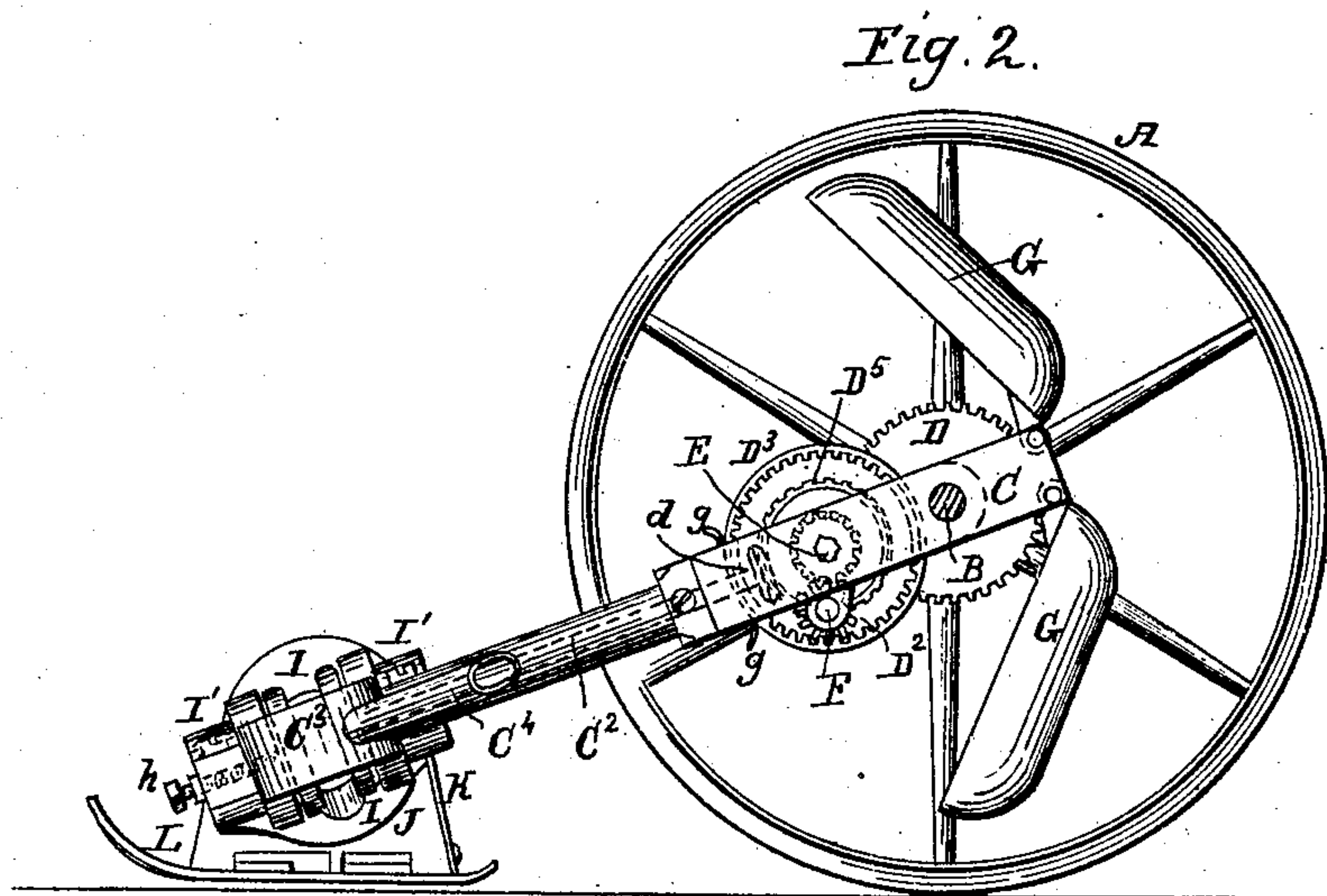
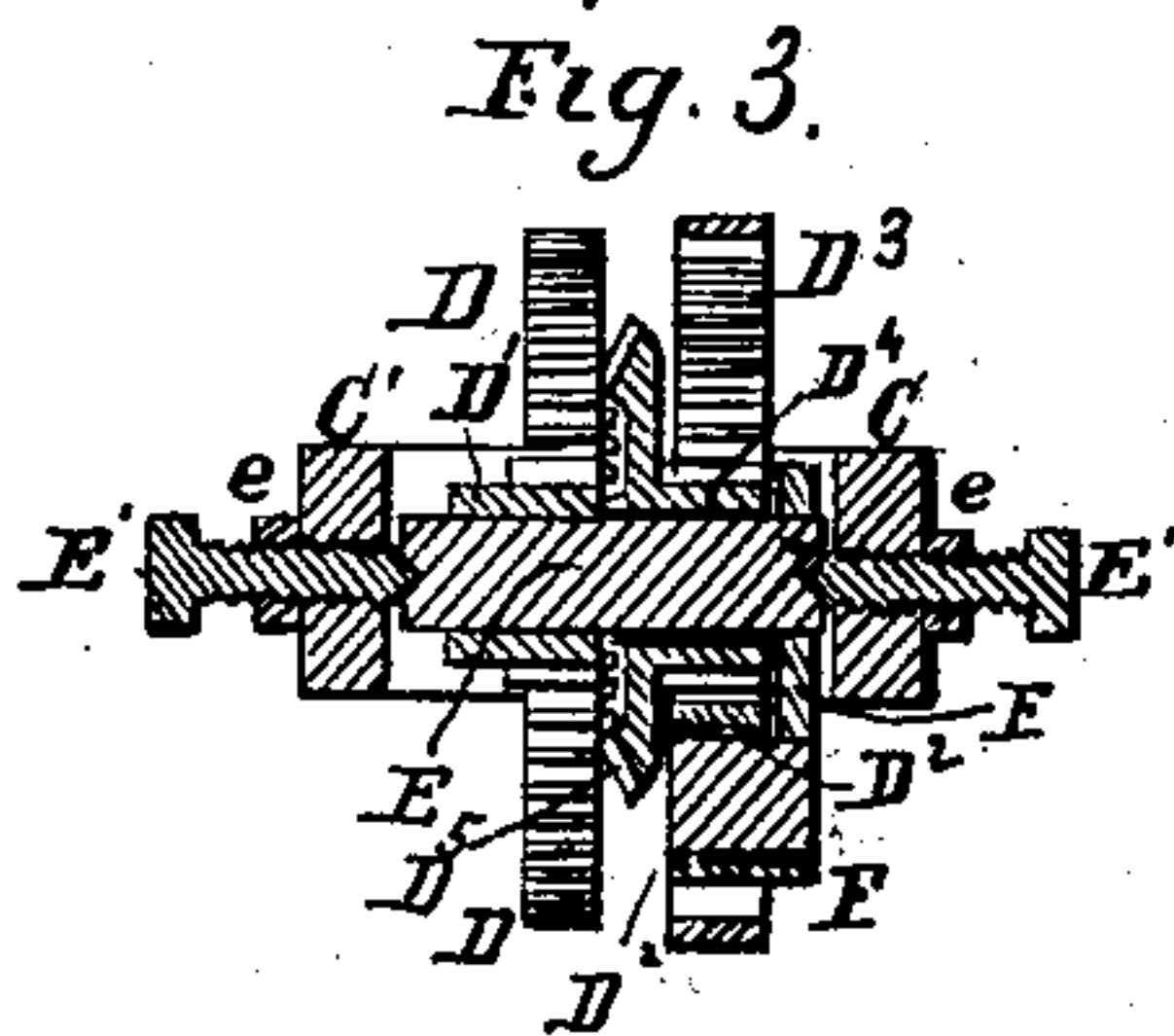


