NATIONAL PARK SERVICE

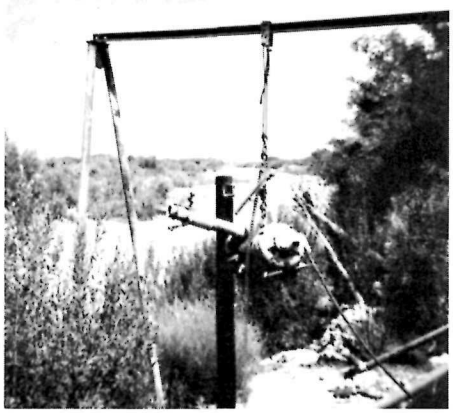
MAY 1965 NUMBER 2

These Ideas Cost Money -- Use Them

HOIST FRAME SAVES DOLLARS
(NPS SW 65-67)

During flood stages of the Rio Grande at Castolon it is necessary to remove the irrigation pump to protect it from damage. This formerly required three men and a hoist truck which had to be brought from 38 miles away, with a total cost for truck and labor of about $40.

Truck driver Margarito F. Cobos of Big Bend National Park, Texas, suggested that a hoist frame be constructed right at the site. Now one man can do the job in about an hour at a cost of $2.30. The new method is safer, too, as, with the old method, the pump had to be dragged up and over a retaining wall.



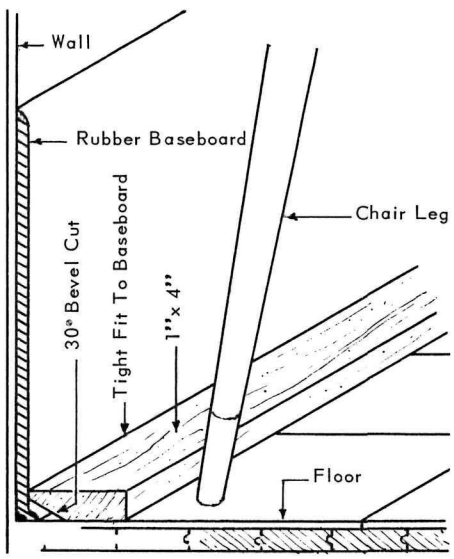
SPRAY PAINT BARRIERS AND LOGS
(NPS W 64-82)

Painting by hand took one man 80 hours to coat 50 barriers and 35 logs at Cabrillo National Monument. Maintenanceman Hugh C. Smith suggested improvising a paint sprayer by using an insect sprayer or any pressurized spraying equipment, such as a Hudson sprayer for the job. This was tried out and cut the time to eight hours.

Hugh says the paint or stain should be extra thin. Use the largest nozzle, and when you've finished, rinse the sprayer with paint thinner. This same thinner can be used to thin the next application of paint or stain.

PREVENTING WALL SCARRING
(NPS MW 65-29)

Lounge chairs, audiovisual chairs, and others, when too close to a wall, leave marks and scars. Hair preparations also leave stains on light colored walls when chairs are so close that heads touch the walls. Einar Justesen, Caretaker at Theodore Roosevelt National Memorial Park, solved the problem there by placing a wooden chair stop on the floor between the chairs and the rubber baseboard and painting it black like the baseboard. Unlike



a conventional chair rail higher up, Einar's stop protects the wall from chairs of any height.

The width of the chair stop will depend upon the design of the chairs, and the bevel cut (see sketch) will also vary, depending upon the shape of the baseboard. The bevel cut is necessary to provide a flush fitting for ease in cleaning.

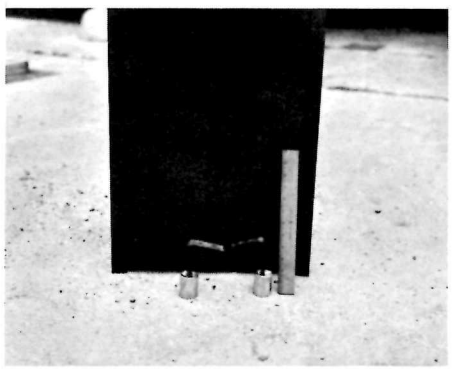
For I'd rather be thy child
And pupil, in the forest wild,
Than be the king of men elsewhere,
And most sovereign slave of care;
To have one moment of thy dawn,
Than share the city's year forlorn.

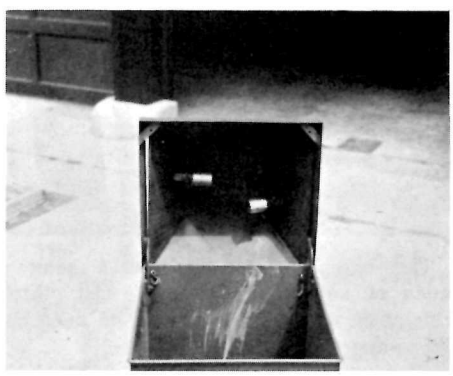
–H. D. Thoreau, NATURE

LONGER LIFE FOR WASTE RECEPTACLES
(NPS SE 65-17)

Swinging lid waste receptacles (GSA Stock #7240-634-00117) are frequently equipped with a very light closing spring. The spring fails after even moderate use, detracting from the appearance and allowing rain to get in and damage the receptacle. Lewis A. May, Maintenance Foreman III, Hot Springs National Park, Arkansas, has fitted the receptacles in that area with counterbalanced weights which close the lids without failure.

A piece of scrap metal 7 1/2 inches long is bent to a 70 degree angle, 3 inches from one end. The long end is placed in





a cylindrical mold and about 20 ounces of melted lead poured around it. Lew saves scraps of lead covered cable or sheet lead for this purpose, but any heavy scrap lead can be used. These weights are bolted to the swinging lid, offset right and left sufficiently to clear each other.

TOW-TYPE VS. HAND-PUSH FERTILIZER SPREADER (NPS SER 64-90)

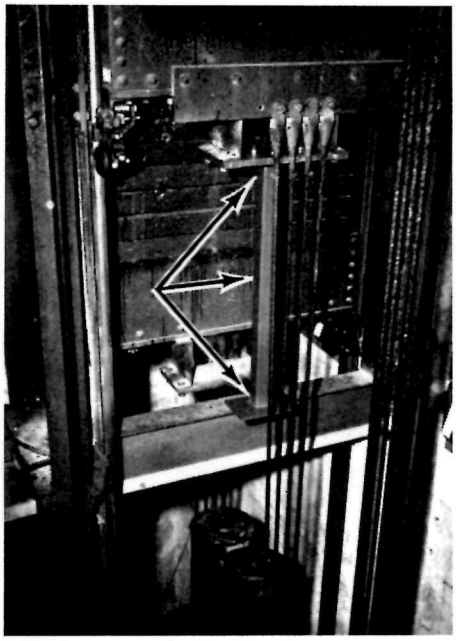
At De Soto National Memorial a saving in maintenance costs has been achieved by adopting the suggestion of M.R. Van Egmond, Administrative Assistant, to purchase a tow-type fertilizer spreader.

