

(No Model.)

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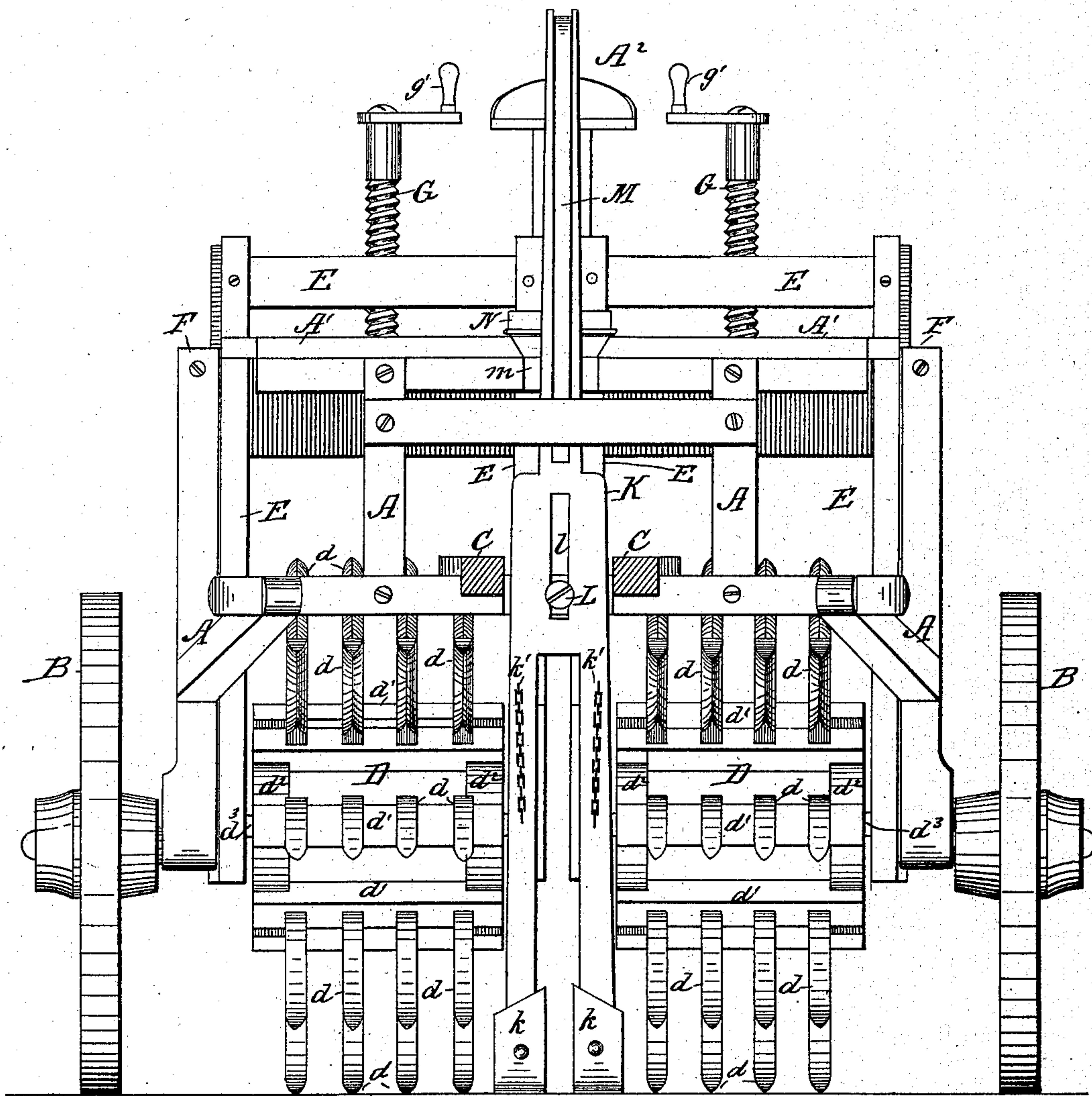
J. R., S., & A. CHAMBERS & W. J. DAVIS.

