(No Model.) 4 Sheets—Sheet 1.

C. F. GODDARD.

THRASHING MACHINE AND ENGINE THEREFOR.

No. 531,995. Patented Jan. 1, 1895.

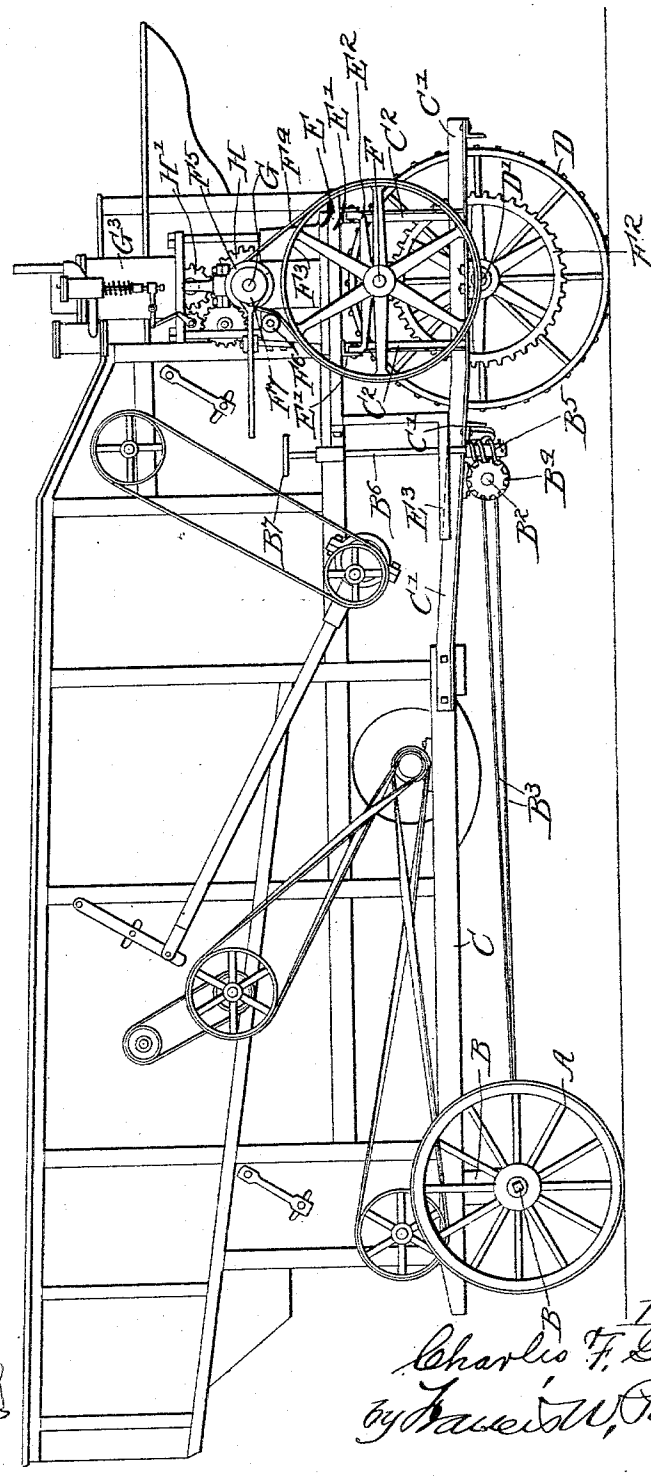

Fig. 1

Witnesses
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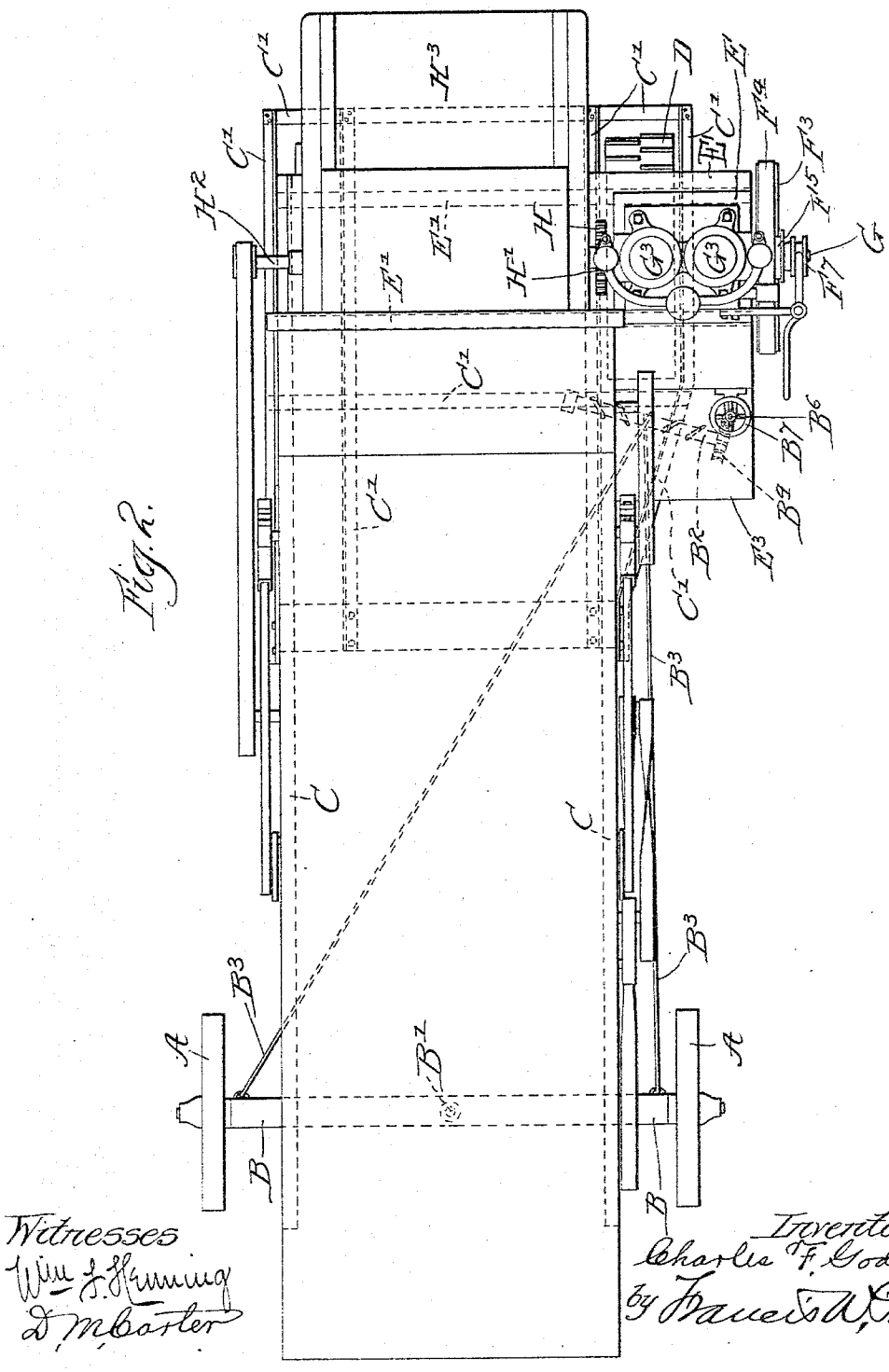

Fig. 2.

