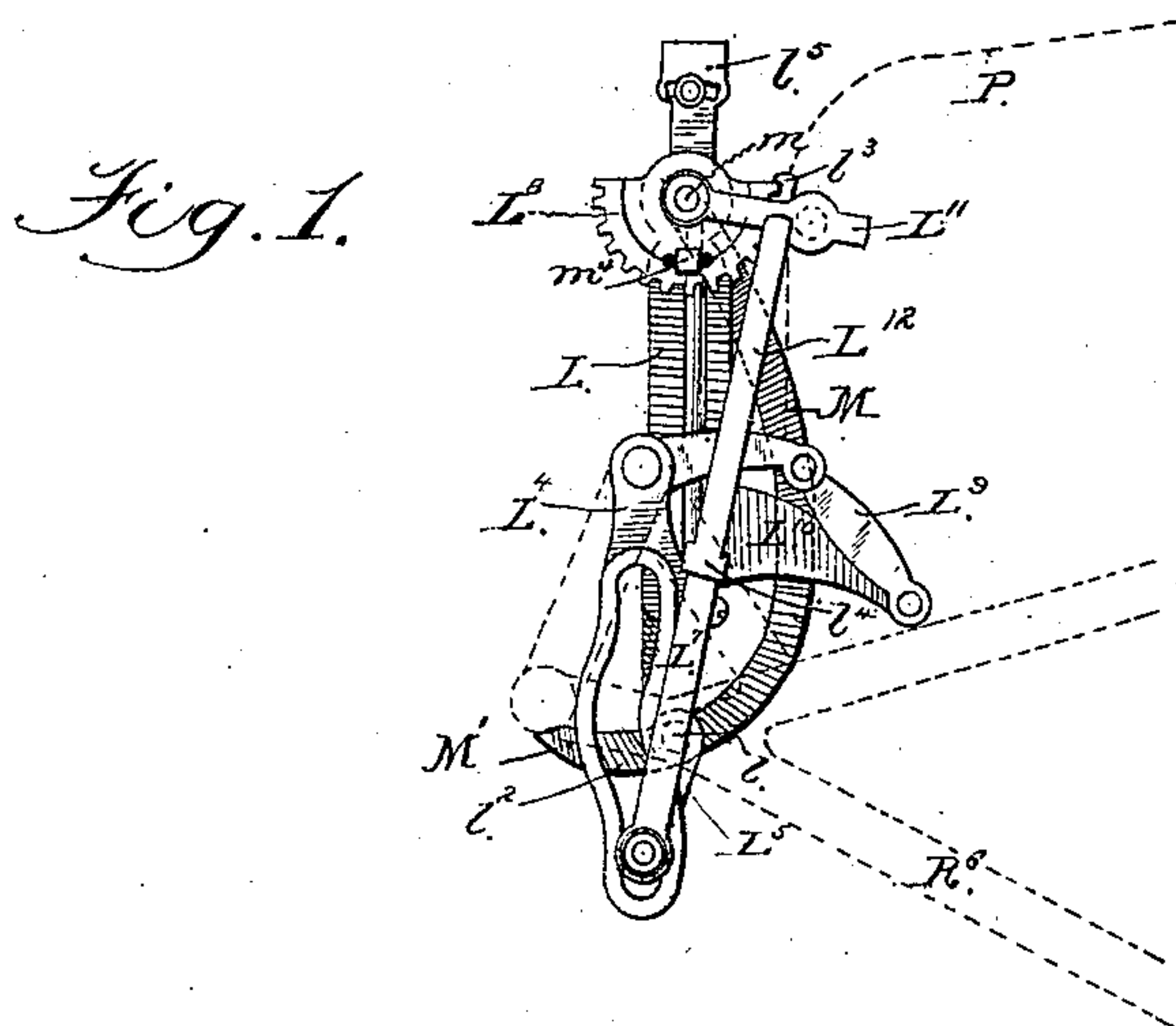


(No Model.)

