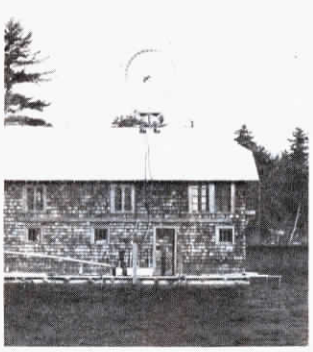
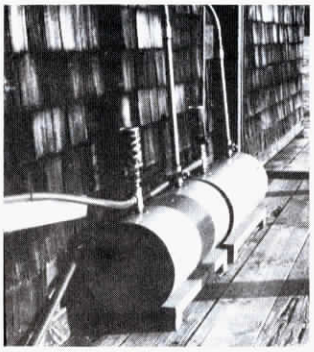




Wind-Driven Pump Keeps Stock Watering Pond Ice-Free

A system being used in New York State to keep ice from damaging boat docks can easily be adapted to keep stock-watering ponds ice-free.

The principle of the system is to circulate warmer water from the lake bottom to the surface to melt the ice that has formed. Air is bubbled through the water with a pump that is powered by the wind. Therefore, the system can operate in remote areas independent of fuel or electricity.

The system can be built and installed by the average handyman, says Bernard Cain, a consulting engineer who has experimented with it.

"You need four major components to put it together," says Cain. "A windmill, air cylinder, check valve, and relief valve."

The check valve is to prevent water from backing up into the air tubes when the pump isn't running. The relief valve is necessary to relieve pressure in case the line does freeze up.

Cain emphasizes that the check valve must be "absolutely reliable" because water back-up in the tubes will stop everything until it thaws out again.

The wind-powered bubbler will work in any pond or body of water that doesn't freeze to the bottom, which means a minimum depth of about 6 ft.

The windmill, placed where it will catch the most wind, is hooked to an air cylinder rather than the usual piston water pump. The air cylinder is connected to a hose which is submerged at least 4 ft. below the water surface. The hose may be rubber or plastic and has holes punched to create bubbles in the area where the ice is to be kept clear.

Size of the windmill and air cylinder will depend on how far the air needs to go, and how many holes are in the bubbler.

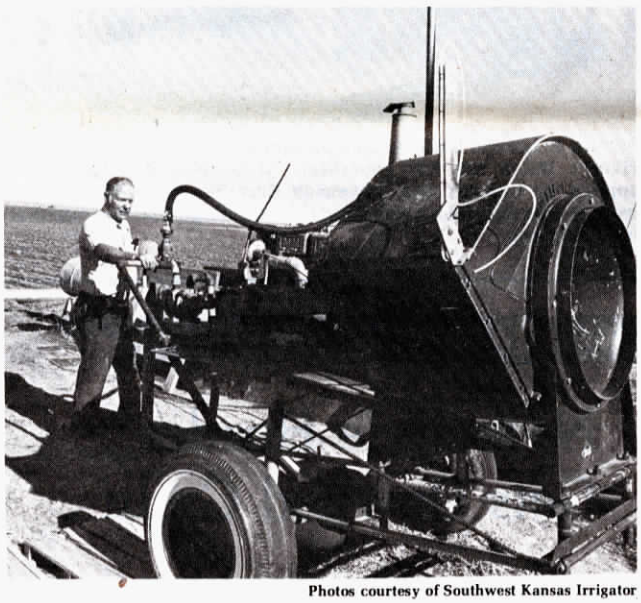
Any standard windmill can be used. Cain modified the pump so it pumps on both the up and down strokes. The air hoses can be 3/4-in. garden hose or flexible plastic pipe.

For the all-important check valve, Cain suggests contacting the Bivco Valve Corp., 100 Production Ct., New Britain, Conn. 06051. He emphasizes that an ordinary water system check valve is not good enough for this job.

Cain designed his own relief valve and had it made locally, but he thinks a Bivco valve might do the job. The underwater part of the bubbler should probably be made of copper tubing.

To keep the dock clear on the lake, Cain turns on his system in November and leaves it on until April, unattended except for an occasional inspection. Since everything is mechanical rather than electrical, there is little chance of failure.

Cain has specific details on pressures, hole spacing, types of materials, and equipment suppliers. For more information, contact: FARM SHOW Followup, Bernard Cain, 1541 Baker Ave., Schenectady, New York 12309 (ph 518 377-3059).



Photos courtesy of Southwest Kansas Irrigator

He's Turning Engine Exhaust Into Fuel

As the cost continues to climb, more people seek ways to reduce energy consumption. But Kansas farmer, Walter Farrar, of Hugoton, is going much further than most.

Farrar is using exhaust heat from a 150 hp irrigation engine to generate steam, which in turn powers a steam turbine. He's still perfecting the heat exchanger. But, for tests, he's been operating a 10 hp crop drying fan with the steam turbine and "waste" energy.

Farrar's son, Richard, is also getting ready to produce fuel alcohol and plans to recover heat from the radiator of the same irrigation pump engine to heat his still. The pump is about 30 ft. from the building housing the still and lines will be well-insulated to reduce heat loss between engine and still.

Says Richard: "We know there's plenty of energy there, and we plan to recover as much as we can. But we're still putting things together now and don't have it all working yet."

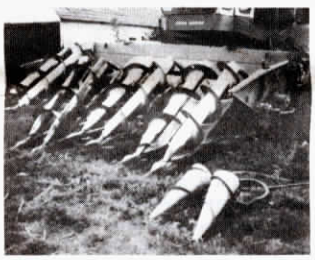
Richard notes that they have not yet approached full heat recovery, and the heat exchanger is being rebuilt to improve its efficiency. In the present unit, water and engine exhaust gases flow through the exchanger in opposite directions so that the hottest water is found at the point where exhaust enters the exchanger (at about 1200°F). At this point, the water flashes into steam and is directed to the steam turbine.

There is, of course, very little crop drying done while irrigation pumps are running, and the Farrars have been using the dryer fan simply to prove their concept of heat recovery. However, there is ample power available, says Richard, to operate a small feed grinder, electric generator or other similar equipment.

Currently, the Farrars have no equipment to sell, and have not as yet made any arrangements for anyone else to manufacture and market their device.

But Walter Farrar is also interested in other forms of alternative energy and has studied extensively both solar and wind energy. He now suggests that wind energy, instead of being stored in electrical batteries, might be stored as compressed air in a large tank. Compressed air could then be released as needed to operate a wide variety of power tools, or even turbine engines.

Attachment Salvages Downed or Lodged Row Crops



"I've field tested the units on several hundred acres and have picked as much as 95 bu. per acre of milo that was flattened right to the ground," explains William Mohr, Laurel, Neb., who has developed special attachments for salvaging lodged or downed row crops.

Smaller units, designed for salvaging beans, float separately and can be adjusted from 20 to 40 in. row width. Larger units for salvaging milo, sunflowers, corn and other row crops can be adjusted so height of cut can be from 13 to 30 in.

Row width can be adjusted from 30 in. to 40 in.

All units are hydraulically driven with the oil coming in through the lower point of the hydraulic motor, which is located within the tube. This leaves the upper end wide open with no possible clogging, explains Mohr.

The device is patented but is not being manufactured at present. "I am looking for a manufacturer interested in getting them on the market. I feel the idea will go a long way in helping alleviate the energy situation," Mohr told FARM SHOW.

For more details, contact: FARM SHOW Followup, William Mohr, Laurel, Neb. 68745.