PULVERIZER AND CULTIVATOR.

No. 322,420.

Patented July 21, 1885.

Fig. 1.



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(No Model.)

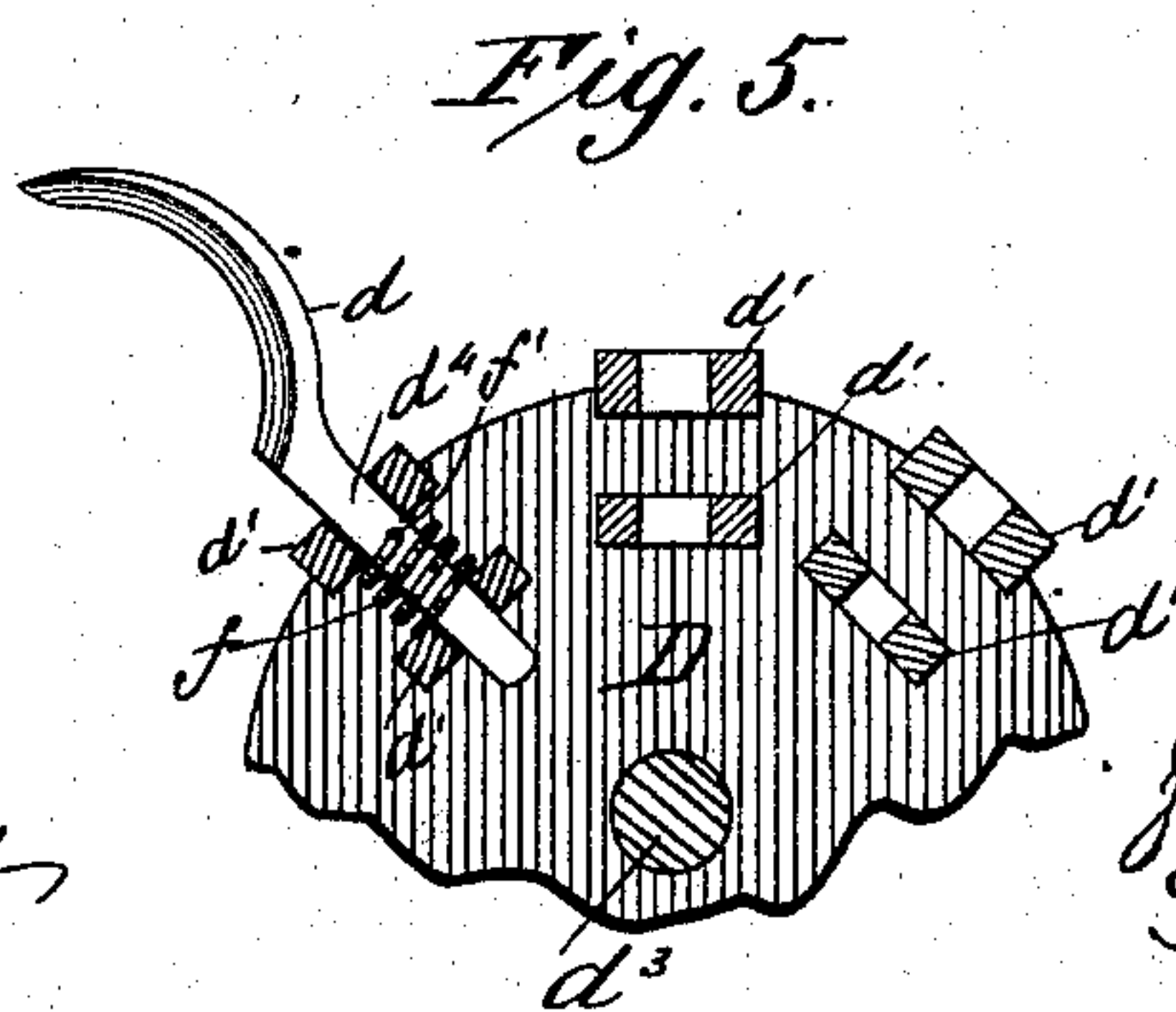
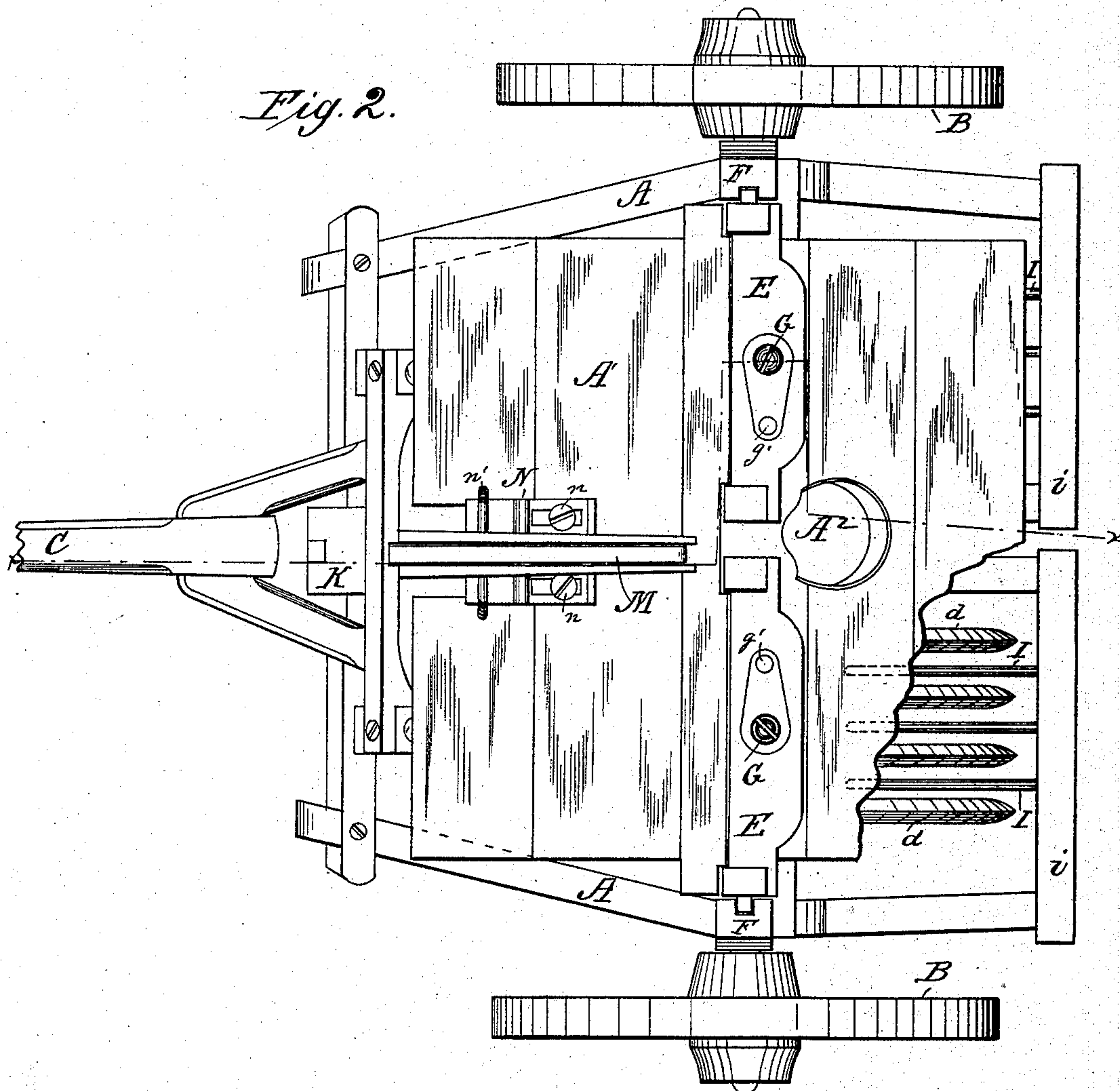
4 Sheets—Sheet 2.

