



SEPTEMBER 1964

NUMBER 3



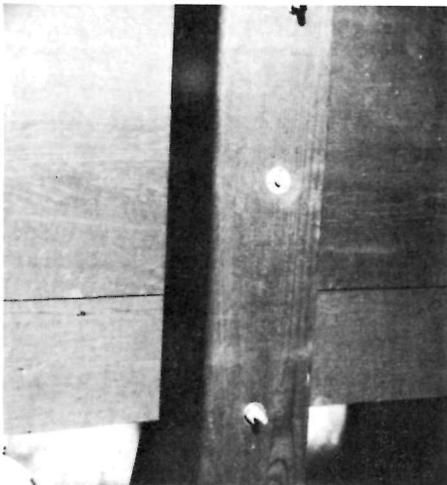
This publication is devoted to the reporting of time- and money-saving ideas originated by employees of the National Park Service. Each item herein has been rewarded through a cash

payment to the originator and each is intended for broad application wherever possible. Extended use of this material, strongly encouraged, makes awarded ideas of ever-greater value to the Service. -Ed.

PREVENTING SIGN REMOVAL

A patented "tee" nut costing about 4¢ may stop removal of your park signs by vandals.

With sign vandalism running about \$2400 a year at Sequoia and Kings Canyon National Parks, Harold B. Metz, Signmaker, put on his thinking cap and came up with a suggestion for reducing the loss (NPS W 64-68). His idea is already saving money for the Park Service.



The tee nut countersinks flush with the face of the sign or its wooden support and is almost impossible to remove without a special tool. Only one of the special nuts is needed on each sign—the rest may be of the conventional type (see photo).

PICNIC PERMITS

Park visitor complaints have been reduced and cooperation has improved since picnic permit forms were revised to cover the suggestion of Private Kenneth A. Beckler, National Park Service, National Capital Region (U.S. Park Police). (NPS NCR 63-10).

The new form states that cancellation notices must be received three days prior to the date for which the picnic permit was issued. This allows sufficient time to send cancellation notices to Maintenance and

to Park Police as well as to issue a new permit for use of the area, if requested.

Cornelius W. Heine, Assistant Regional Director, Conservation, Interpretation, and Use, who reports the suggestion, says that most park patrons now report changes and cancellations well within the specified time. Picnic facilities are less likely to be vacant because a group failed to show, a situation which often caused complaints from small groups without permits looking for a place to picnic.

REAR STEP IMPROVES GARBAGE TRUCK

A flat-bed tailgate truck used to pick up garbage and trash can be made more workable by installation of a wide step below the tailgate. The photograph shows the type of step suggested by Caretaker Cecil Banks of Death Valley National Monument (NPS SW 64-61). This one is a foot wide, 6-feet 8-inches long and supported by angle iron brackets welded to



the frame of the truck. Cecil noted that two new 3/4-ton pickups purchased for use in Death Valley provided only bumpers as rear steps, so pointed out that a safe, wide step would serve both to ease climbing in and out of the truck and emptying garbage cans over the tailgate into the body.

ORGANIZER FOR PARK RANGERS

Numerous suggestions have been presented in GRIST for organizing the miscellany that park personnel must have at hand in a car.

A variation has won an award for Rangers Ralph L. Raye, Supervisor, and Ronald P. Meyer of Vicksburg National Military Park. (NPS SER-64-26).

Using material which matches the interior of the car, they had a special

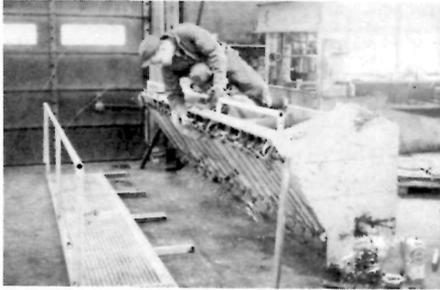


cover made for the front seat. On the back of it are pockets of the proper size to hold the following items: clipboard, park brochures, flashlight, hand spotlight, handcuffs, and ticket book. On the front is a pocket large enough to hold a clipboard or a notebook.

Now the boys are always organized.

SAFETY WALKWAY FOR CHIP SPREADER

In using the Fhlarety Chip Spreader on a road an operator must adjust the gates of the spreader box to insure proper distribution of the chip cover on seal coating operations.



The first photo here shows the dangerous position in which it was necessary for the operator to ride in order to adjust the spreader gates. (The spreader box is shown detached from its carrier in these photographs.) A fall from this precarious perch could result in serious injury or death.

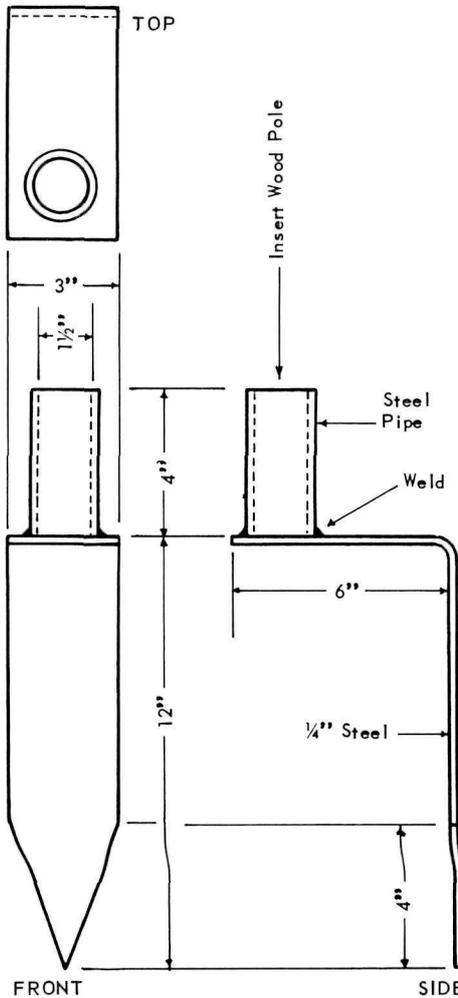


Alert to this safety hazard, Wayne H. Hoppe, Operator General at Yellowstone National Park, designed the safety walkway shown in the second photograph (NPS MW 64-75). Surplus crusher screens, angle iron and pipe were used to construct the walkway which attaches to the spreader with five pins and three chains. Cost, about \$110. The operator, using the walkway, has firm footing, good visibility, and can safely work the gates as required.

