

(No Model.)

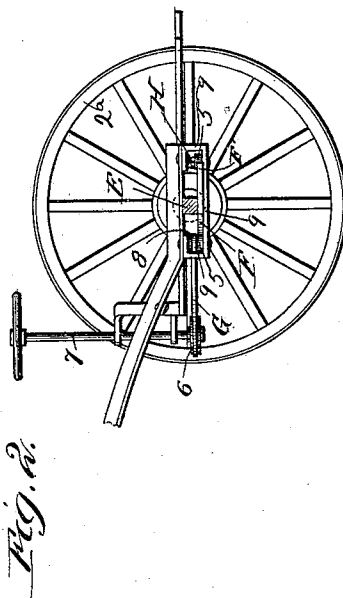
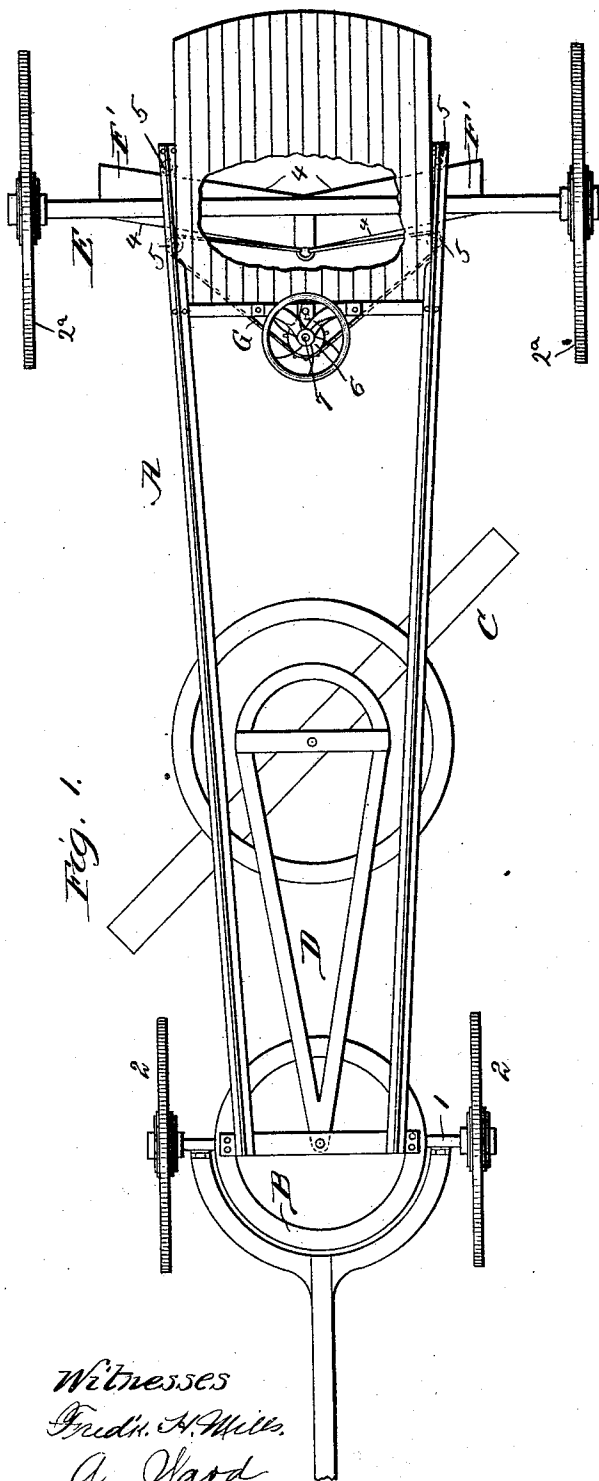
3 Sheets—Sheet 1.

M. G. BUNNELL.

MACHINE FOR MAKING AND REPAIRING ROADS.

No. 469,771.

Patented Mar. 1, 1892.



Witnesses
Fred. A. Miller.
A Ward.

Inventor.
Morton G. Bunnell
By. Chas. G. Page
Atty.

(No Model.)

