98590

HIRAM W. HARKNESS.

ASSIGNOR TO

LANDERS, FRARY AND CLARK.

PATENTED JAN 4 1870

Improvement in LAWN-MOWERS.

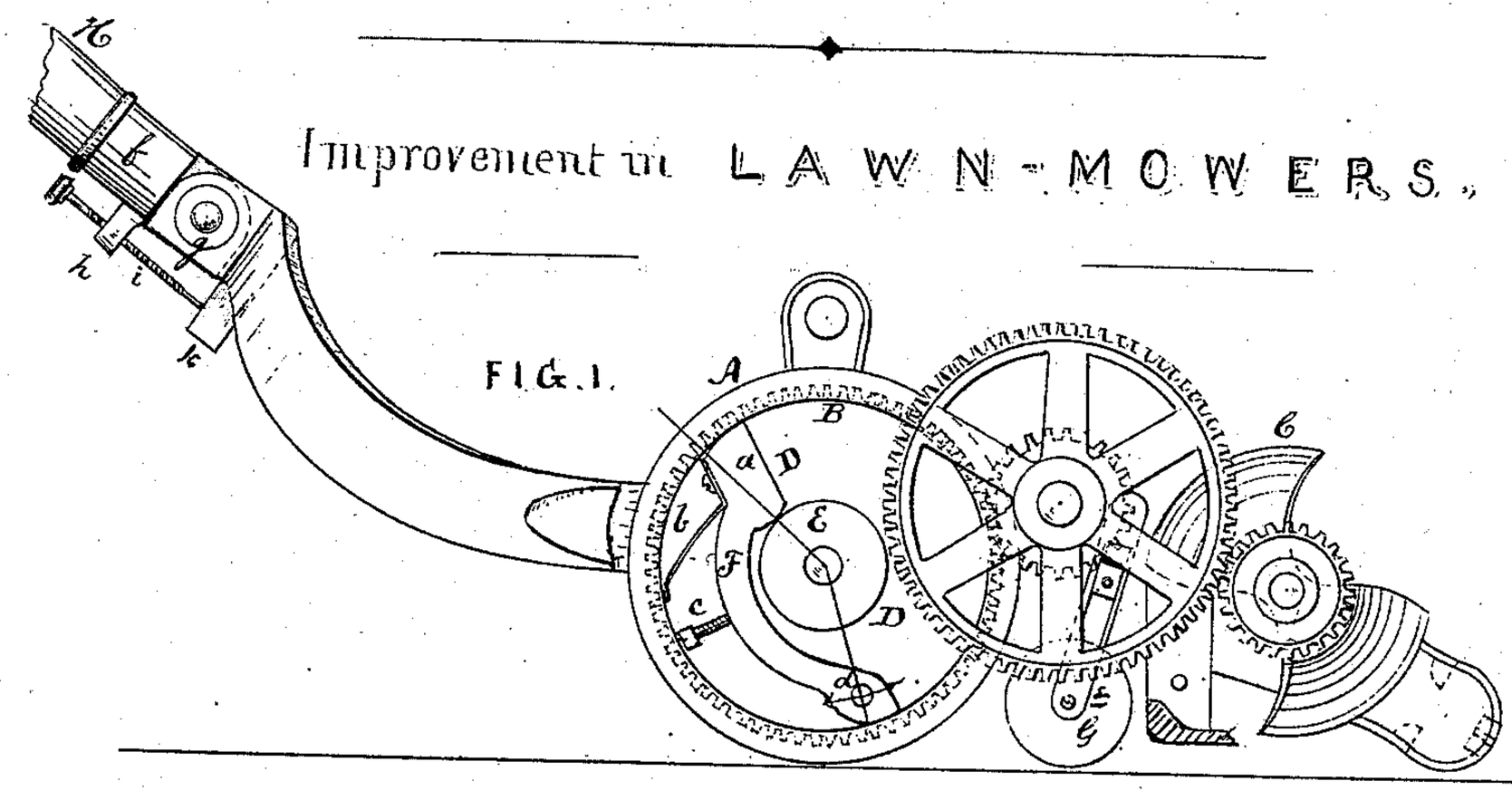

FIG. 1.