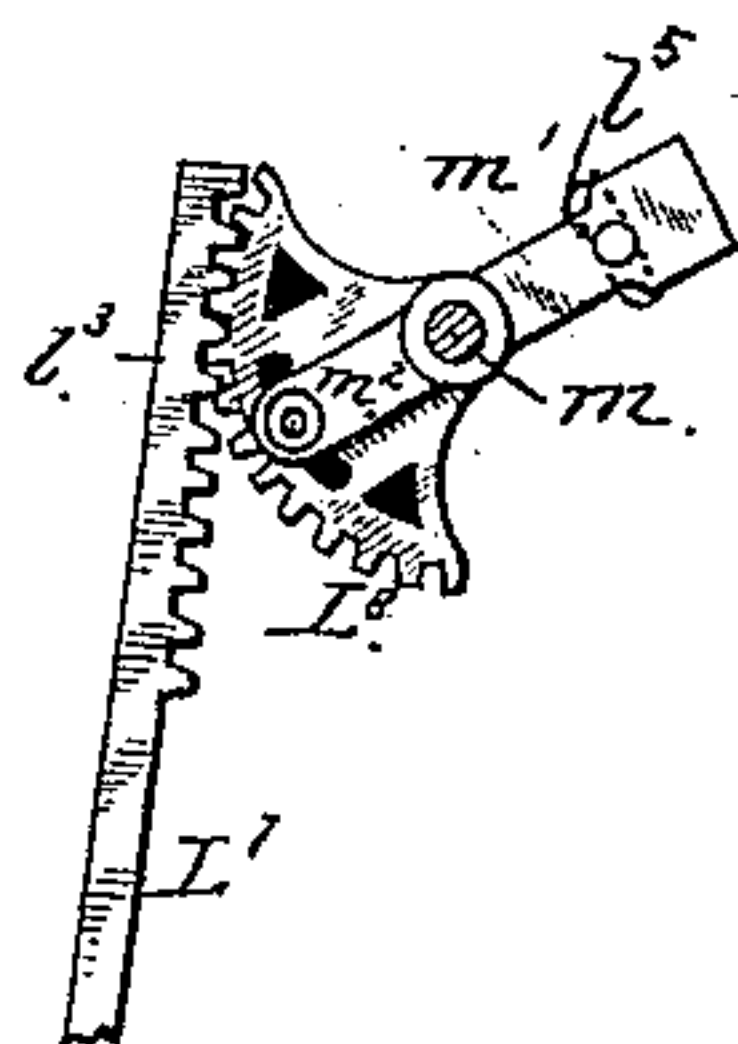
C. W. LEVALLEY.  
GRAIN BINDER.

No. 253,073.

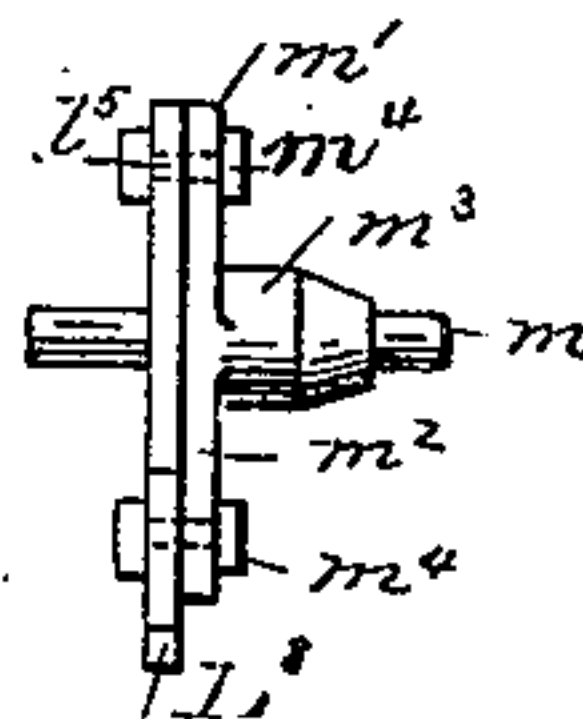
Patented Jan. 31, 1882.