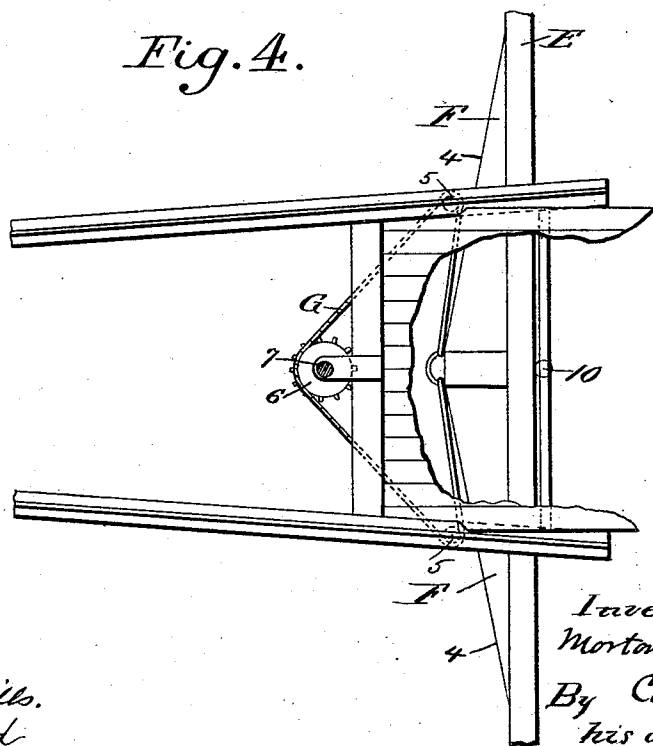
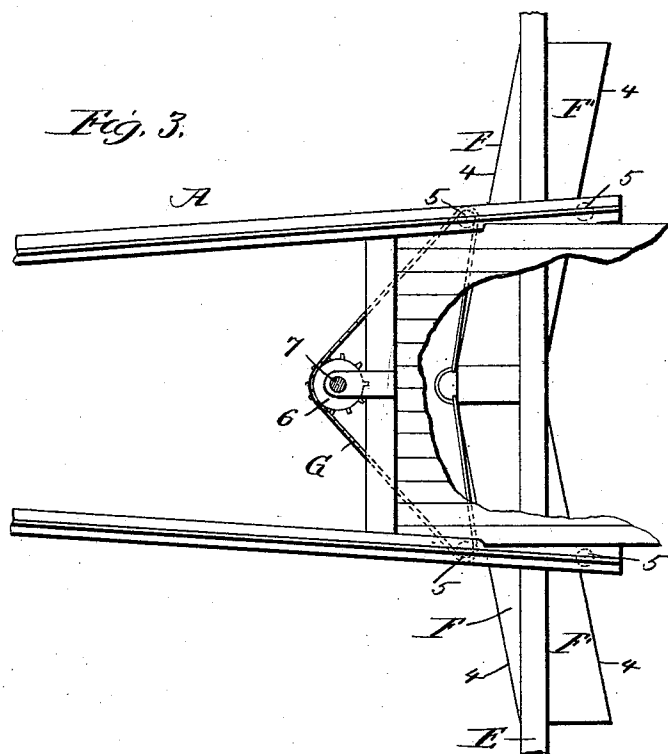
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Witnesses:
Frederick H. Mills.
A. Ward.

Inventor:
Morton G. Bunnell
By Chas. G. Page
his attorney.