BETTER SNOW MARKERS

Along park roads which have curbing, snow markers are often stuck in the ground just beyond the curb and plow operators must guess where the edge is. There is considerable damage to plows and curbing. So Paul W. Gerrish, an Operator General in Glacier National Park decided to find a way to place markers

right at the edge of the curb to permit accurate operation of snowremoval equipment. His improved snow marker holders won him an award (NPS M 64-66).



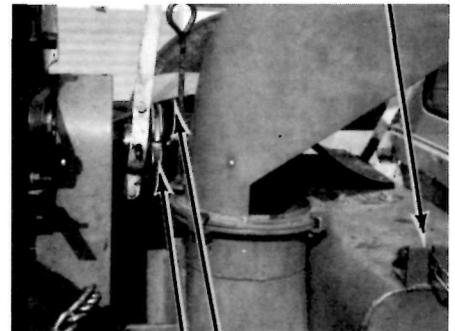
Paul's holder consists of a piece of strap iron bent in an L-shape, with an iron socket welded on it. One side of the L is driven into the ground outside the curb, and the other side of the L extends out to the curb edge, with the socket mounted at this point. The holder with marking pole costs about \$1.25 to make up.

MORE SAFETY FOR ROTARY SNOW PLOW

For eliminating the potential danger of two features of the small rotary trail snow plows transported by pickup trucks, Lon E. Maxon, an Operator General in Sequoia and Kings Canyon National Parks, has won an award (NPS SW 64-69). The type of snow plow improved is the Model 930 Trail Snow Plow made by the Snow-line Corporation, Eatontown, New Jersey.

To change the chute on the plow as it was before improvement, the operator's hand had to reach within a space only a few inches from a whirling cranking pulley and grease fitting. Therefore, the only safe practice was to stop the motor each time the chute was moved, perhaps twenty times a day. So Lon devised an extension for the chute holding pin (as shown in the photograph) so that it may safely be moved while the motor is operating.

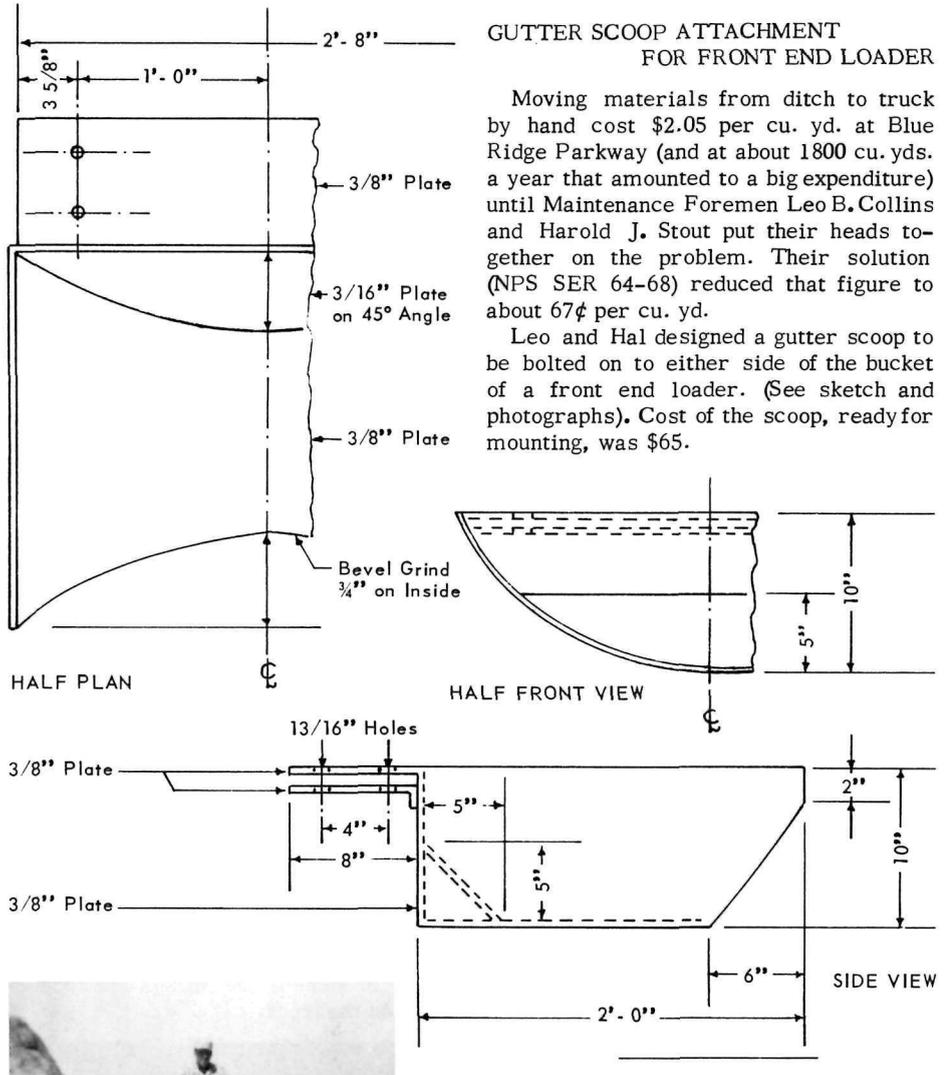
Holding Chain



Rotating Starter Pulley Improved Chute Holding Pin Original Chute Holding Pin Rotating Starter Pulley



In addition to the chute pin improvement, Lon had slotted ears welded to both sides of the auger box to accommodate short lengths of chain which are bolted to the sides of the pickup which transports the plow. The chains provide insurance against the 700 lbs. of plow mechanism shifting and rolling in the truck bed.



SILENT FIREMAN FOR CAMPGROUND GRILLS

Like the silent butler which the housewife uses to collect ashes from trays around the house, the pail and bracket shown here provide the means for the grill user to clean the ashes from his own fire grate. A large metal drum is placed reasonably near the grills so that the pails may be emptied when full.

