April 7, 1936. J. G. MILLER ET AL 2,036,598

DISK UNIT AND ATTACHMENT FOR ROAD GRADER MOLDBOARDS

Filed March 25, 1935 3 Sheets-Sheet 1

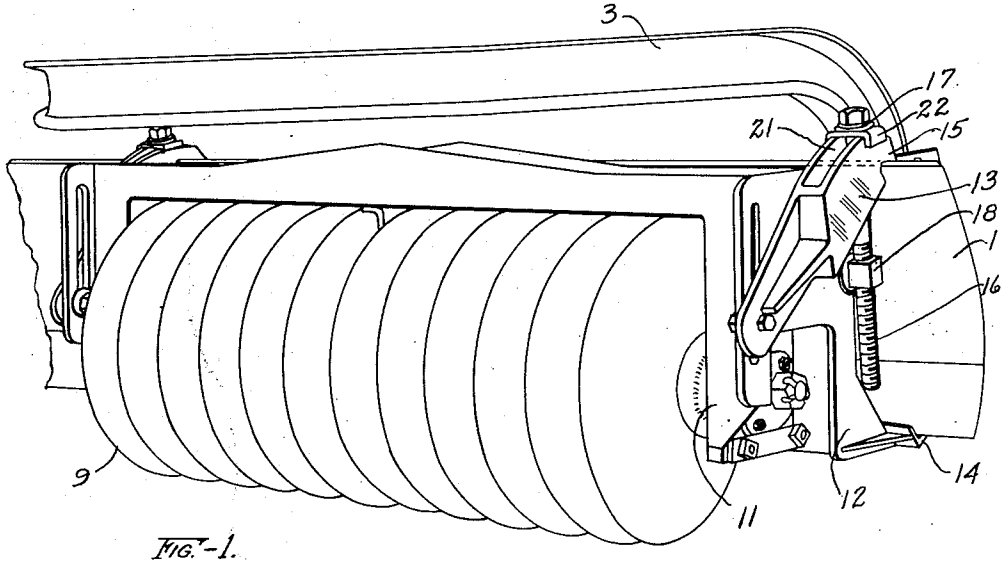


FIG. 1.

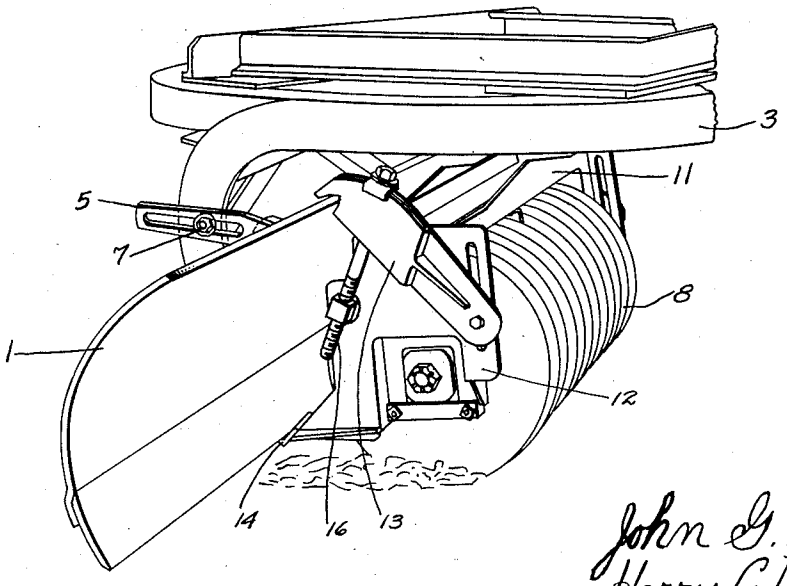


FIG. 2.

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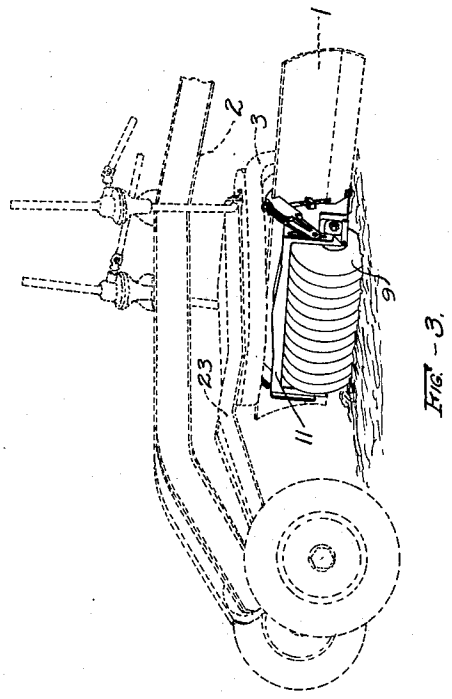


FIG. 3.

