(No Model.)

2 Sheets—Sheet 1.

J. M. LONG.

CULTIVATOR SPRING.

No. 256,012. Patented Apr. 4, 1882.

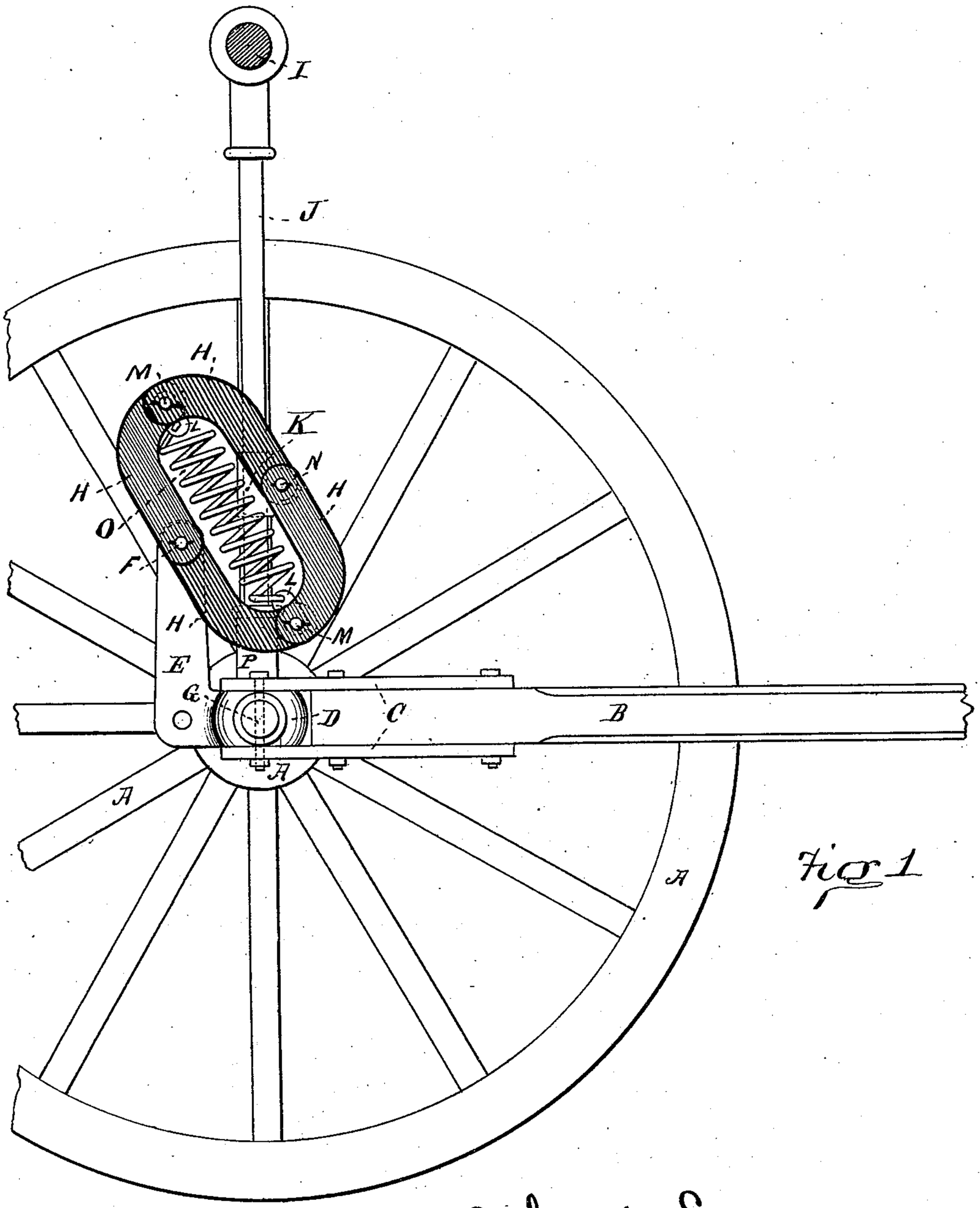

Fig 1

WITNESSES:
John R. Woods
John Lorenz

John M. Long INVENTOR
by James N. See
ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

J. M. LONG.

CULTIVATOR SPRING.

No. 256,012.

