[84.]

No. 119,398. Patented Sep. 26, 1871.

JAMES M. PAYNE.

Improvement in Harrows.

Fig. 1

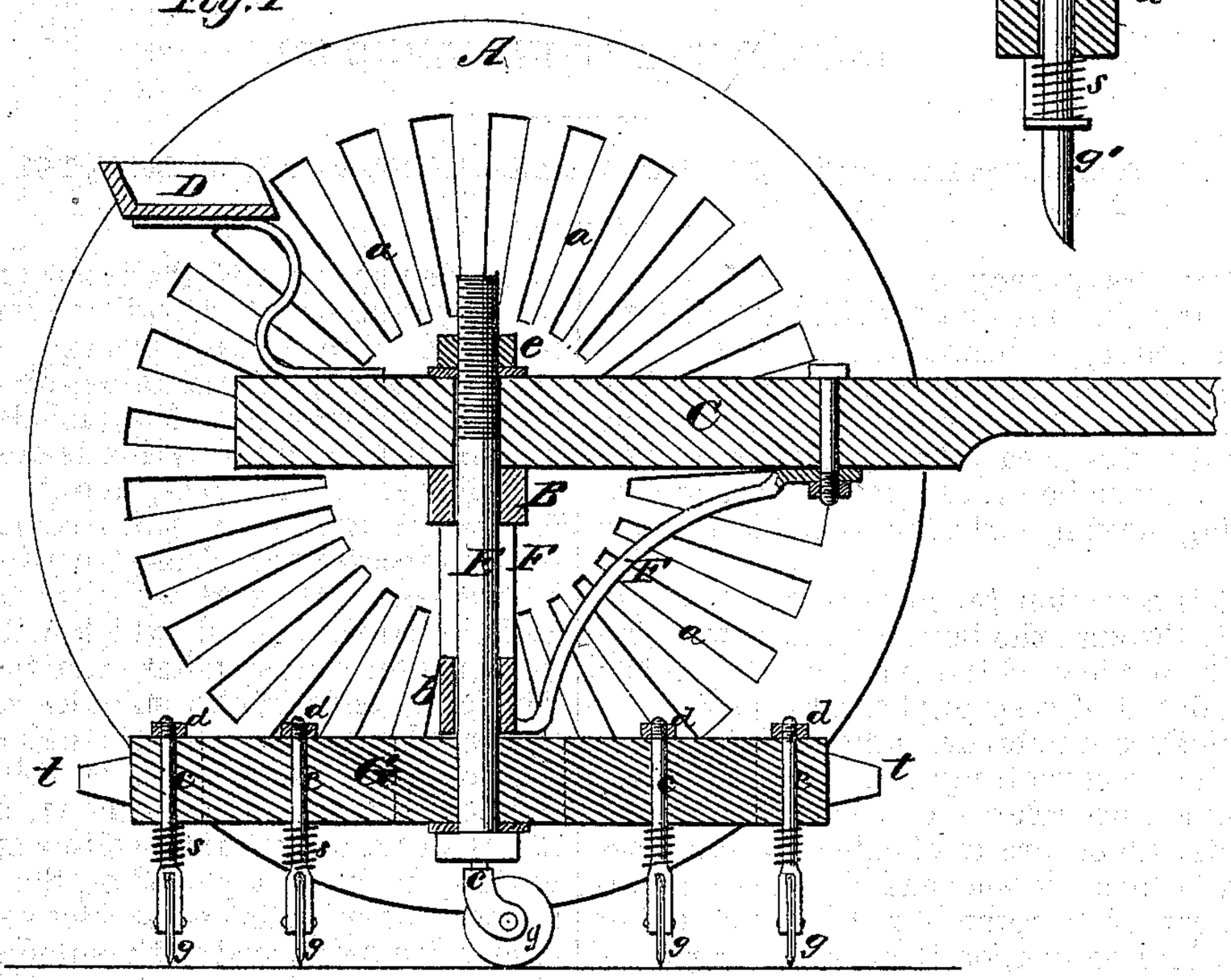
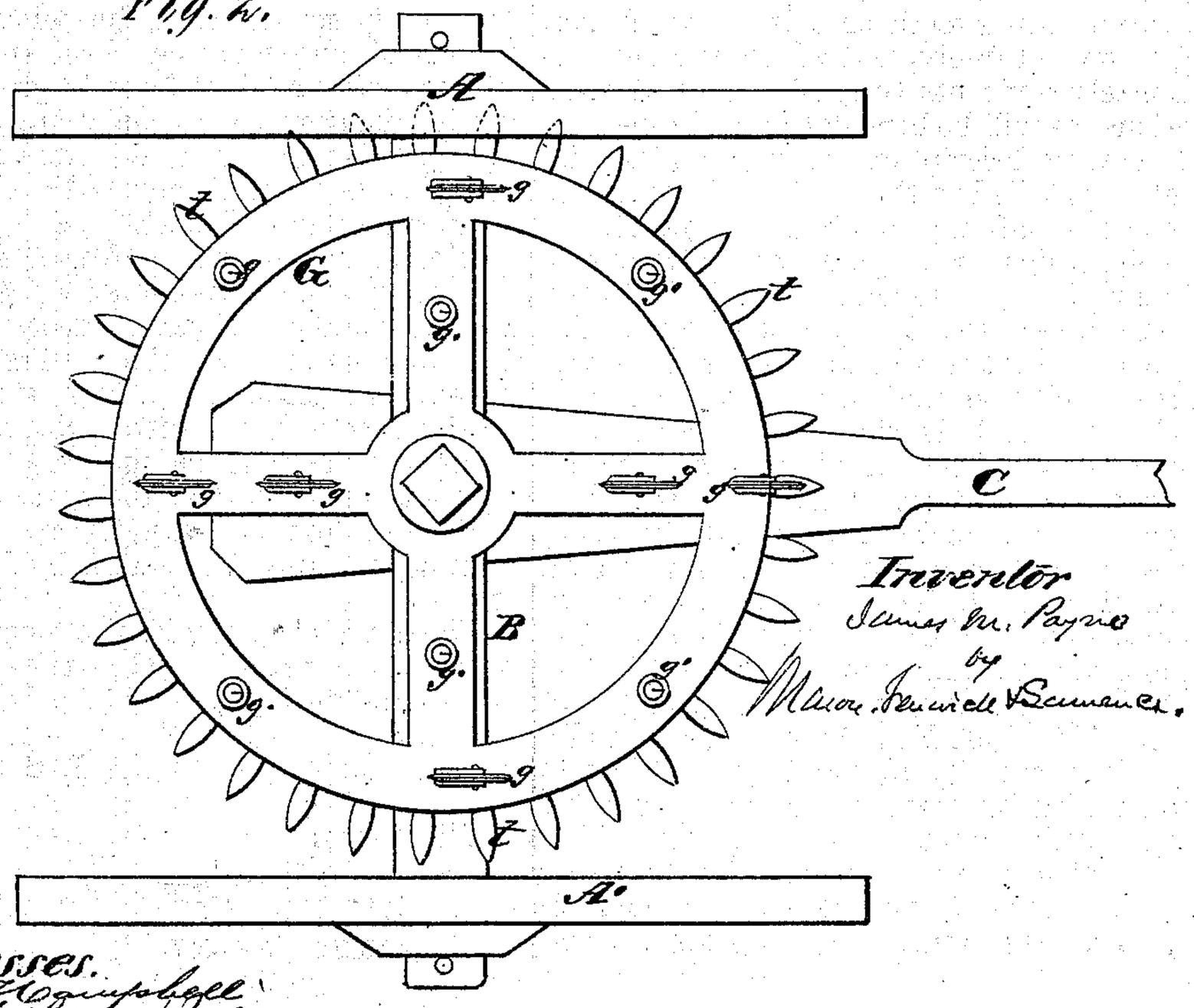


