

(No Model.)

4 Sheets—Sheet 1.

W. N. WHITELEY.

GRAIN GATHERING AND BINDING MACHINE.

No. 258,179.

Patented May 16, 1882.

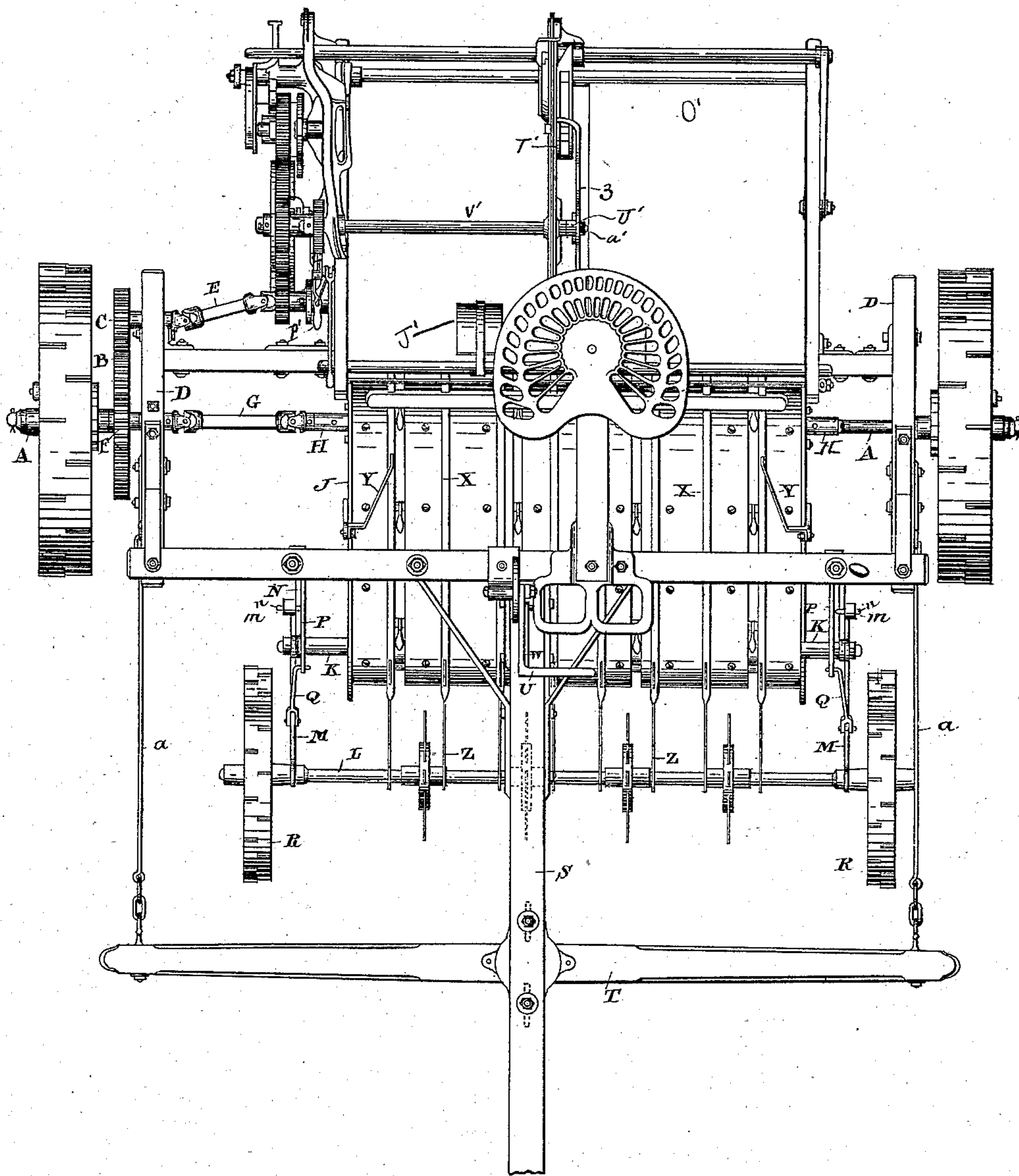


Fig. 1.

Witnesses.

Levi J. Johnson

Chas W Baldwin

Inventor.

W. N. Whiteley

By Richard Bird

Att'y

(No Model.)

