(No Model.) 3 Sheets—Sheet 1.

J. MACPHAIL.

HARVESTER.

No. 451,943. Patented May 12, 1891.

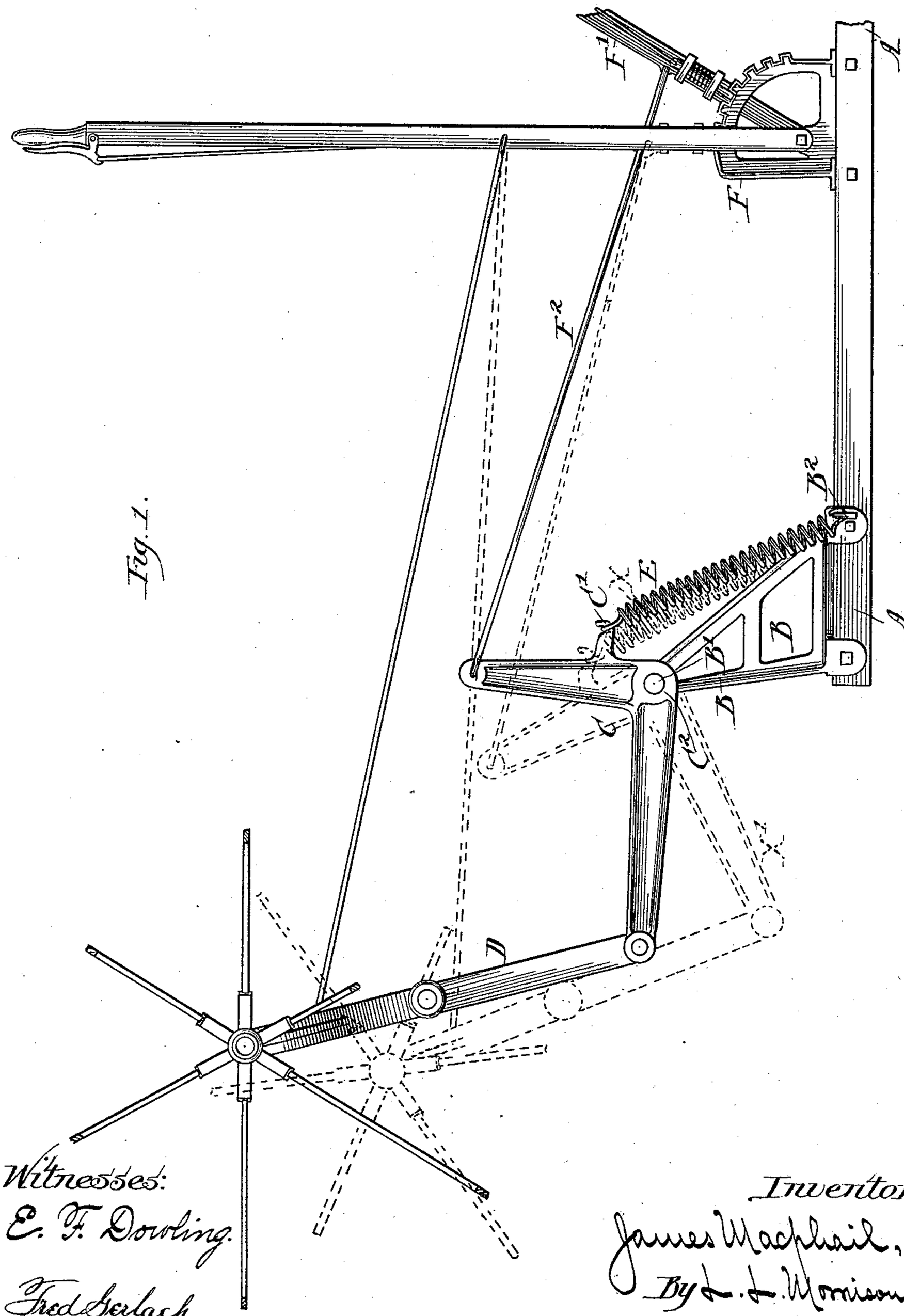

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

