METHOD OF TRIPPING TRAPS WITH A SOLENOID

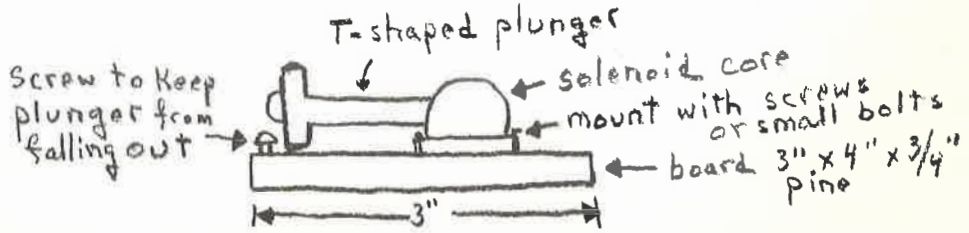
By Edwin C. Weiland

First a few words about solenoids themselves might be needed. Briefly, a solenoid is comprised of an outer core with wire coiled around it and an inner movable part or plunger. When an electric current is passed through the outer coil a magnetic field is set up drawing in the plunger. Solenoids come in two forms - continuous and intermittent duty. Just as name implies, the continuous duty is for a continuous operation and intermittent duty is for a brief operation. While technically the continuous duty is the better of the two for our purpose either is usable as only an instant is required to trip a trap.

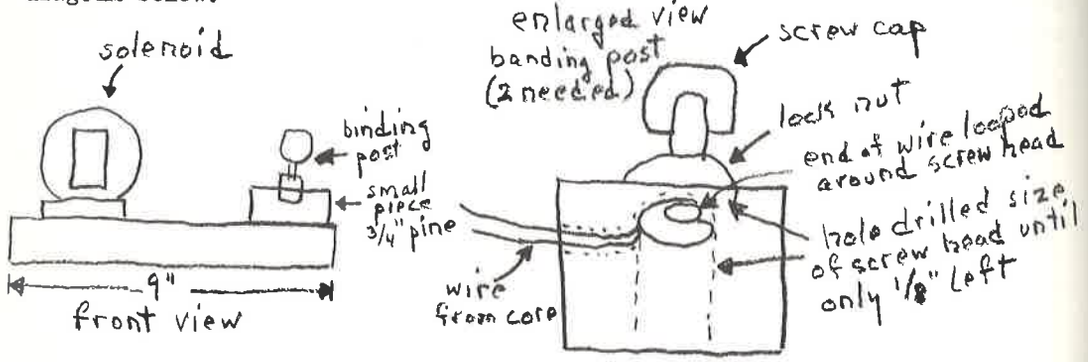
Solenoids come with various types of plungers. I would recommend the T-shaped plunger. It is also advisable to have a plunger that does not fall out of the core as this can be a great nuisance. However, it is not always known when ordering if the plunger will fall out or not. But with a T-shaped plunger this problem can be quickly overcome, as will be explained later, but with the rod-type plunger it is almost impossible.

Solenoids can be obtained from almost any electronics-catalog outlet. One source that I obtain mine from is the Burstein-Applebee Co., 1012-14 McGee St., Kansas City, Mo. Burstein-Applebee list a wide variety of solenoids from $2.60 up to $9.00. However, in the miscellaneous 'bargan' pages, one can usually find one for $1.95 or less. The main thing to determine is that it has a stroke of at least $\frac{1}{2}$", a pull of close to 4 lbs. (64 oz.), and will operate on 110 volt AC current. (Unless, of course you want to operate the solenoid in a remote area by battery, in which case the proper DC voltage should be obtained. Burstein-Applebee lists solenoids with 6-24 DC volts but I have never tried any.)

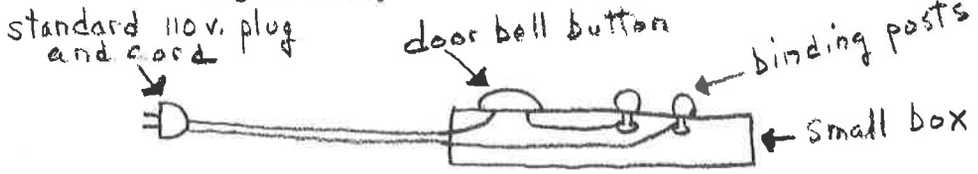
Once the solenoid has been obtained it is mounted on a small piece of board, about 3" X 4". Thickness is immaterial, but I recommend 3/4" pine be used. If plunger does not fall out of core, mount base of solenoid $\frac{1}{4}$" from long side of board (either with screws or small bolts). If plunger does fall out, solenoid will have to be mounted back far enough so a screw can be put in near edge of board to avoid the nuisance of plunger falling out all the time. See diagram below.