Mower.

Patented March 22, 1870.



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Letters Patent No. 101,120, dated March 22, 1870.

IMPROVEMENT IN HARVESTERS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern :

Be it known that I, WILLIAM F. GOODWIN, of Metuchen, county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Harvesting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a plan or top view of a harvesting-machine embracing my improvements.

Figure 2 is a longitudinal section of the same, taken in line *x x*, fig. 1, and

Figure 3 is a transverse section through the frame and gearing, taken in line *y y*, fig. 1.

Similar letters of reference denote corresponding parts wherever used.

Among the objects sought to be attained in the construction of harvesting-machines, have been a compact arrangement of gearing for operating the cutters, such as would readily permit its being inclosed or boxed up to prevent its being obstructed by dirt or other foreign matter, and the combination of the cutting apparatus therewith, in such manner that, while the said cutting apparatus could conform freely to the surface of the ground over which it was drawn, all cramping or binding of the gearing or of the parts coupling the same with the sickle-bar should be avoided.

My invention relates to a novel construction and arrangement of parts for accomplishing these objects, and will be fully understood from the following description, in connection with the drawings, in which—

A A represent the main, ground, and drive-wheels mounted loosely on a common axle, B, and connected thereto by backing-ratchets at *a*.

C C¹ represents the main or gearing-frame, made by preference in two parts, which are perforated to receive the axle B, and are fastened together at their ends by horizontal bolts passing through them.

The part C¹ of the frame has a tubular arm or sleeve, C², attached or cast with it, the forward or swinging end of which is provided with a yoke, C³, from which a brace, C⁴, extends obliquely to the axle B, and is connected therewith by a sleeve, C⁵.