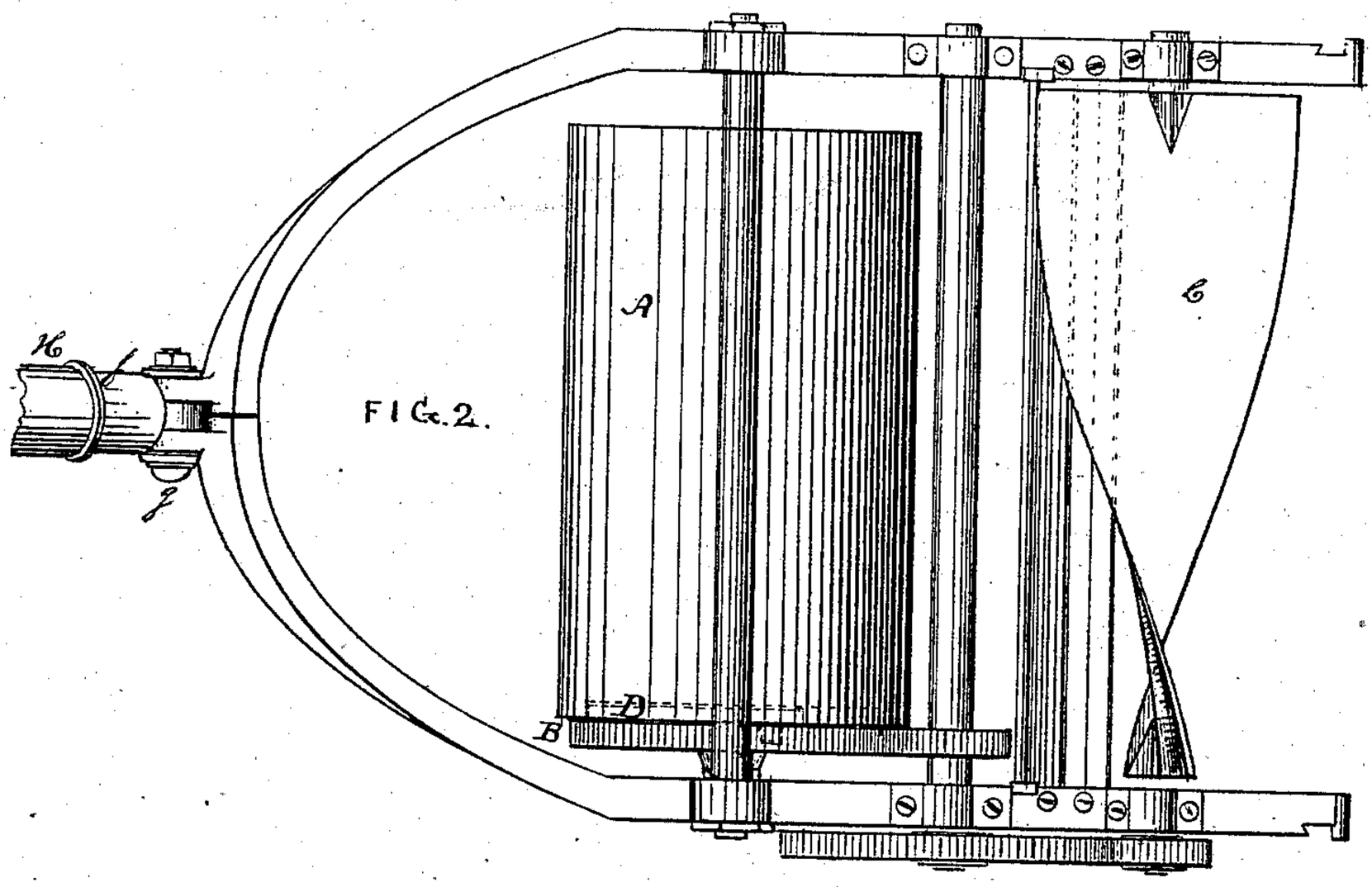

FIG. 2.

WITNESSES.

Wm. D. Frary

James Shepard

INVENTOR.

Hiram W. Harkness

UNITED STATES PATENT OFFICE.

HIRAM W. HARKNESS, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO LANDERS, FRARY & CLARK, OF SAME PLACE.

IMPROVEMENT IN LAWN-MOWERS.

Specification forming part of Letters Patent No. **98,590**, dated January 4, 1870.

To all whom it may concern:

Be it known that I, HIRAM W. HARKNESS, of New Britain, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Lawn-Mowers; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side view, the frame and the cap on the end of the traction-roller being removed to show the working parts. Fig. 2 is a plan of the machine.

The improvements hereinafter described consist, first, in an improved friction-pawl to connect the traction-roller with the driving-gear of the revolving shear; second, in the adjustable arrangement of the handle, by means of which the handle, as the mower is being drawn toward the operator, is capable of a free upward movement.