4 Sheets—Sheet 2.

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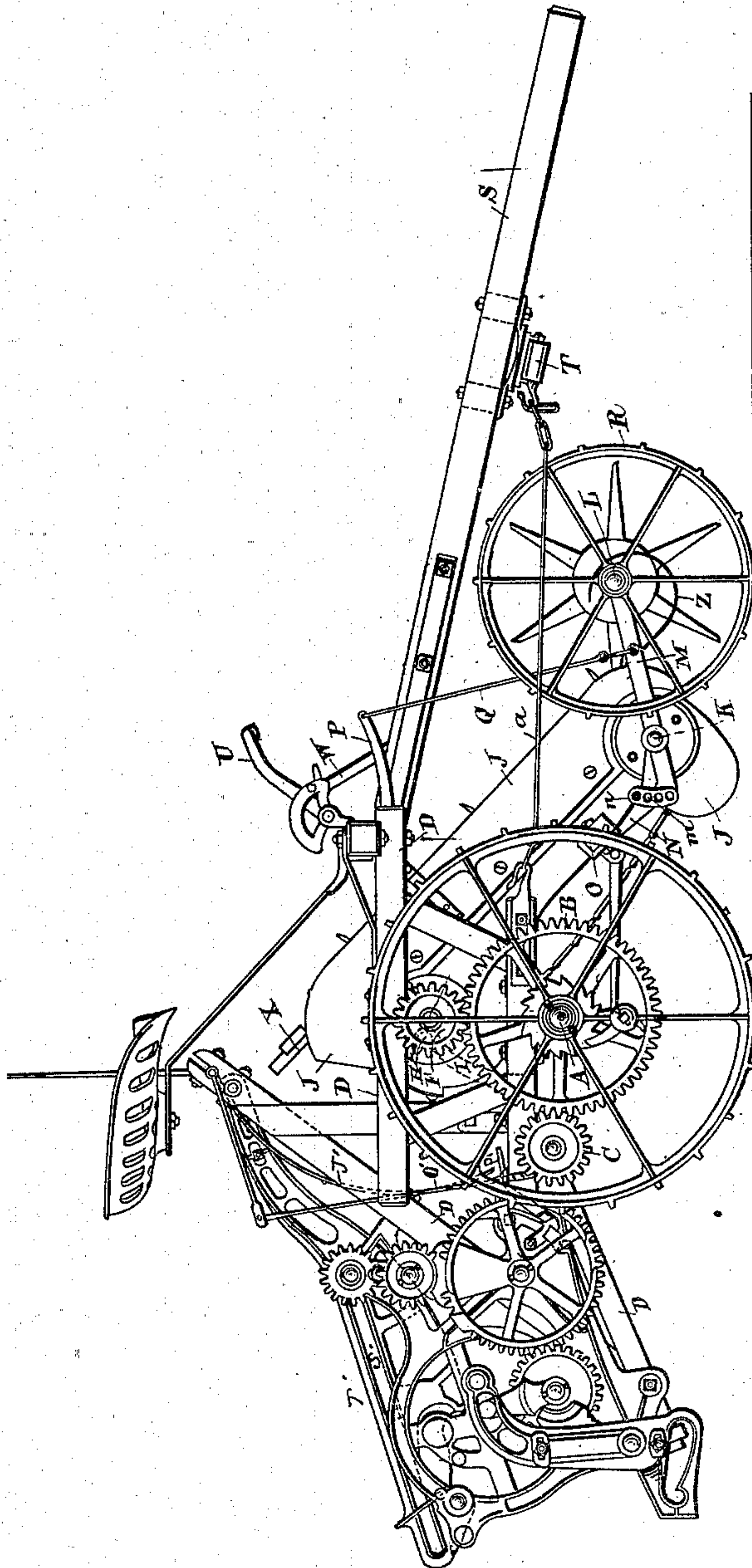


Fig. 2.

Witnesses.

Lewis Tomlinson

Chas. Y. Baldwin

Inventor:

W. W. Whiteley

Ridout Third Co.

Athys

(No Model.)

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W. N. WHITELEY.

