

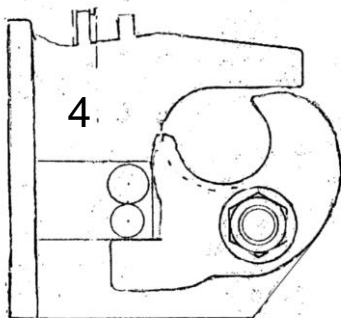
This is the *Tow N' Stow* Pressure release, pintle hitch. patent # = 5,713,691

The pintle 1, below is typical, a pintle ring goes over the pintle hook; but if there are great forces pulling or pushing on the hitch ring, you either get a hammer or a jack to remove the pintle ring.

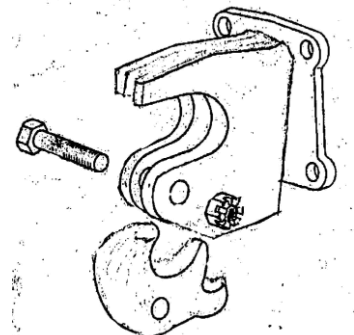


Below 2 is the Holland hitch I used to make my prototype pressure release pintle. Drawing 3 shows the hook indented to accept a pipe brushing on the lever my thumb is on, in the center picture.

I remade and used Holland's hook 3, but made my own frame.

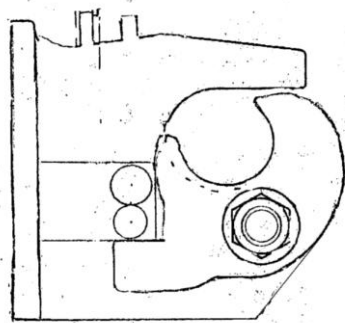
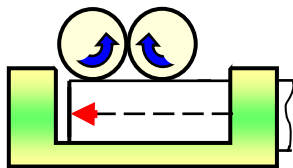
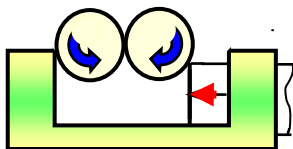
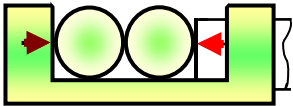


My pressure release hitch is on the left. My hook end is flat, not indented. Holland's, on the right, won't release, if there are forces pulling on the hook. Mine will.



Pressure release for pintles is the same as for tow bars I make. Here's how it works on tow bars in the three middle drawings below:

1. The operator backs up before unhooking, compressing the rollers.



2. The operator turns one roller which turns the other. Both rollers turn on the notch walls, exiting the forces that compress them, with very little friction, or wear.
3. The rollers are out, the towbar pin comes out easy.

If you are unhooking and the front vehicle is pulling on the tow bar, it will be a struggle to get the pin out. Backing up first puts the forces on the rollers. Easy to turn one out!

But, if you're going down hill or the back unit rolls in a dip, backing up don't help!

See the pintle hitch below left and imagine the rollers doing this.

With a pintle you don't have to back up!

1. You get out, and if the pintle ring is pulling on the hitch you turn the rollers. If it's pushing forward on

the pintle frame, you pull the rollers back and lock them and drive away.

There is never a struggle!

The only way to insure trouble-free hitching is with a Tow N' Stow roller release / pressure release pintle hitch. No other company has as good a pressure release latch as even my standard tow bar 'pry-the-pin-out', at 14:1 leverage.

This roller latch is likely over 100 times the release ability of the standard latch and far less wear

Article I.

PARTS

Roller release, or pressure release works the same in pintles as tow bars.

Pics to the left are taken while I was making the pintle prototype. The two rollers are 7/8" and 3/4". The hook hinge pin is 7/8"

The hitch below is the

same, just assembled more.

