

Load-Equalizing Trailer Hitch You Can Make

Trailer towing's a cinch with this hitch. It takes less than \$15 in parts. Just weld 'em up

By ARMIN F. GIMBEL

If you tow a heavy trailer behind your car, you need a load-equalizing hitch. It's easier on your car, and it makes driving easier, too. This kind of hitch shifts the trailer-tongue load so that it's not all on the rear car wheels; it's equally distributed between the front and rear axles of the car and trailer axle.

But one can cost anywhere from \$60 to \$150 installed on your car. Here's how you can make your own for less than \$15 by welding up some steel scraps. The blueprint on the following two pages shows you how to build it.

The main parts of the hitch are the load-equalizer springs. I made

Continued

these from Plymouth torsion bars I got at a junkyard for \$3 each. The rest of the hitch is cold-rolled steel.

Saddle assembly. Make the two saddles out of channel iron or two angle irons welded together. Cut the curved sides on a metal bandsaw; then hacksaw a 1 $\frac{3}{4}$ " cut down each corner for the right-angle bend. Make the bend by holding the channel iron in a vise and pounding the cut section over with a heavy hammer. Weld the two saddle braces inside the bend, the nut over the $\frac{1}{2}$ " hole in the saddle bracket, and the bracket to the saddle.

Bandsaw the two adjusting arms. Bend the radius over a piece of pipe of the right diameter. Weld the sleeves to the adjusting arms, and rivet the arms to the saddle. Peen over the rivets, but not so tight as to prevent the adjusting arm from being turned.

Drawbar head. Cut out and drill the top, bottom, and side plates for the head assembly. Tack-weld them together lightly. Machine the equalizing spring inserts and tack-weld them in place. Tack-weld the pin-retainer rings. Position them as shown in the blueprint with the cutouts facing the sides of the hitch. Tack on the drawbar insert. You can vary the position of the drawbar insert to let the height of the hitch match the trailer tongue. Position and tack-weld the drawbar insert braces and the ball-reinforcing plate. Check the position of all the parts and do the final welding.

Equalizer springs. Make two of these from a torsion bar from an old Plymouth. Anneal the end of the bar by heating it cherry red and letting it cool slowly. Drill the ends of the spring bars to take the retainer pin. Bend the equalizer springs (use finished drawbar as a holder) and heat-treat them. It's best to check the hardness of the bar on a Rockwell