The spreader, towed by a Gravely tractor, requires only one man and 8 man-hours per application. The old hand-push method required two men and 24 man-hours per application.

ELEVATOR COUNTERWEIGHT EXTENSION CUTS REPAIR COSTS (NPS SW 64-52)

When two of the elevators at Carlsbad Caverns National Park needed recabling William F. Nowlan, Jr., Elevator Mechanic, devised a way to reduce repair costs.

When hoist cables stretch they must be cut off and reshackled. Bill figured that if he installed a three foot extension to the striker plate on the counterweight he could make the new cables that much shorter and still maintain minimum runby clearances set forth in "American Standard Safety Code for Elevators." By merely unbolting and removing the extension the same result is achieved as if the hoist ropes were cut off and reshackled.



The extension is made of a heavy piece of square stock with a flat plate welded on either end, as can be seen in the photograph.

REVERSIBLE, PIVOTING SIGN (NPS SER 64-84)

To replace two signs formerly used to show when a tour road was open and when closed, Park Ranger Donald J. Colville and Foreman IV Carol J. Virostek of Colonial National Historical Park, designed the two position sign shown in the sketch. As the sketch shows, the sign blocks the road when the route is closed, but shows beginning point of the Historical Tour Road on Yorktown Battlefield when open.

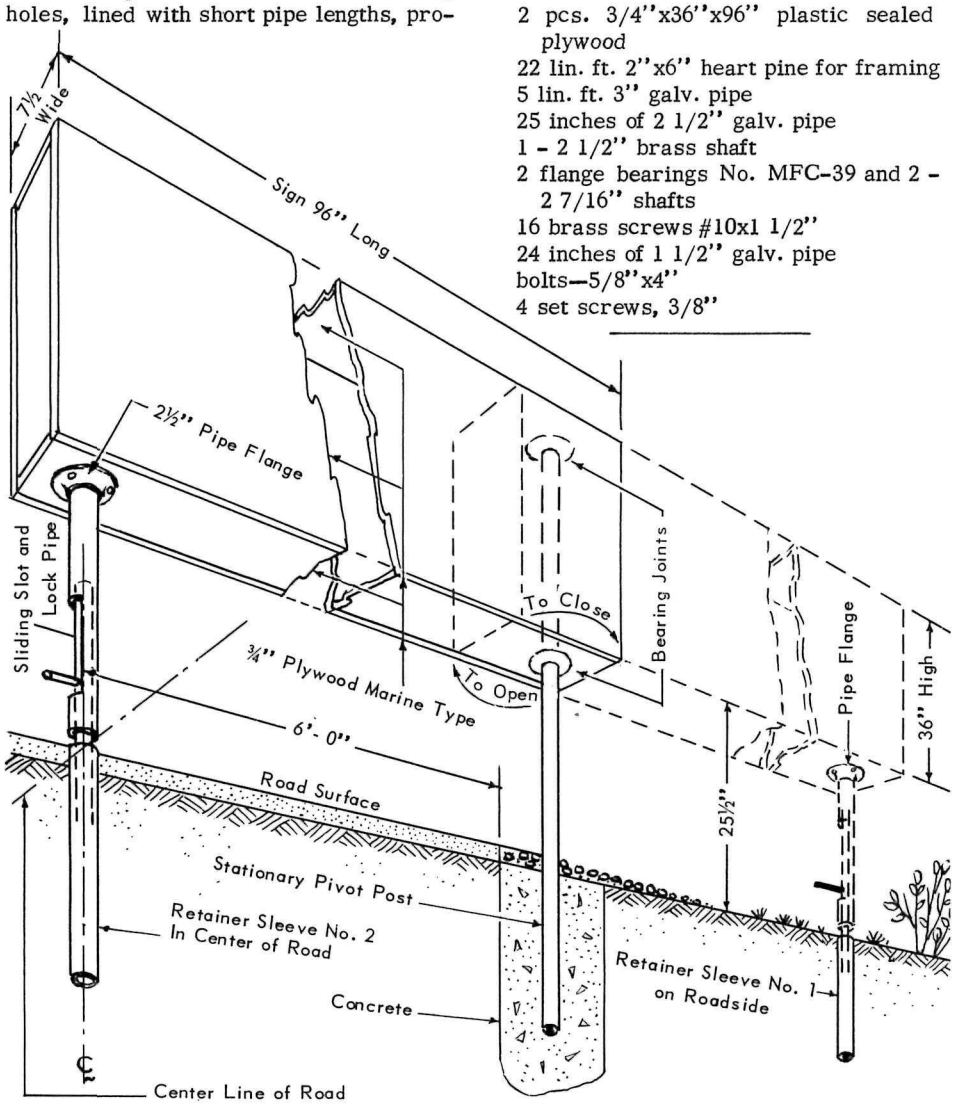
The leg on which the sign pivots is installed near the edge of the roadway on the right shoulder. Two anchoring holes, lined with short pipe lengths, provide locking points for the free swinging leg, one in the center of the road and the other on the right shoulder.

Since the road is one way, text is placed on both sides of the sign. When swung into the roadway the text reads "Tour Road Closed—Open 8:30 A.M." When swung into position at the side of the road the text reads "Yorktown Battlefield—Begin Historical Tour."

Thus, two signs are incorporated into one and the nuisance of dragging a metal sign into or out of the middle of the road is eliminated.

These are the materials which Don and Carol used (suitable substitutes could be made in the park shop, if necessary):

2 pcs. 3/4"x36"x96" plastic sealed plywood
22 lin. ft. 2"x6" heart pine for framing
5 lin. ft. 3" galv. pipe
25 inches of 2 1/2" galv. pipe
1 - 2 1/2" brass shaft
2 flange bearings No. MFC-39 and 2 - 2 7/16" shafts
16 brass screws #10x1 1/2"
24 inches of 1 1/2" galv. pipe
bolts—5/8"x4"
4 set screws, 3/8"



SIGN WHEN ROAD IS CLOSED SIGN WHEN ROAD IS OPEN

AWNING DUCKS TRUCKS (NPS SER 64-87)

At Rockfish Entrance Station in Shenandoah National Park the fixed overhang, intended to protect Rangers from sun, rain, and snow, had a short life and a hazardous one. Fifteen replacements had been made in the last five years. Trailer trucks had to maneuver to miss it—and some didn't.

