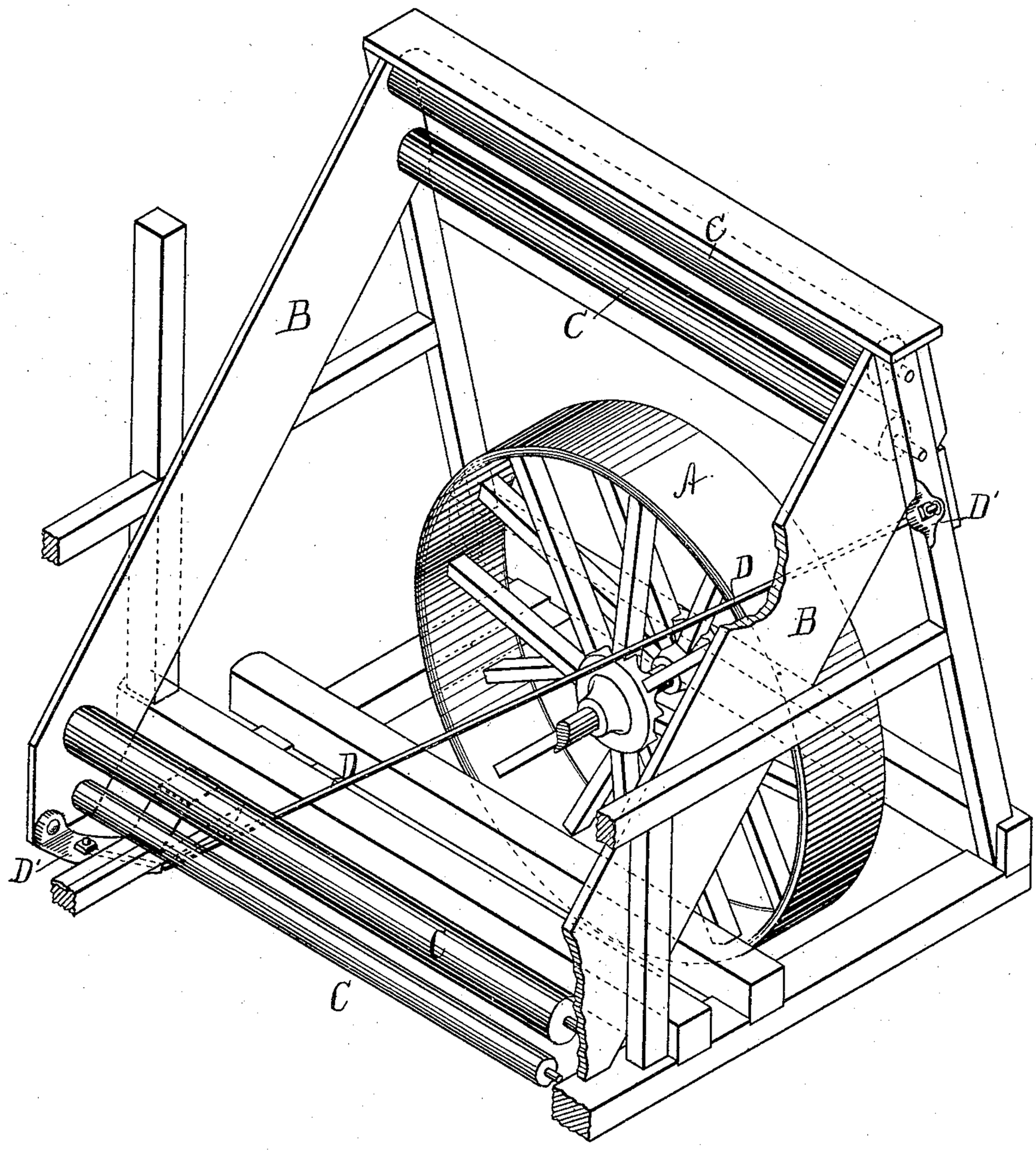
(No Model.)

I. P. CADMAN.

ELEVATOR FRAME OF GRAIN BINDERS.

No. 254,456. Patented Mar. 7, 1882.



WITNESSES—

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UNITED STATES PATENT OFFICE.

ISAAC P. CADMAN, OF BELOIT, WISCONSIN, ASSIGNOR OF ONE-HALF TO L. HOLDEN PARKER AND FRED. A. DENNETT, OF SAME PLACE.

ELEVATOR-FRAME OF GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 254,456, dated March 7, 1882.

Application filed November 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, ISAAC P. CADMAN, of Beloit, Rock county, State of Wisconsin, have invented certain new and useful Improvements in Elevator-Frames of Grain-Binders, of which the following is a specification.