One of the principal objections to lawn-mowers, as heretofore constructed, is the disagreeable clicking sound which attends the spring-pawl and ratchet-gear used to connect the traction-wheel with the driving-gear of the revolving shear. The spring used with the pawl is subject to frequent disarrangement, and is, besides, easily broken in the ordinary use of the machine, while the pawl itself is inconvenient of access when it becomes necessary to run the revolving shear backward by hand in the operation of sharpening the cutters.

Referring to Fig. 1, A is the traction-wheel or roller. B is the main gear-wheel connected with the same, which gives movement to the train which drives the revolving shear C. The end of the roller at which the main gear is to be located has an annular groove or recess, D, as shown in dotted lines at Fig. 2, concentric with the axle *e* of the roller. Within this space, so formed, is placed a pawl, F. The upper or acting end of this pawl has a head. *a*, the extreme width of which is greater than the width of the annular space D, measured upon any radius. This head portion is held up to its position, as shown at Fig. 1, by a light spring, *b*, which has no labor put upon it beyond that of sustaining the weight of that end of the pawl, and for which a fulcrum or supporting-stud, *c*, with a rounded end resting against the outer circle of the annular space, may be substituted or used in connection therewith. The lower portion of the pawl is curved, so as to partially embrace the hub surrounding the axle *e*, and near its extremity is placed a stud-pin, *d*. The main driving-gear B has a hole drilled in its face, into which the stud-pin *d* fits, so that said gear and the pawl before mentioned, when the machine is put together, are connected by means of the stud-pin, so inserted in the face of the driving-gear.

It is easy to be understood from the foregoing description, in connection with the drawings, that when the machine is propelled forward its first tendency will be to revolve independently of the main driving-gear B; but the change so induced in the relative positions of the driving-gear and traction-wheel on their common axle will cause the head *a* of the pawl F to jam hard between the concentric surfaces of the annular recess D, and both gear and wheel will travel together as one, and give movement to the train of gears which drives the revolving shear. Upon pulling the machine backward the pawl is so changed in position as to allow the shortest width of the head-piece *a*, which is less than the width of the annular recess D, measured on a radius, to stand in a position which will enable the traction-wheel to revolve without influencing the main driving-gear B, which will remain stationary.

By this device all clicking sound incident to a spring-pawl and ratchet-gear is avoided, and there is no liability of the apparatus becoming unserviceable, as is liable in the employment of friction cams or rollers.

To run the revolving shear backward for grinding it is only necessary to raise the forward end of the machine and insert a pin in the side of the driving-gear wheel B for a crank, by which, without any adjustment of the pawl, the movement of the train can be reversed.

It is desirable that the handle should be connected with the frame by a hinge-joint, which permits the machine to adjust itself to the inequalities of the ground over which it passes, and also that means should exist for varying the angle at which the handle shall stand with reference to the plane of the frame. The same

idea is employed in some lawn-mowers heretofore constructed, and also in various other analogous machines, as, for instance, carpet-sweepers.

The improvement which I have made in the construction of the handle is confined, therefore, to the particular device shown in its combination with the frame.

The handle H is fitted to a suitable socket, *f*, which is pivoted to the rear end of the frame at *g*. From the lower side of the socket an ear-piece, *h*, projects, which has a threaded hole, into which is inserted a screw-rod, *i*, the end of which bears against a projecting lug, *k*, upon the lower side of the frame. It is apparent that, by means of this screw, the angle of inclination of the handle to the frame can be readily adjusted. This arrangement of the joint with relation to the adjusting-screw admits of a free upward-swinging movement of the handle as the mower is being drawn toward the operator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The pawl F, when arranged to operate with pressure, directly between the inner periphery of the rim and outer periphery of the hub of the traction-roller, and with its driving-arm pivoted to the inner face of the driving-gear without the interposition of friction cams or rollers, in the manner and for the purposes specified.

2. The arrangement of the adjusting longitudinal stop-screw *i* applied to the handle, and parallel therewith, thereby admitting of its fixed adjustment against downward pressure, and of a free upward-swinging movement, for the purposes specified.

3. The improved lawn-mower herein described, consisting of a rotary cutter with suitable gearing, connecting the same with the traction-roller A, and operated by means of the pawl F, and provided with the handle, adjusted by the longitudinal stop-screw *i*, the whole being arranged and operating as set forth.

HIRAM W. HARKNESS.

Witnesses:

JAS. D. FRARY,

JAMES SHEPARD.