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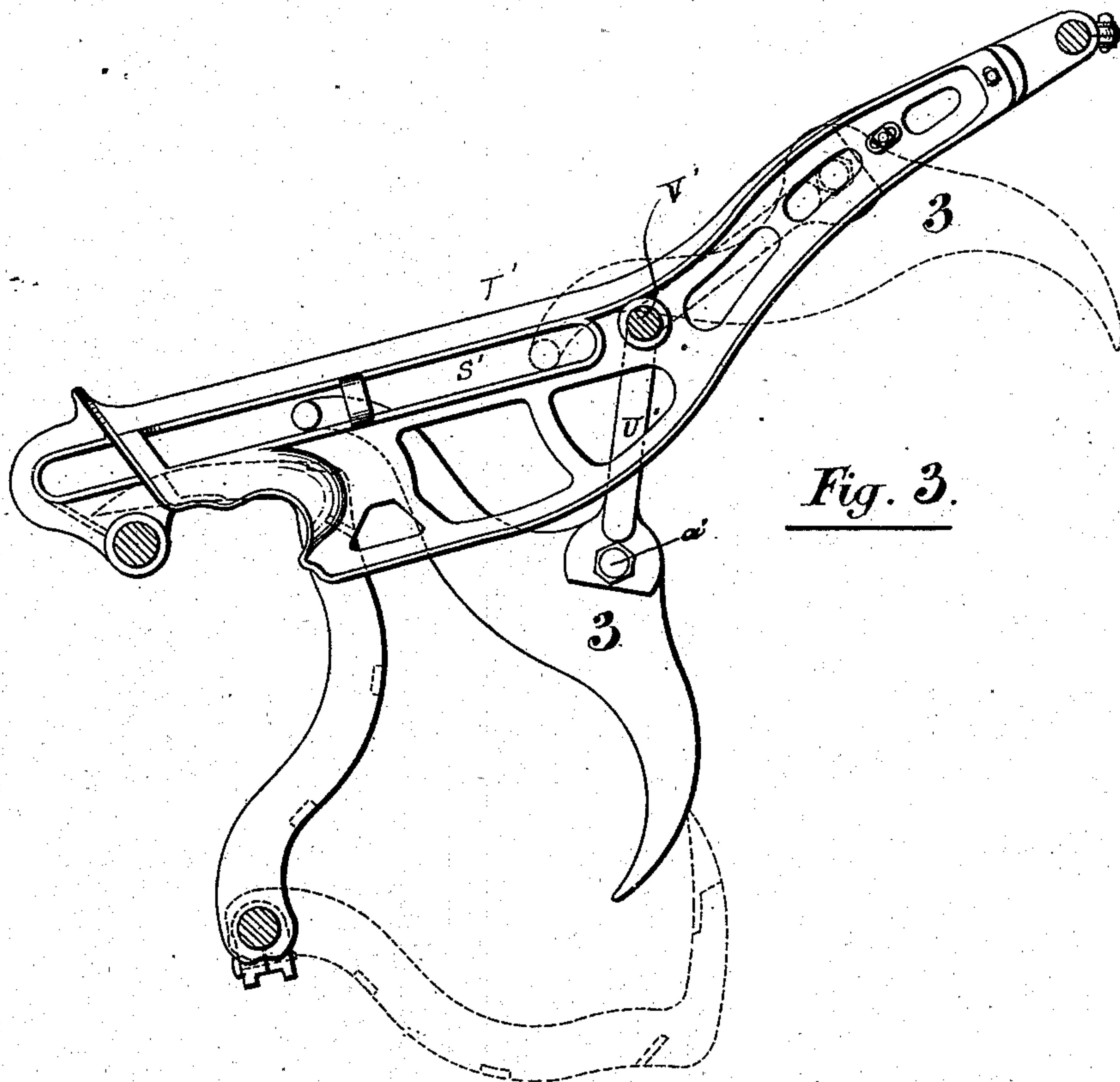


Fig. 3.