PP2

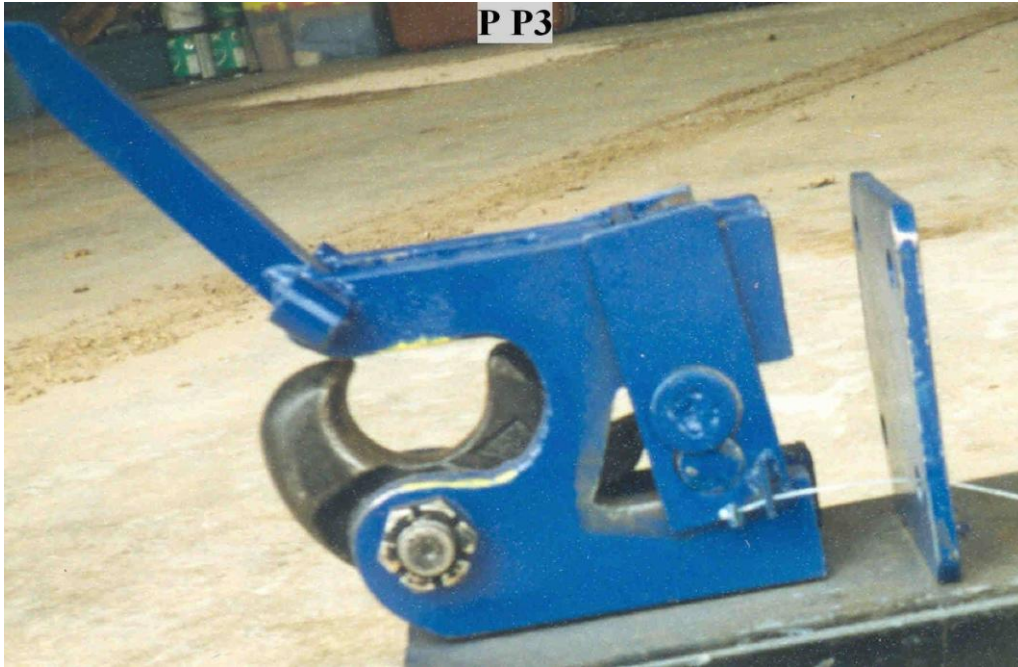


PP4



All that's left now at PP3 is to weld on the back, end plate, and remake the ramp guides.

The rollers are pulled away from the hook in PP3, hook can open.