The "silent fireman" reduces the temptation of visitors to rake hot ashes onto the ground, thus reducing the possibilities of fires. It also reduces maintenance at the grill sites by inviting public cooperation in keeping the area clean, and protects grasses and other vegetation from being smothered by strewn ashes.

Ray B. Ringenbach, Superintendent, Chiricahua National Monument, whose award winning suggestion this is (NPS SW 64-74), provides the following information about materials and assembly:

Materials: Strap iron, 1" wide and 3/4" thick; two 1" x 2-1/2" bolts, with washer and nut; 1 galvanized iron pail, 14 qt. capacity.

Assembly: Fashion strap iron into two

circular shapes—one of them (A), 10-1/2" in diameter, to fit the pail, and the other (B) to fit the pedestal pipe, leaving an opening so that the ends form a double prong (thus making a clamp). Drill 3/4" holes through the prongs to accommodate two 3/4" x 2-1/4" bolts.

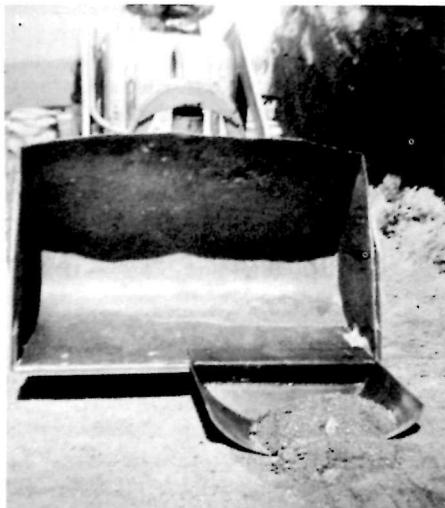


Weld A to B.

Spring the clamp section wide enough to go around the pedestal pipe. Spring back and snub tight with bolts and nut. (Clamp can be shimmed if diameter is too large).



Set bracket and pail at desired height on pedestal pipe. If desired, drill five 1/4" holes in bottom and sides of pail to discourage theft or other uses. Stencil instructions on pail.



HOMEMADE PLASTIC BLANKET BAGS

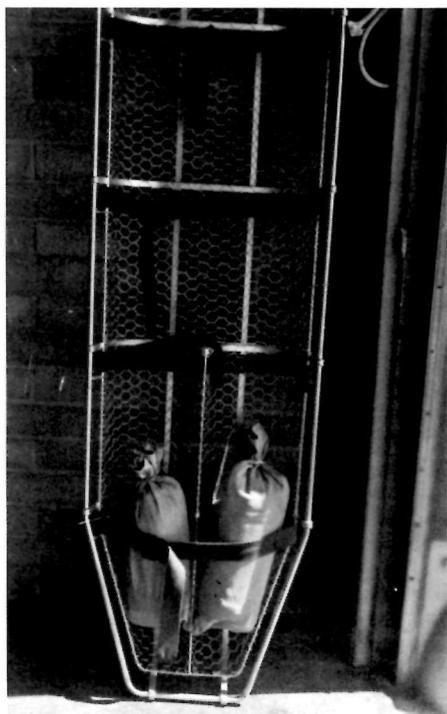
An inexpensive way to keep blankets dry and clean in high humidity areas has been suggested by District Park Ranger Einar L. Johnson, Theodore Roosevelt National Memorial Park. (NPS M 64-106).



Using 6 mil. plastic, 2 feet x 4 feet, fold it into a 2-foot x 2-foot square. Seal two of the open sides by placing a 6-inch x 2-foot piece of foil over the plastic and pressing with a hot iron. Turn the bag inside out, fold the blanket and place it in the bag. Then, using the iron and foil, seal the remaining open end. If care is taken when tearing the plastic to remove the blanket, the same bag can be resealed and used many times.

BAGGY TROUSERS BECOME BLANKET BAGS

When trousers are ready for discard, they may still be useful serving a new purpose. District Park Ranger Einar L. Johnson, Theodore Roosevelt National Memorial Park suggests cutting a section about two and a half feet long from each leg. Sew one end shut, roll up a blanket, put it into the bag, and tie it shut with about twelve inches of cord. Blankets are kept clean and ready for use. (NPS M 64-107).



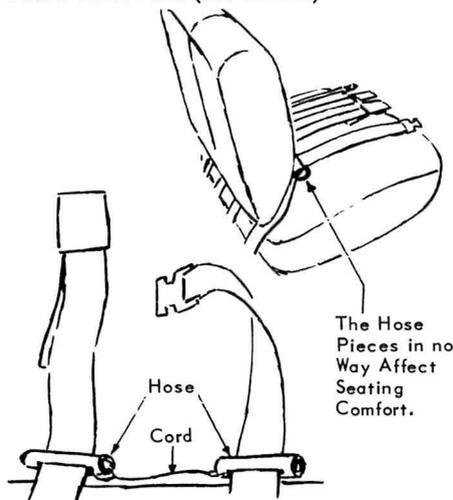
KEEPING SEAT BELTS ON THE SEATS

Seat belts lying on the floor never saved a life. They can be made to stay on the seats, however, so that all will be reminded that the belts are there to be used.

There are good gadgets on the market to make belts retractable, but they are fairly expensive, so Chief Park Ranger Edmund J. Bucknall, Grand Portage National Monument, devised a simple way to use salvage material to take care of the problem and received an award for the suggestion. (NPS M 64-4).

For each belt, cut a four-inch piece of salvaged garden hose or plastic water pipe. Make two-inch long slits opposite each other in the hose or pipe. Slip the hose over each seat belt at the point where it passes between seat back and cushion. The fit will be tight and the hose will not slip, nor will it wear and fray the belt material as a wooden or metal clamp might.

The outside sections of seat belts tend to slide sideways onto the floor and may be caught in the door and damaged. To reduce this tendency, Ed connected the two pieces of hose serving each pair of belts with a stout cord (see sketch).



The suggestion has been in use for two years at Grand Portage and has been adopted at Glacier.