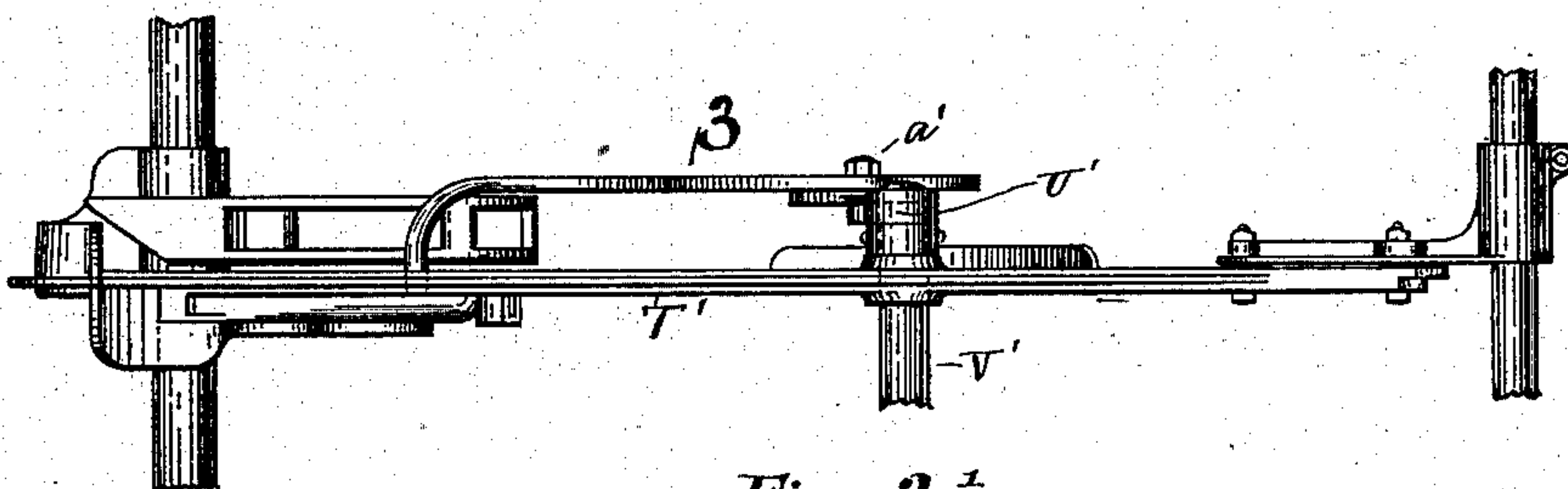


Fig. 3¹.

Witnesses.

Lewis Tomlinson

Chas H. Baldwin

Inventor.

W. N. Whiteley
By Richard A. A. A.
Att'y

(No Model.)

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W. N. WHITELEY.

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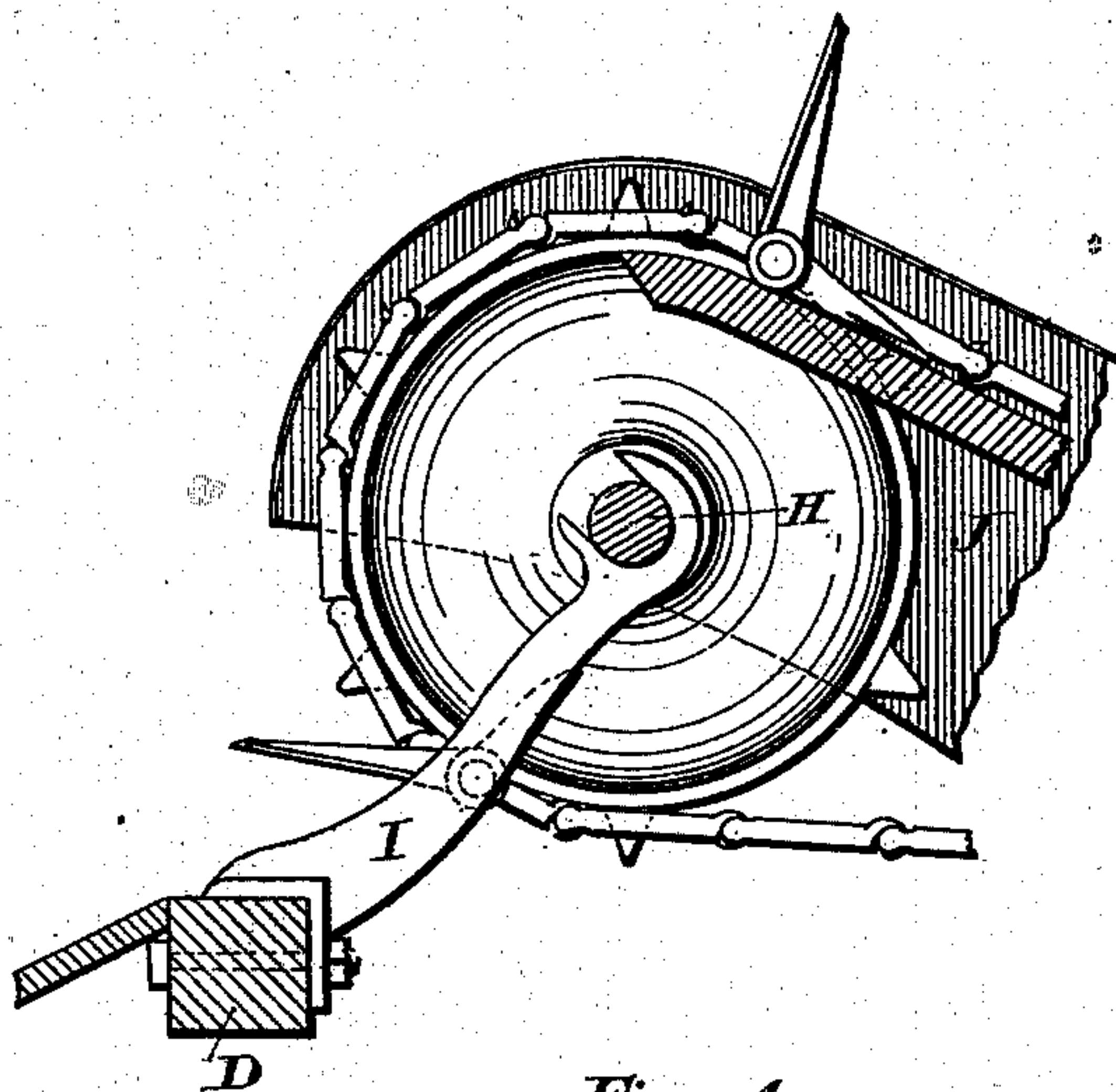