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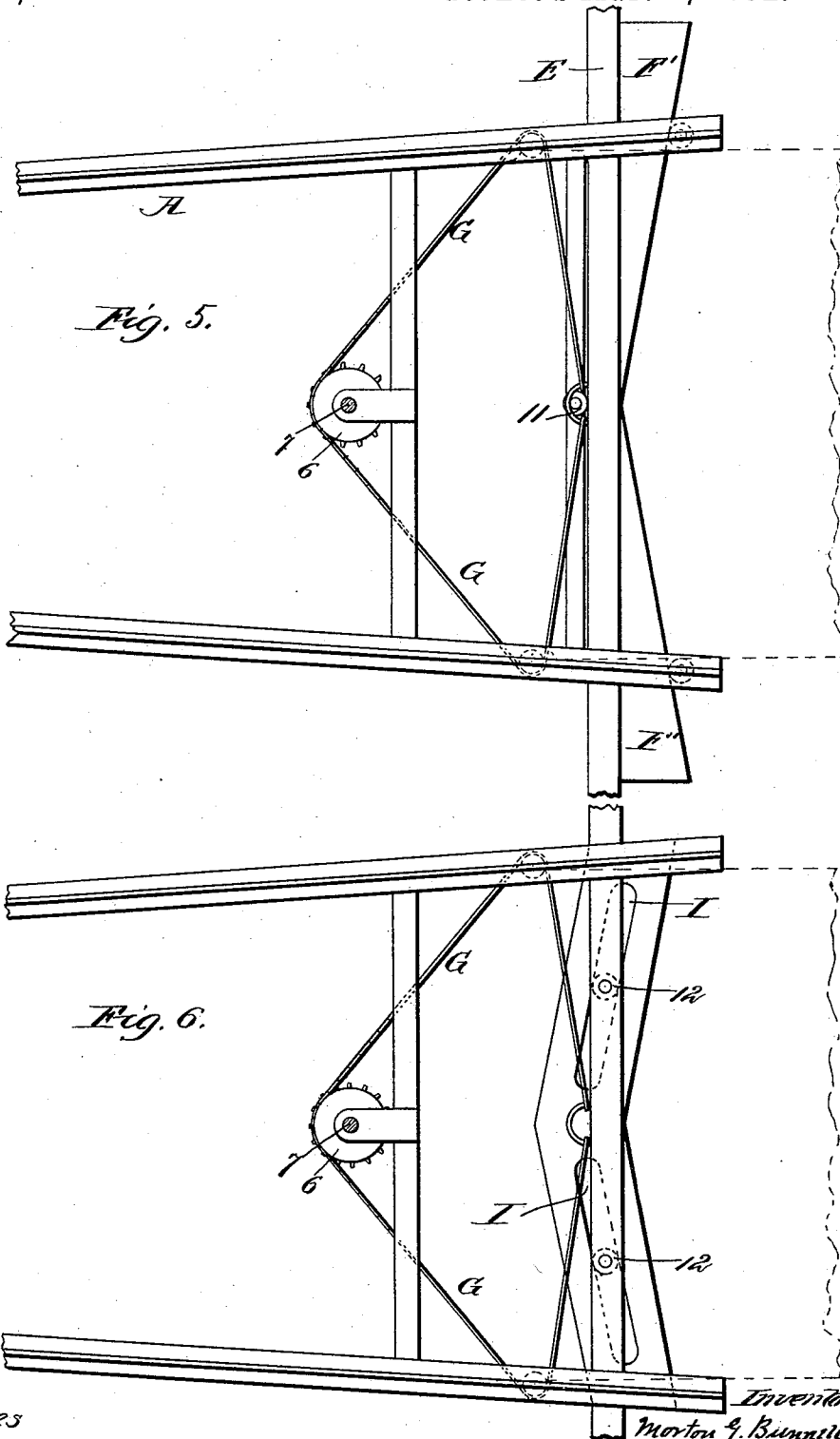
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UNITED STATES PATENT OFFICE.

MORTON G. BUNNELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF SAME PLACE.

MACHINE FOR MAKING AND REPAIRING ROADS.

SPECIFICATION forming part of Letters Patent No. 469,771, dated March 1, 1892.

Application filed March 9, 1891. Serial No. 384,270. (No model.)

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Making and Repairing Roads, of which the following is a specification.

My invention relates to a construction of road-working machines adapted for making and repairing roads and involving a body-frame and a scraper-blade which is arranged between the front and rear wheels and is adapted for diagonal adjustment—that is to say, it is arranged so that it can be adjusted to various horizontal angles relatively to the line of progression of the machine.

The object of my invention is to provide improved means for adjusting the rear axle, so that while it is swung horizontally in order to vary its angle relatively to the length of the body-frame it shall also have a certain extent of end movement and thereby set the rear wheels farther toward one side or the other, according to the direction in which the axle is swung.

To the attainment of the foregoing and other useful ends, my invention consists in matters hereinafter set forth.

