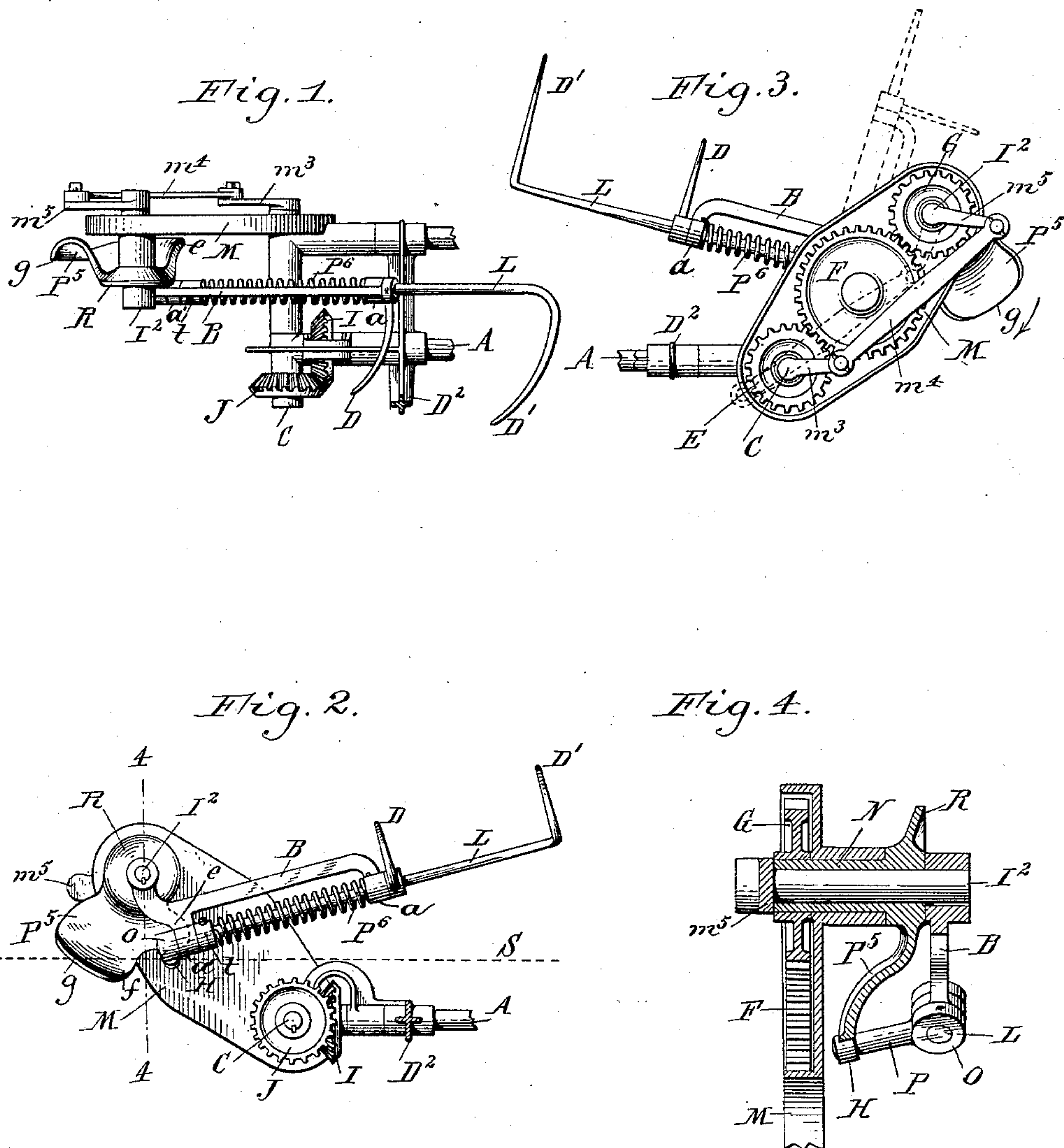


(No Model.)

J. R. SEVERANCE.
BUNDLE DISCHARGER FOR GRAIN BINDERS.

No. 452,461.

Patented May 19, 1891.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES R. SEVERANCE, OF POUGHKEEPSIE, NEW YORK.

BUNDLE-DISCHARGER FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 452,461, dated May 19, 1891.

Original application filed October 28, 1886, Serial No. 217,390. Divided and this application filed August 23, 1890. Renewed April 15, 1891. Serial No. 388,991. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. SEVERANCE, of the city of Poughkeepsie, in the county of Dutchess, in the State of New York, have invented certain Improvements in Bundle-Dischargers for Grain-Binders, of which the following is a specification, reference being had to the accompanying drawings.

My present invention relates to certain improvements in bundle-dischargers for grain-binders of the type shown in my patent, No. 277,356, dated May 8, 1883.

My improvements are fully described and illustrated in the following specification and the accompanying drawings, and the novel features thereof specified in the claims annexed to the said specification.

My improvements in bundle-dischargers are shown in the accompanying drawings, in which—

Figure 1 is a plan view of the discharger mechanism. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation taken from the side opposite that shown in Fig. 2. Fig. 4 is a section through the rock-shaft and revolving cam on the line 4 4, Fig. 2.

This application is filed as a division of my application, Serial No. 217,390, filed October 28, 1886, in which the bundle-discharger mechanism herein described and claimed was set forth and illustrated.