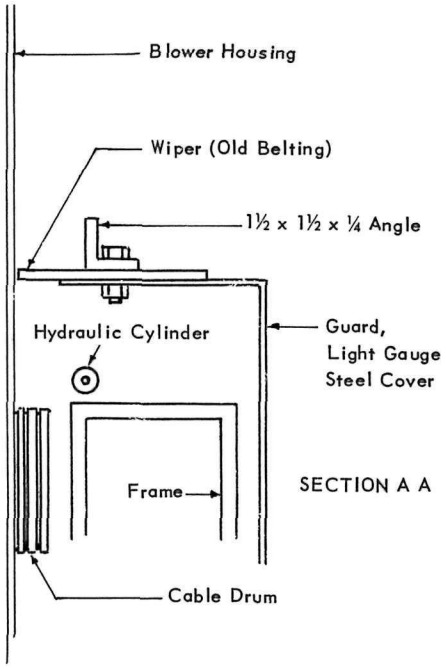
Park Rangers Jessie B. Hamilton and Herbert W. Good suggested that the fixed overhang be replaced by a retractable roll-up awning, which could be controlled from inside the station. Now the men need not go out and request drivers to maneuver the trailers so as to miss the overhang. When a trailer looms into view they just roll the awning up out of the way. They save a lot of time that used to be taken up making out accident reports, too.

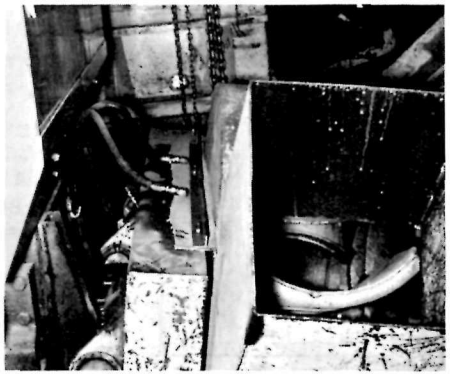
WIPER FOR SNOW BLAST MACHINE (NPS MW 64-96)

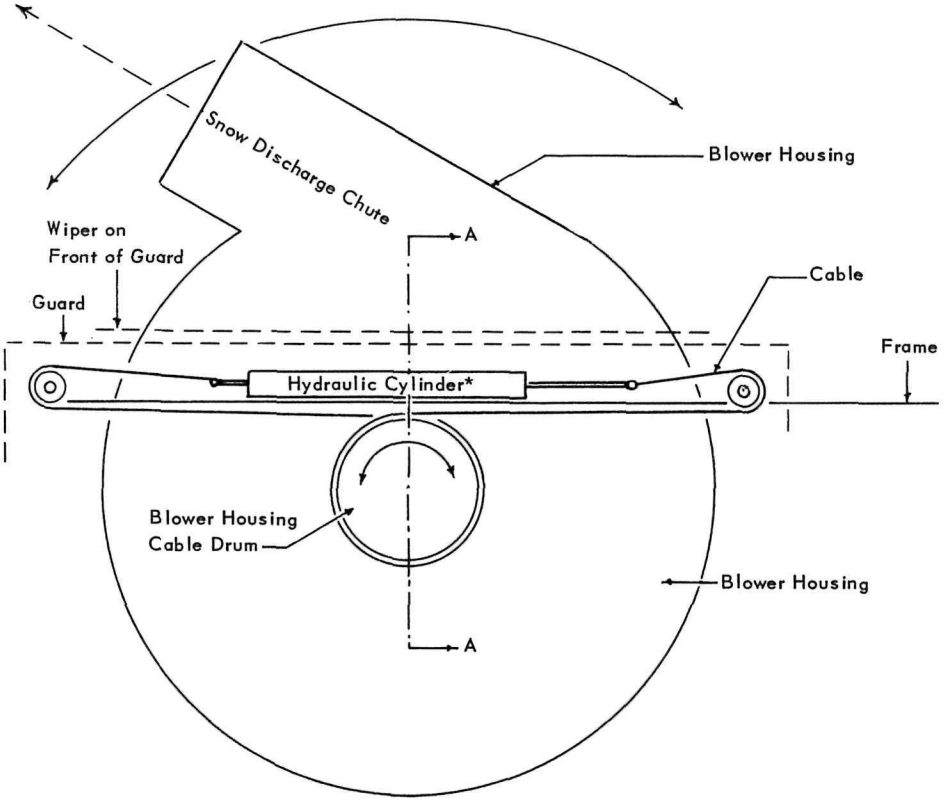
Melting snow getting into the cable drum of the snow blast machine at Yellowstone National Park turned to ice there and forced the cable off the drum. This was a frequent and expensive occurrence (about $82 in labor, operator time, and loss of machine time while not plowing).

But Lemely Oates, Heavy Duty Mechanic, licked the problem. Lem installed on the blower housing a 60" long by 4" wide wiper with slots to adjust the blade (see sketch).

Work to install the wiper and angle, using surplus material, took about two hours.







* Controls direction blower housing points

REAR VIEW

STORAGE CABINET FOR WELDING RODS (NPS NCR 65-15)

Formerly, the welding electrodes, stored at Central Maintenance, National Capital Region, N.P.S., were kept in open boxes of varing sizes on shelves.

In open storage the coating of electrodes picks up moisture from the atmosphere. The moisture makes welding difficult and in some cases results in poor welds, often unsafe. Moisture also causes the coating to flake off. Specifications call for baking low hydrogen electrodes for eight hours before using.

Kenneth M. Reed, Welder, decided that a heated storage cabinet was the answer to some of these problems. Expanded metal was used for internal construction of the cabinet shown here. Air space is provided at sides and center, allowing free flow of heated air around the electrodes. Heat is provided by two light bulbs, which maintain a temperature inside the cabinet of 102° at very little cost. The interior of the cabinet is heat reflecting to maintain temperature. The door is self-closing and self-latching. Capacity of the cabinet is 1200 lbs. of electrodes.

The new storage cabinet pictured below has its door open, thrown back against the wall.