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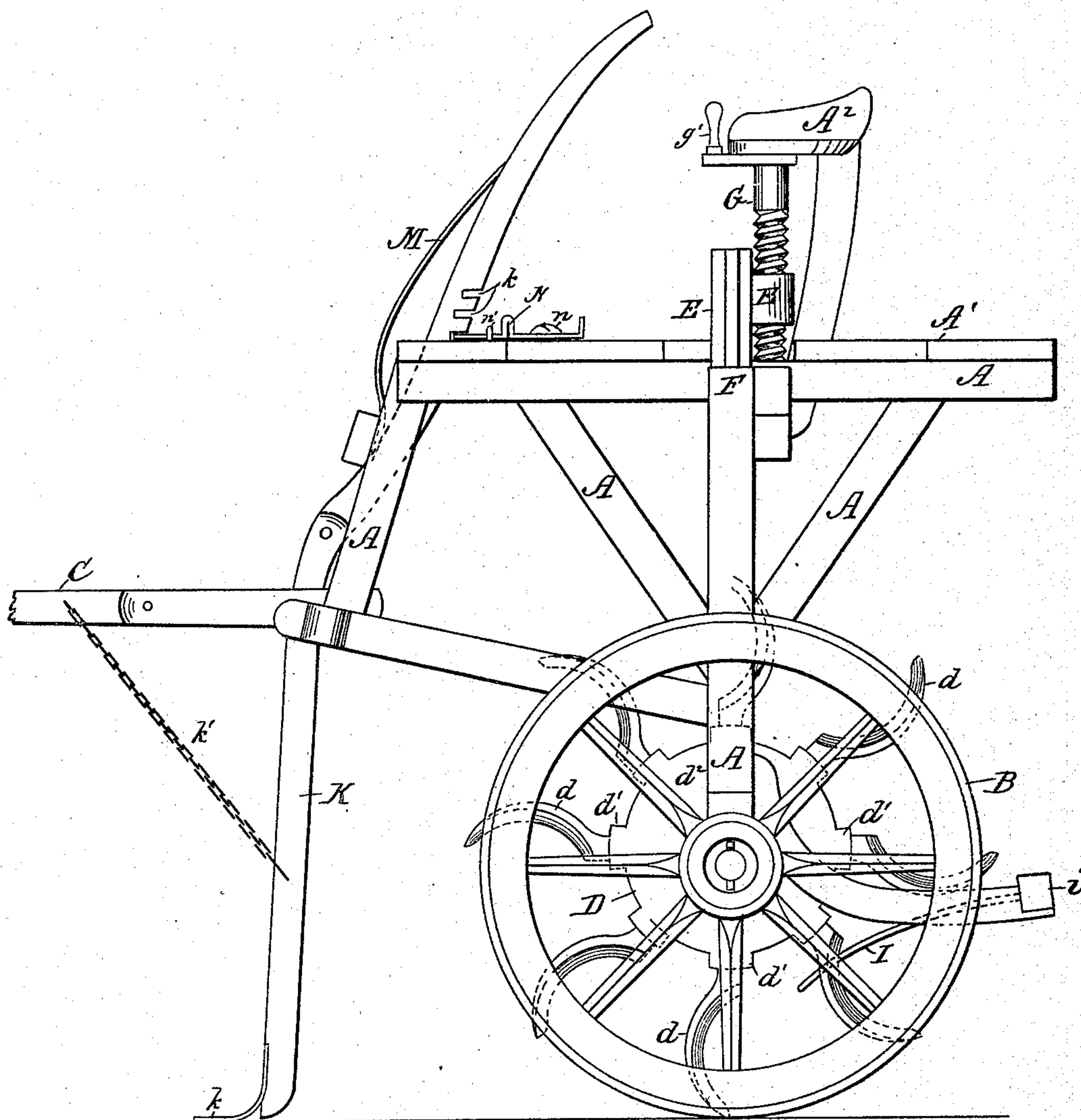
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Fig. 3.



