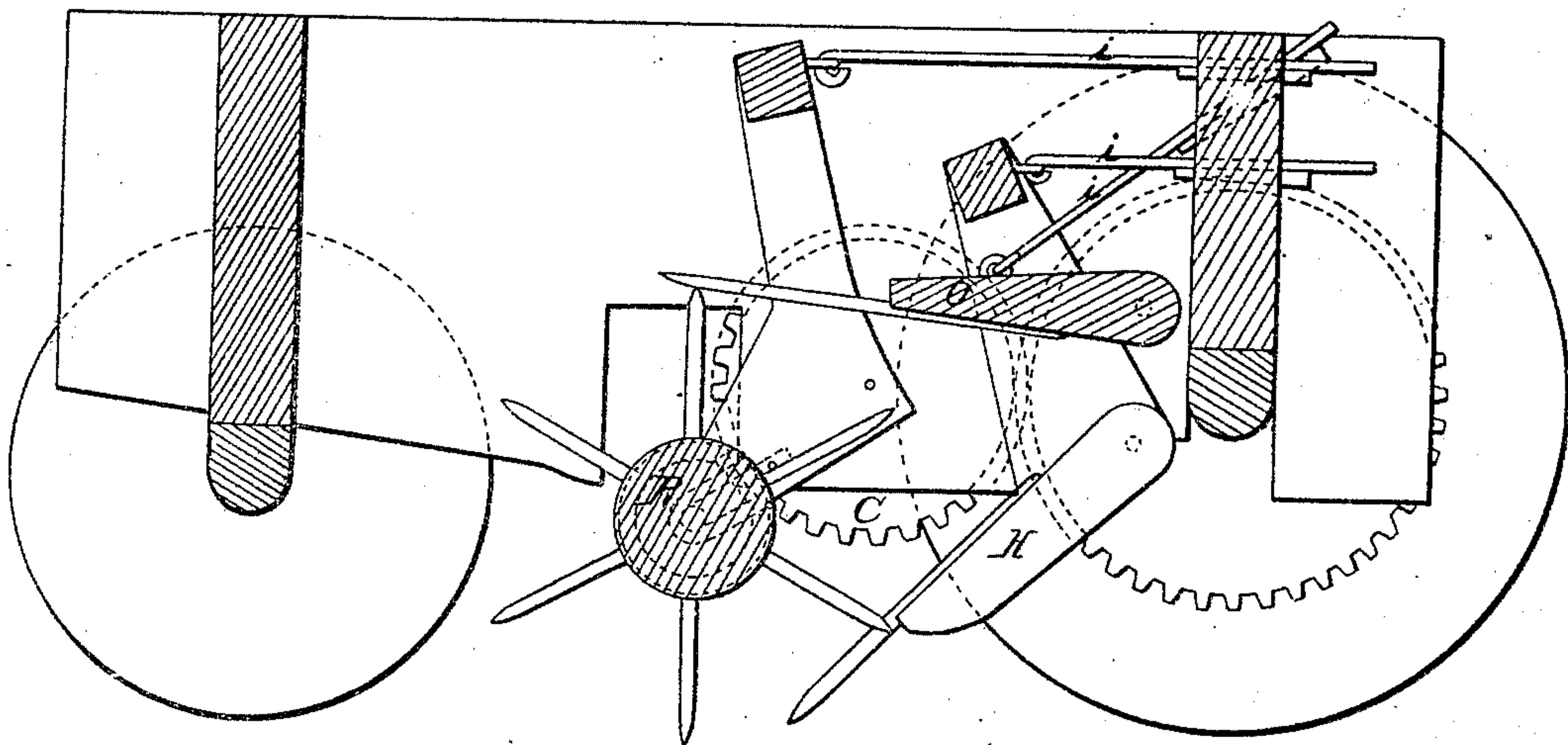
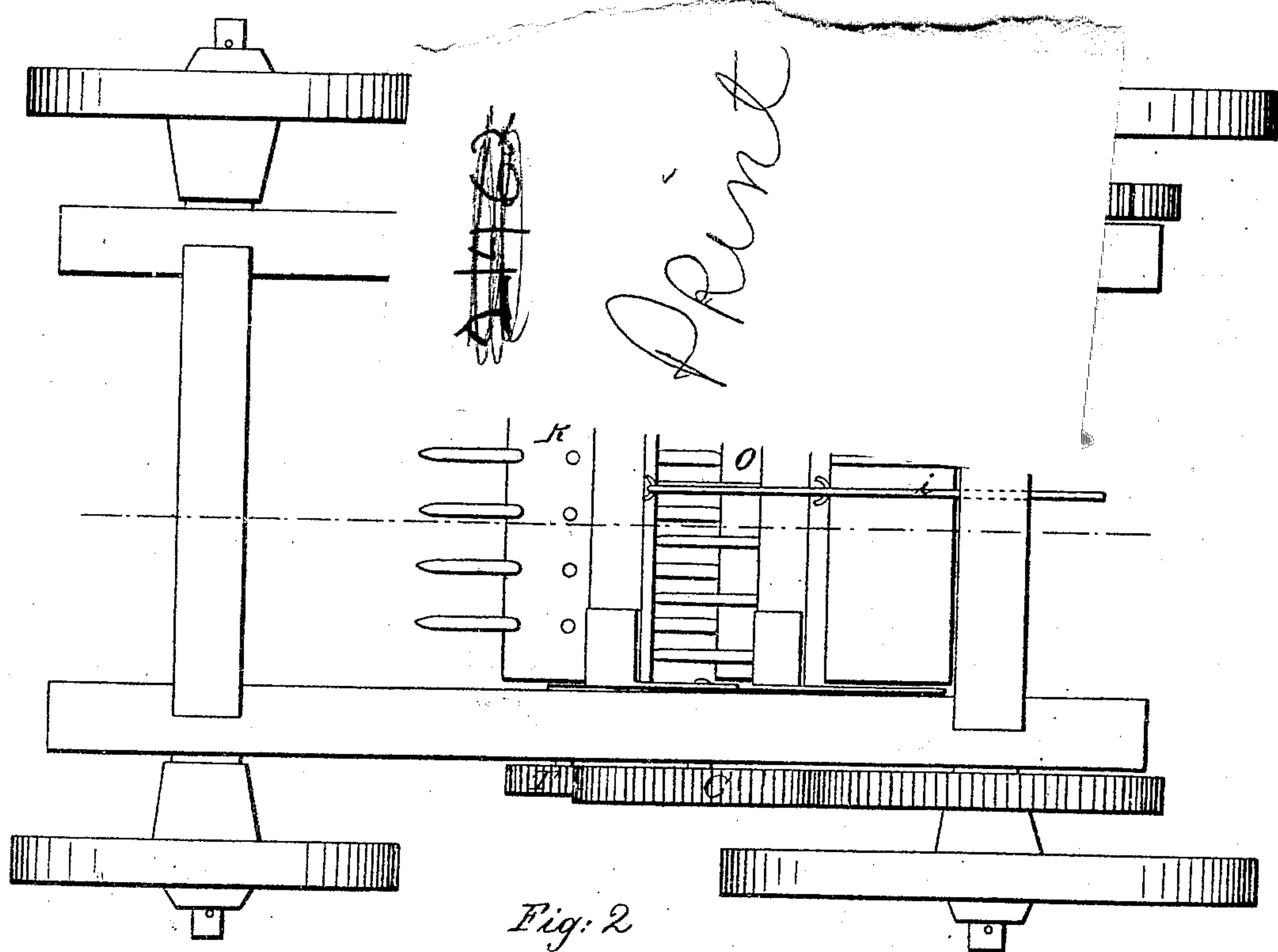