The invention is designed to be used in connection with any form or type of grain-binder or grain-binding mechanism which permits of a rear discharge of the bound bundles, and is specially applicable to such machines as have been represented in my patent, No. 345,546, and in my pending applications, Serial Nos. 217,390 and 220,509.

The bundle-discharging mechanism is attached to the rear end of the frame of the binder or of the binding-table and arranged in such suitable relation with the other parts of the machine as will enable it to properly perform its functions. Thus D², Fig. 1 of the accompanying drawings, represents one of the cross-bars of the binder-frame, and A the driving or other shaft of the binder mechanism.

L is the arm of the bundle-discharger, which has a double movement—a vibration on the

pivot I², as indicated by the full and dotted lines in Fig. 3, and a rolling motion on its longitudinal axis, which enables the horns or prongs D D' to pass under the bundle on the binding-table, so as to lift it and discharge it in rear of the machine.

The vibrating movement of the discharger-arm on the axis I² is secured from the shaft A by means of the bevel-gears I J, shaft C, crank m³, link m⁴, crank m⁵, and shaft I². The crank m³ is shorter than the crank m⁵, so that while the former makes a complete revolution the latter vibrates through an arc, as indicated by the full and dotted lines in Fig. 3, thus producing the required movement of the discharger-arm. The shafts A and C are supported in suitable journals attached to the cross-bar D². The crank m³ is attached to the shaft C and the crank m⁵ to the shaft I². The discharger-arm is supported on the shaft I² by the support B, which is provided with suitable journals a a', in which the arm rolls. The shaft I² is sustained by the standard or upright M, which may be attached to the cross-bar D² or other suitable part of the machine.

The rolling movement of the discharger-arm is obtained from the shaft C by means of the gears E F G and the revolving cam P⁵, which operates on a roller H on an arm P, Fig. 4, attached to the discharger-arm. The gear E is secured on the shaft C, F being an intermediate gear, which simply revolves on a stud on the standard M and transmits motion to the gear G. The standard M is given the form of a hood or casing, which incloses the gears and protects them from dust or dirt, one side of the casing being omitted in Fig. 3. The gear G is connected with the cam P⁵ by the sleeve N, Fig. 4, surrounding the shaft I². The arm P is provided with a boss O, by which it is attached to the bundle-discharger arm L. The roller H bears on the edge of the cam P⁵ during the whole of its revolution, the cam being dished or flared outward from the discharger-arm, so that its edge is presented in the path of the roller as the discharger-arm rolls in its journals. A portion of the edge of the cam is concentric with the axis of revolution, as indicated at R. The discharger-arm does not roll while the roller is passing

along this portion of the cam, during which time the prongs are descending toward the bundle, under which they are caused to engage by that portion of the cam represented
 5 by the dotted line *e*, Fig. 2, which rocks the discharger-arm, so as to pass the prongs under the bundle preparatory to lifting the same, as described in my former patent, No. 277,356. The discharger-arm is still fur-
 10 ther rocked by that portion of the cam marked *f* in Fig. 2 at same time the bundle is delivered onto the ground in the rear of the machine. The edge of the cam at *g*, Fig. 2, may be made concentric with the axis. At
 15 this time the discharger-arm has little or no motion, as the bundle is at this time being delivered therefrom. The roller is held in contact with the edge of the cam by the coiled spring *P*⁶, one end of which is attached to the
 20 supporting-arm *B* and the other to the discharger-arm or a collar *t*, Fig. 2, secured thereon. The spring operates to roll the shaft in the direction opposite to that in which it is rolled by the cam.
 25 The position of the binding-table is indicated at *S*, Fig. 2, from which it will be seen that the pivot on which the discharger-arm vibrates is elevated by the standard or support *M* above the table, by which arrange-
 30 ment I am enabled to use a shorter discharger-arm, thus reducing the leverage, and also to secure the complete reversal of the bundle when discharged, so that the butt-end will strike the ground first.
 35 It is obvious that a chain and sprocket-wheels or other suitable mechanism may be substituted for the gearing *E F G*.
 This application is filed as a division of my

pending application, Serial No. 217,390, filed October 28, 1886, and I hereby disclaim any- 40 thing included in the said case.

I claim—

1. The combination, with the vertically vibrating and rolling bundle-ejecting arm, of a revolving cam arranged to revolve about 45 the pivot of the discharger-arm and adapted to roll the said arm in one direction, and a spring for rolling the arm in the opposite direction, substantially as described.

2. The combination, with the vertically vibrating and rolling bundle-ejecting arm *L*, of the cranks *m*³ and *m*⁵, of unequal length, connected by link *m*⁴, a revolving cam arranged to revolve about the pivot of the discharger-arm and adapted to roll the said arm in one 55 direction, and a spring for rolling the arm in the opposite direction, substantially as described.

3. The combination, with the vertically vibrating and rolling rear discharge ejector-arm supported by a standard on a pivot above the binding-table, of a revolving cam arranged to revolve about the pivot of the discharger-arm and adapted to roll the said arm in one 65 direction, and a spring for rolling the arm in the opposite direction, substantially as described.

4. The combination, with the vertically vibrating and rolling rear discharge ejector-arm *L*, of the shaft *C*, cranks *m*³ *m*⁵, link *m*⁴, 70 shaft *I*², gearing *E F G*, sleeve *N*, cam *P*⁵, arm *P*, and spring *P*⁶, substantially as described.

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Witnesses:

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