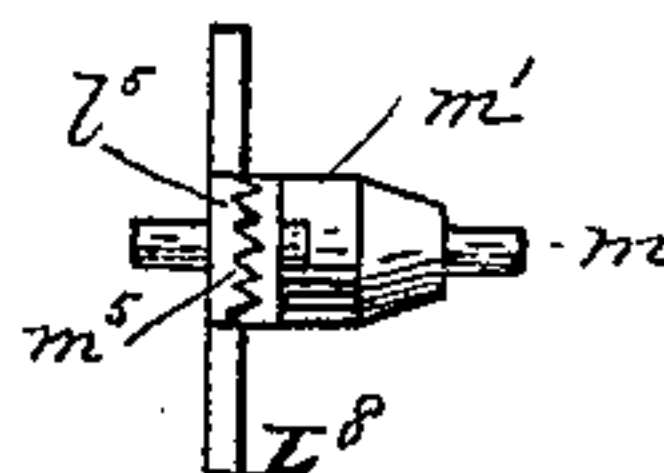
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses;

Walter Fowler,  
L. H. Marshall

Inventor

Christopher W. Levalley  
by

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Attorneys.

# UNITED STATES PATENT OFFICE.

CHRISTOPHER W. LEVALLEY, OF ST. PAUL, MINNESOTA.

## GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 253,073, dated January 31, 1882.

Application filed July 22, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States of America, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a front view of so much of a harvester as is necessary to illustrate my invention. Fig. 2 is a view of the rack and cogged plate which actuates the needle. Fig. 3 is a top view of the cogged plate and its adjusting devices. Fig. 4 is a view of the last-named devices, taken from the outer end of the sector-plate.

This case is a division of my Patent No. 226,865, dated April 27, 1880, and I will not therefore describe in detail all the parts of my machine, but will confine myself to such portions as are necessary to set forth this invention, referring for a more full description to my said Patent No. 226,865, in order to obtain a fuller understanding of the relation of the invention herein claimed to the other parts of the binder.

The needle  $M$   $M'$  is attached to a shaft,  $m$ , which is mounted in the needle-frame. The frame vibrates on the shaft  $l$ , supported at one end in the bracket  $R^6$ , and at its opposite end in a similar bracket arranged in rear of bracket  $R^6$ , but not shown.  $L^5$ , Fig. 1, is a crank-arm engaging with a bell-crank,  $L^4$ , which has a curvilinear slot,  $l^2$ .  $L^9$  is a link pivoted to the bell-crank lever  $L^4$  and to an arm,  $L^{10}$ , of the needle-frame.  $L^7$  is a bar pivoted to the crank-arm  $L^5$ , having a rack,  $l^3$ , Fig. 2, at its upper end, which engages with a spur-segment,  $L^8$ .  $L^{11}$  is a guide for the rack  $l^3$ , the guide being supported by an arm,  $L^{12}$ .  $l^4$  is an eye or sleeve on the arm  $L^{12}$ , and through it the bar  $L^7$  passes.

By means of these devices the needle-frame is swung toward and from the elevator, and at the proper time the needle is oscillated with its shaft  $m$ .

The spur-segment  $L^8$  is secured to the shaft  $m$  by a clutch-plate,  $m' m^2$ , which permits its being adjusted thereon. The clutch has a hub,  $m^3$ , and the needle-shaft passes through said hub and through the segment  $L^8$ . The segment has a rearwardly-extending arm,  $l^5$ , which is notched, as at  $m^5$ , to engage with the adjusting devices of the part  $m'$  of the clutch-plate.  $m^4 m^4$  are bolts, which fasten the clutch-plate to the segment, passing through slots in the latter. The segment  $L^8$  is loose on the needle-shaft, and the clutch-plate is keyed to said shaft. After loosening the bolts  $m^4$  the needle and its shaft can be oscillated in either direction relative to the segment  $L^8$  and secured in a new position. Thus the needle can be properly adjusted relative to its actuating-shaft  $m$ , and its movements thereby properly timed relative to the other parts of the binding mechanism.

What I claim is—

1. In a grain-binder, the combination, with the needle-shaft  $m$ , of the clutch-plate  $m' m^2$ , fast thereon, and the segment  $L^8$ , adjustable to each other by means of bolts and slots arranged upon opposite sides of the needle-shaft, whereby the segment  $L^8$  is secured to the clutch-plate independently of said shaft, substantially as set forth.

2. The combination, with the needle-shaft  $m$ , of the clutch-plate  $m' m^2$ , fast thereon, and the segment  $L^8$ , provided with the adjusting-slots and the clamping-bolts  $m^4$ , substantially as set forth, whereby the segment  $L^8$  is rigidly secured to the clutch-plate independently of said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER W. LEVALLEY.

Witnesses:

J. H. RANDALL,  
W. B. BEND.