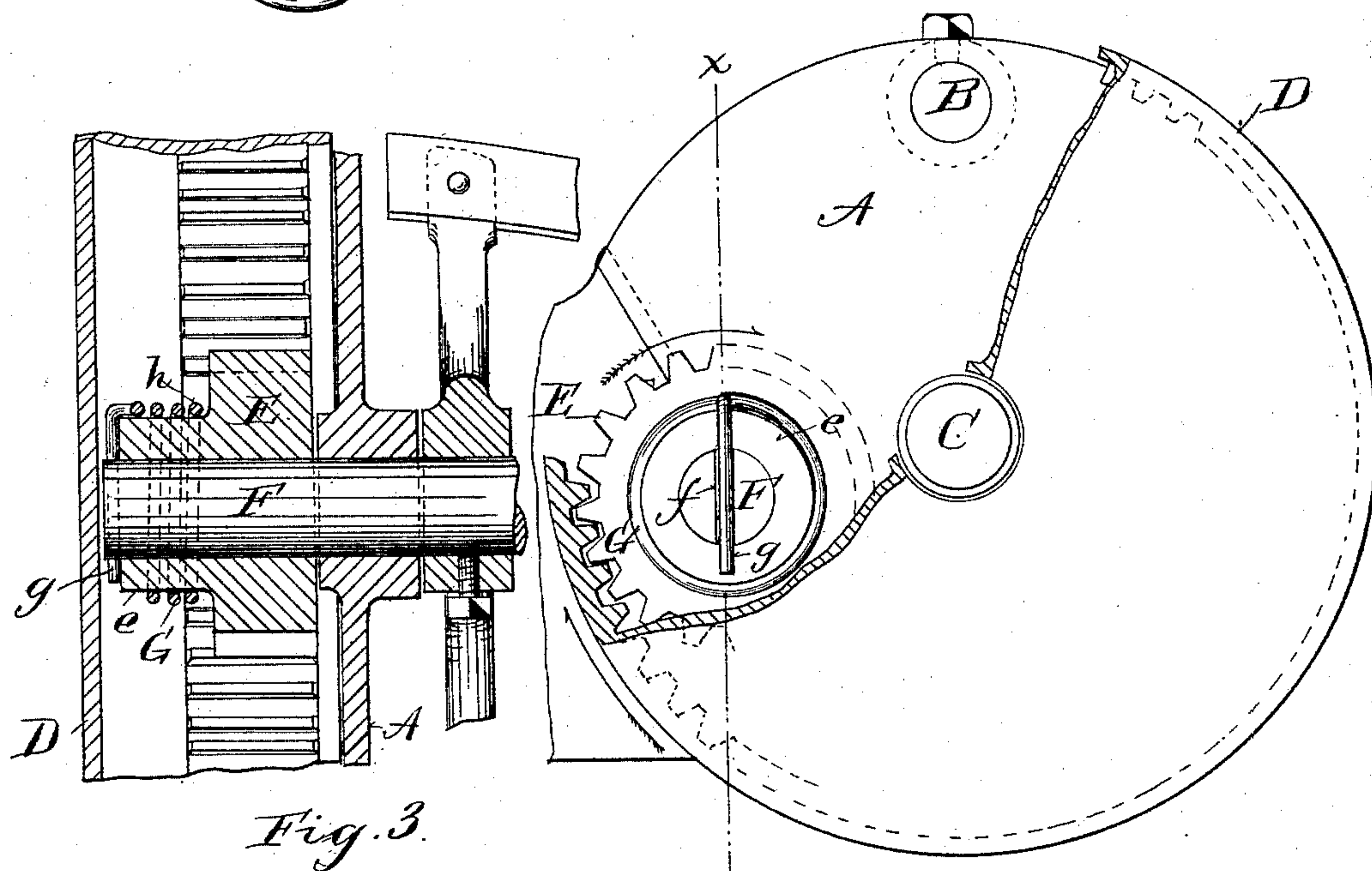
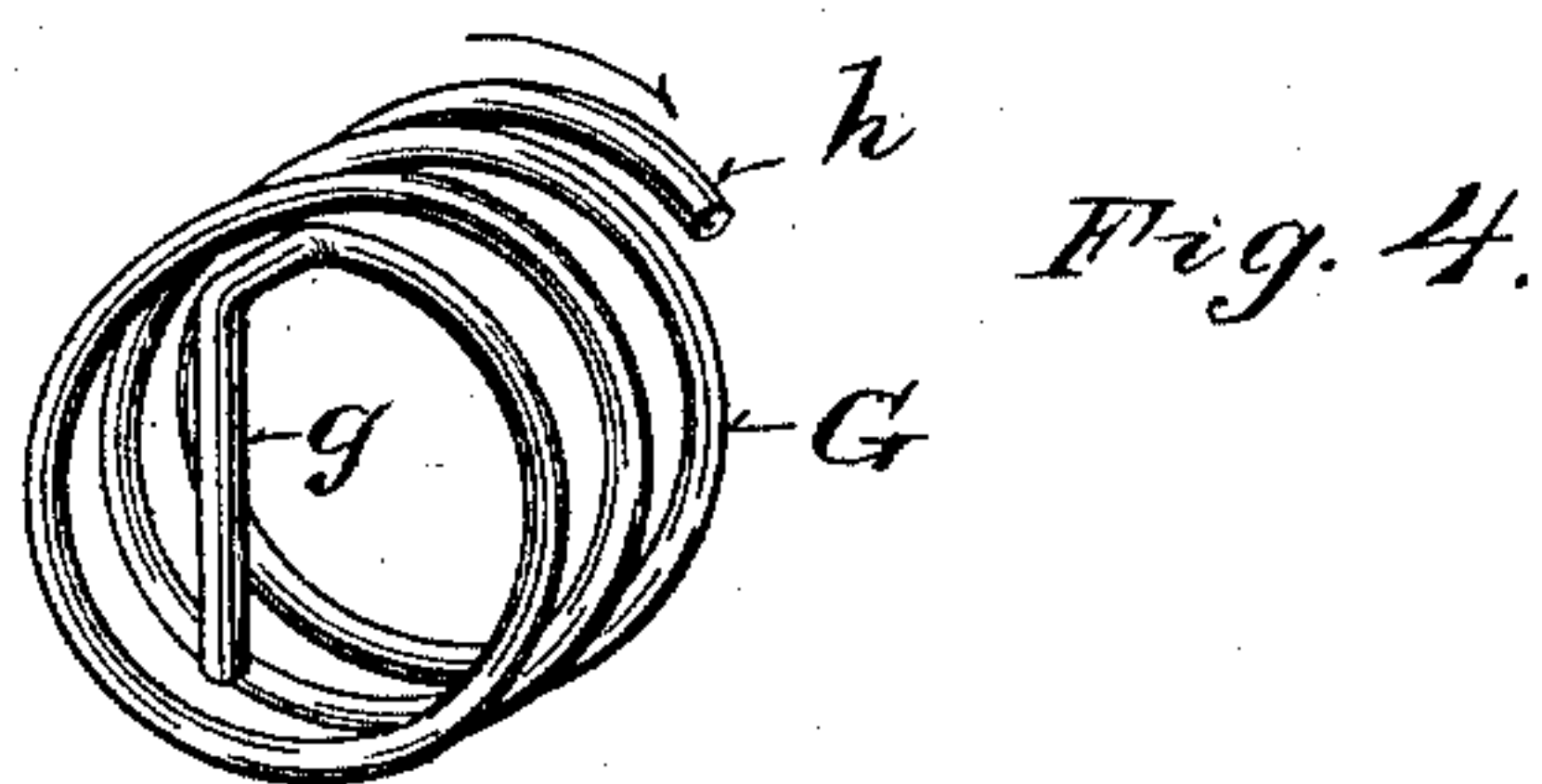