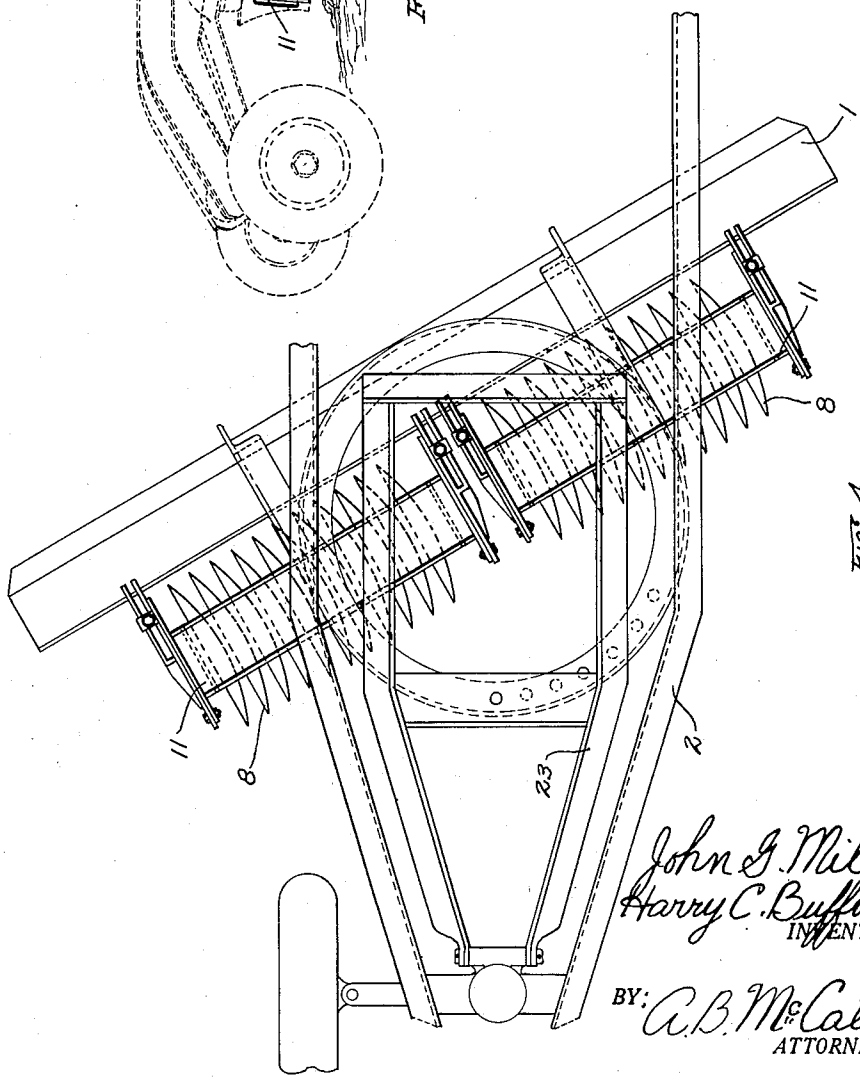


FIG. 4.