Ken's cabinet cuts costs several ways:

1. By eliminating moisture pick up, flaking of the coating is eliminated. An electrode with a bad coating must be thrown away.
2. The welder removes only the number of electrodes he will use at the moment, thus reducing waste.
3. American Welding Society Numbers are standard for the welding electrode industry. Each electrode bin is labeled with electrode size and A.W.S. numbers instead of brand names and numbers.
4. Inventory can be made at a glance. This prevents duplication of stock.

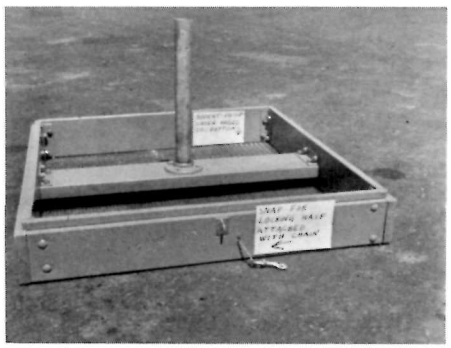
FIRE HOSE REEL AND STORAGE BOX (NPS W 65-13)

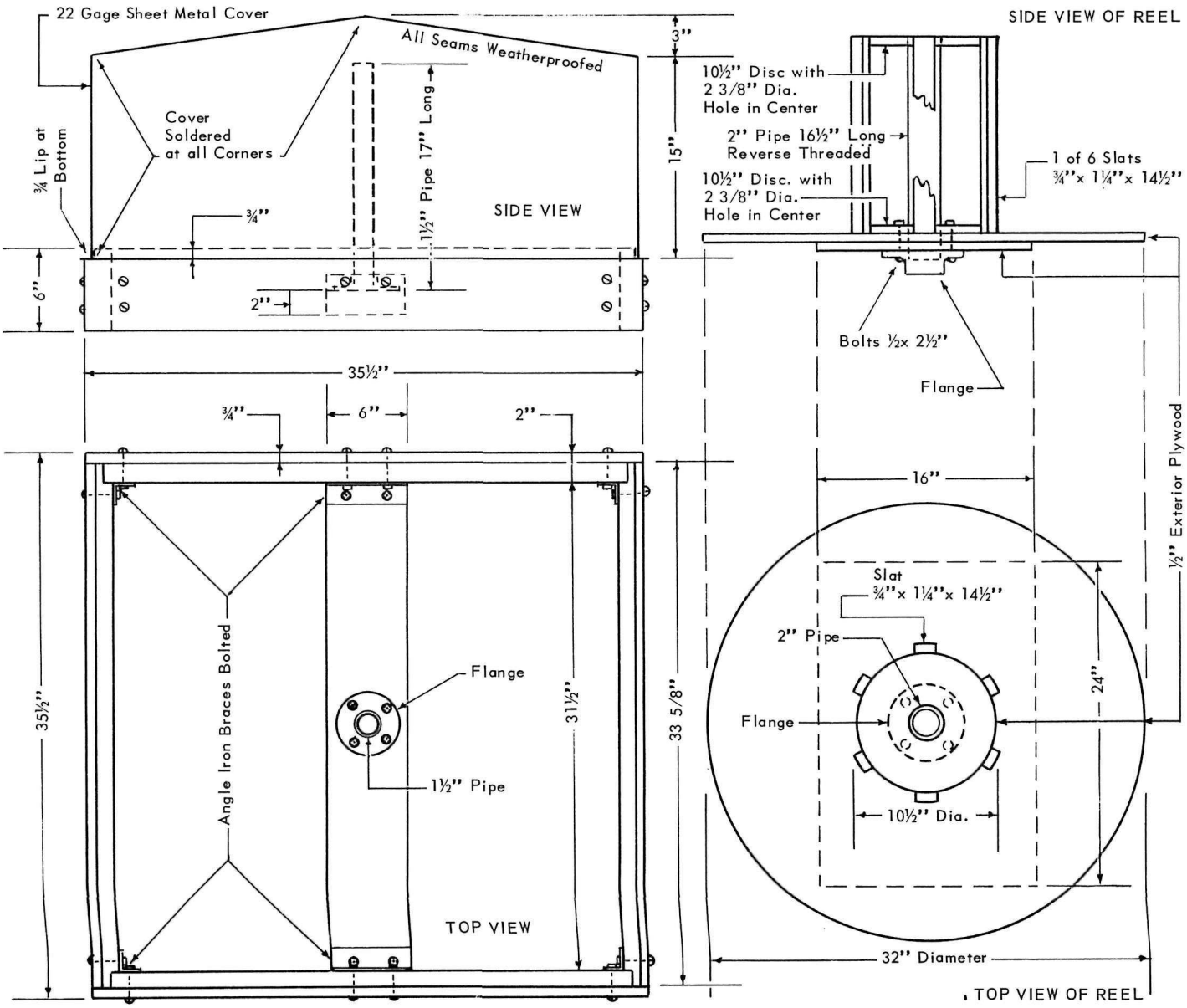
A rectangular, wooden fire hose storage box has a number of disadvantages which Theodore L. Picco, Park Ranger, Lava Beds National Monument, set out to correct.

Most enclosures of this type require that the hose be packed in such a way that it has many folds which shorten the life of the rubber lining. The lid often restricts the direction in which the hose can be taken out, the hose can easily develop kinks during removal, and a coupling can become caught on the edge of the box, slowing up the operation. Such enclosures often are not rodent-proof, making the hose liable to serious damage.

Ted's housing stores the hose on a reel inside a metal box which is weather and rodent-proof. Because of its bolted construction with steel corner braces and sheet metal cover, fitting over and onto the 3/4" side lip, only abusive mechanical damage can create any opening for a rodent. The galvanized cover reflects the summer heat, keeping the hose cooler than in a painted wooden box. The sloping cover sheds water and the lip prevents water entering where the cover sits on the base. The unit is mounted above the ground and the mesh-covered bottom allows fresh air circulation around the hose.

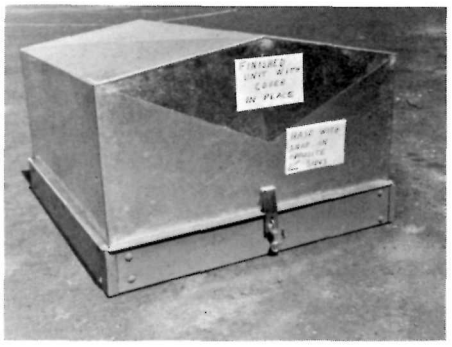
The reel and box will hold 250 feet of 1 1/2" heavy duty cotton-jacketed, rubber-lined hose, or 300 feet of light-weight cotton-jacketed rubber-lined hose, or if hydrant pressure is sufficient for its use, 100 feet of 2 1/2" CJRL hose, a siamese valve, and two 50 foot lengths of 1 1/2" hose. If necessary, the box could be made larger, but in most cases, 250 to 300 feet of 1 1/2" hose is about all one person can drag in a single





length. If distance from hydrant to a particular building requires additional hose, it would be better to put additional boxes at appropriate places.