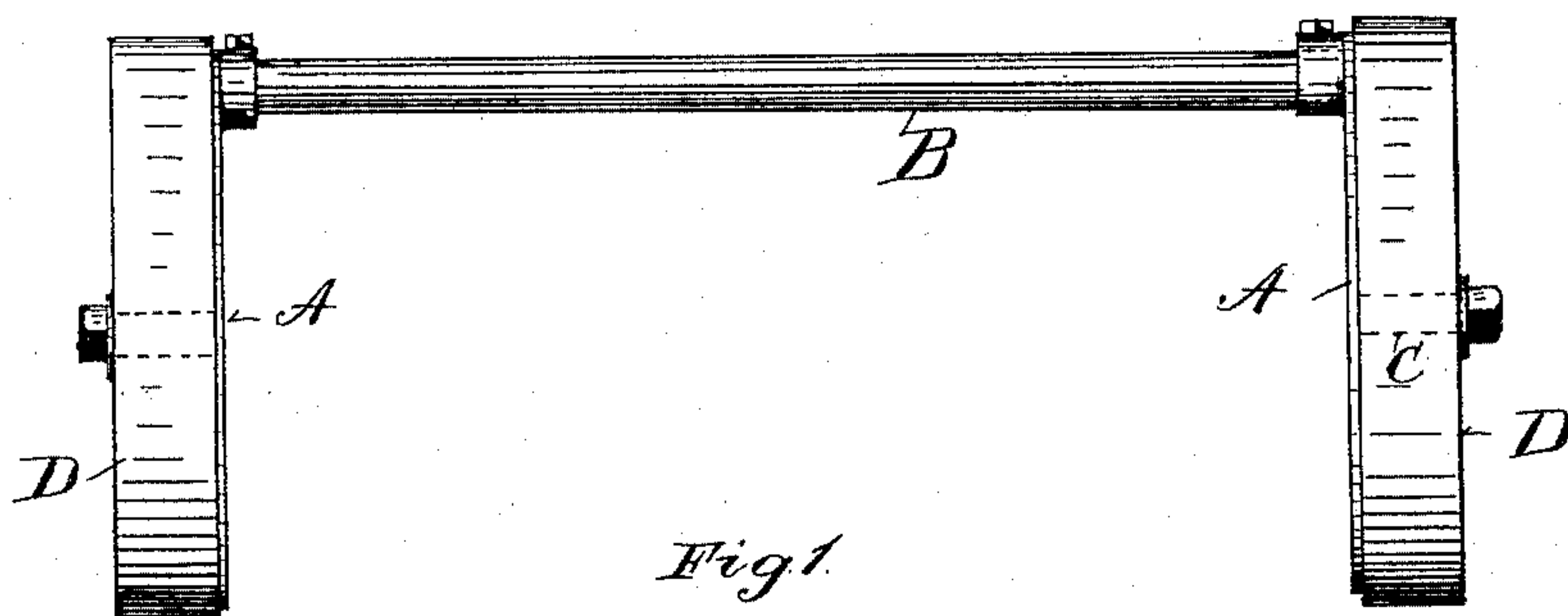


