(No Model.) 2 Sheets—Sheet 1.

LE ROY GRAY & E. ESTEP.

MOWING MACHINE.

No. 427,857. Patented May 13, 1890.

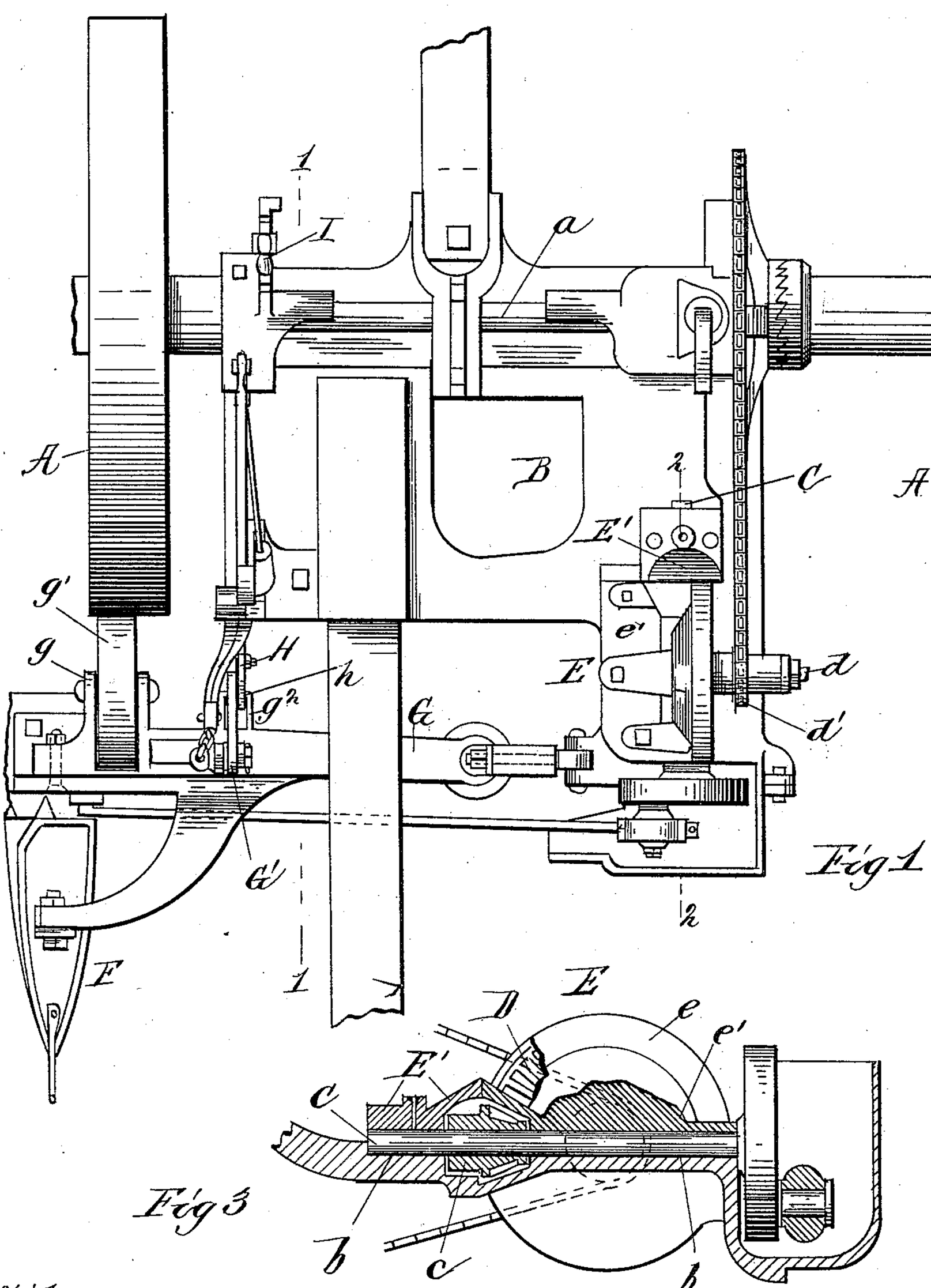

Fig 1

Fig 3

Witnesses
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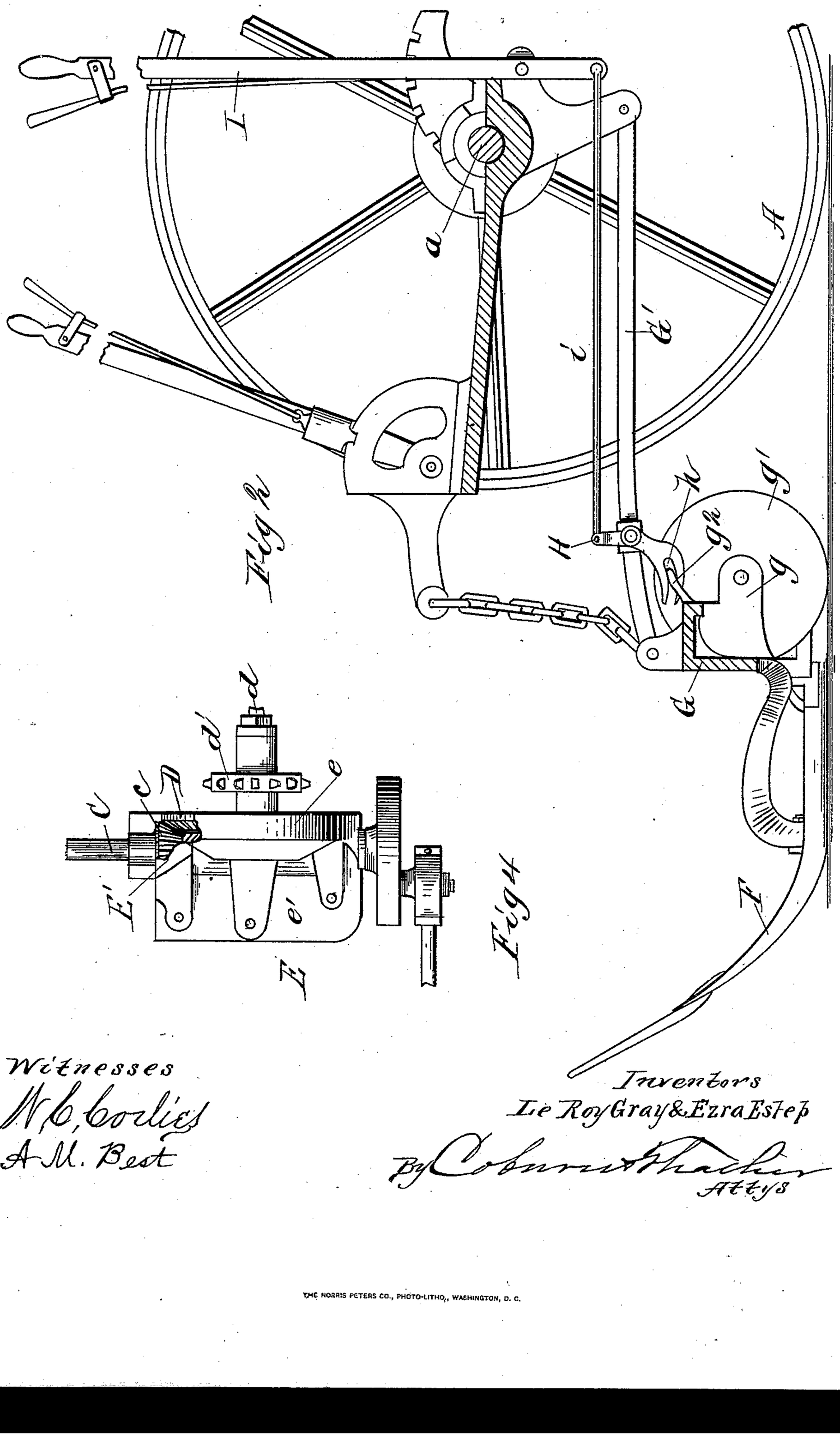

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UNITED STATES PATENT OFFICE.

LE ROY GRAY AND EZRA ESTEP, OF PLANO, ASSIGNORS TO THE PLANO MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 427,857, dated May 13, 1890.

Application filed August 26, 1889. Serial No. 321,955. (No model.)

To all whom it may concern:

Be it known that we, LE ROY GRAY and EZRA ESTEP, citizens of the United States, residing at Plano, in the county of Kendall and State of Illinois, have invented a certain new and useful Improvement in Mowing-Machines, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of a mowing-machine embodying our invention, some projecting parts being broken away; Fig. 2, a sectional view of the same on an enlarged scale, taken on the line 1 1 of Fig. 1; Fig. 3, a detail section on the same enlarged scale, taken on the line 2 2 of Fig. 1; and Fig. 4, a plan of the detached part shown in Fig. 3.

Our invention relates to that class of mowing-machines provided with a hinged joint and rocking finger-beam; and it consists in an improvement in the mounting of the crank-shaft and in the mechanism for rocking or tilting the finger-beam.

We will describe in detail the construction of a machine, or so much of the same as may be necessary to the purpose in which we have embodied our invention practically, and will then point out definitely in claims the particular improvements which we believe are new, and wish to secure by Letters Patent.