In the accompanying drawings, Figure 1 is a top plan view of a road-working machine embodying my invention, a portion of the rear platform being broken away so as to expose the double wedges or inclined guides on the rear axle. Fig. 2 is a side elevation of the rear portion of the machine with the rear wheel removed. Fig. 3 is a top plan view of a part of the rear end portion of the machine, and further illustrates the double wedges or inclined guides. Fig. 4 is a view similar to Fig. 3 with the wedges F' omitted. Fig. 5 is a view similar to Fig. 3 with the wedges F omitted. Fig. 6 is a similar view, but illustrates the inclined guides as rigid on the body-frame and the rolls on the axle.

In said drawings, A indicates the body-frame, which is pivotally supported at its forward end upon the front axle 1, which said axle is provided with wheels 2 in the usual way. The forward end of the body-frame

may be pivotally connected with the front axle by a fifth-wheel B or by any other known or desired pivotal connection. The diagonally-adjustable scraper-blade C is suspended below the body-frame and arranged between the front wheels 2 and rear wheels 2^a, and is understood to be suspended from the body-frame by any ordinary or desired raising and lowering device, which being well known in the art need not be herein shown and described. The scraper-blade may either be pushed from the rear or drawn from the front by a horizontally and vertically swinging draft-bar D, which is pivotally held at the forward end of the machine.

While various known devices can be employed for raising and lowering and otherwise adjusting or positioning the blade with reference to the work to be performed, it may be mentioned that efficient means for such purpose are fully set forth in my Letters Patent of the United States Nos. 427,738 and 427,739, dated May 13, 1890.

The rear axle E is arranged to have a combined horizontal swing and end movement independently of the body-frame, and to such end it is provided with wedges or laterally-projecting guides or portions having bearing-faces which are oblique to the line of the axle and arranged to bear against suitable bearings on the body-frame, by which arrangement the application of power in a direction to move the axle endwise independently of the body-frame or shift the body-frame laterally and independently of the axle thereupon will cause the said axle to swing horizontally and at the same time cause a relative side adjustment between the body-frame and axle.

In the first three figures of the drawings the rear axle is shown as provided with what I term "double wedges"—that is to say, it is at each end portion provided with two wedges F and F', the former being on its forward side and the latter on its rear side. The bearing-faces 4 of the wedges are arranged oblique to the line of the axle, and the bearing-face of each wedge F is arranged parallel with the bearing-face of the wedge F', directly back of it, thus forming oblique or inclined guides. The wedges can be formed with or secured to

the rear axle in any convenient way, and, if desired, each wedge F can be made integral with the wedge directly in rear of it. The body-frame carries a set of anti-friction rolls 5, against which the outer faces of the wedges or guides bear, the arrangement of said bearings being best indicated in dotted lines.

The rear axle can be adjusted by any suitable device tending to move it endwise, but permitting it when so moved to swing horizontally, a simple expedient for such purpose being a chain G, operated by a winding-drum 6 on a hand-wheel shaft 7. The hand-wheel shaft is supported by suitable bearings on the body-frame of the machine, and the adjusting-chain is connected with the rear axle at or about its longitudinal middle. The axles of the rolls 5 are also provided with guide-pulleys 8 for the chain, although said pulleys may, if preferred, be otherwise supported upon the sides of the main frame. To guide the rear axle on its horizontal adjustment and prevent the body-frame from tilting sidewise independently of said axle, the body-frame has its sides provided with horizontally-arranged guideways H, through which the axle and its wedges extend, it being observed that the substantially C-shaped bars 9, which partially provide said guideways, also afford convenient bearings for the journals of the anti-friction rolls 5.