KEEPING FIRE TRUCK IN GO CONDITION IN COLD WEATHER

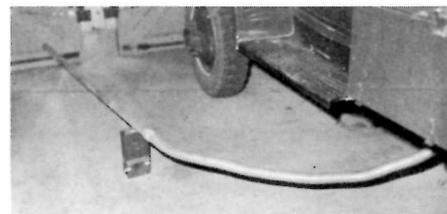
Below freezing temperatures occur at night during eight months of the year at Lava Beds National Monument. Because of this and because no heated building was available in which to garage the Structural Fire Truck, it was always necessary to drain all water from the truck tanks during those months. This, of course, greatly reduced the efficiency of the truck in case of fire.

To remedy this situation, Ranger Theodore L. Picco worked out a low budget heating system for the Fire Hall where the truck is stored. (NPS W 64-39). The Hall was sealed and weatherstripped (note in photograph that old cotton-jacket fire hose was used to weatherstrip the bottom

of the doors) and electric heaters were installed. This made it possible to keep the truck tanks full and ready for an emergency. The warmed building also made it possible to work on fire suppression equipment throughout the year, as time permitted.



However, a new problem was created. To keep the battery completely charged and to make sure the truck was in good operating condition, the truck engine had to be started and warmed each morning. To do this inside the sealed building would create a hazard from exhaust fumes. To open the large 10 foot by 10 foot door and drive the truck outside each day would result in loss of too much heat from the building, would be time consuming, and during periods of extremely cold temperatures, could result in the freezing of water in some of the fittings and connections on the truck.

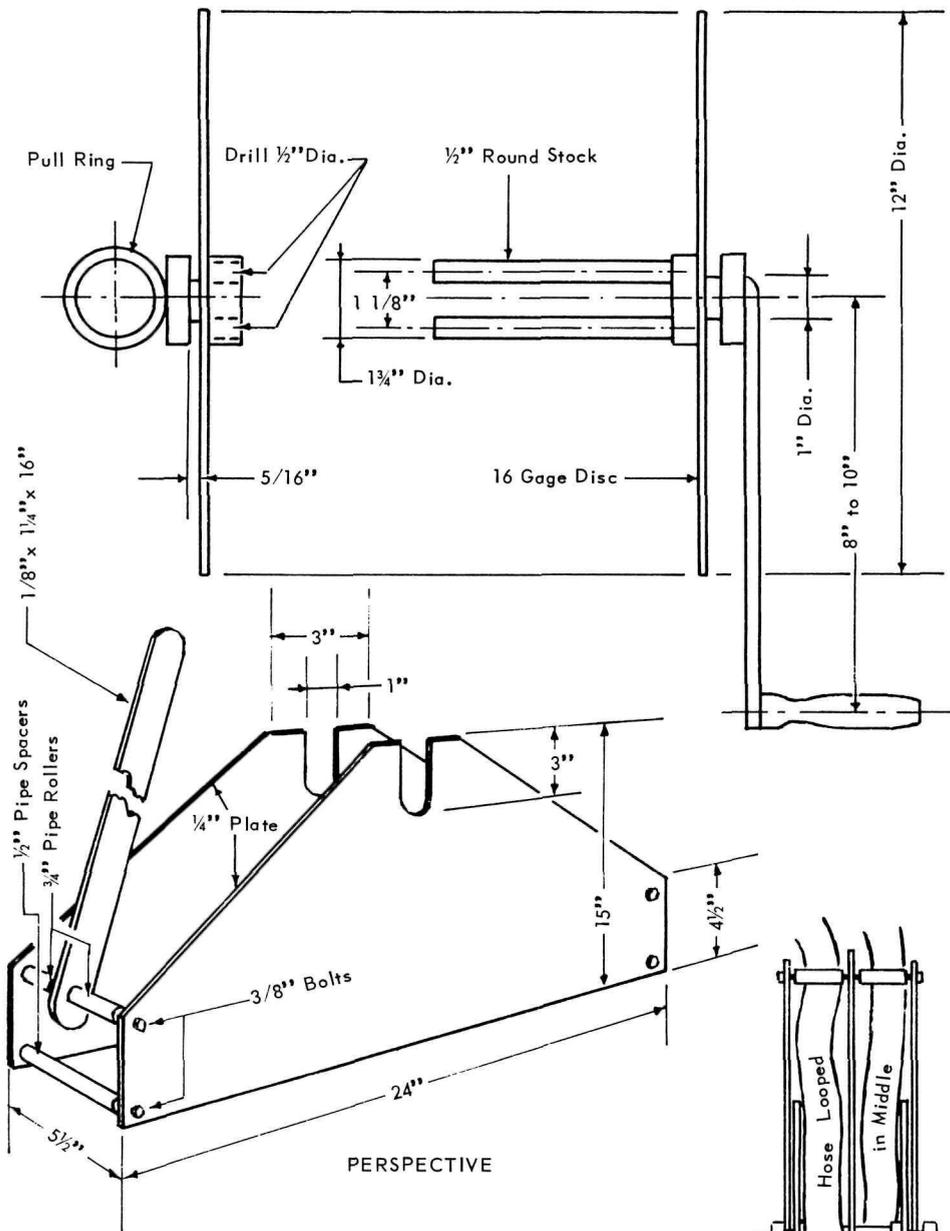


Ted solved this new problem by attaching an extension to the exhaust pipe of the truck to move the carbon monoxide gases outside the building. The extension is attached in such a way that it can be slipped off and out of the way in a few seconds when the need arises.

The extension unit was made from a six foot length of 1-3/4" flexible metal hose brazed onto a 9' length of 1-1/2" galvanized pipe. A 2" hole was drilled through an exterior wall of the building and the 1-1/2" pipe was inserted. The flexible hose was slipped over the tapered exhaust pipe of the truck, making a tight fit. Care was taken to position the pipe so that the outside end was slightly lower than the inside end, to allow condensed moisture to drain. Also, the pipe and hose used were slightly larger than the exhaust pipe on the vehicle in order to prevent creation of "back pressure" in the system.

Now the truck is ready to go at all times and the building is free from dangerous carbon monoxide.

