2 Sheets—Sheet 1.

F. HANSON.

Lawn-Mowers.

No. 225,703. Patented Mar. 23, 1880.

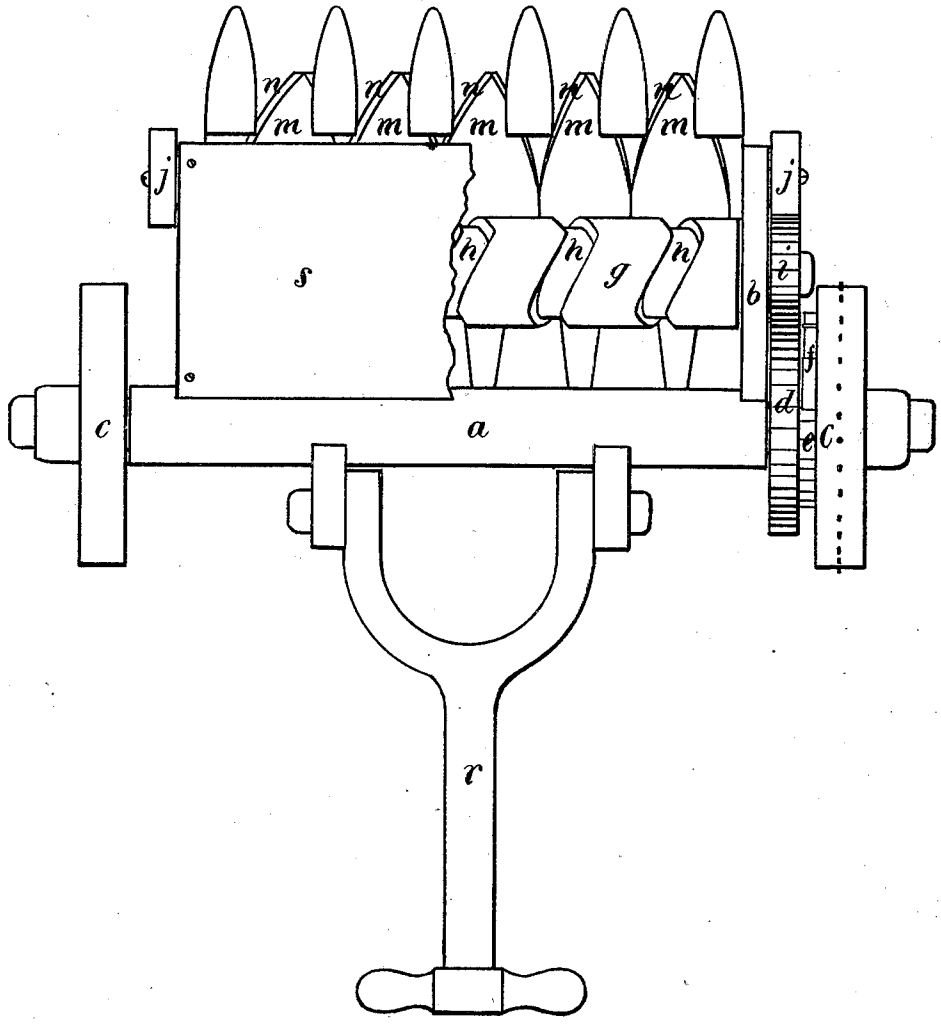


FIG. 1.

WITNESSES:

Herbert G. Briggs

Chas. H. Kimball.

INVENTOR:

Freeman Hanson

By his atty

William Henry Cliffords

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

F. HANSON.

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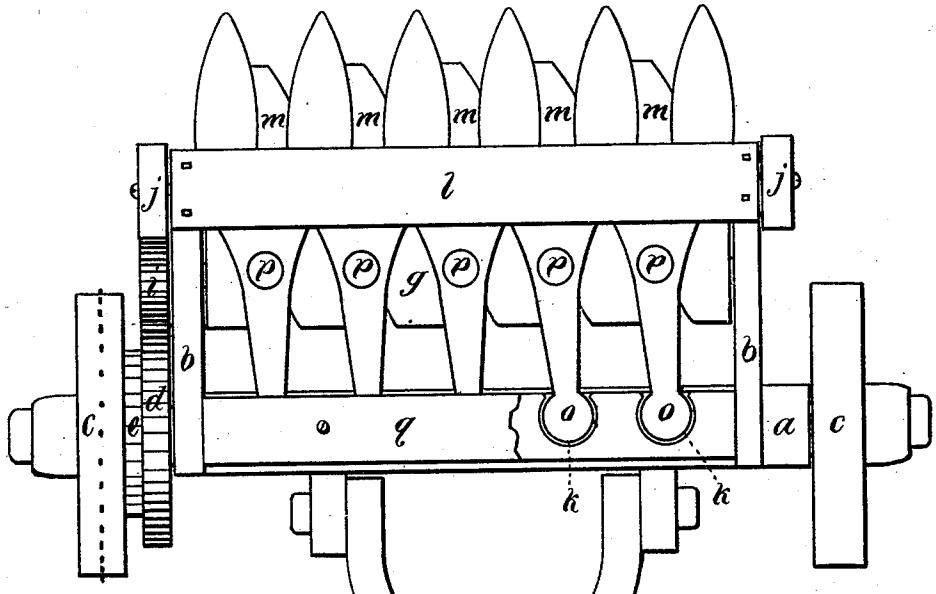


FIG. 2.