As now constructed, the elevator-frames of grain-binding harvesters are subject to an evil known among manufacturers of such machines as "diamonding." This evil is a sagging of the corner of the frame, and a consequent twisting or forcing out of true of the entire structure, and is principally due to the unequal weight of the reel and sickle-bar upon one corner of the frame, and to the resistance or backward strain offered by the sickle-bar, one end of which is hinged to the lower edge of the frame. It is needless to say that a frame thus strained to a degree which destroys the true adjustment of its parts is very much weakened and materially injured. Besides this, the sagging very seriously interferes with the moving parts of the elevator by throwing the rollers which carry the elevating-canvases so out of line that the latter run to one side, the result being that they bind against the sides of the frame, wear themselves out, and often cause so great a binding-friction as to stop their motion entirely.

It will be observed that the elevating canvas runs in an inclined position, so that the rollers which carry it, to be kept in adjustment, must not only be in line with each other, but must have their axes parallel to each other and in the same inclined plane; and, consequently, when said rollers get out of adjustment by reason of the sagging or diamonding of the frame in which they are mounted they frequently require both a lateral and vertical adjustment, besides being moved into line in order to restore them to proper adjustment, which adjustments obviously cannot be readily or practically made by adjusting on the frame the bearings in which the ends of the rollers are mounted. To obviate this difficulty the only method heretofore devised has been to increase the size and strength of the timbers constituting the frame; but this has proved ineffectual, owing to the constantly varying strains to which the frame is subjected while the machine is in operation.

In the present invention, the object of which is to overcome this difficulty, I adjust and maintain the rollers in adjustment by means of a diagonal truss-brace or tie-rod extending from the lower inner forward corner to the upper and outer rear corner of the frame on which said rollers are mounted, and passing through the space under the canvas and rollers and above the drive-wheel, as is fully explained hereinafter, so that by taking up or letting out said tie-rod by means of the nuts on its ends, said rollers, when out of adjustment, may be readily restored to proper adjustment, as it will be seen the effect of shortening or lengthening said tie-rod as may be required is not only to lift or restore the sagged corner of the frame to its true level, but also to restore to right angles the angles of the parallelogram of which said rollers form opposite sides.

In elevator-frames for grain-binders heretofore in use, especially after the same become a little old and weakened, even though the canvas-rollers may be in proper adjustment when the machine is standing upon level ground, still, the same are constantly being temporarily thrown out of adjustment, so that the canvas will run untrue and bind and wear on its edges by reason of the varying strains to which different parts of the frame are subjected as the machine passes over rough or uneven ground.

By use of my invention this difficulty also is obviated, as the frame on which the rollers are mounted is so stiffened by the diagonal tie-rod that it will not yield to any ordinary sudden strain to which it may be subjected, so that the canvas moving on the rollers will run perfectly free and true at all times, if the rollers are properly adjusted by the tie-rod.

The accompanying drawing, forming a part of this specification, shows, in perspective, the elevator-frame of a binding-harvester, the canvas being removed, so as to expose the parts thereunder. A represents the main carrying-wheel of the machine, B B the elevator-frame, and C C the canvas-rollers, all constructed and combined in the ordinary manner.

D is the adjustable truss-brace already mentioned, which is attached to the frame at the lower front corner upon the inner side, and to the upper rear corner upon the outer side, suit-

able irons, D′ D′, being provided upon the frame in which the ends of the rod may be secured and adjusted. As will be noticed, the rod traverses the open space above the wheel A, and under the canvas and its rollers, so that it interferes in no manner with any of those parts, and necessitates no change in them or in the frame itself. By means of this diagonal brace the burden of sustaining the weight which comes upon the lower front corner from the reel and other parts is transferred in part from the immediate portions of the frame to the more remote parts thereof, and the whole frame is made to do duty in that regard. The cutter-bar is also sustained from springing out of line by this brace at the point where it is weakest—viz., at the junction of the platform-frame.

Of course the points where the brace is attached may be varied from those shown, provided the brace extends substantially in the direction set forth.

This brace may be readily applied to machines already in use, and by it frames already sagged out of true may be straightened and readjusted.

It will be observed that the grain-binder elevator-frame shown in the drawing has only six corners, but it is obvious that my invention is also applicable to such frames having eight corners, in which also the tie-rod should extend in the same direction—that is, diagonally from the lower left forward corner to the upper right rear corner, as before described.

I claim—

In a grain-binder, the combination of the elevator-frame, the canvas-carrying rollers mounted thereon, and an adjustable diagonal tie rod or brace extending from the lower inner forward corner to the upper and outer rear corner of said elevator-frame, whereby said canvas-carrying rollers may be adjusted and maintained in adjustment, thus allowing the canvas moving thereon to run perfectly true, substantially as specified.

ISAAC P. CADMAN.

Witnesses:
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