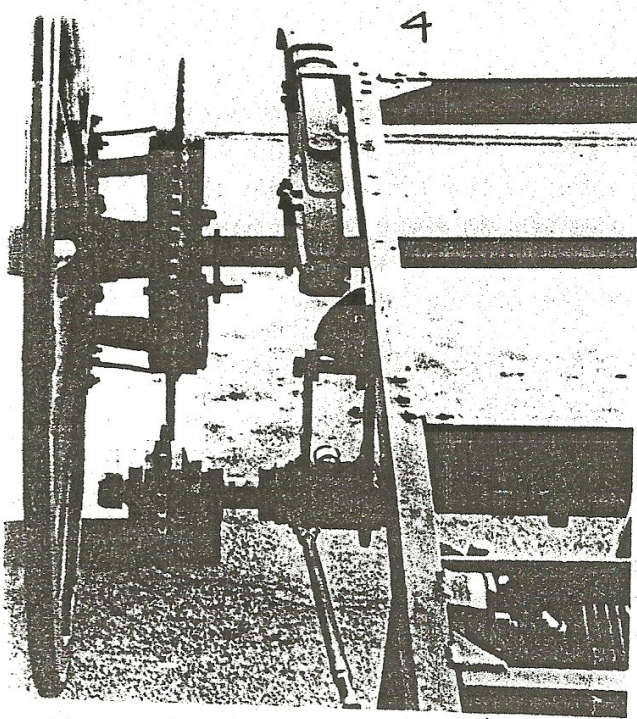
Photo #8.

This is a view of my buggy in the driveway, showing the front left side. Please note my helper on the seat, passenger side. Just kidding, but the jug dates in around 1885, 1892. The jug was brought out west by my great grandfather. I also have a original buggy blanket, in perfect shape, which was used to cover you while traveling, also dated in the same time period.

Both of these items were found in my mother and fathers effects after they passed on in 1997.

At this time i still need the rod that goes to the yoke assembly, and i probably will have to make this part. Also the chains are not installed at this time. This will be done later.

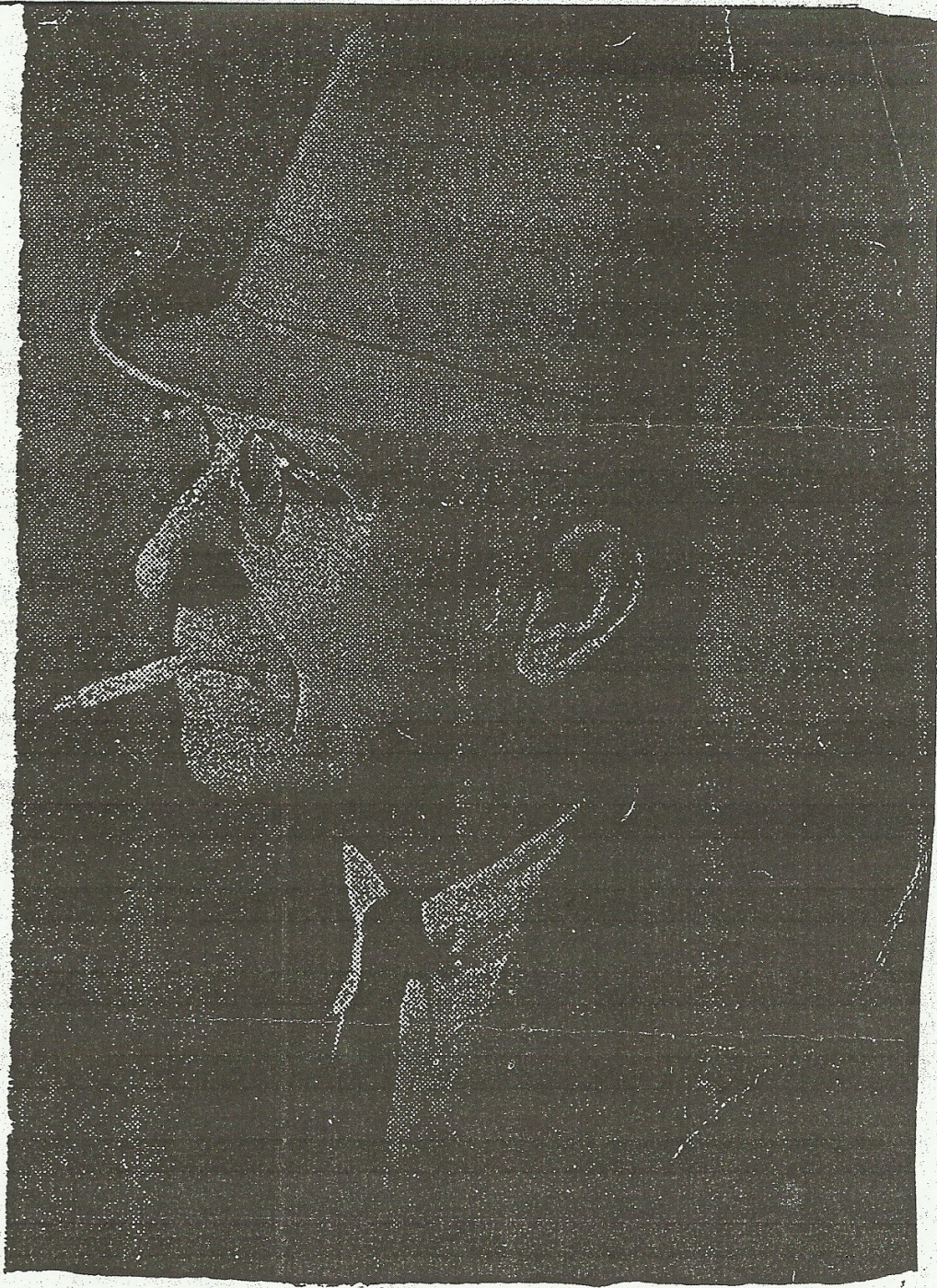
The only other things remaining to be done are making the battery box, setting the timing and hooking up the coils, and the electrical wiring. I also am in the process of making the motorgo switch internal parts.



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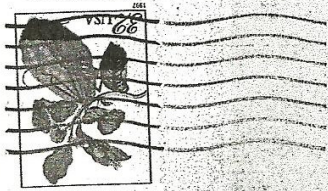


A. S. Krotz

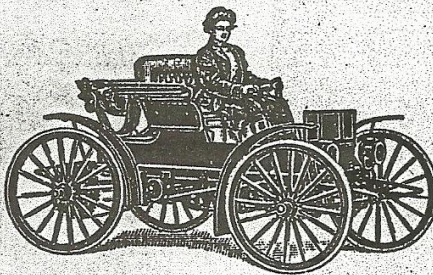
This picture was sent to me by the favorite grandchild of Alvaro who lives in Bethesda, MD. It was part of an obituary notice from a MA paper by a Krotz friend.

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This is the oldest advertisement of a Sears. It appeared about the time of the Spring 1909 Sears "general" catalog, number 118. Notice that it mentions the "motor buggy circular" which was only mentioned in Sears "general" catalog number 118 index. Notice the gas headlights, which also are on the car in "Cycle & Auto Trade Journal" of Jan. 1, 1909 and Vol 1, No. 1 or 2. The first "general" Sears catalog to have a picture was the Fall, 1909, Number 119. Note the wide space around the tufted area of the seat. This was sent to me by a literature dealer friend of Carrol Sears who is looking for a "Circular" or a copy of one to be printed in a future issue.

The Fall 'Searsheet' will have info on a prototype that Sears later bought and featured in their first catalog, which appeared in 1910. No catalogs were available in 1909.