

UNITED STATES PATENT OFFICE.

WILLIAM E. SULLIVAN, OF ROODHOUSE, ILLINOIS.

ROAD-GRADER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 523,134, dated July 17, 1894.

Application filed December 23, 1893. Serial No. 494,546. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SULLIVAN, a citizen of the United States, residing at Roodhouse, in the county of Greene and State of Illinois, have invented a new and useful Road-Grader Attachment, of which the following is a specification.

This invention relates to road-grading machines; and it has for its object to provide an improved attachment for machines of this character, which attachment is adapted to be connected to the opposite ends of the grader or scraper blade to provide simple, efficient, and durable means for strengthening and bracing the blade when used for hard cutting, which is usually likely to bend or break off the end of the blade, while at the same time providing an attachment which will act in the capacity of a guard to confine or hold in the dirt and prevent it from working off of the ends of the blade in using the grader to carry the dirt directly forward on a level or on a hill.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the drawings:—Figure 1 is a perspective view of a section of a grader or scraper blade having an attachment end wing fitted thereto and constructed in accordance with the present invention. Fig. 2 is a transverse sectional view on the line $x-x$ of Fig. 1. Fig. 3 is a detail in perspective of one of the end attachment wings detached from the grader or scraper blade.

Referring to the accompanying drawings, A represents a section of an ordinary grader or scraper blade adapted to be used in connection with any make of grading machine, and of the usual curved shape having a lower beveled cutting edge B, and preferably rounded off at the top end corners as at C.

The grader or scraper blade A, is rounded off at the top end corners as at C to form a configuration registering with the shape of the inner edge of the end attachment wing D. An end attachment wing D, is adapted to be detachably fastened to each opposite end of the grader blade A, for the purpose of con-

fining the dirt and for strengthening and bracing such blade, and is made of the same strong steel as the grader blade so as to effectually accomplish the bracing and strengthening of said grader blade. The end attachment wing D, is provided with an inner edge E, struck on a compound curve so as to conform to the curved shape of the blade A, and the top end corners C, thereof, and this inner edge E, is adapted to be placed against the front face of the grader blade to bring the wing D, substantially flush with the end and top edges thereof.

Each end attachment wing D, is provided with a substantially vertical portion F, which extends from a point near the lower cutting edge of the grader blade to a point near the upper edge thereof, and said vertical portion F, is curved off at the top as at G, into the horizontal top flange H, which lines up flush with the top edge of the grader blade, and projects inward toward the center of such blade a short distance from the end so as to form a pocket which will confine the dirt and at the same time form a rigid strengthening-brace for the blade. This horizontal top flange H, does not extend the entire length of the body of the wing, but the outer edge thereof is curved into the outer beveled cutting edge I, of the wing, which edge assists the grader blade in properly grading up a road-way.

The end attachment wings D, constructed as described, are mainly secured to the opposite ends of the grader blade by the draw-bolts J. The draw-bolts J, are riveted to the inner faces of the wings, and have the rounded shank thereof project through perforations j , in the ends of the grader blade, and are engaged by the nuts j' , working thereon and against the rear face of the grader blade. The draw-bolts J, are arranged at a point intermediate of the top and bottom edges of the end attachment wings, and when tightened to the grader blade end, draw the lower L-shaped brace irons K, tightly against the grader blade at a point just above the lower cutting edge thereof, thereby holding the cutting edge of the grader blade perfectly solid and preventing it from being bent or broken in cutting hard ground. The L-shaped brace irons are also riveted to the inner faces of the

attachment wings below the draw-bolts J, and to the top and bottom of the top flange H, of the wings D, are riveted the upper and lower attachment straps L.

5 The upper and lower attachment straps L, secured to the top flange of each wing are of a substantial L-shape having outer angled ends M, which receive there-between the top edge of the grader blade, and the angled ends
10 M, of the upper and outer one of these straps is provided with a threaded opening N, to receive the set-screw O, which is adapted to be tightened against the grader blade near its upper edge and thereby draw the flange H,
15 tightly against the grader blade, whereby such grader blade will be braced and strengthened in every direction. By loosening the set-screw O, and the nut J', the attachment wing can be quickly and readily removed from the
20 ends of the grader blades.

From the foregoing it will be seen that the specific shape of the wings D, and the manner of fastening the same to the ends of the grader blade provide means for firmly
25 strengthening and bracing the ends of said blade, while at the same time such wings serve as guards to hold or confine the dirt at the ends of the blade.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

35 1. In a road grading machine, the combination with the curved scraper blade; of the opposite detachable end wings adapted to be fastened to the opposite ends of said scraper

blade in a position flush with the end and top edges thereof, said wings being provided with curved top flanges, substantially as set forth. 40

2. The combination with the scraper blade of a road grading machine; of detachable end wings adapted to be attached to the opposite ends of the scraper blade at an angle thereto 45 and provided with a top flange, draw-bolts secured fast to said wings and detachably engaging the ends of the scraper blade, and a pair of attachment straps projected from the top flange of the end wing and adapted to receive the upper edge of the scraper blade, substantially as set forth. 50

3. The combination with the scraper blade of a road-grading machine; of the detachable end wings having top flanges and fitted to the scraper blade at the end and top edges thereof, draw-bolts secured fast to the wings at an intermediate point and detachably engaging the ends of the scraper blade, L-shaped 60 brace irons secured to the wings below the draw-bolts and working against the scraper blade near the lower cutting edge thereof, a pair of attachment straps secured to said top flange and having outer angled ends receiving there-between the top edge of the scraper blade, and a set-screw mounted in the angled end of one of said attachment straps and adapted to be tightened against the scraper blade, substantially as set forth. 65 70

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. SULLIVAN.

Witnesses:

G. W. ARMSTRONG,
C. W. PAYNE.