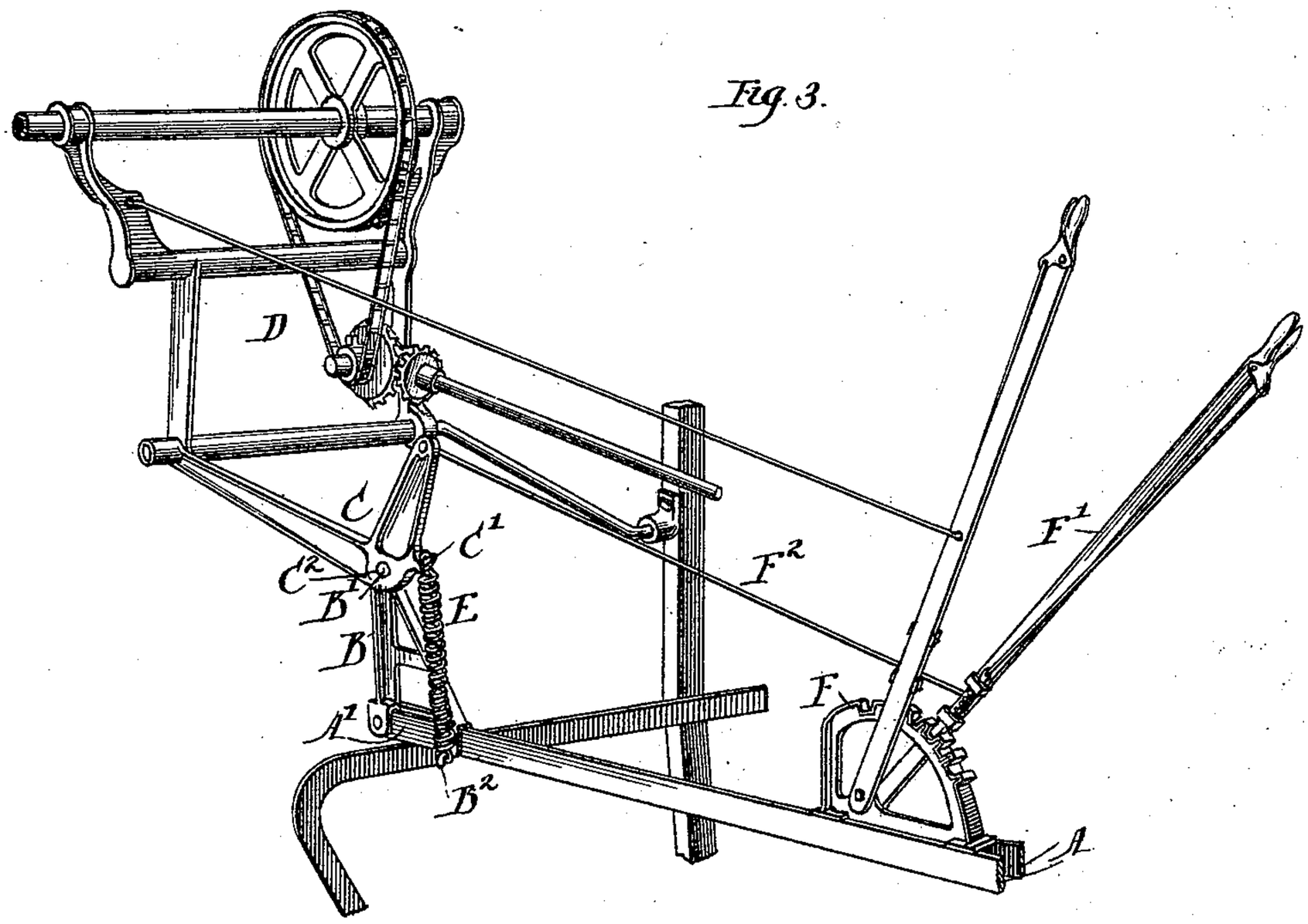
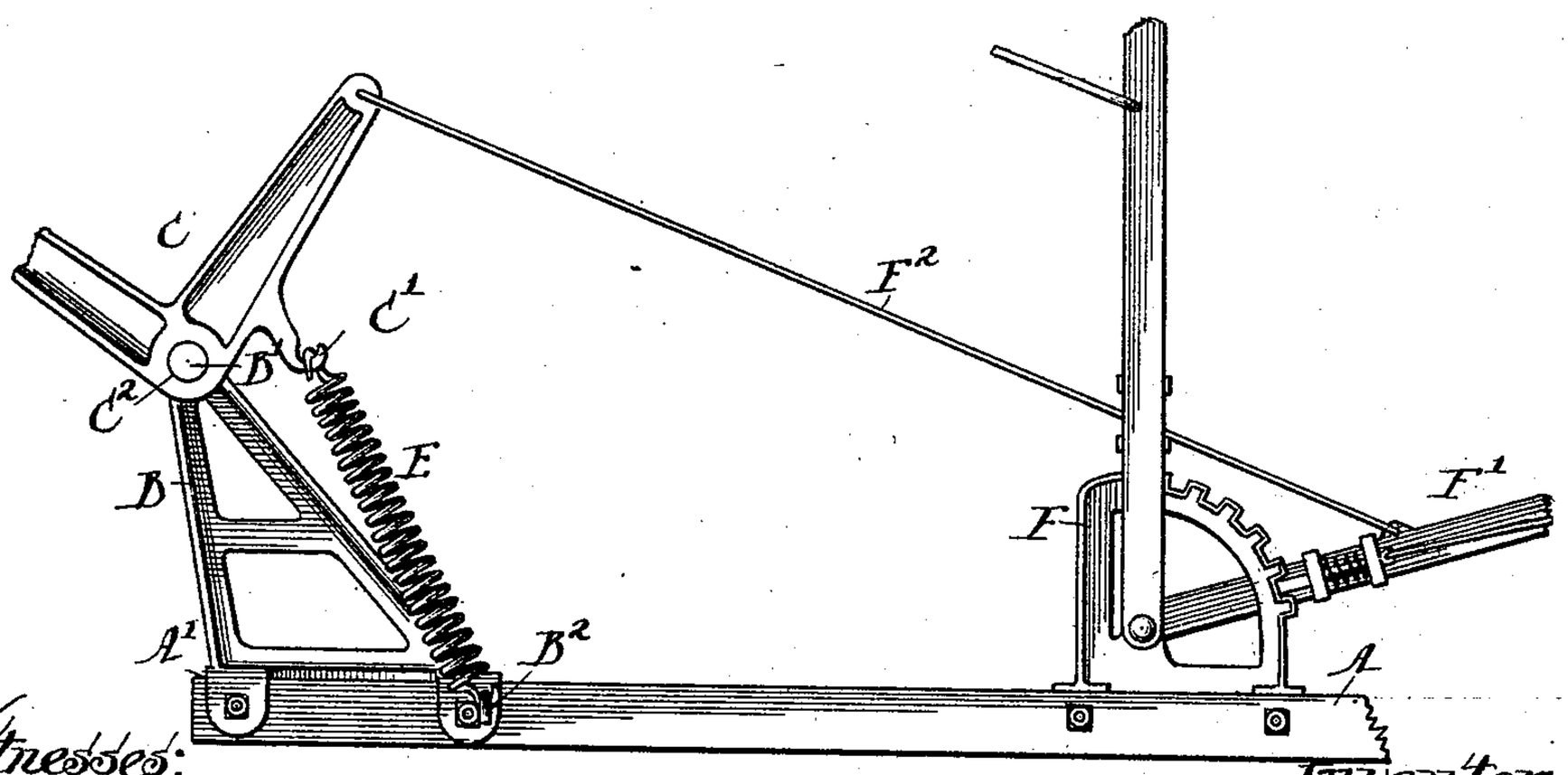


Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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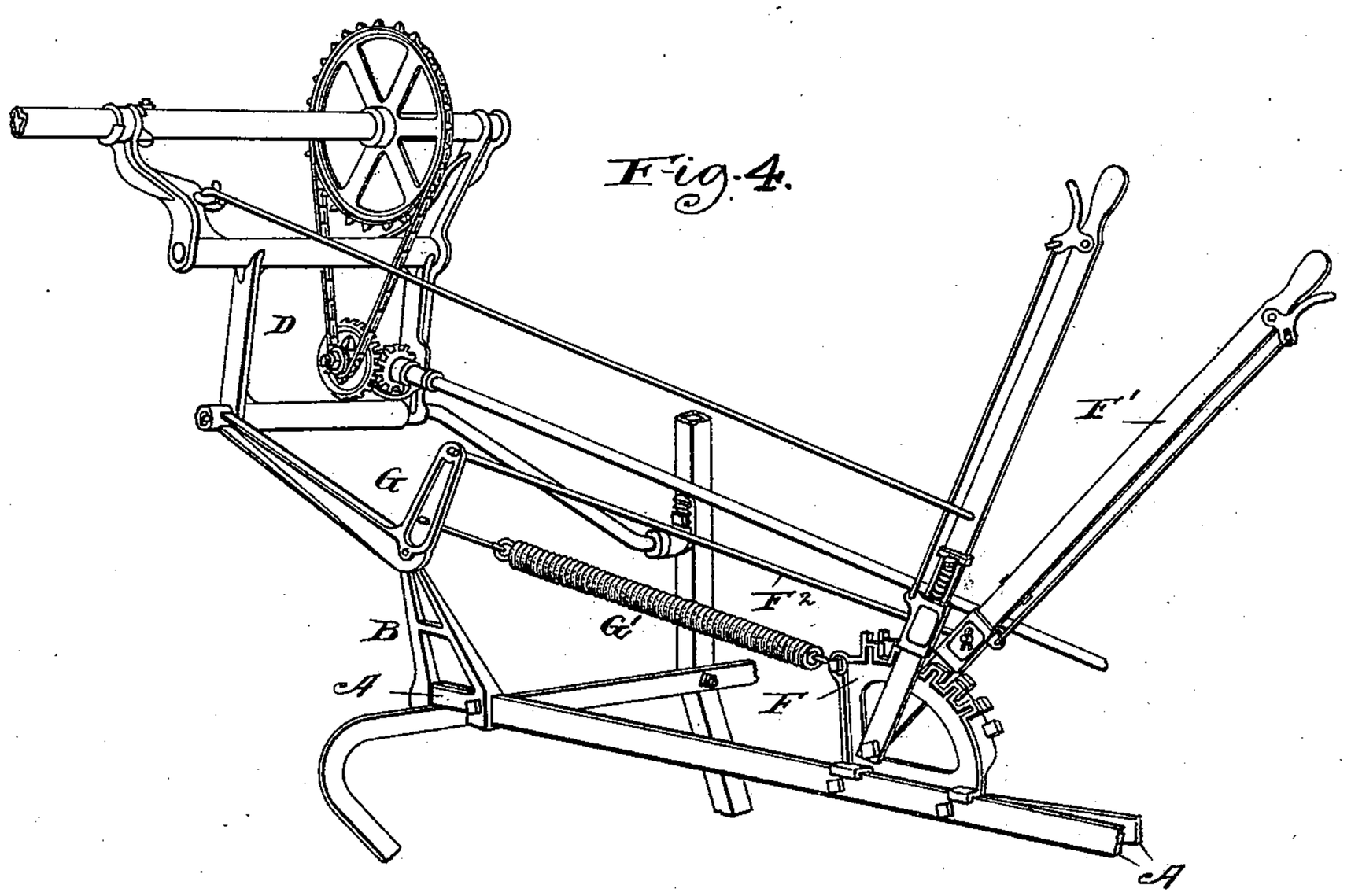
Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES MACPHAIL, OF ROCKFORD, ILLINOIS.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 451,943, dated May 12, 1891.