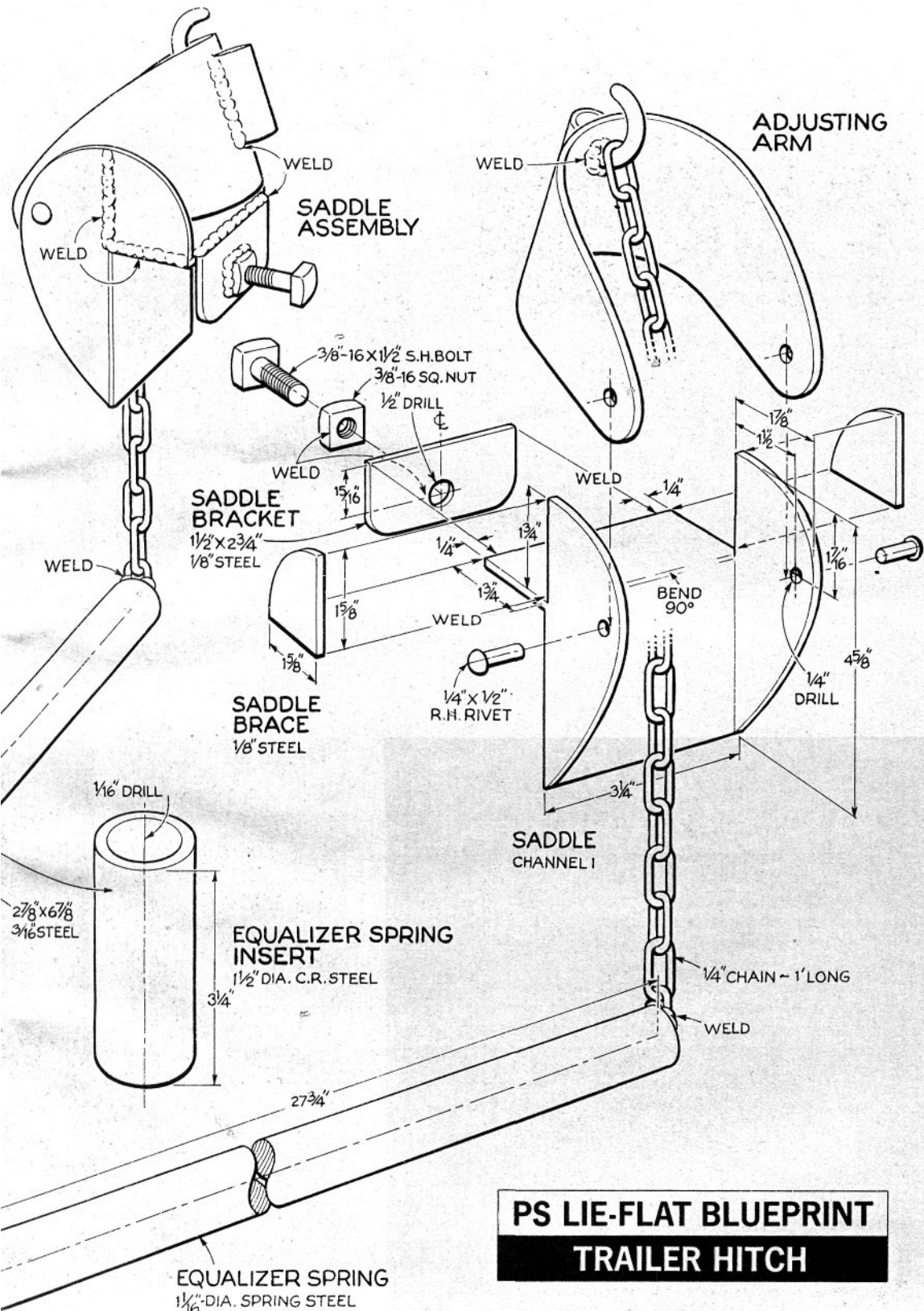
tester. But if a Rockwell tester is not available, use an oil quench of 750 degrees to get a satisfactory hardness. Weld the chain to the ends of the bars.

Drawbar insert. This is a piece of square steel 9" long. File enough radius on the edges to allow a snug fit in the square pipe drawbar. It's a good idea to drill the 17/32" hole after the insert is fitted into the drawbar. The drawbar bolt is a $\frac{1}{2}$ "-by- $3\frac{1}{2}$ " standard bolt with the head cut off, the end slotted, and a washer welded into the slot. The washer makes it easy to grip and remove the bolt with your fingers.

The drawbar is a length of 2"-square pipe which is welded to two angle-iron crossbars as shown in the drawing on a previous page. The crossbars are welded or bolted to the frame of the car.

Hitching up. To use the hitch, dab a little grease on the ends of the bars and insert them in the sockets. By turning the bars at right angles to the hitch, you can insert the retainer pins in the ends of the spring bars. The retainer rings will keep the pins from falling out when the spring bars are in use position. Mount the trailer tongue on the ball. Hook the saddle assemblies on the trailer frame so that the chain hook is directly above the chain end of the equalizer spring. Tighten up both bolts. Then, with the adjusting arm in the low position, slip the chain over the hook.

The link you use is determined by the amount of lift you have to put on the rear of the car to keep it from sagging. The shorter the chain is hooked, the more lift you have. It's best to have the height of the hitch ball close to the height of the trailer frame. Then insert a jack handle in the tightening sleeve and cinch up on the chain until the arm goes beyond center and holds itself. With both chains cinched up, you're ready to roll.



**PS LIE-FLAT BLUEPRINT
TRAILER HITCH**