The unit will save money and labor. Deterioration is retarded and rodent damage is eliminated, thus extending the life of the hose by two of three times. The Manual of Fire-Loss Prevention of the Federal Fire Council states that cotton jacket, rubber-lined hose should



be reloaded, preferably once a month, to change the folds and avoid kinking which may damage it. By eliminating the folds and kinking, the hose needs reloading less often.

Ted planned and perfected his design for this hose storage unit over a period of two and a half years, and he feels now that it can profitably be adopted by many parks for greater speed, safety, and economy in their structural fire control programs.

Materials and specifications are shown in the photographs and drawings.

BURN PAINT FROM ROCKS
(NPS W 65-19)

Vandalism with a spray paint can seems to be on the increase these past few years. Removing the paint from rocks can be expensive business. Recently such a paint removal job by sand blasting at Sequoia and Kings Canyon National Parks cost $235. Harold E. Scott, Operator General and Joseph L. Davis, Foreman III, Roads, tried a different method on an area about the same size and did the job for about $15, so offered their system as a suggestion.

Using a portable gas welding rig and a very large tip on the torch (available in many parks), they burned off the paint. An advantage of this method over sandblasting, in addition to its lower cost, is that it restores the rock surface to its natural appearance. By varying the heat and oxygen, the rock can be oxidized to its original color.

Joe and Hal call attention to safety precautions which must be taken. Safety goggles and protective clothing must be worn because some types of rock "pop" when heat is applied. Employees using this method will have to experiment to determine the amount of heat which should be applied to different rocks and whether the method will be satisfactory on the type of rock they are dealing with.

It is possible that a regular hand-held blow torch might be usable on some types of rock structure, but it was unsatisfactory at Sequoia and Kings Canyon.

POCKET REFERENCE FOR DUTY ASSIGNMENTS
(NPS SW 65-25)

At Carlsbad Caverns National Park the scheduling of summer guide duties involved in the operation of ten tours daily is so complex that a two-page master sheet of guide assignments is necessary. Mary Ellen Jennings, Personnel Management Assistant, has developed a cardex-file system with individual duty assignments typed on a card which the guide may carry in his uniform pocket for reference during the day.

Now after obtaining his code number from the daily summer assignment schedule (see a portion of a sample tour schedule below), the guide goes to this card file and selects the appropriate 3x5 card. On it he finds all of his assignments for the day, like this—

A-1 6:30 a.m. to 3:30 p.m.

Chief 7:00 party; lunch 10:45 a.m. to 11:45; Chief 12:00 party to L.R.; V.C. Info. 2:00 - 3:30

On the back of the card there is a schedule of the ten tours, giving the beginning and ending time of the "complete," the "big room," and the "photographic" tours. This provides a ready reference for answering the many visitor questions about tour times.

At the end of the day the card is returned to the file box in the Guide Office where it will be available for the next day's operation.

The cards used in Mary Ellen's assignment system are enclosed in plastic, sealed on three sides, for longer use.

TOUR SCHEDULE

RECORDS _____ SPECIAL ASSIGNMENTS _____ DATE _____

	7:00	8:00	8:45		9:30		10:15		11:00		12:00		1:00	2:00	3:00
			WI	BR	WI	BR	WI	BR	WI	BR	WI	BR			
CHIEF	A-1	B-1	C-1	G-1	D-1	C-1	E-1	B-1	F-1	C-1	A-1	G-1	D-1	E-1	F-1
LEAD	A-2	B-2	C-2	G-2	D-2	C-3	E-2	B-2	F-2	C-2	A-3	G-3	D-3	E-3	F-3

etc.

V.C. FORMATION DESK
6:00 - 7:30 B-1
6:30 - 8:30 C-1
2:00 - 3:30 A - 1, A - 2
etc.

LUNCH ROOM INFORMATION
8:45 - 9:15 A-2
9:45 - 10:15 B-2
etc.

TRAFFIC
6:00 - 7:30 B-2
6:30 - 8:30 C-2
etc.

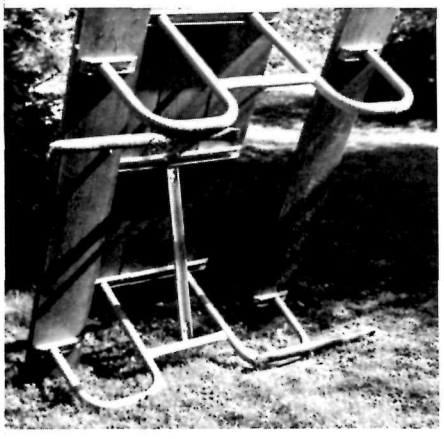
PHOTOGRAPHIC TOURS
9:45 R
2:45 B-3, B-4

WI = Walk In
BR = Big Room

TIP-PROOF PICNIC TABLE
(NPS SW 65-33)

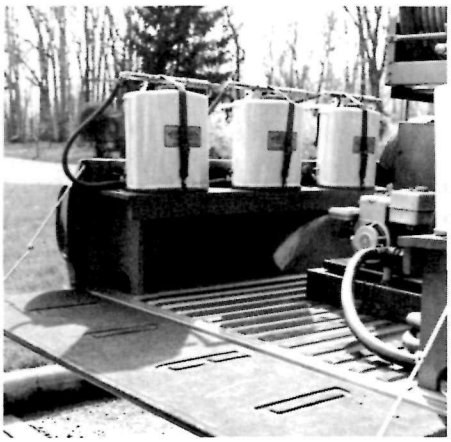
Standard plan picnic tables are inclined to tip over when one bench is overloaded. To prevent this, Vernon G. Sickler, Maintenanceman, Fort Clatsop National Memorial, welded pipe extensions parallel to ground level, on two diagonally opposite legs, as shown in the picture.

Unlike anchoring systems sometimes used to keep tables steady, Vern's system permits tables to be moved about the picnic area as needed to prevent permanent damage to grass and to accommodate larger groups needing more than one table.