Fig. 3

Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES M. PAYNE, OF BENTON, ILLINOIS.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. 119,398, dated September 26, 1871.

To all whom it may concern:

Be it known that I, JAMES M. PAYNE, of Benton, in the county of Franklin and State of Illinois, have invented a new and Improved Rotary Harrow; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a section taken vertically and longitudinally through the improved harrow. Fig. 2 is a bottom view of the harrow. Fig. 3 is a section in detail of a spring harrow-tooth.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements, which are applicable to that class of harrows which are suspended beneath a carriage and caused to rotate by the action, either directly or indirectly upon them, of the carriage. The object of my invention is to employ vertically-movable spring-teeth or colters, which are allowed to swivel freely, and which will readily clear themselves of roots, tufts of grass, and other obstructions, as will be hereinafter explained.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawing, A A′ represent two wheels, which are applied on an axle, B, across the middle of the length of which latter is secured a draft-pole, C, supporting a seat, D. These parts constitute a carriage for supporting the harrow, and also the attendant. G is the harrow-frame, which is circular in shape, and which may be constructed of wood and metal in any suitable manner. This harrow-frame is suspended in a horizontal position beneath the axle B, and connected to the lower end of a central shaft, E, which passes through a tubular bearing, *b*, at the lower ends of brace-rods F, and also through the axle B and draft-pole C, and is sustained by means of a nut and washer, *e*. This shaft E is made long enough to allow it to be vertically adjusted by turning the nut *e*, so that the harrow-teeth or colters can be made to run at different depths in the soil. For the purpose of giving a positive rotary motion to the harrow-frame, teeth *t* may be applied to its periphery so as to mesh into the spaces between the spokes *a* of the transporting wheel A. The opposite wheel, A′, will, under this arrangement, be set far enough from the teeth *t* to allow them to clear it. At suitable points through the rim of the harrow-frame G, and also through the spokes thereof, are swivel-rods or stems *c*, which are allowed to turn freely about their own axes, and which are screw-threaded on their upper ends to receive nuts *d*, as shown in Figs. 1 and 3. If the frame G is of wood, metal tubes may be inserted through it, which will afford better bearings for said spindles than the wood itself. The lower ends of the spindles may terminate in curved cutting-edges, *g*′, as shown in Fig. 3; or circular cutting-wheels or colters *g* may be applied to the spindle, as shown in Figs. 1 and 2. If desirable, the rigid colters and rotary colters may both be employed on the same harrow-frame, properly disposed. Between the shoulders which are formed on the spindles *c*, just above their colters, and the bottom side of the frame G, I apply springs *s*, of the helical or other suitable kind, and compress these springs into their places with sufficient force to prevent the stems *c* from rising under ordinary circumstances. The springs *s*, which can be adjusted by means of the nuts *d* so as to exert more or less force in a downward direction, will yield and allow the colters to rise and pass over or free themselves of obstructions in their path, thereby keeping the harrow clear and obviating the necessity of stopping the machine to clear the colters by hand. By thus constructing a harrow with self-clearing teeth or colters the latter will perform better work, and the machine will not be subjected to injurious strain and unnecessary draft.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with the harrow-frame G, of cutters or colters applied on the ends of vertically-movable spring-spindles *c*, substantially as described.

JAMES M. PAYNE.

Witnesses:

his
W. H. × PAYNE,
mark.
JAMES EARLEY.