Fig. 4.

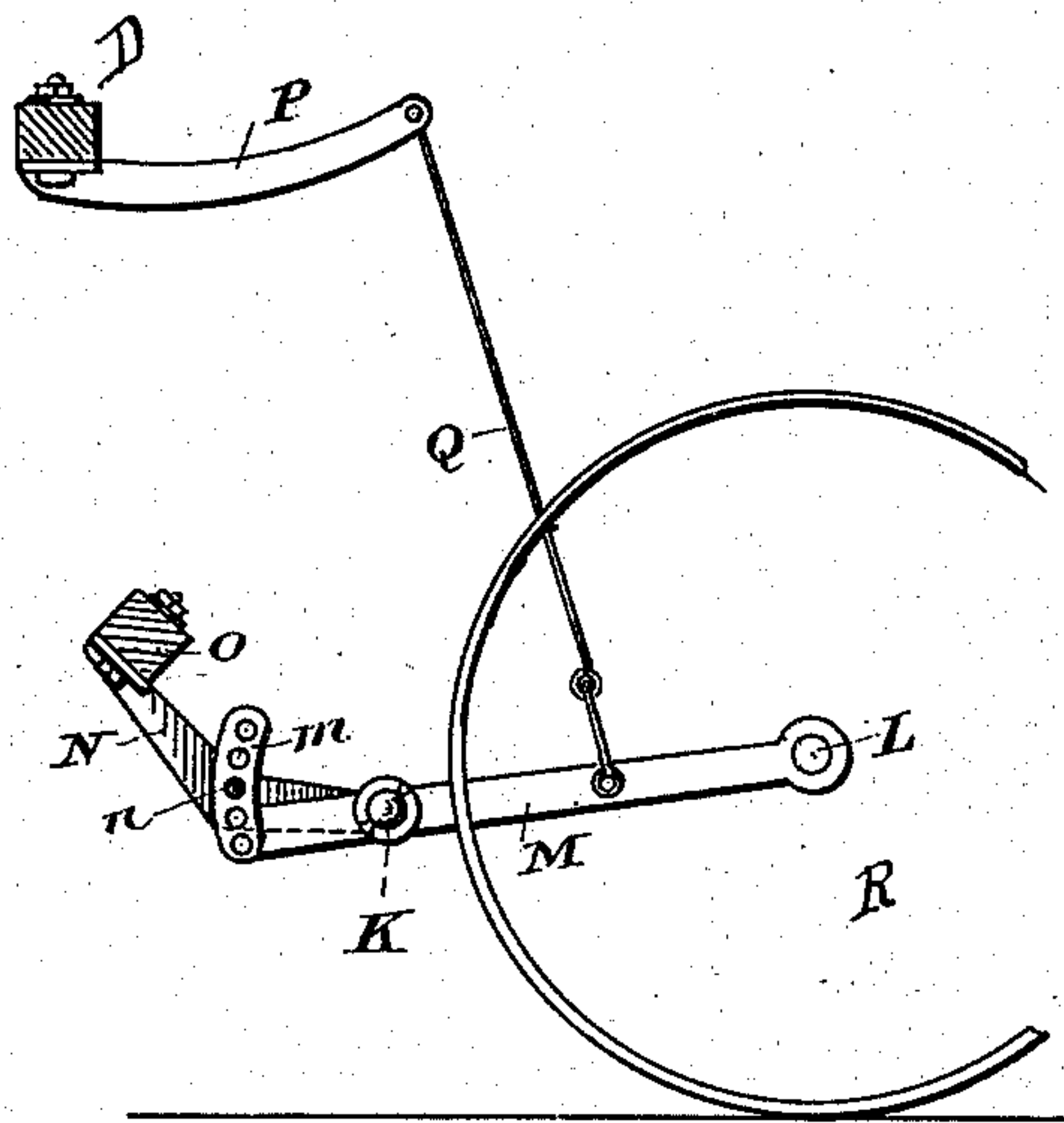