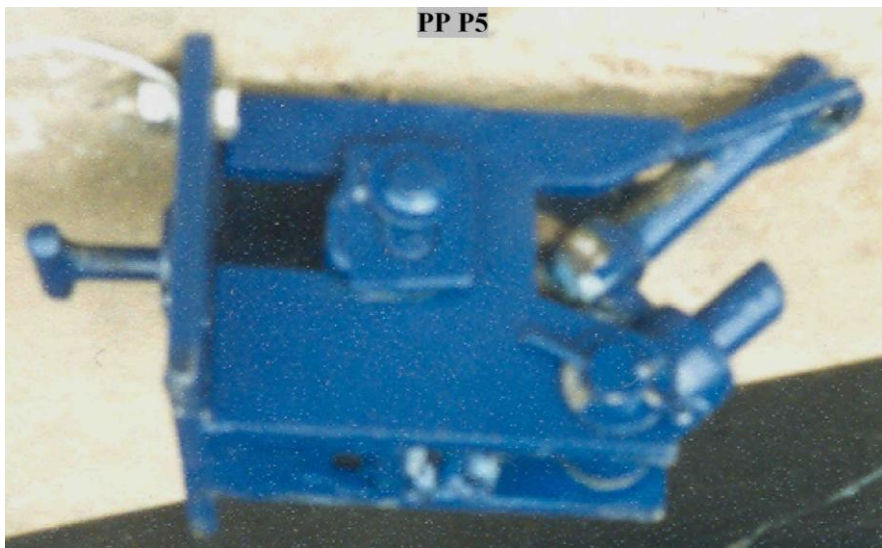
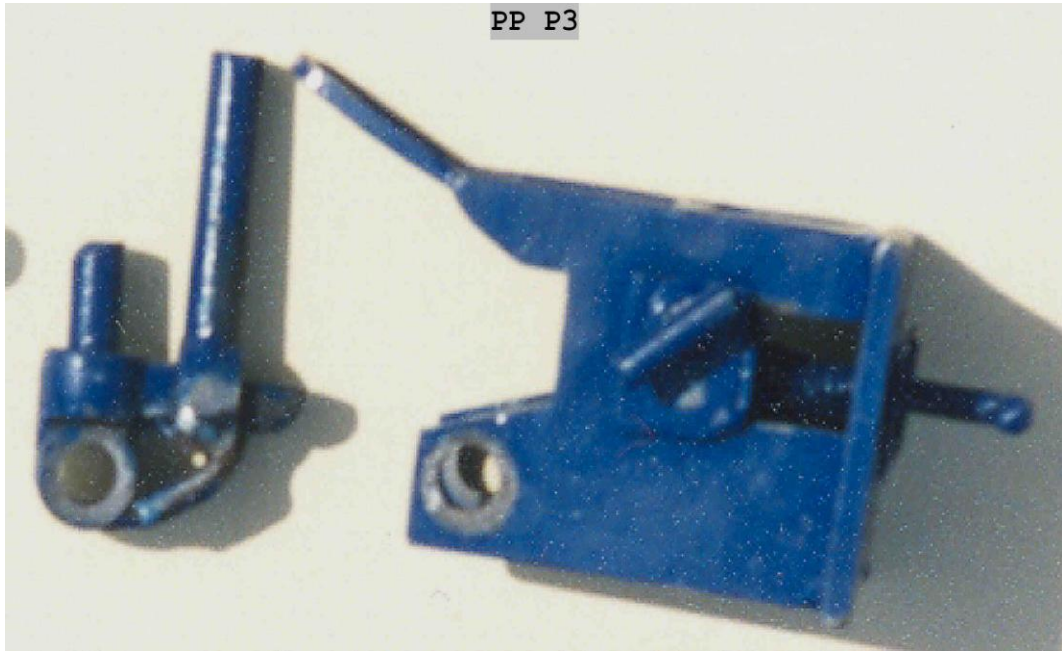
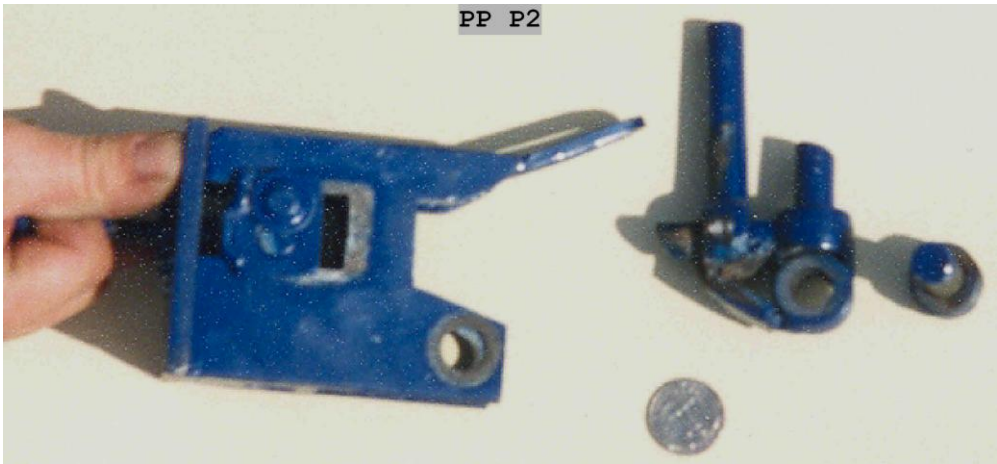


Top view of pintle hook.