Application filed December 6, 1890. Serial No. 373,843. (No model.)

To all whom it may concern:

Be it known that I, JAMES MACPHAIL, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

My invention relates to mechanism designed to assist in raising the reel-jacks and reels of harvesters; and it consists of certain new and useful features of construction and combinations of parts hereinafter described, and pointed out in the claims.

Referring to the accompanying drawings, which form a part of this specification, Figures 1 and 2 are elevations of a portion of a harvester provided with my improvement. Fig. 3 is an isometrical view of the same. Fig. 4 is an isometric view showing a modified equivalent form of the mechanism illustrated in the foregoing figures.

Like letters of reference indicate corresponding parts throughout the several views.

A represents the frame that supports the seat (not shown) and reel-jack of the machine.

B is a reel-jack support of any suitable form and construction rigidly connected with the frame A′.

C is a bell-crank provided with a rearwardly-extending arm C′ and pivotally mounted on a stud-journal B′ by means of a circular bearing C^2 therein.

D is a reel-jack mounted on the bell-crank C, whereby it may be raised and lowered at will within the limits of the mechanism.

B^2 is a hook or other suitable means of attaching a spring (to be described) to the frame A or base of the support B.

E is a spring extending and reacting between the free end of the rearwardly-extending arm C′ of the bell-crank C and the hook B^2, located below and behind the bearing B′ of the bell-crank C on the frame A or base of the support B, the exact location of the hook or other means of attachment evidently being immaterial.

F is a segment-rack fast to the frame A. F′ is an adjusting-lever pivoted thereto and capable of connection therewith in the usual manner.

F^2 is a rod connecting the adjusting-lever F′ with the free end of the upper arm of the bell-crank C.

Fig. 2 and the dotted lines X in Fig. 1 indicate the limits of the operation of the spring E, the tension of which nearly counterbalances the weight of the reel-jack D and reel supported thereby in every position they can be made to assume within the limits just mentioned.

Slight force applied to the lever F′ will change the position of the bell-crank C and raise the parts supported thereby from the position indicated by the dotted lines X′ in Fig. 1 to that shown in Fig 2. Obviously, if the lever F′ be disengaged from the segment-rack F, the weight of the reel-jack and its reel will cause those parts to descend to any desired position.

The sustaining force of the spring E is substantially constant in every position that it can be made to assume, for as the distance increases between the arm C′ and the hook B^2 the spring loses leverage and gains tension, and as the distance decreases between the arm C′ and the hook B^2 the spring loses tension and gains leverage. In other words, the spring gains leverage in the same proportion that it loses reactionary force, and vice versa.

Referring to Fig. 4, G is a bell-crank identical with the bell-crank C, except that it is not provided with a rearwardly-extending arm corresponding with the arm C′ and mounted in the same manner. G′ is a spring extending and reacting between the upwardly-extending arm of the bell-crank G and a point of attachment on the reel-jack frame A or a part, as F, located thereon. The modified but equivalent construction shown in Fig. 4 operates equally as well as that shown in the preceding views.

I claim—

1. In combination, the bell-crank provided with a rearwardly-extending arm and pivotally mounted on a suitable bearing, and the spring extending and reacting between the free end of the rearwardly-extending arm and the base of the bearing to assist in raising the reel-jack and reel mounted on the bell-crank, substantially as and for the purpose set forth.

2. In combination, the reel-jack frame, the bell-crank having a rearwardly-extending arm

and being pivotally mounted on a suitable support fast thereto, and the spring extending and reacting between the free end of the rearwardly-extending arm of the bell-crank, and a point of attachment on the reel-jack frame below and behind the pivotal bearing of the bell-crank to assist in raising the reel-jack and reel mounted on the bell-crank, substantially as and for the purpose specified.

3. In combination, the reel-jack frame, the bell-crank mounted on a support fast thereto, and the spring extending and reacting between the upwardly-extending arm of the bell-crank and a point of attachment on the reel-jack frame or a part located thereon to assist in raising the reel-jack and reel mounted on the bell-crank, substantially as and for the purpose specified.

4. In combination, the reel-jack frame A, the bell-crank support B, the bell-crank C, provided with a rearwardly-extending arm C′ and mounted thereon, the spring E, extending and reacting between the free end of the arm C′ and the hook B^2, the segment-rack F, the adjusting-lever F′, and the rod F^2, connecting the same with the upper arm of the bell-crank C, all of said parts being combined and arranged substantially as and for the purpose set forth.

JAMES MACPHAIL.

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