SKID NO MORE
(NPS NE 64-66)

Many a slip can be avoided by painting metal walkways or step areas of vehicles with a non-skid aircraft paint, suggests Charles H. Seidel, Foreman III, Hopewell Village National Historic Site.

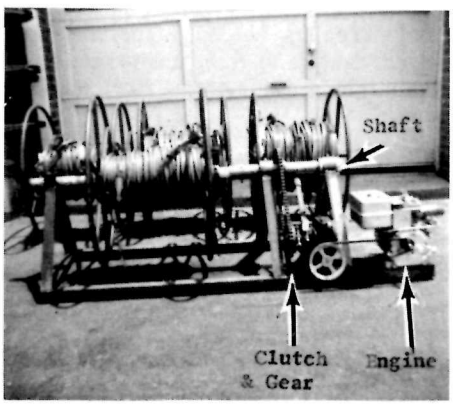


The photograph shows the tailgate and raised strips in the bed of a fire truck which Charley coated with the non-skid black paint. The surface to be painted must be free of rust or loose paint, and the paint should be applied with a spatula (application with a brush is not successful).

Charley used GLIDAIR non-skid black, manufactured by the Glidden Company, specification MIL-C-5044.

MOTORIZED CABLE PULLER
(NPS NCR 65-11)

Washington, D.C. is a city of many parades and at some points along the routes cables are stretched to hold back the crowds. Charles F. Robey, Machinist, and James A. Rubin, Welder, Division of Facilities Maintenance, National Capital Region, N.P.S., have worked out a way to make the job easier, faster, and safer.



The job of putting up a cable in one two-block stretch (both sides of the avenue) used to be accomplished by hand, letting out the cable from a spool and, when the parade was over, rewinding. Usually it took six men all day to put the cable up and the same amount of time to take it down. Chuck and Jim have made it possible for two men to do the job in four hours. The estimated savings is about $1000 a year.

The solution is a cable puller which is driven by a gasoline engine. The reels slide on and off a shaft driven by the engine. A reduction gear with clutch

makes it possible to start and stop the cable reel at will.

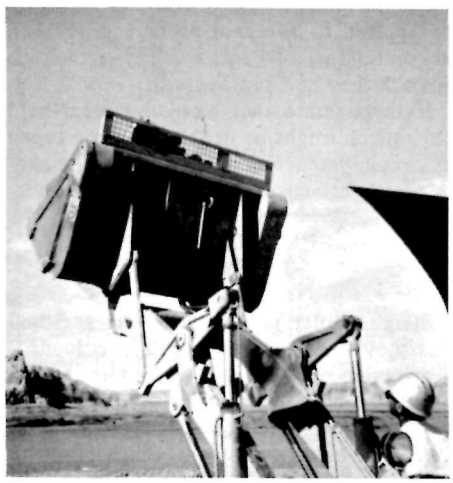
Four reels, each with a different length cable, are marked, each according to the location where it is to be used. Jim and Chuck say it's almost a pleasure putting up and taking down the cable now.

The cable puller could be used for other jobs, too, such as pulling electric lines or as a general purpose winch.

Right and wrong exist in the nature of things. Things are not right because they are commanded, nor wrong because they are prohibited.
—R. G. Ingersoll

SAFETY SHIELD PROTECTS LOADER OPERATOR
(NPS SW 65-26)

A safety shield to protect the operator of a front loader has been designed by Operator General Mirl W. Peninger, Glen Canyon National Recreation Area.

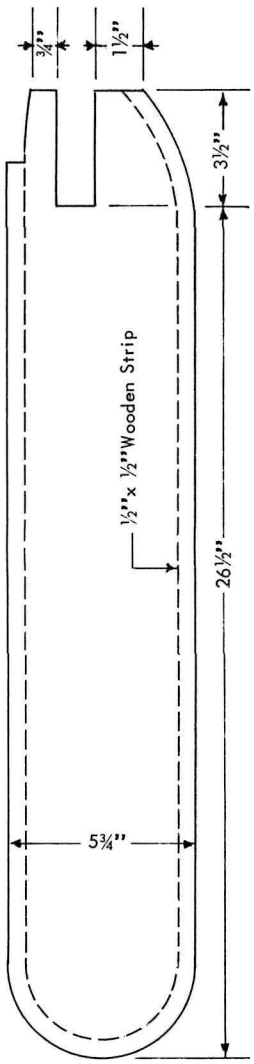


As the photograph shows, a piece of used rock crusher screen, cut to fit the top back side of the loader bucket, was framed with angle iron for reinforcement and welded to the frame. The frame was then welded (it could be bolted) to the top back side of the loader bucket.

Now, when the bucket is in full raised position and loaded with material, as in loading trucks or scaling slopes, there is less likelihood of rocks and dirt spilling back on the operator.

GUARD FOR A CHAIN SAW
(NPS MW 65-13)

Here's another good suggestion for a chain saw carrier guard which will protect people from injury and the saw from damage.



Philip Hecker, Fire Control Aid, Theodore Roosevelt National Memorial Park, whose suggestion this is, used two sheets of 1/4-inch Masonite, 6" wide and 30" long. These he cut according to the pattern shown in the sketch. A 1/2-inch strip of board 1/2-inch wide plus contact cement were used to hold the Masonite guard pieces together.

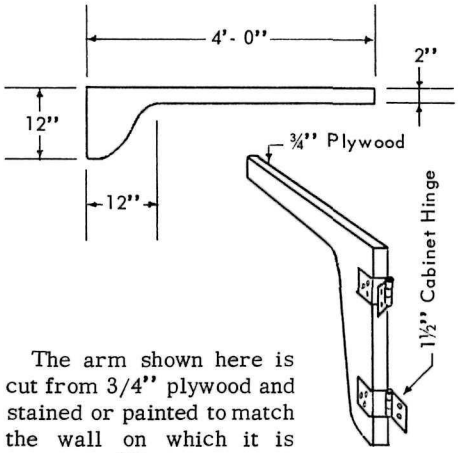
The guard is easy to put on and remove and will not fall off because the cutters on the chain tend to hold it on the bar. This one was made for a Model 640 McCulloch chain saw with a 26-inch bar. The design can be adapted, of course, to any make saw and bar length.

That's Phil in the photograph displaying the finished device.

SUITABLE WAY TO DRY U.S. FLAG
(NPS W 65-44)

In some places the U.S. flag when it becomes wet is draped over the nearest available object, a chair, door, or table, to dry. Caretaker Louis Cruz, Jr. at Hawaii Volcanoes National Park feels that

proper respect for the flag warrants having an appropriate place to dry it, so he suggests an attractively designed drying arm.