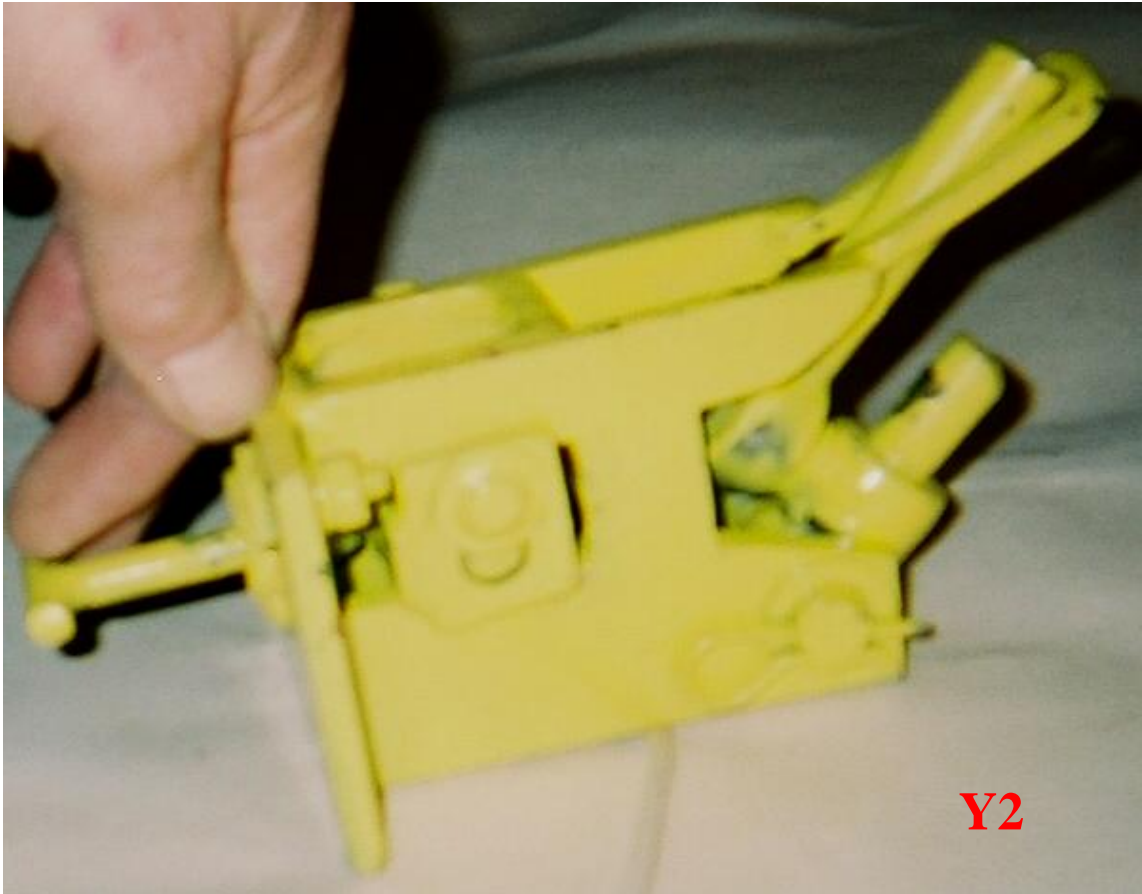
Side view of pintle hook





This is a small pintle I made. The hook is made out of 3 - 1/2" eyebolts. The white thing top left is a cable and bolt.

In Y2 I'm holding the rollers back for the hook to trip. If pressure were on the hook you would turn rollers to release, and or pull on end "T". When the forces are greater, turning one roller relieves the most force. The two rollers are 7/16' and 3/8" in diameter in the small pintle.

**Y2****Y3**

Article II. My Pintle:

I had this pintle on a 140 HP loader tractor for a couple of years. I pulled it hard. No problems, it worked good.

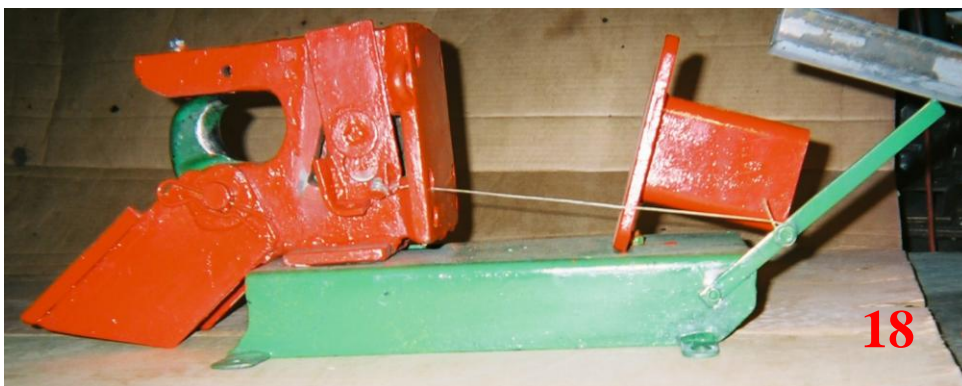
Most pintles don't have ramps. Farmers need ramps. Pintle hitch 6 with the bottom ramp option, lifts the implement hitch and guides it into the hook.