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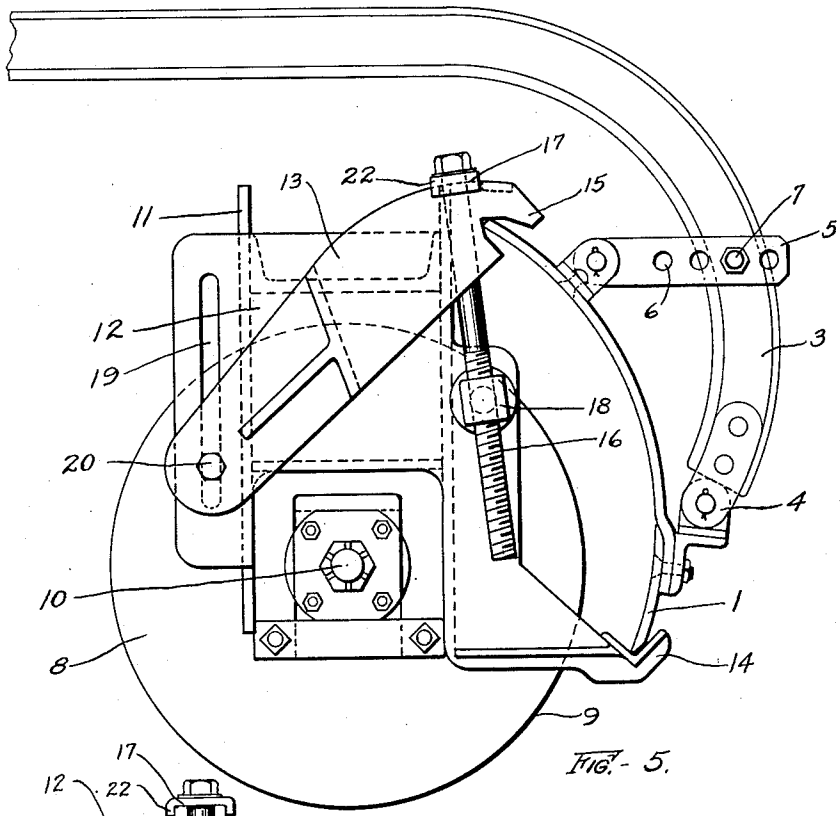


FIG. 5.

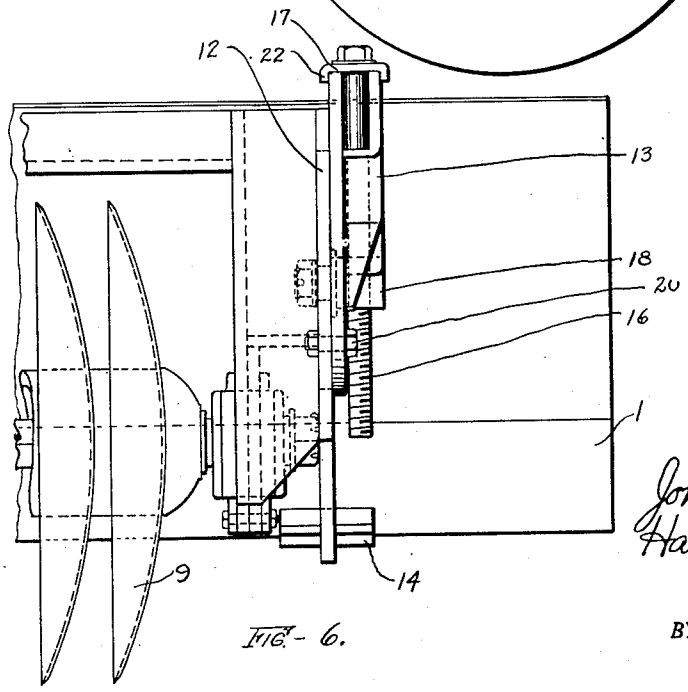


FIG. 6.

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UNITED STATES PATENT OFFICE

2,036,598

DISK UNIT AND ATTACHMENT FOR ROAD GRADER MOLDBOARDS

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Application March 25, 1935, Serial No. 12,892

8 Claims. (Cl. 262—8)

Our invention relates to disk gangs and means for mounting the same in operative connection with road graders and has for its object to provide a practical and economical means of detachably securing a disk gang to the mold board of a road grader for operation when grading a road surface.

A purpose of our invention is to provide convenient means by which such a disk gang may be quickly clamped to the top and bottom edges of a mold board of a road grader so that the disk gang may work the road surface when thus mounted ahead of the mold board when the mold board is lifted off of the ground and is adjustably supporting the gang in its operation.

A particular purpose of our invention is to provide a disk gang mounting in conjunction with an adjustable road grader mold board where the gang is equipped with substantial terminal clamps adapted to be conveniently and quickly clamped to the top and bottom edges of the mold board for the operating support of the disk gang just ahead of the mold board and thus mounted to permit an adjustment to be made in the elevation of the disk gang by adjusting the pivotal support of the mold board.

It is obvious that with our device it will be possible to use more than one gang unit on some larger mold boards at a time when needed and that such units could thus be used in a practical manner.