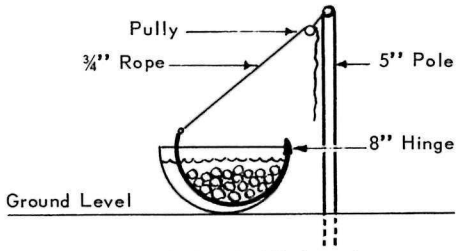


The arm shown here is cut from 3/4" plywood and stained or painted to match the wall on which it is mounted. When in use it stands at right angle to the wall, and when not in use folds back against the wall. A hook and eye or similar locking device will prevent it from accidentally swinging out.

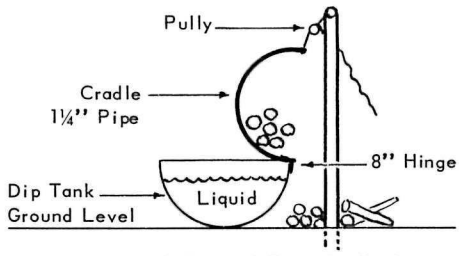
CRADLE ATTACHMENT FOR RAIL DIPPING VAT
(NPS SER 65-15)

Dipping one rail at a time into a vat of toxing solution (pentachlorophenol) is slow and risky work for the men on each end of the rail. Albert S. Ham, Truck Driver, Bluff Maintenance Area, Blue Ridge Parkway, devised the cradle attachment shown in the sketches here to make the job simpler and safer.

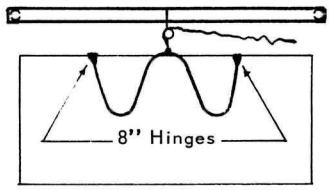
The device permits the vat to be filled with rails, using the cradle, and then, after they have soaked in the toxing solu-



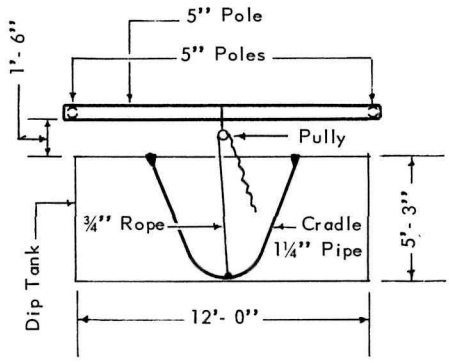
SECTION – Cradle Loaded With Rails Submerged in Dip Tank



SECTION – Rails Dumped From Cradle Onto the Ground



PLAN – Cradle Raised to Remove Rails From Tank



PLAN – Cradle Resting at Bottom of Tank

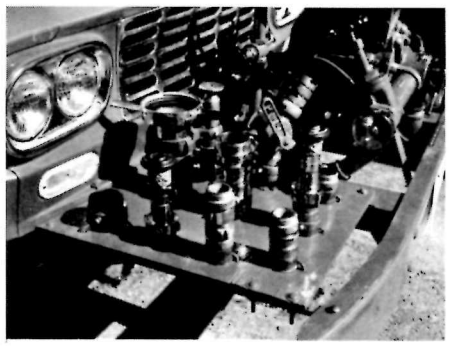
tion, permits easy emptying by one man using the block and tackle. There is little danger of employees' hands and arms becoming irritated from the solution.

NEW USE FOR OLD FIRE HOSE FITTINGS
(NPS MW 64-112)

Fire hose fittings which have been used but are in good condition are being put to new use at Rocky Mountain National Park and Shadow Mountain National Recreation Area thanks to the suggestion of Robert N. Perkins, Jr., Supervisory Park Ranger.

The fittings (2 1/2" and 1 1/2") are mounted on a piece of 1/2-inch plywood and the plywood is then mounted on the front of the fire truck near the front-end-mounted pump. Adapters, nozzlers, etc., can then be attached to the mounted fittings. This makes fittings and adapters readily available at the critical time of need.

The plywood is attached to the fire truck by bolts and a supporting piece of flat 1/2" steel rod 1" wide. Each fitting

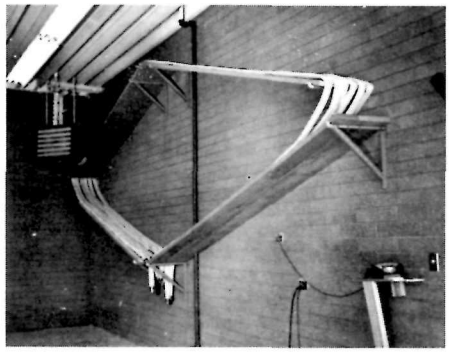


is fastened down with two curved bolts.

New fittings of the type shown in the photograph would cost at least $50; the cost of this installation (not counting labor, which was donated) was about a dollar.

FIRE HOSE DRYING RACK
(NPS SW 64-79)

We have reported on several fire hose drying racks, but a new one devised by Irwin Cowley, Acting District Ranger, Painted Desert District, Petrified Forest National Park, is really different. The wall-hung rack is up and out of the way. It has a unique diamond shape.



As the photograph shows, the rack is indoors, thus protecting the hose from damaging effects of hot sun, high ground temperatures in summer; freezing conditions in winter; and abrasive effects of wind and sand during windy periods. The hose is also protected from possible damage by curious children, careless adults, and accidents.

Here are the materials which Irv used.

2" x 8" plank (used)	48 feet
2" x 12" plank (used)	48 feet
1/2" water pipe (new)	18 feet
1/2" pipe elbows	8
1 1/4" angle iron (scrap)	20 feet
1/2" pipe caps	8
1/4" bolts and nuts	16

FIRE HOSE ACCESSORIES RACK
(NPS SW 65-28)

After the 110-gallon slip-on fire pumper unit at Glen Canyon National Recreation Area, had been mounted on a trailer, there were about 17 accessory items, nozzles, couplings, wrenches, etc., which ended up in a box mounted on one side. Loose in the box, the accessories were just a jumbled mess that would only cause confusion at a fire scene. Rodger C. Brask, Park Ranger, designed the accessory rack shown in the photographs. Now selection of the needed accessory is easy and threads are protected from dirt and damage.

Take a piece of steel plating large enough to accommodate all the fittings.