The left plate and square tube, bolt to the pintle and make a pintle that



inserts into a quick remove, receiver tube. It could be smaller than the one shown.

The green lever in picture 18, shows the cable pulling the rollers away from the hook from a lever in the cab. The lever could be an electric Solonoid instead.



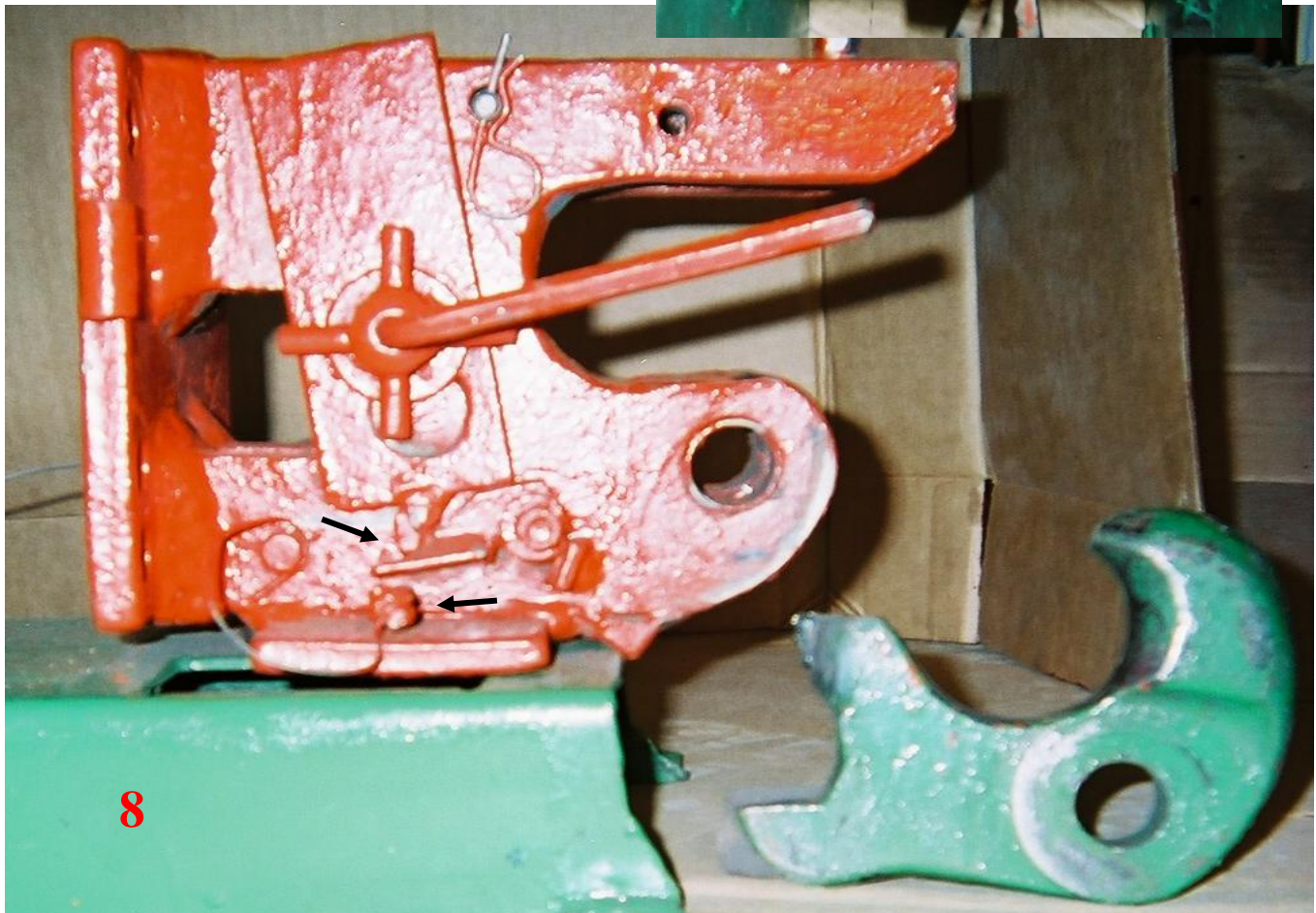
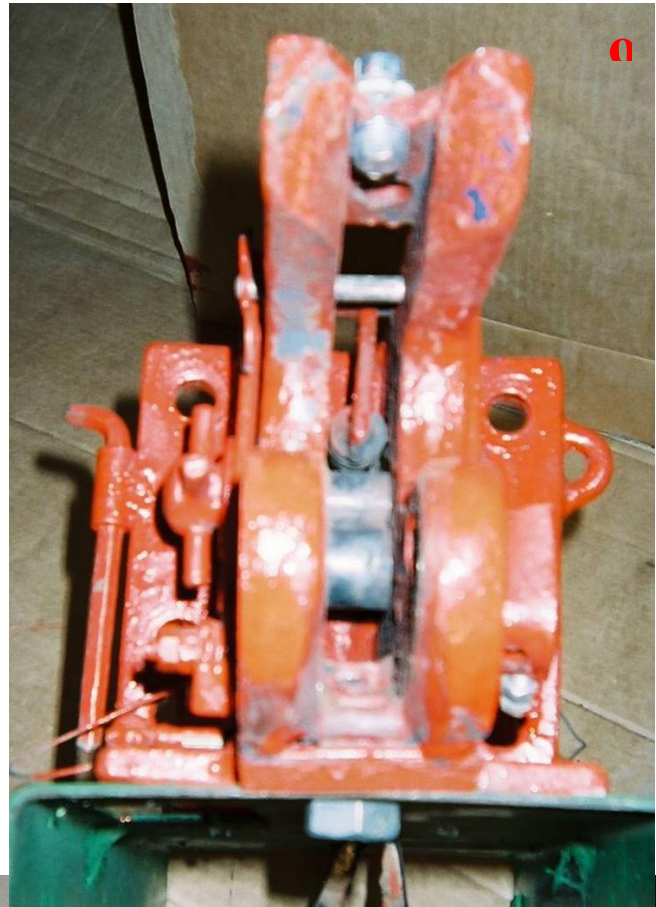
On my tractor, I used a cable and a lever in the cab and it worked very well.