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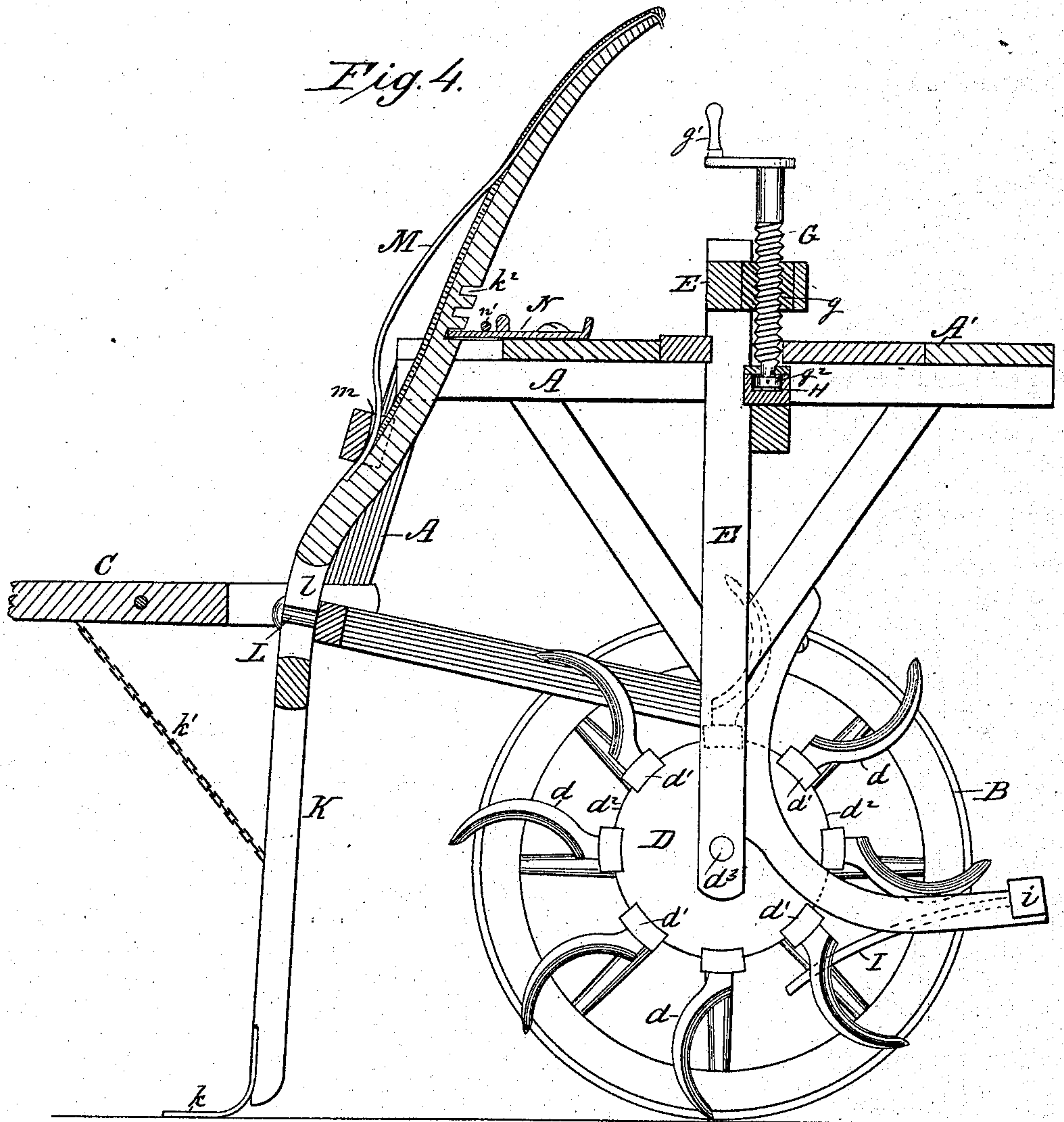
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UNITED STATES PATENT OFFICE.