We attain the objects of our invention with the device described in the annexed specification, recited in the claims and illustrated in the accompanying drawings, in which like reference numerals indicate like parts in the several figures.

Referring to the figures:

Figure 1 is a perspective of one of our disk gang units shown operatively clamped to the mold board of a road grader.

Figure 2 is a perspective of the disk gang unit shown at the opposite end from that shown in Figure 1.

Figure 3 is a perspective of one of our disk gang units shown in operation on a road grader where it is clamped for work ahead of the mold board of the grader.

Figure 4 is a top view of our invention showing how the disk gang units can be clamped to a mold board of a road grader so that two or more units can operate at a time thus mounted side by side.

Figure 5 is a detail of an end view of our clamp invention.

Figure 6 is a detail of a front view of our clamp for holding a disk gang clamped to the top and bottom edges of the mold board of a road grader.

Referring in more detail to the preferred construction of our invention and to the manner of operating the same, we present as our novel invention a disk gang unit for working road surfaces with it operatively mounted in front of the mold board of a road grader and substantially but detachably and adjustably clamped to the top and bottom edges of the mold board for its support.

To accomplish this novel and decidedly practical result, we provide as a new invention in the road grader art a disk gang clamped to the mold board of a road grader.

To achieve our purpose with this invention we have seen fit to utilize a mold board 1 of a road grader 2 where such a mold board is pivotally supported on the adjustable beam member 3 by supporting pins 4 and this type of mold board is also provided in its pivotal mounting with link members 5 having holes 6 and bolts 7 for adjustably holding the same in selected positions of pivotal adjustment. It is obvious that for such mountings there will be supporting pins 4 and link members 5 at each end of the mold board 1.

In connection with the mounting and adjustment of such a mold board 1 on a road grader 2, we have found it practical and convenient to provide one or more disk gang units 8 with the disk members 9 rotatably mounted in uniform spaced relation on a shaft 10 supported in a frame 11 adapted to hold the disk gang together as an operating unit.

We propose to use such a disk gang unit in conjunction with and mount the same just ahead of this type of mold board and support it adjustably where it can be changed in its operating position from time to time to vary the depth of its cutting into the road surface.

When working the roads it is sometimes found to be necessary to change from a scraping operation where the mold board of the road grader is used over to a disking operation where the disk gangs are used to break up the road surface more.

In this situation in the past it was found necessary when using the road grader to remove the mold board from the road grader and mount a disk gang in the place of it; but in doing so a lot of time was lost in making the change for such an operation and a lot of inconvenience was experienced.

With our new invention therefore we find it

possible and practical and convenient to mount one or more disk gangs on the mold board to accomplish this purpose, without the need of removing the mold board.

We accomplish this result by detachably and adjustably clamping the disk gang to the top and bottom edges of the mold board wherein frame 11 is provided on each end with plate members 12 shaped and operatively supporting an adjustable clamp member 13 with the lower rear portion of plates 12 formed into a clamping hook 14.

This clamping hook 14 is adapted to clamp on to the bottom or cutting edge of mold board 1 when mounting the disk gang into operative position; while the adjustable clamp member 13 has an integral terminal hook member 15 adapted to clamp down on to the top edge of mold board 1 when hook 14 clamps the bottom edge of it.

Thus it will be observed that plates 12 are adapted to support the adjustable clamp members for securing the disk gang to the mold board.

An adjustment and supporting bolt 16 is provided for securing clamp member 13 in place on mold board 1 and this bolt engages clamp 13 at point 17 while pivoted supporting bracket or nut 18 is threaded to receive the adjustable supporting bolt 16 when holding clamp 13.

Plates 12 are further provided with a vertical slot 19 adjacent the forward edge thereof while clamp members 13 at their forward end are provided with a pin member 20 adapted to slidably operate within slot 19 as a means of adjustably anchoring the clamp members 13 where they are clamped when holding to the upper edge of mold board 1.

It will be observed that with this arrangement, a means is provided for quickly and conveniently attaching the disk gang to a mold board or detaching it from the same.

It will be borne in mind that the clamp members at the clamping plate at opposite ends of a disk gang unit are alike and operate respectively the same.

It will be further obvious to road working engineers that where a mold board is long enough it would be possible to detachably clamp more than one disk gang unit to the mold board of the road grader as is shown in Fig. 4 of the drawings.