Patented Apr. 4, 1882.

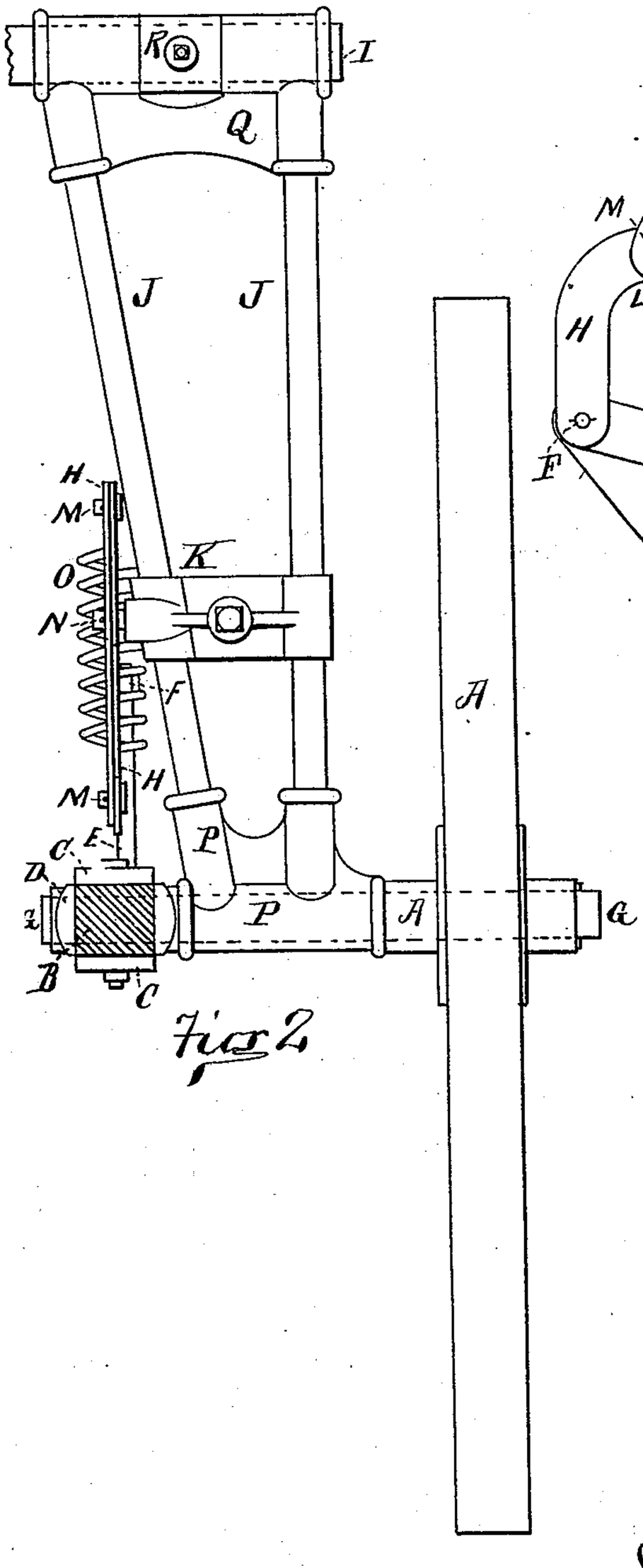

Fig 2

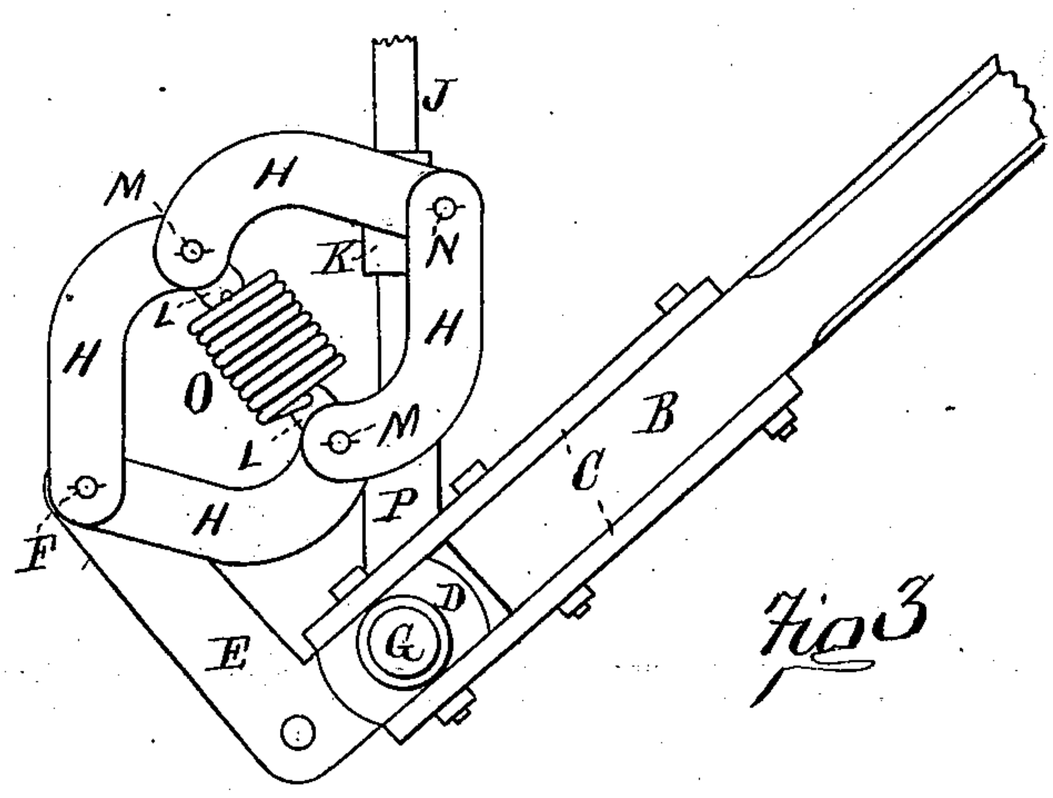

Fig 3

WITNESSES:
John R Woods
John Lorenz

John M. Long INVENTOR
by James N. See
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN M. LONG, OF HAMILTON, OHIO.

CULTIVATOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 256,012, dated April 4, 1882.

Application filed January 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. LONG, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Cultivator-Springs, of which the following is a specification.

This invention relates to springs for rendering the plow-beams of cultivators easy to handle by balancing the weight of the beam and its attachments. Such springs are well known and in general use; but many of them are inefficient on account of the changing strength of the spring as it becomes more or less strained. In my device a toggle system compensates for the varying stiffness of the spring, and thus gives a practically constant effect.

In the accompanying drawings, Figure 1 is a vertical section of a cultivator, showing one wheel and beam, the beam being lowered. Fig. 2 is a rear elevation of the same with the beam in section, and Fig. 3 shows the position of the toggles and spring when plow-beam is raised.