Fig. 6.

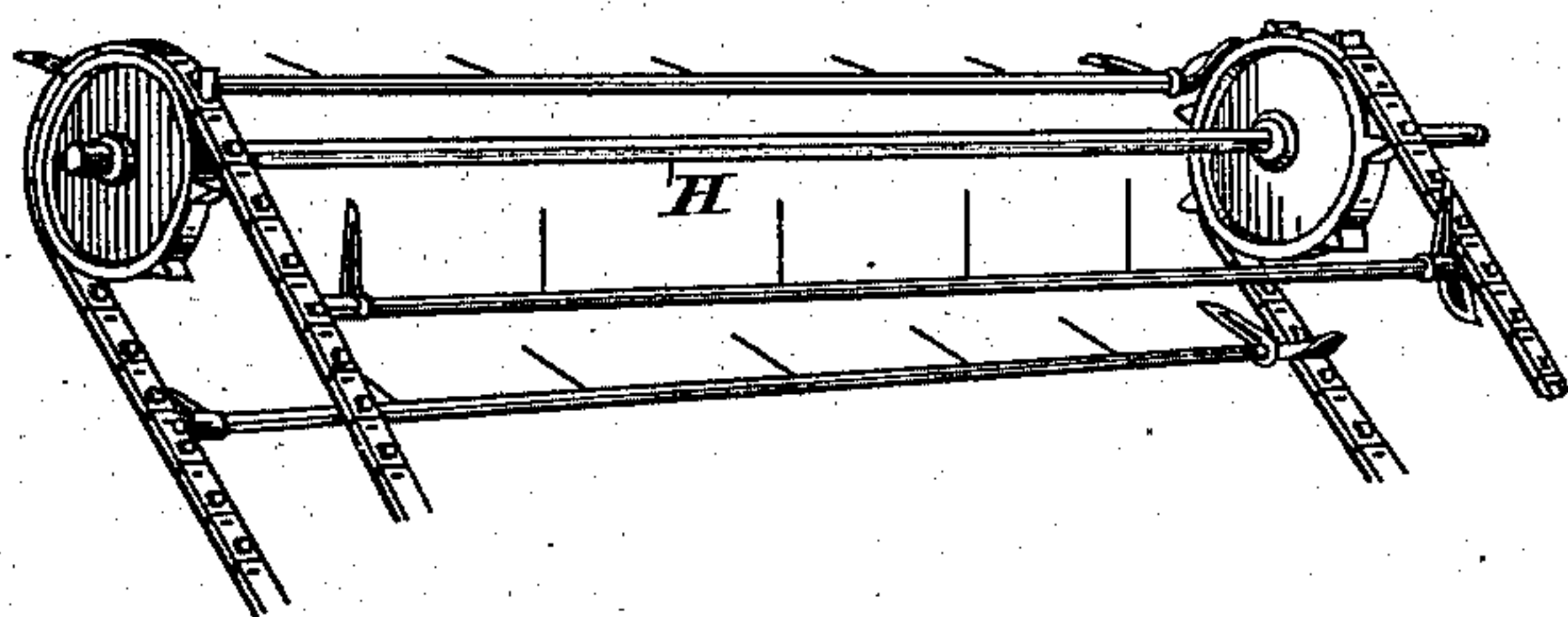


Fig. 5.

