My objects are accomplished by constructing a washboard road harrow the construction and advantages of the invention being explained in the following brief description with accompanying drawing, the invention residing in its construction, combination and arrangement of parts which are hereinafter described in detail and specifically described in the claims appended hereto.

In the drawing forming part of this application, like numerals of reference indicate similar parts in the various views, and wherein:

Figure 1 is a plan view of the washboard road harrow.
Figure 2 is a side view of the toothed oblique angular sectional scraper blade, or cutter 1.
Figure 3 is a side view of the sectional scraper blade, or cutter 2, having a smooth bottom edge.
Figure 4 is a side view of a smoothing plate 4.
Figure 5 is an end view of a smoothing plate 4.
Figure 6 is a side view of the bars 5.
Figure 7 is a side view of the angle iron 13.
Figure 8 is a side view of the angle iron 14.
Figure 9 is a side view of the angle iron 15.

Referring to the drawing in detail. This invention consists of a metal washboard road harrow of the flexible drag type, as is shown in the plan annexed hereto.

Figure 1 is a top view of the washboard road harrow. It consists of opposed oblique angular scraper blades 1 and 2, and one or more right angle scraper blades 3, all extending across the entire width of the washboard road harrow. Each scraper blade 1, 2 and 3 is made in sections bolted together loosely by means of machine bolts 6, to allow of conformity to the crowning, or depressions of the road. The scraper blade 1 collects and by its angular position removes all small rocks and other small obstructions to the side of the road.

Scraper blades 1 and 2 on opposed oblique angles span over the ridges and are toothed on their lower edges, they cut the tops off of the ridges and deposit the earth then released into the hollows between the ridges. Scraper blade 1 moves the released earth laterally toward the side of the road.

Scraper blade 2 cuts the earth from the tops of the ridges which may remain after the passage of scraper blade 1 and also moves the earth laterally towards the center of the road. Scraper blade 3 is straight across the washboard road harrow parallel with the washboard ridges, it does not have teeth, so is smooth along its bottom edge. The function of scraper blade 3 is to distribute the earth cut from the tops of the ridges by the teeth of the scraper blades 1 and 2 into the hollows between the ridges and evenly along the road as the washboard road harrow advances.

The rear ends of the bars 5 are fastened loosely with machine bolts 7 to the smoothing plates 4, which follow the cutters 1, 2 and 3. The smoothing plates 4 press down the earth distributed by the scraper blades 1, 2 and 3 to be smooth and hard.

Tow lines 8 made of rods, rope or chains, joined at their forward end into a metal ring or shackle 10, as it is desired to use into which may be fastened a tow chain or tow rope leading to and fastening to the rear end of an auto truck or other vehicle, are provided for towing purposes, or when it is desired to raise the front end of the washboard road harrow over plank or other surfaces, which it is desired not to injure by contact with the scraper blades 1, 2 and 3. The tow lines 8 are fastened to the bars 5, with shackles or machine bolts 11.

Figure 2 is a side view of the toothed oblique angular sectional scraper blade or cutter 1, showing the toothed sections and bolt holes for machine bolts 6 and 12.
Figure 3 is a side view of the sectional scraper blade or cutter 3, having a smooth bottom edge, showing the sections and bolt holes for machine bolts 6 and 12.
Figure 4 is a side view of the smoothing plate 4 showing beveled front bottom edge to cause the smoothing plates 4 to ride over and press down the earth distributed by the scraper blades 1, 2 and 3 and not to push it ahead. One half inch spaces 9 (Fig. 1) are to admit of the bending of the smoothing plates 4 to conform to the crown or depres-
sion of the road and the surface of the ground.

In this Figure 4 side view of the smoothing plate 4, is shown one of its two ears. These ears, have elongated vertical holes or slots, for the machine bolts 7, with which the smoothing plates 4 are fastened loosely to the rear end of the bars 5. These elongated vertical holes or slots in the ears of the smoothing plates 4 also serve to permit the smoothing plates 4 to move up and down while passing along the road. When it is desired to raise the front end of the washboard road harrow to admit of transporting as explained under Figure 1, the bottom of the elongated vertical holes or slots in the ears of the smoothing plates 4 serve as a rear bearing for the bars 5.

Figure 5 shows an end view of a smoothing plate 4. In this end view two ears are shown with elongated vertical holes or slots, for the machine bolts 7, with which the smoothing plates 4 are fastened loosely to the rear end of the bars 5.

Figure 6 is a side view of the bars 5, with bolt holes for the machine bolts 7, 11 and 12.

Bars 5 are a plurality of flat pieces of metal on edge, parallel to each other and extending longitudinally along the top of the washboard road harrow. The function of these bars 5 is to serve as stiffeners or backbones, for the various sections making up the scraper blades 1, 2 and 3.

Figure 7 is a side view of one angle iron 13 at the proper angle, with bolt holes for the machine bolts 12. The angle irons 13 are fastened to the rear side of the scraper blade 1 with machine bolts 12 and to the side of the bars 5 with machine bolts 12.

Figure 8 is a side view of one angle iron 14 at the proper angle, with bolt holes for machine bolts 12. The angle irons 14 are fastened to the rear side of the scraper blade 2 with machine bolts 12 and to the side of the bars 5 with machine bolts 12.

Figure 9 is a side view of one angle iron 15 at the proper angle, with bolt holes for machine bolts 12. The angle irons 15 are fastened to the rear side of the scraper blade 3 with machine bolts 12 and to the side of the bars 5 with machine bolts 12.

The dimensions and weights of the various parts of this washboard road harrow may be varied by the use to which it is to be put and the work it is to do.

From the foregoing description, together with the accompanying drawing on a scale of 1 inch equals 2 feet as an illustration, the details of construction, the manner of use; together with the following advantages of this washboard road harrow, which removes the waste to the side of the road, which cuts down the washboard ridges and other inequalities whether hard or soft, wet or dry and deposits them in the hollows, which distributes the earth and other material evenly, which levels the surface of the road, which smooths the finished surface and leaves it hard for travel, which does not remove the earth or other material of which the road is constructed, and which conforms to all shapes of grade; my invention will be readily apparent to those skilled in the art to which it relates.

Having thus fully described my invention with accompanying drawing, I make the following specific and distinct claims as my invention or improvement.

I claim:

1. A washboard road harrow of the flexible drag type comprising a plurality of scraper blades each composed of a plurality of loosely connected sections, said blades being angularly disposed with respect to each other, two of said blades having a toothed lower edge and being angularly disposed with respect to the line of draft and one of said blades having a smooth lower edge and being transversely disposed with respect to the line of draft; a plurality of longitudinally extending parallel bars connected to said blades; draft means connected to the forward ends of said bars; and a plurality of smoothing plates loosely connected to the rear ends of said bars.

2. A washboard road harrow comprising a plurality of scraper blades each composed of a plurality of loosely connected sections, said blades being angularly disposed with respect to each other, a plurality of longitudinally extending parallel bars connected to said blades; draft means connected to the forward ends of said bars, and a plurality of smoothing plates loosely connected to the rear ends of said bars.

In testimony whereof I affix my signature.

ARTHUR M. DEVÉRÉUX.