

Sent: 31 may 99

Darrell Olson wrote:

>
> I was reading your email again. I understand better what you are

> proposing. You can take a nail, string, and pencil draw circle on a
> heavy piece of plywood bolt that to your axle 4x4 and the car axles.
> The hardest part would be the bolt circle pattern where the wheel
> mounts to the hub. I would make the circle of plywood the same
> diameter so as to fit inside the wheel rim and then mark the hole
> pattern. Do it with cardboard from a large scrap box first and then
> you can look at how it fits before you waste a piece of plywood or
> whatever. An old carpenters trick I learned once. You might use 2 car
> front axles like that and mount a large as you can find v-belt pulley at
> the one end. 8 inches or more diameter. The 4ft by 8ft "paddles may
> not develop enough torque to turn that car axle, drive shaft and
> transmission. You may need paddles on the order of 8x16ft to turn all
> of that, see? I suggest something simpler first to get your feet wet.
> You know we learn from doing and watching others do it too.

A couple more ideas come to mind as you explain this mock up. A pulley could be made out of a cars tire rim without the tire. The multi-ridged wide V-Belt (typical of today's alternators) rides in the low part making a very large pulley. Another possibility, a pulley could be made out of 3 round pieces of 1/2" to 1"+ plywood sandwiched together. This is depending on belt width. The center circular piece would be about 1" smaller in diameter. The inner edges of the two outer plates would be rounded or beveled on the inside so as to not excessively wear out the belt. In this case the pulley could be built as large or small as needed.

If I am understanding you correctly, your mock up would work fine on the rear axle to paddle wheel axle interface, but may not have taken into account the front car axle on the hub assembly sticking out further than the bolts that hold the rim on. One would need to cut a hole in the end of the 4x4 or use very, very thick plywood.

A possible way to attach the paddle axle to the front car wheel hub assemblies. Turn the tire rim around and bolt it back on the hub using the same lug nuts. In most cases, this will cause the outer part of the rim to extend beyond the tip or end of the car axle. Once this is done, plywood or a 2"x8" can be cut to fit the size of the rim. This 2"x8" or plywood piece would then be bolted to the end of the paddle wheel axle. With long bolts and possibly spacers this wood piece can be bolted to the tire rim. Either drill holes or use the gaps and slots already present in the rims to assist ease of construction.

Under these conditions - what do you consider the maximum blade width and height for a paddle wheel so constructed? Would you use 4 or more paddles?

MikeL

sent: 31 may 99

Darrell Olson wrote:

>
> Hi
> I guess I'm not exactly sure how you plan to do it, it will probably
> work, but not as well as it seems now. It will take a lot of power to
> turn the shafts and transmission, etc before it gets to the generator.
> It sounds like you have the 3 best parts----location, location and
> location. (my problem here is 10 acres of woods to my west or windward
> side of my property.
> The nebraska type would be cheap and easy to build from scrap lumber
> with a little imagination. The paddles could be as simple as 2x2 board

> frames covered with cloth like canvas, etc, would cut cost down---
> VITA, a government agency put out a booklet on making a windgenerator
> with car parts. They used the rear axle with one brake bolted locked
> and a large v-belt on the shaft where it came out of the differential
> . They made a fan wheel that was like 10 ft diameter on the other
> brake drum and a large tail vane on the locked end to steer it into the
> wind.
>
> Once I seen a windgenerator with a 60's or 70's car water pump and fan
> blade belted to a generator mounted on a board on the roof of his
> garage. It probably worked until the bearings went. I might try that ,
> but I would put a rubber hose from inlet to outlet and fill it nearly
> full with gear oil. sae30 or maybe 90. Use the hub of the fan blade
> cut off the fan blades and bolt a broom stick or long 40 inch dowel rods
> of broomstick diameter and bolt a square piece of tin or masonite maybe
> 1 foot square to the outside end at a slight angle to catch the wind.
> Mount it on a 2x4 board or 2x6 would be better about 8 10 ft. long with
> a 2ft by 4ft piece of tin or masonite for a tail. Then mount it on a
> bearing so it can turn into the wind. You could use a car wheel axle
> there. Your stump sounds great to me . Use lag bolts of as long and
> large as you can. Wish I could come and look. What part of California
> do you lve in? I think Northern. I have a son in San Diego and he
> wants me to come out later this summer. Don't knowthat I will make it
> right now.
> I will write more later, try to answer your questions best I can. Try
> something, if only a small working model. Whatever you can do without
> spending money is good.