After the solenoid has been mounted, the two wires leading to the coil will have to be fastened to some manner of easy connectors. I recommend binding posts but other methods are available such as Fahnestock clips. (don't use a 110 plug and socket - too bulky) I mount my binding posts as follows; a small piece of 3/4" pine is screwed to one side of the solenoid, the binding posts and wires from coil first being fastened to it. See diagram below.



Next a control button is assembled to trip the solenoid. This can be an ordinary door-bell button. The button is assembled in a small box with a cord to plug into 110 volts on one side and again two binding posts on the other side. See diagram below.



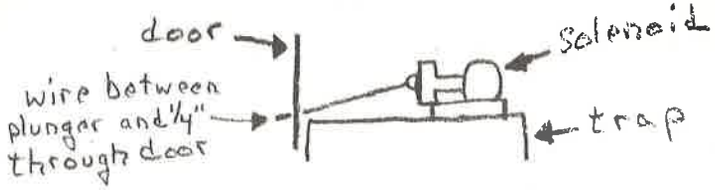
About 100' of wire, more or less as needed, is used to connect between control button and solenoid by fastening under binding posts. About $\frac{1}{2}$" of insulation is stripped off each end of the wires and the ends should be soldered slightly to keep the strands from fraying. A very light gauge (No. 22 Or 24) two wire parallel plastic coated wire can be used as current only travels through it for an instant.

Total cost of all above equipment, including solenoid, 4 binding posts, 1 door-bell button, 100' of wire, and short piece of 110 cord and plug in should not run over $5.00 at the most.

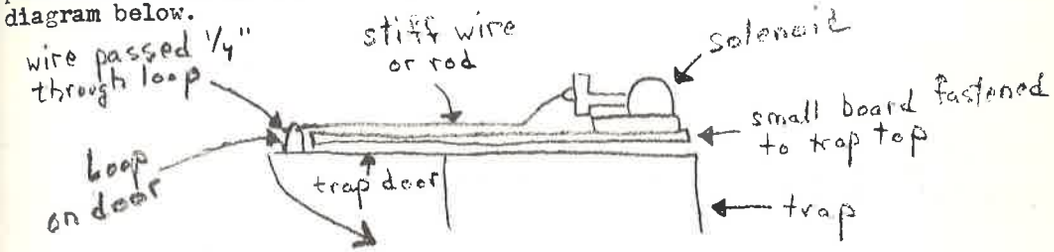
Almost any type of trap that has a door can be actuated by a solenoid, either directly or by a lever action. A few samples follow.

Any "Potter type" overhead falling door; merely set the solenoid on top of trap, run a piece of soft wire from the solenoid to the door, one

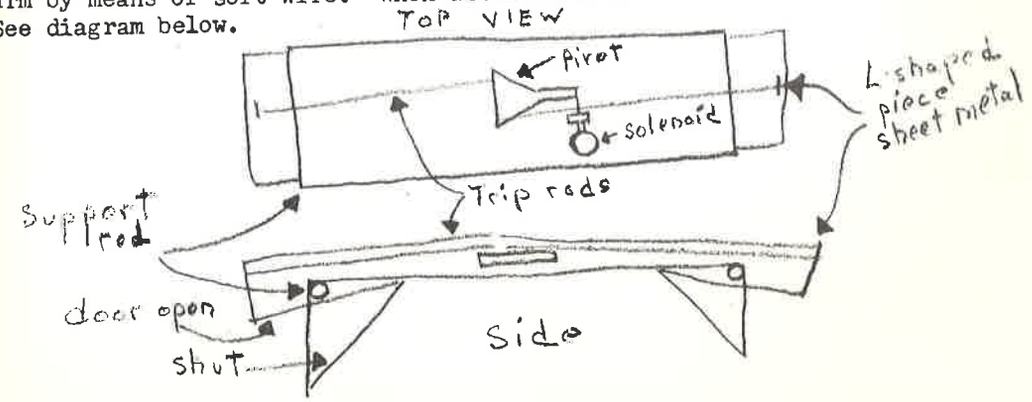
end being hooked to solenoid plunger and other end pushed about $\frac{1}{4}$" through mesh of door. Plug in control button, connect wires, push button and door will fall. See diagram below.