In the drawings, A represents the main or supporting wheels, and *a* the main axle on which they are mounted. The main frame B is hung upon this axle, and in this instance extends to the front thereof, thus making the machine a "front cut." The crank-shaft C is mounted on the main frame, in this instance being arranged at the outer front corner thereof. This shaft is provided with the usual crank-wheel, to which the pitman of the cutter-bar is connected, and also with a bevel-pinion *c*, with which a bevel-wheel D engages, this latter wheel being mounted on a short shaft *d* at the side of the machine. A chain-pinion *d'* is also mounted on the same short shaft and connected to the bevel gear-wheel, whereby the required rotation of the crank-shaft is obtained by means of any suitable gearing for driving the chain-pinion. The crank-shaft is mounted in suitable bearings *b*, sunk in the main frame itself, which is also recessed still more below the pinion on the crank shaft to accommodate the pinion, as shown in Fig. 3 of the drawings. As seen in the said figure of the drawings, the crank-shaft extends beyond and to the rear of the bevel-pinion, and has a journal-bearing back of the latter. The front bearing of the crank-shaft is covered by a single plate E, which is constructed to fit the upper portion of the shaft and is extended on each side, being formed on the outer side to provide a cap or covering *e* for the bevel-wheel and bevel-pinion, and on the inside to present a wide flat bearing-surface *e'*, by means of which it is firmly secured to the main frame. A smaller plate E' covers the rear bearing of the crank-shaft, being formed to make a hood or cap over the bevel-pinion, which plate is also firmly secured to the main frame. These two cap-plates meet just above the bevel-pinion, as shown in Fig. 3 of the drawings. We thus provide a long journal-bearing for the crank-shaft, or, rather, a bearing both in front and in rear of the pinion thereon, whereby the shaft is more firmly held in position and is steadier in motion than with the ordinary construction, in which the bearing is only on one side of the pinion and between it and the crank-wheel.

The construction of the cap in the form of a wide plate shaped also to cover the gear-wheels provides a very secure and simple mode of securing the crank-shaft in place and covering its particular gearing with a single piece.

The inner shoe F has the finger-beam attached thereto in any usual manner, and is connected to the main frame by a coupling-arm G, hinged at one end to the shoe and at the other to the main frame, the latter hinge being a swiveling joint.

As shown in the drawings, the coupling-arm has an angular flange or projection *g*, in which a small wheel *g'* is mounted back of the coupling-arm close to the shoe, as seen in Fig. 1 of the drawings, though this is not a material feature of construction. A loop or staple g^2 is provided at the rear edge of the

coupling-arm somewhat inside of the wheel just mentioned—that is, toward the upper end of the coupling-arm—where it is connected to the main frame. A thrust-bar G′ connects the coupling-arm with the main frame in the usual way, being hinged at each end to the respective parts. A short lever H is pivoted to the thrust-bar just in rear of this loop. This lever is provided with a fork *h* at one end, which projects down below the frame and engages the loop on the coupling-arm, as seen in Fig. 2 of the drawings. The upper end of the lever is connected to a hand-lever I by means of a rod *i*, the hand-lever being pivoted to the main frame and provided with the usual devices for securing it in any desired position. The vibration of this lever will obviously rock the coupling-arm by means of the forked lever and loop-connection just described above, and so rock or tilt the finger-beam, which is hinged to the coupling-arm. At the same time the finger-beam is capable of the independent vertical movement at each end, which is usual when it is connected to the main frame by a double-hinged coupler, as in this instance.

We do not wish to be understood as limiting our improvements to the entire details of construction as herein described and shown, for some modifications may be made and the devices to which the invention especially relates may be used in connection with companion devices differing from those herein shown.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The main frame B, in combination with the crank-shaft C, mounted in journal-bearings *b* at each end thereof on the main frame, the bevel-pinion *c*, arranged on the crank-shaft between the two bearings thereof, the cap-plate E, mounted on the main frame and extending over the bevel-wheel D and a portion of the bevel-pinion *c*, and the cap-plate E′, mounted on the main frame at the rear of said pinion and extending forward over the latter and joining the rear of the cap-plate E to form a complete covering for the said wheel and pinion, substantially as and for the purposes specified.

2. The cap-plate E, provided with a covering *e* for the bevel-wheel and bevel-pinion, and a wide flat bearing-surface *e′*, extending out at one side of said covering and considerably beyond the same and all in one piece, substantially as and for the purposes specified.

3. The inner shoe and finger-beam, in combination with the hinged coupling-arm connected thereto and provided with a loop or staple, and a forked lever pivoted to the thrust-bar and engaging with said loop, substantially as and for the purposes specified.

4. The hinged swiveling coupling-arm G, provided with the loop or staple g^2, in combination with the shoe F, hinged to the coupling-arm, the thrust-bar G′, the forked lever H, pivoted to the thrust-bar, the hand-lever I, and the rod *i*, connecting said lever with the forked lever H, substantially as and for the purposes specified.

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