F. M. WATERS.
LAWN MOWER CLUTCH.

Patented June 14, 1892.



WITNESSES
H. M. Plaisted.
J. E. Hawley.

INVENTOR
By Frank M. Waters
Forhimself
his Attorneys.

UNITED STATES PATENT OFFICE.

FRANK M. WATERS, OF DAYTON, OHIO, ASSIGNOR TO THE FARMERS FRIEND MANUFACTURING COMPANY, OF SAME PLACE.

LAWN-MOWER CLUTCH.

SPECIFICATION forming part of Letters Patent No. 477,030, dated June 14, 1892.

Application filed January 2, 1892. Serial No. 416,780. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. WATERS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Lawn-Mower Clutches, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in clutches, the peculiarities of which will be hereinafter described, and pointed out in the claims.

My invention is especially adapted for use with lawn-mowers, and I have so preferred to illustrate it. It is also applicable to other constructions, however, as will be evident to those skilled in the art to which it appertains.

In the accompanying drawings, on which like reference-letters represent corresponding parts, Figure 1 represents a front view of two ground-wheels, their corresponding side plates, and the connecting-bar for the latter; Fig. 2, a side elevation of a portion of a lawn-mower, the ground-wheel being broken away to show the pinion and clutch connection; Fig. 3, a vertical section on the line *xx* of Fig. 2, showing the reel-shaft and a portion of the reel mounted thereon; and Fig. 4, a detail perspective view of the clutching-coil of wire.

The letters *A A* designate the side plates of a lawn-mower connected by a cross-bar *B*. On a stud *C*, carried by each side plate, is mounted a corresponding ground-wheel *D*, secured by the usual nut and washer, as indicated in Fig. 1. Internal teeth are formed on one or both ground-wheels, adapted to mesh with the teeth of a pinion *E*, loosely mounted on a reel-shaft *F*, to which are secured the reel and blades, as indicated in Fig. 3. So far the device is of the ordinary construction.

My improvements consist in forming a hub or extension *e*, on which is wound spirally a coil of wire *G*, preferably resilient, one end *g* of which coil is turned over the end of the sleeve or hub *e* and engages with said reel-shaft by means of a slot or recess *f*, into which said turned-over end extends, as shown in Figs. 2 and 3. The other end *h* of the coil is frictionally engaged with the said hub *e*, but is otherwise free. The direction in which

the coil is wound is in the direction the reel-shaft is to rotate. When the ground-wheel and pinion are rotated in the direction of the arrows, Fig. 2, the friction of the end *h* on the hub of the pinion will tighten the coil upon said hub and transmit the motion to the reel-shaft through the end *g* and the slot *f*. All the operative parts will thus be firmly clutched together and the pinion *E* rotate the reel-shaft as though fixed thereon. On a reverse motion of the ground-wheel and pinion the friction of the end *h* on the hub *e* will only tend to open the coil, and thus cause it to immediately loose its grip upon the pinion, which will revolve loosely on the reel-shaft. It will be observed that by the simple slot in the reel-shaft the turned-over end of the coil is fixedly engaged with the reel-shaft, yet effects an instantaneous clutching and unclutching of the pinion therewith, according to the direction of rotation of the ground-wheel; also, the location of the spring-coil upon the hub of the pinion affords a leverage on the reel-shaft and lessens the liability to slip, which might occur if the coil were wound directly on the shaft itself. In other words, the friction of the clutching-coil is exerted over a greater surface as well as a larger diameter, as exemplified in the preferred construction shown in the drawings.

I do not wish to limit myself to the exact construction herein shown.

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

1. The combination, with a ground-wheel, a reel-shaft, and a pinion on the shaft meshing with the said ground-wheel, of a resilient coil wound upon a part of the pinion and fixedly connected with the reel-shaft.

2. The combination, with a lawn-mower, ground-wheel, and reel-shaft, and a pinion loosely mounted on said shaft and meshing with the ground-wheel and having a sleeve, of a resilient coil wound upon said sleeve of the pinion and fixedly engaged at one end with the reel-shaft.

In testimony whereof I affix my signature in presence of two witnesses

FRANK M. WATERS.

Witnesses:

GEORGE H. WOOD,
WALTER S. EHRHART.