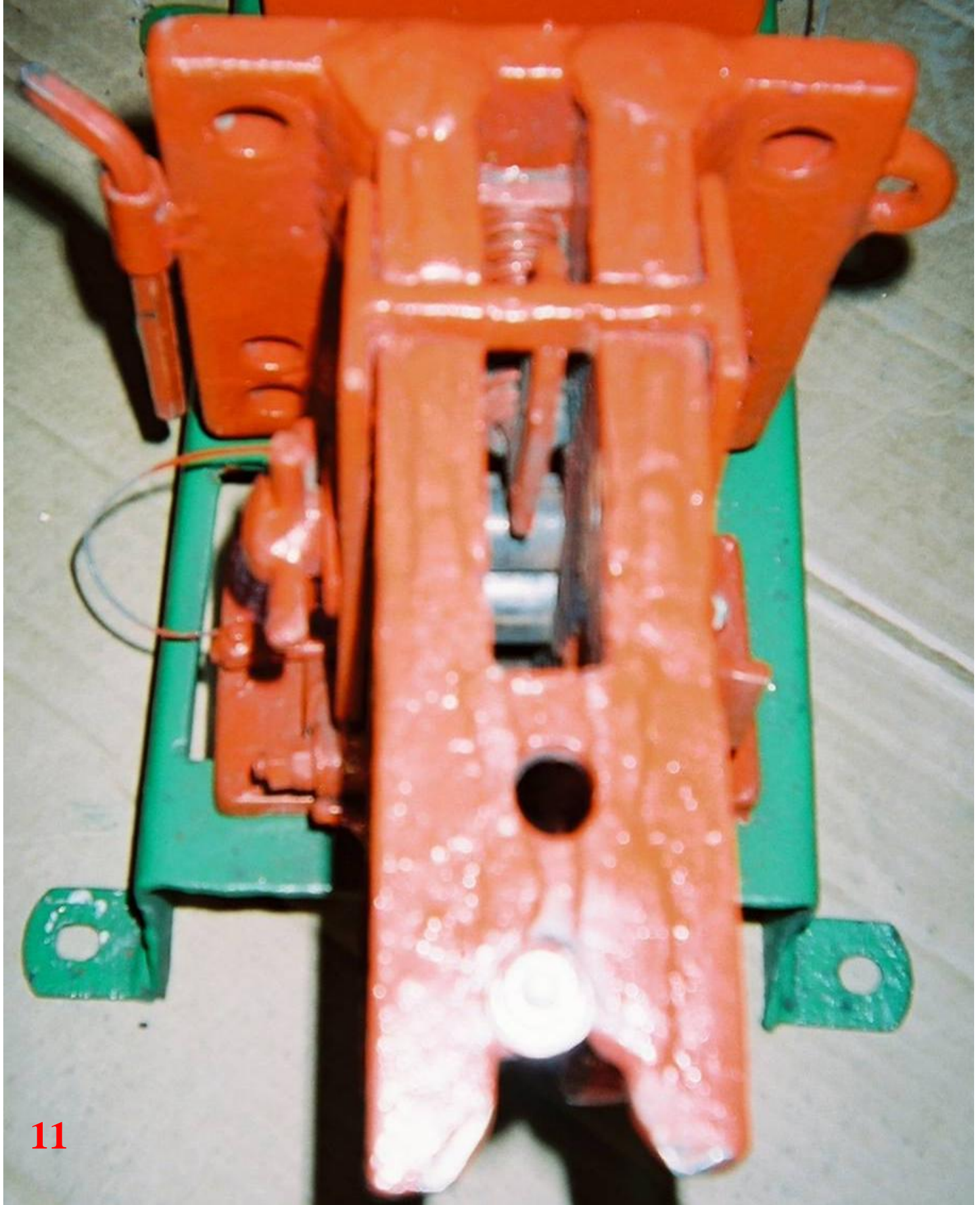
When a pintle ring is pushing

forward, the force pushes on the pintle frame. Now, all we have to deal with is back pressure. There is a 50% advantage built into this pintle hitch.

Picture 9 is a front view, with the hook removed.

The bottom picture 8 shows the allen wrench used to help turn the rollers. The top arrow shows the lock is engaged so the pintle cannot unhook. The bottom arrow shows the pin that disengages the lock, for unhooking from in the cab.





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Article III. Ramps



Hook without getting out: The jack on the chisel plow had sunk in the ground. The single ramp lifts the plow up and funnels it into the hitch. These are pictures taken from a video that I have if you want to see it.

Below, a hay truck, with a tow bar on it; the tow bar is extended and hanging from a tarp strap. It is hooked to a loader tractor with a pintle including a double ramp. The operator just backs into it. He doesn't get out of the cab to hook or unhook. A pintle hitch on a 3 point is ideal, but both ramps are better for accuracy and ease because from a tractor, judging height is the hardest part.



Whether it's a hitch tongue with a ring on a grain trailer, or an anyhydrous trailer; A solid hitch like the cultivator above, or suspended. It works on them all!

Pintles and pressure release and ramps ease the job and speed it up.





When the operator wants to unhook outside the cab at the hitch of the towed vehicle; the operator can unhook easily whether the tow bar ring is pulling or pushing, with the roller release.

What I think should be done, is make the hook for the little, eyebolt pintle,



like the hook on the big one, just a smaller size, with a $\frac{1}{2}$ " bolt for the hook hinge, and the guide ramps shown, an option.

Then make a pintle using a $\frac{5}{8}$ " bolt for the hook hinge; then a $\frac{3}{4}$ "; then the $\frac{7}{8}$ " hook bolt like my prototype (shown here), all with optional top and bottom ramps. There

would be 4 sizes; from the 1/2" for garden tractors all the way to 7/8" for semi trailers, and 150 HP tractors.