When the disk gang is being used it will be found from time to time necessary to adjust the depth to which the disk cutters may work into the road surface and in order to make such an adjustment it has been found desirable to set link members 5 where they are needed by fitting bolts 7 into the desired holes 6; thus to adjustably hold mold board member 1 into a selected position of pivotal adjustment where this mold board rests upon its pivotal supporting pins 4.

This pivotal adjustment of mold board 1 is not only for setting the depth of the disk cutters but is also adapted to adjust the space relation between the cutter blades and the cutting edge of the mold board and their space from the ground so as not to permit clogging between the disk blades and the mold board.

The lift of the mold board of a grader is usually limited and too much clearance will further limit this lift when the grader is going across country.

The adjustable clamp members 13 are provided with a slot 21 to accommodate clamping bolt members 16 which is provided with a saddle washer 22.

Beam member 3 is adjustably supported as a part of the road grader frame 23 while frame 11 is made integral with the terminal clamping plates 12.

We accomplish the purposes above mentioned when operating disk gang units provided with our clamping equipment and we find that the idea of using such means for operatively clamping the disk gang units to the mold board of a road grader is a very practical, convenient and economical arrangement.

Having thus described the nature of our invention, what we claim is:

1. As a new article of manufacture a mechanism for the operative support of a disk gang, comprising a mounting for the disk members, means operatively connected with the mounting for detachably engaging the mold board of a road grader.

2. As a new article of manufacture a mechanism for the operative support of a disk gang, comprising a mounting for the disk members, clamp means operatively connected with the mounting at the ends for detachably engaging the mold board of a road grader.

3. As a new article of manufacture a mechanism for the operative support of a disk gang, comprising a mounting for detachably engaging the mold board of a road grader, and means operatively connected with the mold board for pivotally adjusting the same.

4. As a new article of manufacture a mechanism for the operative support of a disk gang, comprising a mounting for the disk members, clamp means operatively connected with the mounting at the ends for detachably engaging the mold board of a road grader, and means operatively connected with the mold board for pivotally adjusting the same.

5. In combination with a pivotally adjustable mold board for road graders, a disk gang provided with a frame, and clamp means operatively supported at the ends of the frame for detachably and operatively engaging the top and bottom edges of said mold board for the support of said disk gang; whereby said disk gang may be mounted on said mold board of said road grader.

6. In combination with a disk gang having an axle, and frame, terminal clamp members adjustably secured to the frame and cooperating therewith for the substantial and detachable engagement of the top and bottom edges of a mold board of a road grader for the operative support of the disk gang when disking road surfaces, a pivotal support for said mold board and an adjustment link connected therewith for adjusting and holding said mold board in selected positions of pivotal adjustment when operatively adjusting said mold board and said disk gang.

7. A disk gang mounting comprising a frame, a disk supporting axle mounted in the frame, each end of the frame provided with a terminal plate shaped along the rear and bottom edge to define a hook, a clamp member operatively attached to each of said plate members and each clamp provided with a control bolt and pivoted threaded bracket rearwardly disposed on each of said plates for the adjustable support of said bolt and clamp; said clamp members provided with a slidable anchoring pin at the forward end thereof and said plates each provided with a corresponding vertical slot to accommodate said anchoring pin of the clamp member; said clamps each having a rearwardly disposed integral terminal hook member; said hook portion of said

plate members respectively adapted to engage the bottom edge of the mold board of a road grader and said hook portions of said clamp members respectively adapted to engage the top edge of said mold board of a road grader for the operative support of said disk gang and an adjustment link operatively connected with said mold board for pivotally adjusting and supporting the same in its several operating positions.

8. In cooperative combination with a mold board for road graders and means for pivotally adjusting the same, a disk gang and frame provided with terminal plates shaped to define a hook means for engaging the bottom edge of said mold boards and a clamp member adjustably mounted on each of said terminal plate members for the hook engagement of the top edge of said mold board for the operative support of said disk gang; said terminal plate members of said frame respectively provided with anchoring slots and said adjustable clamp members provided each respectively with a pin slidably engaged in said slots, an integral hook member on said adjustable clamps for engaging the top edge of said mold board and an adjustment bolt for the operative support and adjustment of said clamp member and a threaded bracket on each of said terminal plates for adjustably supporting said bolts with said clamps; whereby said disk gang may be detachably clamped by said terminal plates and said clamp members to said mold board of a road grader and whereby pivotal adjustments may be made in said mold board positions as desired for operation.

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