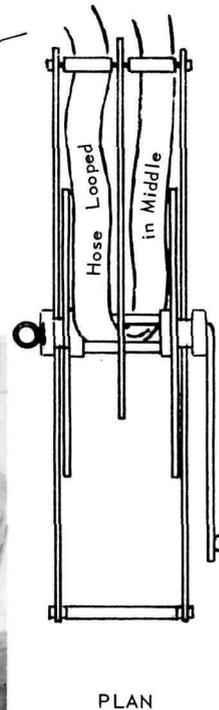
FRONT ELEVATION



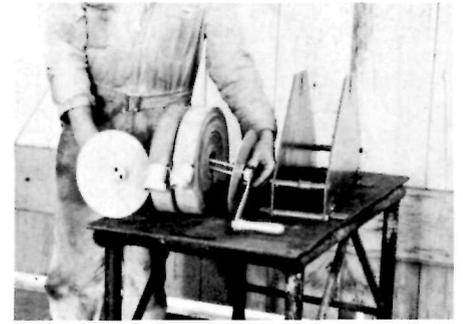
FAST FIRE HOSE ROLLING

Neatly and compactly rolling woven fire hose entirely by hand calls for skill, care, and time; and even an expert cannot make as neat and tight a roll as can be done with the assistance of a fire hose rolling device available on the open market at \$150. So, Edward J. Allen, Automotive Mechanic at Sequoia and Kings Canyon National Parks, made up a device of his own design, constructed in the park shop at much less cost, which handles two rolls at a time (unlike the commercial device which handles a single roll). (Suggestion NPS SW 64-66).

As the photographs and sketches show, Ed's rolling machine is very simple to operate. It will take one 1 1/2-inch hose, double roll 'donut' (as shown in the plan), two 'flat lay' rolls of 1 1/2-inch hose, or a 2 1/2-inch hose in either 'flat lay' or 'donut' as may be desired.

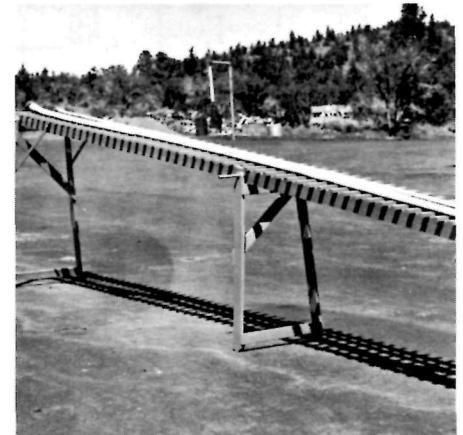


Roller Will Eliminate Hours of Back Bending Work



FIRE HOSE DRYING RACK

Dismantled, the fifty-foot fire hose drying rack, the upper end of which is shown in the photograph below, occupies space 14 feet long, 2 feet wide, and 1 foot high. It is made in 8 pieces: four of the rack itself and four legs. This makes for easy portability and storage. Assembly takes one man less than five minutes.

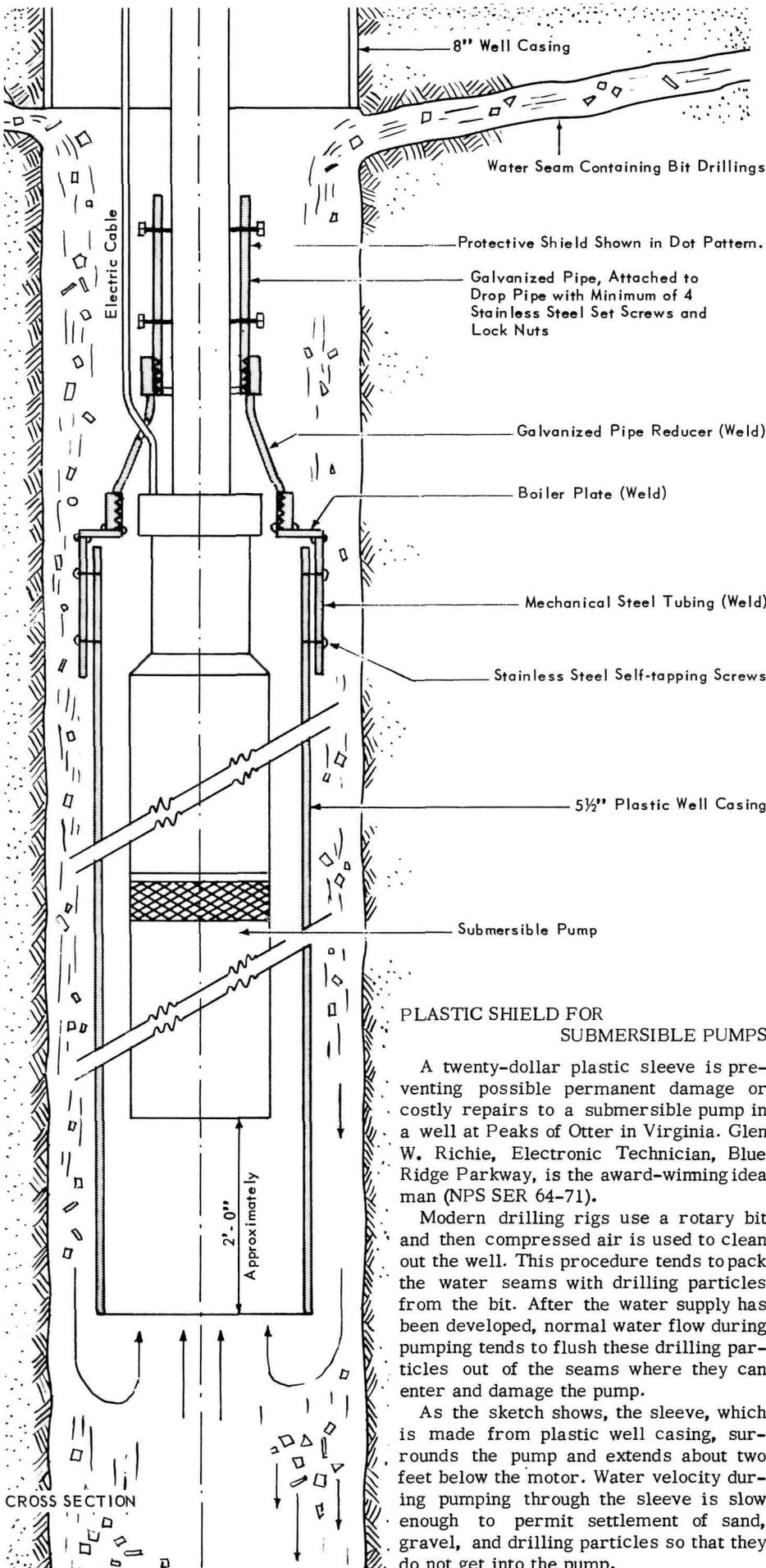


The slope is from five feet to ground level (a positive drain slope of 1 foot per 10 feet of hose). Slats, 3/4 inch by 1-1/2 inch, spaced 3 inches apart, allow good air circulation all around the hose. The 2-foot width permits drying 4 to 7 hoses at the same time, depending on the size of the hose. The hose will dry in 2 or 3 hours, will be completely drained, and does not have to be turned.