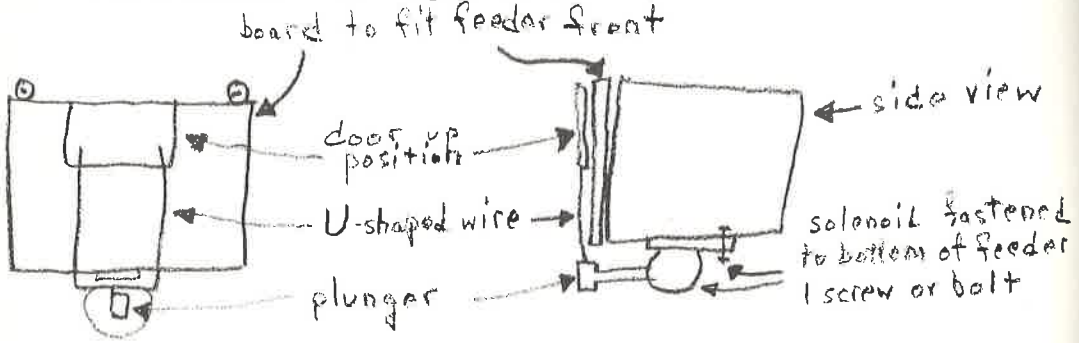
Any swing down 'trap-door' type door. Here a slight addition will have to be made to the trap. First a small board, about $\frac{1}{2}$" thick by $1\frac{1}{2}$" wide by length depending on trap size, will have to be fastened to top of the trap. Also a loop of wire is added near bottom of door. Solenoid is set on top of trap, a stiff piece of wire or rod connected to plunger and passed over end of board and pushed through loop on door about $\frac{1}{4}$". See diagram below.



Double door swing-down doors. (one door at each end) Here again a slight addition will have to be made to the trap. A loop or L-shaped piece of tin is fastened to each door. If not on trap already a support across the ends of the trap will have to be added. A pivot lever with rods going to each door is centered on top of trap. (A small board may have to be fastened across the center of the trap first in order to have something to screw the pivot screw into.) Solenoid is hooked to lever arm by means of soft wire. When actuated both doors fall at same time. See diagram below.



A door attached to a feeder. If there is sufficient room, a door can be quickly made to fit the front of a feeder and actuated by a solenoid. First a piece of 3/8" plywood the size of the feeder opening is fitted to the feeder front, either screwed on or eye-screw hooked over nail heads. Next a drop door is made in the middle of the piece of plywood, door height being half the height of feeder front. Any overhead drop door design can be used. The solenoid attached to bottom of feeder by any simple method (one screw, one bolt, etc). With door in raised position a U-shaped piece of wire is fastened to the door with bottom of U resting on solenoid plunger. See diagram below.



A few advantages of solenoids are: You can do selective trapping, that is, if there is one certain bird you want to catch, you wait until that bird is in the trap before you trip it. With an automatic trap any bird would be caught, trap tripping possibly spooking away special bird you wanted to catch. You do not have to check traps at all. If busy or called away, you don't first have to run and check all the traps as trap does not trip unless you push the button. You do not need the straight line effect that pull-string traps need. You merely string the wire around, over, or under any obstruction that may be in the way, providing you can see the trap itself to see when birds enter. You can trap birds from the comfort of your home. (The wire is small enough so most doors will close over it.) You step to window every so often to see if any birds in trap, if so push button tripping trap, if not in trap leave trap set. Wind and squirrels will not trip trap causing nuisance of having to go out and 'reset' traps. The reflex action of pushing a button is much quicker and surer than pulling a string.

The main thing for those wishing to try solenoids is to try and keep your equipment as simple as possible. By merely setting the solenoid on top of trap it can quickly be changed to another trap in seconds. Have push button control and hook-ups as simple as possible.

Solenoids are completely safe to use. There is no current anywhere until the button is pushed. If a further safety feature is wanted, do not plug in the 110 plug until ready to use.

If anyone would want to try solenoids and has a special problem to overcome, I would be glad to help in any way I could. Also, the Thorne Ecological Research Station, 1707 Hillside Road, Boulder, Colorado, had available several years ago, an excellent bulletin on the use of solenoid.

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RUBBER TOP GATHERING CAGE

By Dorothy L. Bordner

For some time Mother and I have wanted to experiment with a rubber top gathering cage. Last fall we made one with four cells and tested it at IBOR. It proved to be very successful for us and others might want to try one.

There are advantages to this type of cage. Several individuals (of non-fighting species) can be held in a single cell without having one escape when another is put in or removed. Mother had 27 juncos in a single cell at IBOR with no escapes and no injuries. Even the crawling species such as nuthatches, creepers, and chickadees did not escape, but if the slits gapped very much I wouldn't trust them for too long a time. The rubber top prevents the scalp injuries that occur in hard top cages when birds (particularly thrushes) jump against the roof. Bill injuries are eliminated by the use of nylon screen. Having screen on all sides provides more ventilation than in a conventional cage.