T. M. LEE.
HARROW.

No. 21,763.

Patented Oct. 12, 1858.



UNITED STATES PATENT OFFICE.

THOMAS M. LEE, OF BROADFORD, VIRGINIA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. 21,763, dated October 12, 1858.

To all whom it may concern:

Be it known that I, THOMAS M. LEE, in the county of Smyth and State of Virginia, have invented a new and useful Machine for Pulverizing the Soil, or a Rotary Harrow; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top plan of the machine, and Fig. 2 a longitudinal vertical section through the red line *x x* of Fig. 1.

Similar letters of reference, where they occur in the separate figures, denote like parts of the harrow or cultivator in both of them.

My invention consists in the manner in which I have combined and arranged the adjustable rotating digging-wheel with the adjustable digging teeth and clearers, so that the wheel may be adjusted to the proper depth to be plowed or harrowed, and the teeth and clearers be changed to suit such depth, as will be explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a stout substantial frame, mounted upon wheels B. To the hubs of the rear wheels of the pair are firmly attached the cog-wheels S S, so as to turn with the hubs of said rear wheels. These cog-wheels S S take into and rotate intermediate cog-wheels, C C, which latter mesh into spur-gears T T on the journals or ends of the cylinder R, and thus give a rapid rotary motion to said cylinder. The cylinder R is furnished with teeth *a a a*, &c., which take into the earth and loosen or dig it up. As it is necessary that this cylinder should have a vertical adjustment and still remain in gear with the cog-wheels C C, which are a fixture, or in permanent bearings, and drive it, I arrange as follows:

D are bell-crank levers, hung at *b* to the journals respectively of the intermediate gears, C C, and in the short arms *c* in dotted lines, Fig. 2, of this lever D the journals of the cylinder R are hung, and consequently said cylinder, moving about a center which is the cen-

ter also of the gears C, will admit of its spur-wheels T T rolling up or down on the intermediate gears, and thus be raised or lowered. To a cross-head, E, connecting the two levers D, (one only being distinctly seen,) is connected a rod, *i*, by which the cylinder may be raised, lowered, or held when adjusted.

In rear of the cylinder R there is a stock, H, of wood, which is hung to the main frame at *e*, and to the ends of this piece H arms F are attached. A cross-head, G, connects the tops of the arms F, and to this cross-head a rod, *i'*, is attached, so that the stock H, with its teeth *d d*, &c., may be thrown toward or from the cylinder R, the object being to cause the teeth *a a*, &c., of the cylinder R to pass between those *d d*, the action of the two sets of teeth tending to raise up and finely cut or pulverize the sods or soil.

Above the stock H there is pivoted to the main frame, at *f*, a block or arm, O, which projects forward horizontally, and is armed with clearing-teeth *g g g*, &c. The teeth *a* of the cylinder also pass between the clearing-teeth *g*, and the latter strip the former of all adhering matter. A rod, *i''*, is connected to the block or arm O, by which it may be raised, lowered, or held so as to be nearer to or farther from the cylinder-teeth, or to follow them when the cylinder is raised or lowered to take less or more depth in the soil. These three sets of teeth *a d g*, working in concert with each other, and one of the sets *a* being forced to be adjustable, in consequence the others must be adapted to its constantly varying adjustment.

Having thus fully described the construction and operation of my rotary cultivator or harrow, what I claim therein as new, and desire to secure by Letters Patent, is—

So combining the cylinder R, stock H, and block O with their respective teeth *a d g*, with each other, and with the main frame A as that they can individually or severally be adjusted for deeper or shallower work, substantially as and for the purpose herein set forth.

THOS. M. LEE.

Witnesses:

JOHN ROBERTS,
JAS. HARRISON.