In Fig. 4 the rear axle is shown provided only with wedges F. The bearing-faces 4 of said wedges bear against the front rolls 5 on the body-frame, and the axle can be adjusted by any suitable means, as by the chain and winding device shown and lettered in correspondence with the chain and winding device of the preceding figures. Where I provide the rear axle with single wedges—that is to say, with wedges F—along one side only, I provide at the opposite side of the said axle an anti-friction roll 10 or like bearing, which is supported upon the body-frame at a point midway of its sides. Hence when the rear axle is adjusted with such arrangement it slides along and also swings about the center bearing 10, its swing being enforced by the engagement of its wedges F with the front bearing-rolls 5. It will be observed that the wedges F, which are provided along the forward side of the rear axle, have their bearing-faces arranged to converge toward a point forward of the longitudinal middle of the axle. If with such arrangement the rear wedges F' are omitted and a single roll 10 is arranged to back the axle, as in Fig. 4, the axle will swing in the proper direction when it is moved endwise—that is to say, it will swing in a direction to so position the rear wheels relatively to the scraper-blade as to resist side draft. Thus if the diagonally-arranged blade has its forward end at the right side of the machine the rear axle should be swung so as to place the right rear wheel ahead, and thus cause the rear wheels to run

to the left until the body-frame is oblique to the line of progression and the rear axle is again parallel with the front axle. The same result can, however, be attained by omitting the front wedges F, but providing the rear axle with the rear wedges F', as shown in Fig. 5, in which case the two forward rolls or bearings 5 of the first three figures will be dispensed with and a roll 11 be arranged in front of the axle on a suitable cross portion of the body-frame.

For the broader purpose of my invention I may, in place of arranging the oblique bearing-faces (or "wedges," as I prefer to call them) on the rear axle, arrange them on the body-frame and provide the axle with the rolls which engage such bearing-faces. This I have illustrated in Fig. 6, in which I provide the body-frame with ways I, having oblique faces corresponding to the wedges and arrange upon the rear axle a couple of pins or rolls 12, forming bearings which engage the bearing-faces of the stationary ways. The ways I can be formed in any suitable way—for example, between bars or by slots in an angular bar secured to the body-frame.

In all of the foregoing instances the rear axle has a swinging adjustment synchronously with its end or longitudinal adjustment. Hence it may properly be termed a "combined horizontally-swinging and longitudinally-adjustable rear axle." It is also observed that the axle has an end movement or adjustment, and that it is so guided that when moved endwise it will swing horizontally.

What I claim as my invention is—

1. The combination, substantially as hereinbefore set forth, in a road-working machine, of a diagonally-adjustable scraper-blade and a longitudinally-adjustable rear axle guided in its end movement so as to be caused thereby to swing horizontally.

2. The combination, substantially as hereinbefore set forth, in a road-working machine, of a diagonally-adjustable scraper-blade, a horizontally-swinging and longitudinally-movable rear axle, and wedges and bearings therefor which serve as guides to enforce a swing on the part of the axle when it is moved endwise.

3. In a road-working machine provided with a diagonally-adjustable scraper-blade, the horizontally-swinging and longitudinally-movable rear axle provided with wedges arranged to engage bearings on the body-frame of the machine, substantially as set forth.

4. In a road-working machine provided with a diagonally-adjustable scraper-blade, the horizontally-swinging and longitudinally-movable rear axle provided along one side with wedges arranged to engage bearings on the body-frame, substantially as set forth.

5. In a road-working machine provided with a diagonally-adjustable scraper-blade, the horizontally-swinging rear axle provided with wedges arranged to engage bearings on

the body-frame, combined with means suitable for adjusting said axle, substantially as set forth.

6. In a road-working machine provided with a diagonally-adjustable scraper-blade, a horizontally-swinging and longitudinally-movable rear axle having a wedge-surface arranged to engage a bearing on the body-frame so that when said axle is moved endwise it shall be caused to swing horizontally.

7. In a road-working machine provided with a diagonally-adjustable scraper-blade, the horizontally-swinging and longitudinally-movable rear axle provided with wedges F and F', arranged to engage bearings on the body-frame, substantially as set forth.

8. The combination, substantially as here-

inbefore set forth, in a machine for making and repairing roads, of a body-frame pivotally connected with the front axle, a diagonally-adjustable scraper-blade arranged to extend across the space between the front and rear wheels, the adjustable rear axle provided with double wedges arranged to form wedge portions at its front and rear, the bearings for the wedges, a winding device on the body-frame, cord or chain connection between said winding device and the rear axle, and pulleys about which said cord or chain connection is arranged to pass.

MORTON G. BUNNELL.

Witnesses:

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