With respect to the car axle-paddle wheel concept, I think you are correct about not needing to use the transmission. That it will put too much load on the system. With respect to "location", this type of design would depend on the wind coming from one direction mostly. If the direction changes 90 degrees then it won't work. Windmills that move with the wind have a definite advantage.

I Like the idea of using a car water-pump-generator. I don't think it is necessary to close the water pump up with added oil being pumped all the time. The ball bearings in a water pump does not run in the water, but runs on the outside of the water seal with a drain hole to the outside air. The typical water pump ball bearings are individually packed in grease with dust seals of their own. What makes a water pump go out on a car is when the water leaks past the water seal and gets into the ball bearings washing away the grease. If one just ran this pump dry the water seal would soon ware out, but this wouldn't heart anything because water would not be put into the pump. The bearings being self lubricated and sealed should last as long as they last depending on the balance and speed of the constructed windmill. I think adding a ever widening flat boards bolted to the existing metal of each fan blade might be alternative, that would also work. The biggest concern I would have would be the pulley size ratio not being great enough in order to run the generator fast enough. This water pump driving a generator with a belt idea, is simple, light and easy to construct. I like it.

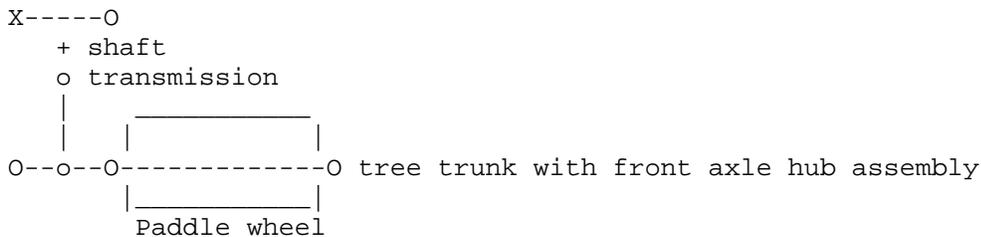
MikeL

Subject: Car parts windmill
Sent: 30 May 99

I am looking at the possibility of constructing a horizontal paddle wheel type windmill on a windy hill out of an old car and a high cut off tree stump. The car would be blocked up in the air (at paddle height) a given distance (width of the paddle wheel) from the tree stump. A paddle wheel axle would be made out of a tree trunk or a 4x4 (bigger if available). The Paddle's could be plywood or sheet metal bolted to the axle. The axle of the paddle wheel would be attached to the rear axle of the car and extend parallel to the ground over to the tree trunk. The front wheel axle and wheel hub assembly taken off the car could be mounted on the tree stump such as to carry the weight and wind forces of the paddle wheel. A fence of wood, dirt or rocks built up one ether side of the paddle wheel deflect the air to the top blades of the paddle wheel. The engine of the car would be removed. The transmission could be left in to help get the correct gear ratio. Transmission shaft with pulley and belt to generator(s). On the opposite side of the rear wheel, break locked or rim tied so as to not turn.

Note: If you had enough old cars one could make a series of windmills. The paddle wheel going from rear axle of car-1 to front axle of car-2. Car-2 rear axle would be connected to car-3's front axle and so on with the last car using a tree stump or something stable to attach the barring point.

Top view with car missing left wheel and axle assembly



Items left to be determined how best to be done: Attaching the wood axle to the car wheel or hubs. Attaching the front axle hub assembly to the tree stump. Optimum height and width of the paddle blades for the paddle wheel. If this get too high then, centrifugal force could tare it apart. It is not high enough then the wind will not turn it with enough force to be a optimum speed, thus loss of power. Whether 4 blades on the paddle wheel is enough or is more needed.

Comments and recommendations?

MikeL