Witnesses.

Lewis Tomlinson
Chas. W. Baldwin

Inventor:

W. N. Whiteley
Ridout Bird
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELEY, OF SPRINGFIELD, OHIO, ASSIGNOR TO WHITELEY,
FASSLER & KELLY, OF SAME PLACE.

GRAIN GATHERING AND BINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 258,179, dated May 16, 1882.

Application filed January 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NEEDHAM WHITELEY, a citizen of the United States, of the city of Springfield, in the county of Clarke, in the State of Ohio, have invented new and useful Improvements on Grain Gathering and Binding Machines, of which the following is a specification.

My invention relates to a combined gathering and binding machine in which the gathering-cylinder is carried in front of the elevator on independent wheels, and the binding mechanism is supported upon an extension of the frame carrying the elevator, which frame is flexibly connected to the main supporting-wheels, and from which wheels the elevator and binding mechanism derive their motion, the whole being constructed and operated substantially as hereinafter more particularly explained.

In the accompanying drawings, Figure 1 is a plan of the combined machine. Fig. 2 is an elevation of the same. Fig. 3 is an elevation of the frame containing divider-arm 3. Fig. 3' is a plan of the same. Figs. 4, 5, and 6 are detail views of the machine.

A is the main shaft of the machine; B, the main driving-gear, keyed or otherwise fastened to the shaft A. C is the pinion supported in the main frame D and gearing with B. The spindle of the pinion C is connected by a flexible tumbling-shaft, E, with the binding mechanism carried on the main frame D, but which mechanism it is not necessary to describe here, it having already been shown and explained in former applications.

F is a pinion, also supported in the main frame D, and connected by the flexible tumbling-shaft G with the elevator-shaft H. This shaft is supported from the main frame by a bracket, I, provided with a bearing which will permit the shaft H to rotate in it, for the purpose hereinafter explained. The top of the elevator-frame is supported by this shaft H.

The lower shaft, K, of the elevator is connected at both of its ends to the gathering-cylinder shaft L by the pivoted arms M, the arms, it will be noticed, projecting behind the shaft K and being provided with T-shaped ends *m*. An arm, N, at each end of the shaft K, and close to the arm M, connects the shaft

K to the frame O, projecting from the elevator-frame J. A pin, *n*, passes through a hole in the arm M and overlaps the arm N, as indicated. The arm P extends from the main frame D, and is flexibly connected to the pivoted arm M by the rod Q. It will be seen that the arms M and N, connected together, as described, by the pin *n*, support the bottom side of the elevating-frame J, while permitting it to have a certain vertical motion, for the purpose hereinafter explained.

With the view of adjusting the height of the frame J, the T-shaped ends *m* of the pivoted arms M are provided with several holes, any one of which may receive the pin *n*, thereby procuring the desired adjustment, as will be understood by reference to the drawings.

A gathering-cylinder which is connected to the main frame in the manner just described is supported by the wheels R, which, while carrying the forward part of the machine, propel the gathering-cylinder independently.

The pole S is suitably hinged, as represented, to the main frame D, and is provided with a double-tree, T, flexibly connected, as shown, to the frame D in proximity to the main shaft A, as represented, the double-tree being so connected to the pole S that while supported thereby it is permitted to slide upon it longitudinally. By this arrangement the entire draft is conveyed direct from the double-tree T to the main frame without strain upon the pole S.

The foot-lever U is pivoted upon the main frame D within reach of the driver, and is connected to the pole S by the rod W. The driver is thus enabled to raise the front of the machine by pressing down the lever U.

The independent float X is flexibly supported upon the frame J by the pivoted arms Y. The grain being carried under the float accumulates against the deflector J' until it rises sufficiently to trip the latch P', which starts the binding-machine. The curved guards Z of the float X extend around the gathering-cylinder shaft L, as represented in the drawings.