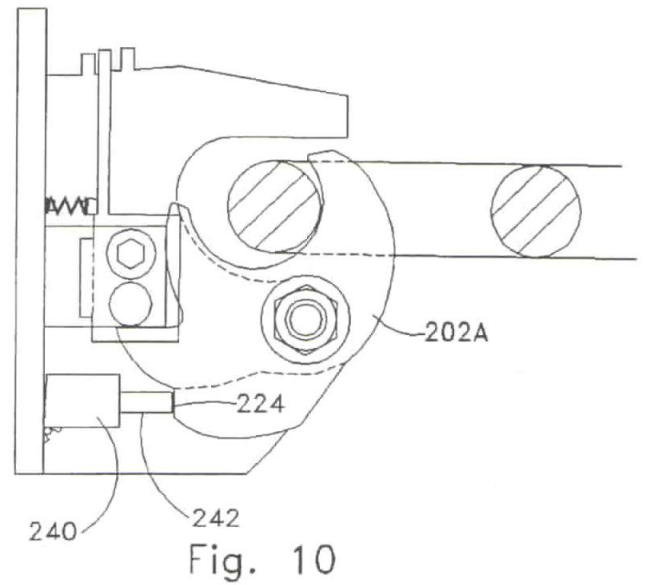
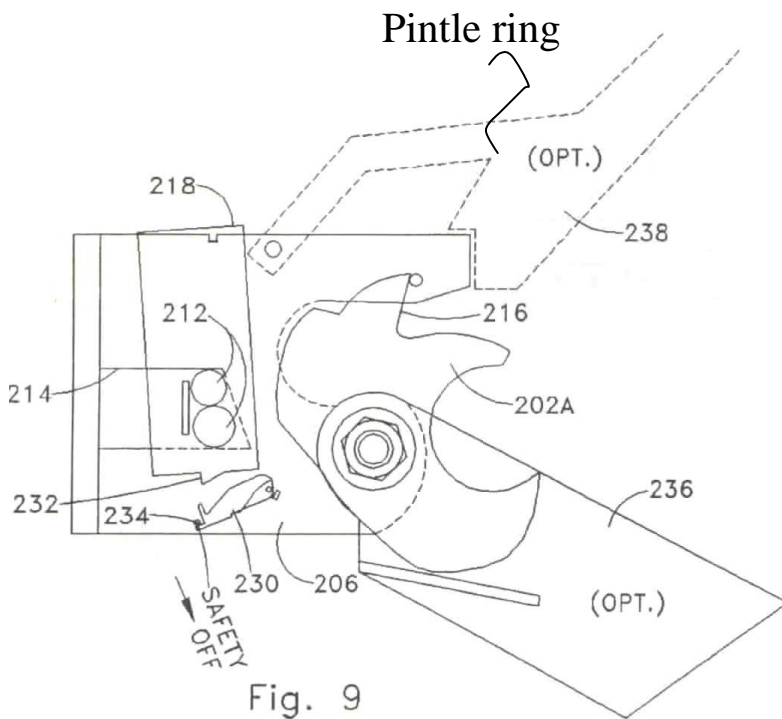
Below are some patent drawings. Fig 9 shows the optional top and bottom ramps. The rollers have rolled off the left end of the hook, then a spring has sprung them back. When the hook pivots to lock position, the curved part of the hook pushes the rollers back and gets under the rollers and locks it, as in fig. 10.

Patent

Feb. 3, 1998

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Notice cylinder 240 in figure 10.

It keeps the cylinder snug, for trucking.

The left ring in pic 16, is a tow bar to pintle adaptor. The right, red ring made my swatter adaptable to a pintle hitch.



<http://web.nccray.com/tow/>

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Standard Tow bar patent # = 6,854,756 B1.

(The tow bar with a pry pin out of a hole latch, not in the web site yet.)

Brute tow bar patent # = 6,352,278 B1

(The tow bar with a roller release latch.)

Pintle patent # = 5,71/3,691

Thanks / Glenn