The portions C C¹ of the frame inclose the gearing, arranged as follows, viz:

D is a straight spur-wheel mounted upon and keyed to the axle B.

E is a second short shaft mounted in frame C C¹, in a position parallel with the main axle B, upon screw pivot-bearings E¹, which pass through the sides of the frame and are adjustable therein.

The ends of the pivot-bearings E¹ are pointed or conical, and fit into corresponding sockets in the ends of shaft E, as shown in fig. 3, or the ends of the shaft may be pointed to match sockets in the adjustable bearings, as may be found most convenient.

By means of these adjustable pivotal bearings I can adjust the mesh of spur-gears D⁵ *d*, thereby compensating for the wear of the cogs upon said gears, thus adding materially to their durability.

The bearings or screws E¹, when properly adjusted, may be held by jam-nuts *e*.

The shaft E has keyed to it at one end a spur-pinion, D¹, and at its opposite end a traveling arm, F, the outer end of which is armed with a short stud or shaft, on which is mounted a transmitting-wheel or pinion, D², which travels with the arm F, and meshes with and receives motion on its own axis from a stationary internally-toothed rim, D³, cast with or attached to the portion C of the frame.

D⁴ is a straight pinion mounted loosely on shaft E, in the same vertical plane with the concentric internally-toothed rim D³ and transmitting-pinion D², the latter engaging with said pinion D⁴, and imparting motion thereto.

D⁵ is a bevel-wheel, cast with or rigidly attached to pinion D⁴, from which motion is imparted to a bevel-pinion on the crank-shaft, and thence to the sickle-bar in the usual manner.

The crank-shaft is extended beyond the wrist to which the pitman is attached, in order that it may be supported at its lower end.

G G¹ are concave lids, or cap and bottom, made of a depth which, added to the depth of the frame, is sufficient to inclose the gearing, and are hinged at one end to the frame, as shown in fig. 2.

g g are spring catches or clasps, which serve to hold the cap G and bottom G¹ in their closed position.

The crank-shaft is mounted in the sleeve C² of the frame, and at its lower or forward end is supported against the end-thrust consequent upon the employment of bevel-wheels for driving the same by means of an adjustable screw-pivot, *h*, mounted in a sleeve or arm of yoke C³.

I is a coupling-piece or frame for connecting the cutting apparatus with the main frame, said piece or frame consisting of a vertical annular hub or ring provided with horizontal arms which embrace the yoke C³ between them, and serve, in connection with half boxes I¹, to clasp the sleeve C² of the frame on opposite sides of said yoke, thereby forming the joint of the cutting apparatus on a line coincident with the axial center of the crank-shaft.

The heel end of the finger-bar has an upright standard, J, attached to it, provided with an opening corresponding to that through the annular hub of coupling-piece I, and with flanged lips and grooves matching corresponding grooves and lips formed on the adjacent face of the annular hub of the coupling I, for attaching the said finger-bar to said coupling, and through said coupling to the main frame, as described.

An upright spring, K attached to the shoe L, or to

the heel end of the finger-bar M, is provided at its upper end with a pin or spur, at *k*, which enters a hole in the annular hub I, and serves to hold the cutting apparatus at the desired angle of presentation to the ground, and to prevent the rotation of the same on its longitudinal axis or hub I.

The cutting apparatus and shoe L may be of any desired or usual construction.

In practice, however, the latter will be made of a width sufficient to extend underneath the forward or vibrating end of the main frame, and thus to serve to protect the latter and the crank-shaft and wheel from injury from obstructions in the path of the machine.

Having now described my invention,

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

1. The arrangement of the stationary internally-toothed rim and planetary gear about a secondary shaft or pinion-shaft lying parallel with the main axle of a harvesting-machine, as set forth.

2. The combination in a harvester of the shaft E, arm F, planetary gear $D^2 D^3 D^4$, bevel-wheel D^5 , bevel-pinion *d*, and adjustable pivotal bearings E^1 , substantially as set forth.

3. The arrangement upon the secondary shaft E of the straight pinion or spur-gear D^1 , traveling arm F carrying the transmitting-wheel D^2 , pinion D^4 , and bevel-wheel D^5 , these parts being operated from the main axle through the stationary rim D^3 , substantially as set forth.

4. The crank-shaft, constructed substantially as described, in combination with the adjustable pivotal bearing *h*, bevel-pinion *d*, and bevel-wheel D^5 .

5. The annular hub or coupling-piece I, having arms provided with half-boxes I^1 , as set forth, in combination with yoke C^3 , sleeve C^2 , and standard J.

WM. F. GOODWIN.

Witnesses:

ALEX. MAHON,
H. H. DOUBLEDAY.