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JEFFERSON DAVIS, OF CLEBURNE, TEXAS.

PULVERIZER AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 322,420, dated July 21, 1885.

Application filed September 29, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. CHAMBERS, SILAS CHAMBERS, ASA CHAMBERS, and WILLIAM J. DAVIS, citizens of the United States, residing at Cleburne, in the county of Johnson and State of Texas, have invented certain new and useful Improvements in Pulverizers and Cultivators, of which the following is a description.

Figure 1 is a front elevation of our improved pulverizer and cultivator. Fig. 2 is a plan view of the same, in which a portion of the top platform is broken away, showing the cleaners on one side. Fig. 3 is a side elevation. Fig. 4 is a section through the machine on the line *x x* in Fig. 1. Fig. 5 is a view, partly in section, taken through one of the drums, showing the method of securing the teeth.

Our invention relates to machines for pulverizing and cultivating the soil; and it consists in the detailed construction and combination of parts hereinafter fully described, by which the soil can be pulverized in an improved manner, and with less expenditure of power in draft, and so that the land can be plowed close up to plants growing in rows, but which are not regularly in line with one another.

We will now proceed to describe our invention with reference to the accompanying drawings, in which similar letters of reference indicate corresponding parts.

A A is the frame-work of the machine, which is mounted upon wheels B, and provided with a tongue, C, in front, and other parts as commonly used in cultivators drawn by two horses.

D D are two drums, consisting of a series of curved teeth, *d*, fastened to cross-bars *d'*, extending between the heads *d''*, which form the ends of the drums, and are provided with axles *d'''* passing through them, and journaled in separate sliding frames, so that each drum revolves independently of the other.

E E are the sliding frames, which support the revolving drums D, and which consist of vertical members, in which the drum-axles revolve, said members being united by a cross-piece at the top, and sliding vertically between the guides F F, attached to and forming a part of the frame-work of the machine.

G G are screws, working in screw-threaded nuts *g*, let into the cross-piece of each frame, E,

and provided with a cranked handle, *g'*, at the top for turning them. The lower end of each screw is reduced in diameter, and provided with a collar, *g''*, working in the socket H, which is securely attached to the frame-work A of the machine.

A' is a platform, built upon the top of the frame-work A.

A² is a seat for the driver, situated so that he can easily work all the handles of the machine. I are cleaners held in the frames *i*, which are attached to the frame-work A, behind each revolving drum, and project between the teeth *d* so that all dirt and rubbish which may be caught in the teeth *d* are kept from being carried over the top of the drum. The teeth *d* are fastened into the drums D, as shown in detail in Fig. 5, each tooth being provided with a shank, *d⁴*, which works in corresponding and coincident holes or sockets in the bars *d' d''*, while a spring, *f*, placed around and connected to said shank, as hereinafter described, exerts its pressure upon the inner bar, *d'*, and longitudinally upon the tooth. The outer bar, *d''*, is made with a hole corresponding in form to the section of the tooth at this point, which passes through it. When the point of the tooth strikes a stone the tooth is driven inward against the pressure of the spring *f*, which takes off the shock of the blow, which otherwise would frequently break or bend the tooth. The tooth is prevented from falling out by the end of the spring *f* being bent round and inserted into a hole, *f'*, inside the outer bar, *d''*, in the manner of a key.