A is a wheel, G an axle, D a beam pivot-block, B a plow-beam, J a side standard, and I the arch-bar, of a cultivator, all constructed and arranged as usual. To the standard J is fixed a pivot-stud, N. From the pivot-block D a housing, E, rises and furnishes a pivot-bearing, F. Four flat links, H, united by pivots M M, F, and N, form a double toggle system, having one fixed pivot, N. Short links L are attached to the pivots M, and to these links is attached the spiral spring O. It will be seen that the housing E forms a lever. In Fig. 1, the spring being much strained, tends to draw the pivots M M closer together, and thus open the toggle, and through the medium of housing E ease or lift the plow-beam B.

The spring should be of such strength as to exert the proper balancing force upon the plow-beam when in the position shown in Fig. 1. When the beam is raised, as in Fig. 3, the spring in closing of course becomes weaker; but the toggle system, acting in a manner well understood, causes the lessening spring force to be applied to better advantage, and thus compensate for the decrease in the power of the spring. The plow-beam is thus properly relieved at any position of elevation, and of course, if so desired, the toggle system and spring-power can be so proportioned to each other in construction as to cause the plow-beam to be the least relieved when it is lowest down—that is, at work in the ground.

I claim as my invention—

In a cultivator, the combination, with the axle and frame, of pivoted beam B, arm or housing E, toggle system H, fixed pivot N, moving pivot F, and spring O, substantially as and for the purpose set forth.

JOHN M. LONG.

Witnesses:

JOHN LORENZ,

GEO. P. FANGEMAN.