The rack is the award winning device of Theodore L. Picco, Park Ranger, Lava Beds National Monument (NPS SW 64-31). Ted's rack has greatly reduced hose replacement due to mildew of jackets and deterioration of rubber linings due to improper draining. Damage to jackets due to the past practice of laying and turning the hoses on rough lava rock, sharp gravel, or pavement has been eliminated.

Another use for the rack is for scrubbing the cotton jackets with soap and water to remove dirt and grime.

Use of the rack also contributes to safety; properly aired hose is less likely to burst under pressure, and the shorter drying time means less out-of-service time.



PLASTIC SHIELD FOR SUBMERSIBLE PUMPS

A twenty-dollar plastic sleeve is preventing possible permanent damage or costly repairs to a submersible pump in a well at Peaks of Otter in Virginia. Glen W. Richie, Electronic Technician, Blue Ridge Parkway, is the award-winning idea man (NPS SER 64-71).

Modern drilling rigs use a rotary bit and then compressed air is used to clean out the well. This procedure tends to pack the water seams with drilling particles from the bit. After the water supply has been developed, normal water flow during pumping tends to flush these drilling particles out of the seams where they can enter and damage the pump.

As the sketch shows, the sleeve, which is made from plastic well casing, surrounds the pump and extends about two feet below the motor. Water velocity during pumping through the sleeve is slow enough to permit settlement of sand, gravel, and drilling particles so that they do not get into the pump.

LISTENING LOCATES LINE LEAKS

When water mains laid in loose fill material spring a leak and there is no surface sign nor indication from leak detectors, another means must be used to pinpoint the break.

Clyde Kranenberg, Jr., Foreman II, W&S, Grand Teton National Park, uses the following method which won an award for him (NPS M 64-45).

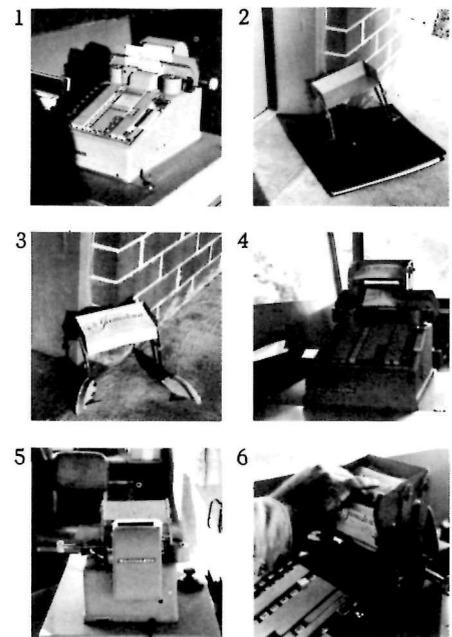
First, close the line for 24 hours. Figure the amount of water that should be in each section served by a drain. Turn on the water and meter each drain to determine which one is short. When this has been determined, with full pressure on the line, drive a 1/2-inch pipe 15 to 18 inches into the ground every three or four feet of that section until the leak can be located by listening through the pipe.

If you've got the ear for it, you can save a lot of line excavating.

ONE HAND TICKET VALIDATING

Fast and accurate positioning of tickets in the validating machine is important when sales are averaging more than a thousand a day as they do at Jamestown Island where 43,831 were sold in August last year.

Seeing the problem, Park Ranger Virgil G. Leimer, Colonial National Historical Park, designed the platform dispenser and ticket guides for attachment to the Burroughs Validating Machine (shown in the photographs), thereby reducing the operation to one hand, one motion, and assuring the accuracy of validation every time.



Photograph (1) shows the machine before Virgil's dispenser was attached. The next two show the platform (2) and the platform with the guides (3). Numbers (4) and (5) are front and rear views of the machine with

the device installed, with the rear view showing mounting positions. Photograph (6) shows removal of the ticket from the slot (with thumb and index finger) and the technique of flipping another ticket into the slot (with middle and ring fingers), with no movement of the arm.

The operation is now so simplified and accurate that the ranger can at the same time give attention to completing the money transaction with accuracy while giving information, knowing that the ticket will drop into the machine positioned for proper validation.

NONGLARE GREEN FOR TRUCK DASHBOARDS

Painting work vehicles a vivid yellow is cutting down the accident rate, but the eyes of the operators need protection from reflected light.

Foreman Nevin W. Wescott, Cape Hatteras National Seashore, has suggested that all such yellow painted vehicles have the dashboards painted a light, nonglare green. (NPS SER 64-95).

BETTER SIGN LETTERS

A new liquid plastic, Laminar X-500 Polyurethane Coating (with a hardener compound) works very well for painting the letters in routed wood signs, according to veteran signmaker Harold B. Metz of Sequoia and Kings Canyon National Parks (NPS SW 64-67). Although it costs about \$2 per gallon more than airplane lacquer formerly used, it also goes about a third farther and holds up much better, he reports.

"Lacquer has a tendency to bubble and blister in the elements," Harold writes, "but in the year Laminar X has been used, no faults have shown up. It doesn't seem to be toxic (to me anyway) and cleans up as quick and easy as lacquer."

By trying we can easily learn to endure adversity. Another man's, I mean.

