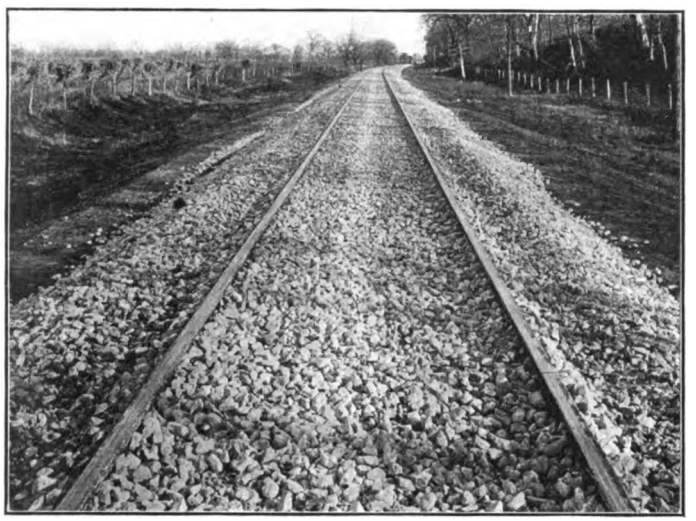
it and decreasing the stress on the spreading board, it is also an important auxiliary for the reason that it renders it possible to spread ballast over grade crossings, cattle guards, guard rails and switches, where it is necessary to raise the spreader to clear such obstructions.

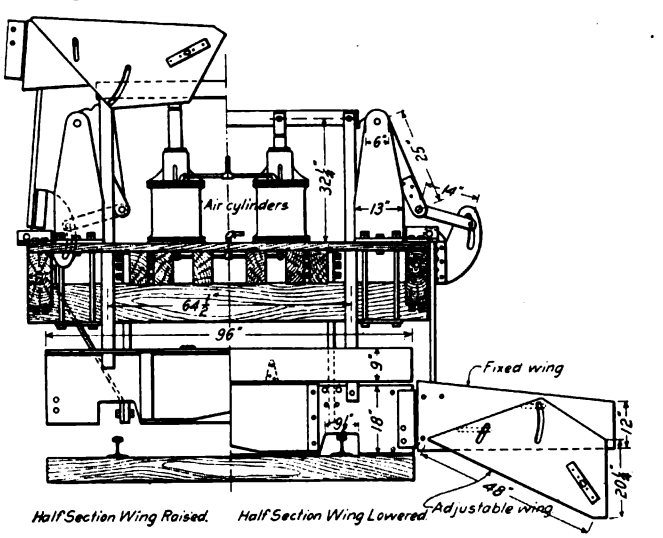
One photograph shows the spreading board pushing an accumulation of rock, of approximately 2½ cu. yd., which has been gathered from between the rails, and is being worked outward on each side of the plow. The ballast thus pushed along drops into sags in the shoulder where there is a deficiency of dressing material, thereby eliminating the necessity of performing the



Appearance of the Track After the Dresser Has Gone By

work by hand labor. The principal function of the wings is to shape the rock forced out by the spreading board into shoulder formation. This occurs simultaneously with the ejection of the ballast by the spreading board. The economy of this feature is determined by the fact that were an ordinary plow utilized it would be necessary to form the shoulder with hand labor.

In dressing ballast on double track it is merely necessary to adjust the wings to obtain the desired result. On curves where the sub-grade is canted to correspond with the elevation of



Cafferty-Markle Spreader

the track no difficulty is encountered because of the wings digging into the sub-grade, but where the sub-grade is not in conformity with the elevation, the difficulty can be easily overcome by adjustment of the wings.

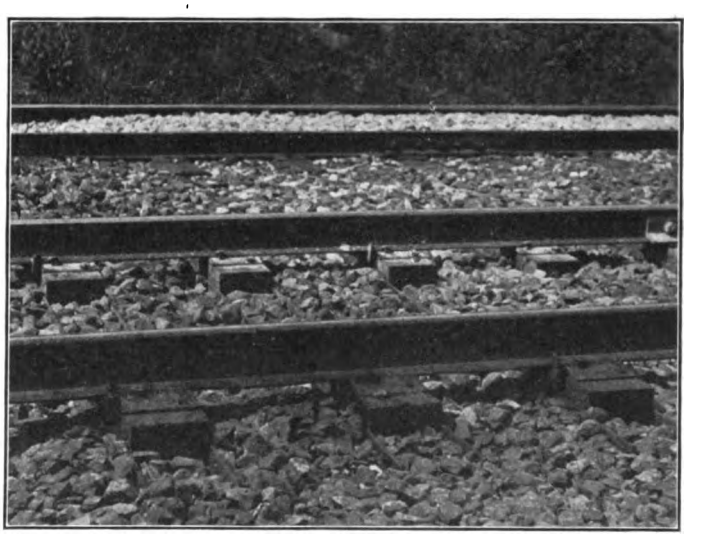
A train consisting of 22 cars and carrying approximately 1,000 yd. of ballast was unloaded and spread in 48 min., leaving it as shown in the photograph of the track. It will be noted that the shoulder was fairly regular at the toe and that there was very little rock scattered. A gang of 17 men following the ballast dresser was able to dress the track to required form. This would ordinarily have taken at least 50 men. The results to be obtained in gravel are said to be even better than in rock.

The water tank seen in the photographs was installed primarily for the purpose of loading down the forward end of the car while the dresser was in use. At a later period it was developed into a device to sprinkle the ballast as the dresser passed over it. This is especially desirable on gravel ballast, as it eliminates a source of annoyance that almost always occurs in this work. The capacity of the tank is 4,000 gal., although 2,000 gal. is sufficient to sprinkle 1,000 cu. yd. of ballast. When the car is in transit the tank should never be more than half full. To obtain the best results in spreading, the ballast dresser should not be moved at a speed to exceed five miles per hour. The track on which the work referred to in this article was performed parallels the Kaw river, where there are numerous curves, many of which have considerable elevation, and many cuts and fills. We are indebted for the above information to R. J. Parker, general superintendent, Atchison, Topeka & Santa Fe, Topeka, Kan., under whose direction this spreader has been used.

A NEW STEEL TIE

A new steel tie is being put on the market by the Standard Steel Tie Company, Dallas, Tex. It consists of a rolled channel section ⅜ in. thick, 8 in. wide and 5 in. deep, and 8 ft. long, placed in the ballast trough side up with creosoted wood bearing blocks 7¼ in. by 7 in. by 18 in., each secured in place in the trough of the channel by two ¾-in. bolts and a 2-in. by 2-in. lug, sheared from the web of the channel and bent up to bear against the block. Four holes 2½ in. in diameter punched in the bottom of the tie near the center provide drainage and hold it in line.

Since the rail is supported on and secured to the creosoted blocks, the manner of handling these ties in track corresponds



Standard Steel Ties in the Pennsylvania Tracks Near Parkesburg, Pa.

very closely to the operation with the ordinary ties. They permit shimming, change of rail base and gage, and any ordinary track fastenings may be used. Since there is no metal connection between the rail and the channel, perfect insulation is afforded. Furthermore, the blocks, being 18 in. long and firmly secured in the channel, reinforce the tie under the rail where it has to meet the heaviest stresses.

A number of these ties were put in the tracks of the Pittsburgh & Lake Erie, near Pittsburgh, a year ago, and others have been recently installed in the Pennsylvania Railroad tracks near Parkesburg, Pa., as shown in the accompanying photograph.