Although I do not make any claim in this application upon the binding mechanism, I show sufficient of it to explain its connection with the gathering part of the machine, and

as the divider-arm 3 performs an important service, hereinafter referred to, I show in Figs. 3 and 3' an enlarged detail of it. The dotted lines show it as it appears when about entering to divide the grain, and the full lines show its position when delivering the sheaf to the binder-arm. One end of said divider moves in the guide-slot S' in the bridge-frame T', and near its center, at a', it is journaled on the crank U', which is mounted on the shaft V'.

Having now described the general mechanical construction of the machine, I shall proceed to describe briefly its operation, adding such description as I may find necessary.

As will be noticed, the gathering-cylinder is placed in front of the elevator, and is carried by its own wheels, which cause the cylinder to revolve independently of the other mechanism. The elevator-frame is flexibly connected to the main frame of the machine, which is carried by the driving-wheels, arranged, as hereinbefore described, to operate the elevator and also the binding mechanism situated behind it. The pole S is hinged to the main frame of the machine, but is not intended to receive any of the draft. The double-tree T, which is connected to it as hereinbefore explained, receives the entire draft from the horses, which is conveyed to the main frame by the draft-rods. This connection enables the driver, by means of the foot-lever U, to raise the front of the machine when coming in contact with any obstruction, the entire strain of draft being on the draft-rods. As the machine proceeds the gathering-cylinder lifts the grain to the elevator, whose teeth receive it and carry it upward beneath the adjustable float. It will be noticed that the elevator-teeth are arranged to turn outward at the bottom to gather the grain as it leaves the revolving cylinder, and also assist in gathering the grain from the ground. At the top of the elevator, where the grain is discharged upon the binder-receptacle, these teeth are arranged to draw in and clear themselves from the grain leaving the elevator, as shown in Fig. 4, which illustrates the application of the teeth to the elevator-belt. They are shown attached to separate chains in Fig. 4; but, as will be seen on reference to Fig. 5, the same effect might be produced by attaching them to rake-heads operated by a chain on each end of the rake-head.

In a former application made by myself and others I described a self-operating binder-trip, which I now apply to my present combined gathering and binding machine with peculiar advantages. The grain is delivered by the elevator and thrown into the receptacle above the separator and beneath the deflector. With each accession to the quantity of grain received

in the receptacle the deflector is correspondingly raised, and when the quantity desired for a sheaf has been accumulated there the deflector will have been raised sufficiently far to cause the binder-trip to be operated and the binding mechanism to be set in motion. This machine, however, is designed to pick up the grain cut and deposited on the ground by another and separate machine, and therefore, when working after a reaper which deposits the grain in gavels, the elevation and discharge of the grain will be non-continuous or periodic, and it will then happen that the gavels carried into the receptacle will not be uniform in size, and when discharged into the receptacle there will sometimes be too much and sometimes too little for a sheaf. The deflector, however, will not cause the binding machinery to be started until the quantity equals or exceeds the required quantity, and if there is an excess the divider will separate the quantity wanted and leave the remainder in the receptacle to form part of the next sheaf.

By the application of my self-operating binder-trip the grain remains in the receptacle till sufficient has been gathered to make a sheaf of the required size, when the trip referred to throws the binding-machine into operation.

What I claim as my invention is—

1. The pivoted arms M, provided with T-shaped ends m, and extending behind the elevator shaft K, and supported at their forward ends by the gathering-cylinder shaft L, in combination with the pins n and arms N, arranged to form an adjustable joint between the gathering-cylinder and the elevator, substantially as described.

2. The foot-lever U, pivoted upon the main frame D and connected to the pole S by the rod W, in combination with the arm P, flexibly connected with the elevator-frame by the rods Q and the arms M, substantially as set forth.

3. In an independent gathering and binding machine, devices for gathering the grain upon the ground and an elevator for raising the same therefrom, the elevator-shaft H, passing through bearings in the frame J and supported by the brackets I, in combination with the flexible tumbling shaft G, pinion F, and main driving-gear B, substantially as and for the purpose specified.

4. An independent float, X, provided with curved guards Z, extending around the gathering-cylinder shaft L, in combination with the pivoted arms Y, connecting the float X movably to the frame J, substantially as and for the purpose set forth.

WILLIAM NEEDHAM WHITELEY.

Witnesses:

HENRY MILLWARD,
AUGUSTUS N. SUMMERS.