-Mark Twain

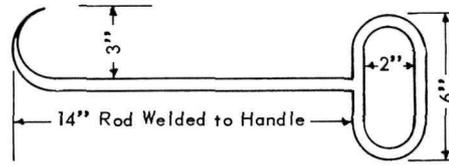
HOOK FOR HANDLING CHAIN LINK FENCE

Using the hook shown in the sketch, three men can move rolls of wire fencing fabric 4 to 12 feet wide, 50 feet per roll—a job which took four men using their hands.

The hook, which is made of 5/8-inch N.R. round bar iron, can be made in 40 minutes—30 for the blacksmith and 10 for the welder.

Full strength of the hand may be used with the hook when pulling, loading, or unloading wire, instead of just a couple of fingers when working without it. An important feature is the prevention of hand injuries caused by the roughness and

sharp galvanized coating of the fencing fabric.



Benjamin Williams, Blacksmith Helper, National Park Service, National Capital Region, suggested and designed the tool which was made in the shop. (NPS NCR 64-40).

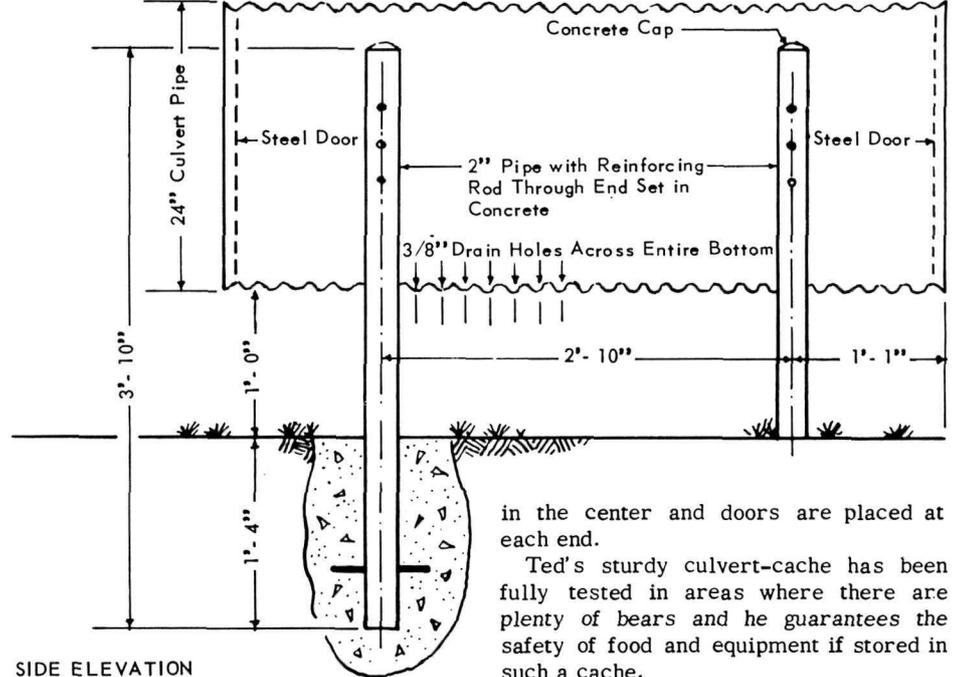
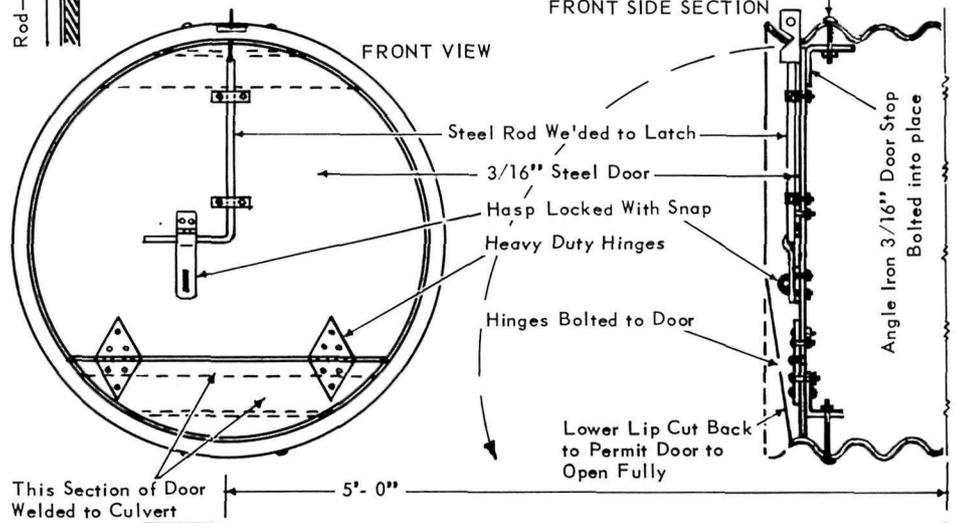
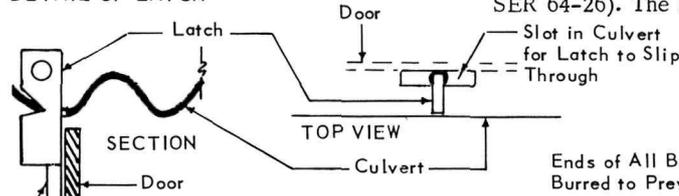
BEAR-PROOF FOOD CACHE

To keep bears and other wandering animals away from food, it is best to have a sturdy food cache for each trail shelter or campsite where large animals may be encountered. The average camper does not carry heavy enough boxes to serve the purpose, and both campers and park work crews sometimes want to leave food or equipment in bear-proof caches while on side trips or while working.

Theodore R. Scott, Supervisory Park Ranger in the Oconaluftee District of Great Smoky Mountains National Park, suggested use of a section of 24-inch culvert pipe, equipped with a door at one end, as a bear-proof food cache (NPS SER 64-26). The sketch shows the details.

A similar cache can be made to serve two adjacent sites if a partition is put

DETAIL OF LATCH



in the center and doors are placed at each end.

Ted's sturdy culvert-cache has been fully tested in areas where there are plenty of bears and he guarantees the safety of food and equipment if stored in such a cache.