The driver on the platform has complete control over the handles *g'*, and can raise or lower the drums D as circumstances require. When let down, the drums revolve by pressing against the ground as the machine is drawn along, and the curved teeth will pulverize and break up the soil.

K is a lever divided into two at its lower extremity for carrying the two plows *k*. *k'* are ropes or chains attached to the lever K at one end, and at the other to the tongue C, which is made with a forked end to clear the said lever K. The chains *k'* serve to regulate the depth of the cut taken by the plows *k*. The lever K is pivoted to the front part of the frame-work A of the machine by the pivot L, which passes

through the slot *l*, which allows the lever to work at the various depths of cut given to the plows. The lever *K* is controlled by the driver on the platform. The two plows *k* turn over the ground close up to the roots of the plants, and the oscillating movement permits of the plows doing this when said plants are out of line with one another, without any danger of injuring them, which would not be possible were the plows rigidly attached to the machine.

The spring *M* is for holding the lever *K* centrally in position, said spring engaging with the notch *m* in the frame-work.

N is a sliding catch working on the bolts *n*, and held down upon the platform *A'* by the guard *n'*. This catch engages with the teeth *k*² on the back of the lever *K*, and keeps the plows down to their work. Being made to slide, it can be adjusted to the requirements of different depths of cut, and its width being greater than that of the lever *K*, the latter cannot become disengaged when moved sidewise in working the machine.

When it is not required to plow the ground in front of the machine, the plows *k* can be removed, and the machine used without them; or, if desired, two single rotary plows similar to the drums *D*, but containing only one row of teeth, can be attached to the forked ends of the lever *K*.

The spring-teeth, as shown and described, are for use in a stony country. Where there are no stones or rocks the drums may be constructed with fixed teeth in them, having their shanks provided with nuts for drawing them up tight, as commonly constructed for use in rotary cultivators.

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

1. A pulverizer and cultivator consisting of two drums provided with curved teeth and adapted to rotate when drawn along in contact with the ground, in combination with a forked lever provided with two plows situated toward the front between the said revolving drums, and pivoted to the frame-work of the machine, so that an oscillating movement may be given to the said lever and plows, substan-

tially as described and shown, and for the purpose set forth.

2. The combination of the teeth *d*, provided with shanks *d*¹, with the drums *D*, provided with heads *d*², and a series of inner and outer cross-bars, *d'*, and with springs *f*, substantially as described and shown, and for the purpose set forth.

3. The combination of the revolving drums *D*, working in sliding frames *E*, with the forked lever *K*, provided with two plows, *k*, the chains *k'*, for adjusting said plows, pivot *L*, working in slot *l*, of lever *K*, and a catch attached to the platform of the machine for engaging with teeth *k*² on the back of lever *K*, substantially as shown and specified.

4. The combination of the revolving drums *D*, working in sliding frames *E*, forked lever *K*, provided with plows *k*, chains *k'*, for adjusting said plows, pivot *L*, working in slot *l* of lever *K*, and sliding catch *N*, attached to the platform of the machine by bolts *n*, and provided with a guard, *n'*, so that said catch may be kept from rising and engage with the teeth *k*² on the back of lever *K*, substantially as shown and specified.

5. The combination of forked lever *K*, provided with plows *k*, chains *k'* for adjusting said plows, pivot *L*, working in slot *l* of lever *K*, spring *M*, engaging with notch *m* for holding lever *K* in a central position, sliding catch *N*, attached to the platform of the machine and engaging with teeth *k*² on the back of lever *K*, revolving drums *D*, working in sliding frames *E*, and screws *G* for adjusting said sliding frames, substantially as shown and described.

6. The combination of forked lever *K*, provided with plow-teeth, pivot *L*, working in slot *l*, chains *k'*, and sliding catch *N*, engaging with teeth *k*², substantially as described and shown, and for the purpose specified.

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