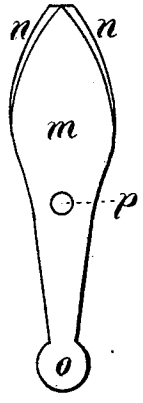


FIG. 3.

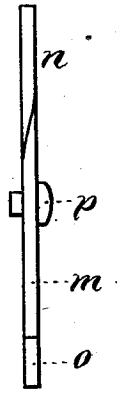


FIG. 4.

WITNESSES:

Herbert G. Briggs

Chas. H. Kimball.

INVENTOR:

Freeman Hanson

By his atty

William Henry Clifford

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREEMAN HANSON, OF HOLLIS, MAINE.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 225,703, dated March 23, 1880.

Application filed July 18, 1879.

To all whom it may concern:

Be it known that I, FREEMAN HANSON, of Hollis, in the county of York and State of Maine, have invented certain new and useful Improvements in Lawn-Mowers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention has relation to a certain improvement in that class of machines which are used for clipping and cutting off spires of grasses and stems of other vegetable growths on lawns, &c. The invention can also be readily accommodated to the cutting apparatus of mowing-machines and harvesters; and it consists of a roller provided with a series of V or curved shaped path-cams skillfully combined with reciprocating pivoted cutting-fingers having cam-pins and a guard-plate for said cutting-fingers. The other and driving parts of the machine show suitable geared and running wheels for the purpose of operating and moving said machine, as will be hereinafter specifically set forth and claimed.

In the drawings, Figure 1 is a top plan with part of cap or cover broken out. Fig. 2 is a bottom plan. Figs. 3 and 4 are details of cutting-fingers.

In my invention, *a* represents the axle of the machine. Projecting forward and set at right angles to *a* are seen the side pieces, *b b*.

c c show the running-wheels revolving on the spindles of the axle. These running-wheels are made either with creased or corrugated rims or with points projecting from the rims for the purpose of increasing the tractive power of the running-wheels upon the lawn-sod.

Revolving freely on the axle-spindle inside of the running-wheel *c* is the gear-wheel *d*. This gear-wheel has upon its outside face the rack *e*. On the inside of the running-wheel *c* is located the spring-pawl *f*. The rack *e* and pawl *f* so act together as to lock the wheel *c* and gear-wheel *d*, thus transmitting revolution to the different operating parts of the machine when the operator is pushing it forward for the purpose of cutting grass. A reversal of the direction of the machine permits the running-wheels to turn without moving the operating parts, the pawl slipping freely over the rack.

The cam-roller appears at *g*, and revolves in bearings in the side pieces, *b b*. A series of V or curved shaped path-cams, *h*, are cut upon this roller. Rigidly attached to the cam-roller and meshing into the gear-wheel *d* is the gear-wheel *i*. Running-wheels *j j* are placed at the extreme end of the side pieces, *b b*. The axle *a* has its under side provided with a series of chambers or recesses, arranged longitudinally and equidistant from each other, as shown at the points *k k*.

l represents the guard-plate with projecting points to protect the cutting-fingers. *m m* are cutting-fingers composed of the following parts: At one end is a cutting-edge, as shown at *n*. The other end is provided with a circular disk, *o*, and near the center of the cutter is placed the cam-pin *p*.

In applying the cutting-fingers to the machine the disk *o* is fitted into the chamber *k*. The cam-pin *p* is then slipped into the path-cam *h* of the roller *g*.

g shows a plate screwed to the under side of the axle, to hold the disks *o o* securely in the chambers *k k*. *r* is the handle of the machine.

s shows a cap or cover, of any suitable material. The office of the cap is to protect the operating parts of the machine and keep the cut-off grass-spires from falling against and clogging the cam-movement.

The operation of my machine is as follows: The operator, having taken his position behind the machine, grasps the cross-bar of the handle and pushes the machine forward. As soon as the machine begins to move over the ground the pawl *f* on the revolving running-wheel *c* fits into the rack *e* on the gear-wheel *d*. Thus rotary motion is imparted to the gear-wheels *d* and *i* and the cam-roller *g*.

As before described, the cam-pins of the reciprocating pivoted cutting-fingers project into the path-cams.

It is obvious that as the cam-roller revolves the cam-pins will follow the paths cut in *g*, and the cutting-fingers, working on their pivotal points, will reciprocate from side to side

with great rapidity and cut off the spires of grass uniformly and evenly, and give to the lawn-sod a soft velvety appearance.

The rate of speed at which the invention can be worked is regulated by the movements of the operator and the formation of the path-cams.

By the above-described method of construction and operation I am enabled to produce an article of commerce of the class to which this invention relates which shall be simple in its mechanical parts, inexpensive as to cost, practical in its operations, and especially easy and light running when in use.

I am aware that heretofore in lawn-mowers and like devices a cutting-knife having a pivoted disk at its rear end arranged to fit into a support or recess has been used; also, cam-movement to produce reciprocation of the cutters; and I do not claim, broadly or independently, any such features.

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

In a lawn-mower, the combination of axle *a*, running-wheels *c*, gear *d*, rack *e*, and pawl *f*, with roller *g*, having cam-paths *h*, gear *i*, cutting-fingers *m*, and rollers *j*, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FREEMAN HANSON.

Witnesses:
ELBRIDGE GERRY, Jr.,
HERBERT G. BRIGGS.