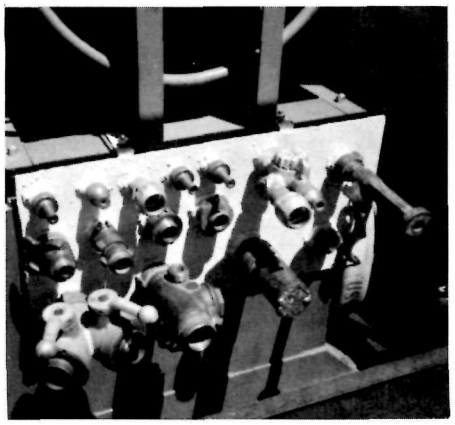
Select one hex bushing for each accessory to be mounted, with a corresponding thread size.

Spot the hex bushings on the steel plate, allowing space around each to mount and remove the accessory to which it corresponds.

Weld the bushings in place and paint as desired. Rodger painted the plate white which makes the fittings more visible in the dark.

A 1/4" bolt bent at 90 degrees holds the coupling wrenches.

The means of mounting the rack would depend upon the rig. For their purposes, Rodger designed 1" strap iron angle brackets and hung the rack from the hose reel mounts.



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 March 1, 1965 will be reported or listed in subsequent issues of PLOWBACK.

Alverts, Robert L. (NPS W 65-24) Training Aid.

Anderson, Carl V. (NPS W 65-22) Boating regulations handout sheet.

Arno, Stephen F. (NPS W 65-48) Photo display of fed and unfed deer.

Barnhill, Charles B. (NPS NCR 65-33) Location of construction numbers by timekeepers and maint. personnel.

Boyle, Daniel L. (NPS NCR 64-99) Install starter switches and selonoids in Jet Sanders.

Brask, Rodger C. (NPS SW 65-28) Fire Hose Accessories Rack. See p. 8.

Cobos, Margarito F. (NPS SW 65-67) Hoist frame to remove irrigation pump. See p. 9.

Colville, Donald J. (NPS SER 64-84) Pivotal informational sign.

Cowley, Irwin (NPS SW 64-79) Fire hose drying rack. See p. 15.

Cruz, Louis, Jr. (NPS W 65-44) Hanger arm for drying U.S. Flag. See p. 15.

Damon, Catherine A. (NPS M 65-72) All obligations be listed by NCR Bookkeeping machine.

Davis, Joseph L. and Scott, Harold E. (NPS W 65-19) Burning paint from rocks. See p. 13.

Eberling, Joe A. (NPS SW 65-105) Flood gate.

Edmondson, Billy H. (NPS SER 65-63) Filing system.

Epstein, Sophie F. (NPS EO 64-22) Light for dictionary.

Gonzalez, Celso O. (NPS NE 64-36) Revise from 10-89.

Good, Herbert W., and Hamilton, Jessie B. (NPS SER 64-87) Retractable awning. See p. 10.

Ham, Albert S. (NPS SER 65-15) Cradle attachment. See p. 15.

Hecker, Philip (NPS MW 65-13) Safety guard for chain saw bar. See p. 14.

Housenfluck, Earl L. (NPS NCR 65-63) Overprinting of letterhead for U.S. Park Police Headquarters.

Hughes, John K. (NPS NCR 64-96) Change spec. for contracting chain link fence constructing.

Jennings, Mary E. (NPS 65-25) Pocket reference for duty assignmts. See p. 13.

Justesen, Einar (NPS MW 65-29) Eliminating wall scars by chairs. See p. 9.

Kidwell, Joseph D. (NPS NCR 65-12) Use photos from cuban disturbance for training U.S. Park Police.

Komarinski, Pete (NPS NCR 65-45) Roto Mist Sprayer for litter collection.

Koubele, Betty R. (NPS WASO 65-1) Revise Form I-625.

Martinez, Ray G., Jr. (NPS SW 65-99) Vehicle service care for motor pool.

May, Lewis A. (NPS SER 65-17) Counterbalanced weights for closing door of waste receptacles. See p. 9.

Mayrose, Paul L. (NPS EO 65-3) Format for preparing construction contracts.

McDowell, Lyle H. (NPS MW 64-76) Reports be contained in Reports Mgmt. Handbook.

McPherson, Mabel E. (NPS W 65-42) Transmittal slip for NPS pamphlets.

Miles, John R., Jr. (NPS SER 64-69) Sign constructing.

Morphew, Gordon S. (NPS MW 65-43) Revise Colter Bay group campground adm.

Nowlan, William F., Jr. (NPS SW 64-52) Counterweight ext. when recabling elevators. See p. 10.

Oates, Lemely (NPS MW 64-96) Wiper for Snow Blast Machine. See p. 11.

O'Neill, George R. (NPS NCR 65-25) Photographing data from employee's former records.

O'Neill, George R. (NPS NCR 65-38) Plastic covers for paperback books.

Peninger, Mirl W. (NPS SW 65-26) Safety shield for operator of loader bucket. See p. 14.

Perkins, Robert N., Jr. (NPS MW 64-112) Old hose fittings for front of fire truck. See p. 15.

Petrella, Michael L. (NPS NCR 65-43) More signs for G.W. Memorial Parkway.

Picco, Theodore L. (NPS W 65-13) Fire hose reel and storage box. See p. 12.

Prencipe, Nick L. (NPS NCR 64-107) Aluminum strip to depress interior button.

Reed, Kenneth M. (NPS NCR 65-15) Electrical heated cabinet. See p. 11.

Robey, Charles F., and Rubin, James A. (NPS NCR 65-11) Fabrication of cable puller. See p. 14.

Saunders, Elloween M. (NPS MW 65-47) Remove electrical outlets.

Scanlon, Carole T. (NPS NE 65-39) Replace guest register.

Schmidt, Joseph R. (NPS NE 64-21) Additional air compressor.

Seidel, Charles H. (NPS NE 64-66) Nonskid paint for running boards. See p. 14.

Shearer, Mary T. (NPS MW 64-18) Provide space for recipient's address on Form 10-166.

Sickler, Vernon G. (NPS W 65-33) Tip proof picnic table. See p. 13.

Smith, Dale L. (NPS SER 64-60) Emergency wall for maint. shop.

Smith, Hugh C. (NPS W 64-82) Sprayer for painting and staining. See p. 9.

Sulcer, Roger L. (NPS NCR 65-36) Plates for erecting bandshell.

Van Egmond, M. R. (NPS SER 64-90) Tow-type fertilizer spreader. See p. 10.

Whealton, Warren (NPS NCR 65-46) Plastic liners for trash receptacles.

Williams, Jack R. (NPS SW 65-22) Protective-interpretive device.