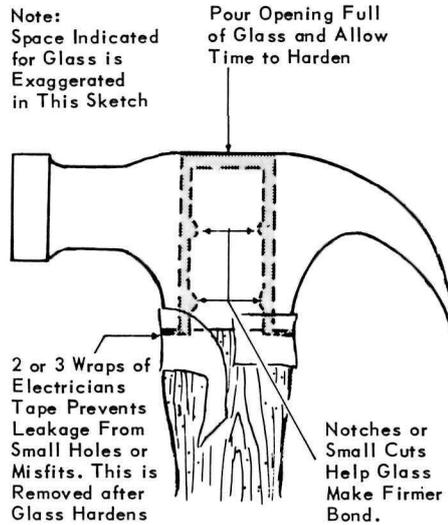
HOLDING TOOL HANDLES WITH LIQUID GLASS

When replacing handles of hammers, axes, mauls, and other tools, Maintenance Foreman Eugene J. Koevenig, Mount Rushmore National Memorial, uses liquid glass to hold the head firmly on the wooden handle. The sketch shows how he does it.

This method eliminates tedious precision fitting of wood to metal or the use of wedges to hold heads in place. Heads will not loosen, and the handles are actually strengthened by a complete bond. Time required to do the job is reduced 50 to 60 per cent by using the liquid glass.

Should the new handle break, the glass may be removed by burning it out.

Gene says that this material has with-

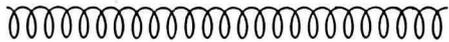


stood all normal use without fracturing. He uses Herter's Resinote at about \$1.00 a pint. A half ounce will set an average hammer. (NPS MW 64-73)

BACK-UP HORNS FOR SAFETY'S SAKE

Leon P. Doerner, Administrative Assistant, Lava Beds National Monument has been given an award for his safety suggestion that automatic back-up horns be required on all motor patrol cars and dump and other trucks to safeguard lives and save dollars in Tort Claims and Workmen's Compensation costs. (NPS W 61-9).

After testing, the suggestion has been adopted in several areas inside and outside the National Park Service.



The following is a partial listing of individuals who have received National Park Service Suggestion awards to date. Following the listed award idea, you will find a page number if the idea was reported in this issue of PLOWBACK. Other listings cover awards for ideas of local application only. Awards information received after August 1, 1964 will be reported or listed in subsequent issues of PLOWBACK.

Allen, Edward J. (NPS SW 64-66) Fast Fire Hose Rolling. See p. 21.
 Appleby, Harold E. (NPS SER 63-15) Threaded or Ring Grooved Nails for Pressure Creosote Treated Wood.
 Baber, Thomas K. (NPS NCR 64-3) Fotorite Processor for Photo Laboratory.
 Banks, Cecil W. (NPS SW 64-61) Rear Step Improves Garbage Truck. See p. 17.
 Beckler, Kenneth A. (NPS NCR 63-10) Picnic Permits. See p. 17.
 Bradberry, Freeman M. (NPS NCR 64-66) Sand for Wreckers to Sand Accident Area.
 Bruzzese, Joseph A. (NPS NCR 64-75) Three Safety Signs for Police Force.
 Bucknall, Edmund J. (NPS MW 64-4) Prevent Seat Belt Slippage. See p. 20.
 Budge, Darrell E. (NPS MW 64-70) Fan Blade Supports for Impeller of Sicard Rotary Snowplow.
 Canfield, Arvie C. (NPS NCR 64-44) Construction of Risers.
 Claveloux, John B. (NPS NCR 62-15) Dual Purpose Sign.
 Collier, Loyola F. (NPS NCR 64-78) Magazine for Clerical Staff.
 Collins, Leo B. and Stout, Harold J. (NPS SER 64-68) Attachment for Front End Loader. See p. 19.
 Colville, Donald J. (NPS SER 64-57) Marker for Fire Hydrants.
 Cornett, Grace Ann (NPS NCR 64-60) Modification for Time and Attendance Correction Form.

Cabbage, Elbert F. (NPS SER 64-56) Clear Drainage Structures for Heavy Rainfall.
 Deane, John W. (NPS NCR 64-65) Roll-A-Belt.
 Doerner, Leon P. (NPS W 61-9) Back-up Horns for Safety's Sake. See p. 24.
 Donati, William F. (NPS SER 64-45) Replacement Switch Panel for Emergency and Patrol Vehicles.
 Ellis, W. Paul (NPS MW 64-87) Fire Trailer Carries Hose and Extinguishers. See GRIST, Vol. 8, p. 4.
 Ellsworth, I. J. (NPS SER 64-75) Mark Your Mowing Hazards! See GRIST, Vol. 7, p. 44.
 Fallin, Roland A. (NPC NCR 56-8) PEPSCO Plant Water for C&O Canal.
 Franz, Robert E. (NPS NE 64-7) Cleaning of Urn Type Ashtrays.
 Gerrish, Paul W. (NPS MW 64-66) Better Snow Markers. See p. 18.
 Hancock, Maxwell E. (NPC MW 64-61) 20% Hydrogen Peroxide and Hair Lightener for Marking Rogue Bears.
 Heydinger, Earl J. (NPS NE 64-12) Fibre Mailing Box for Mess.
 Hill, William J. (NPS NCR 64-71) Map of NCR for Lincoln Museum.
 Hoppe, Wayne H. (NPS MW 64-75) Safety Walkway for Chip Spreader. See p. 18.
 Houston, Jack V. (NPS W 64-59) Vaseline for Traffic Counter Window. See GRIST, Vol. 8, p. 14.
 Hughes, David A. (NPS W 61-34) Floating Marine Dock for Marine Life Observation.
 Johnson, Einar L. (NPS MW 64-106) Home-made Plastic Blanket Bags. See p. 20.
 Johnson, Einar L. (NPS MW 64-107) Baggy Trousers Blanket Bags. See p. 20.
 Koevenig, Eugene J. (NPS MW 64-73) Holding Tool Handles With Liquid Glass. See p. 24.
 Kranenberg, Clyde, Jr. (NPS MW 64-45) Listening Virgates Leaks. See p. 22.
 Leimer, Virgil G. (NPS SER 64-67) One Hand Ticket Validating. See p. 23.
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