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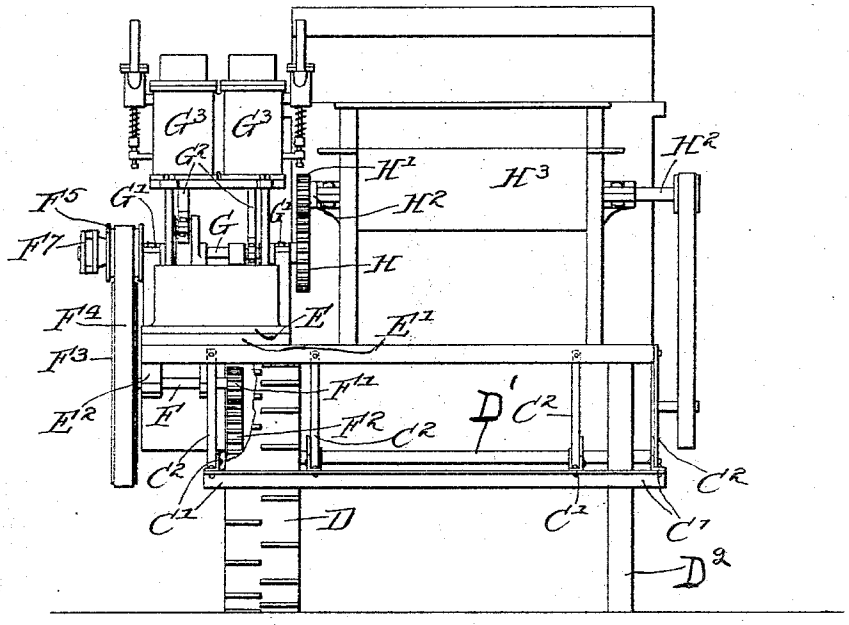
Fig. 3.



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(No Model.) 4 Sheets—Sheet 4.

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THRASHING MACHINE AND ENGINE THEREFOR.

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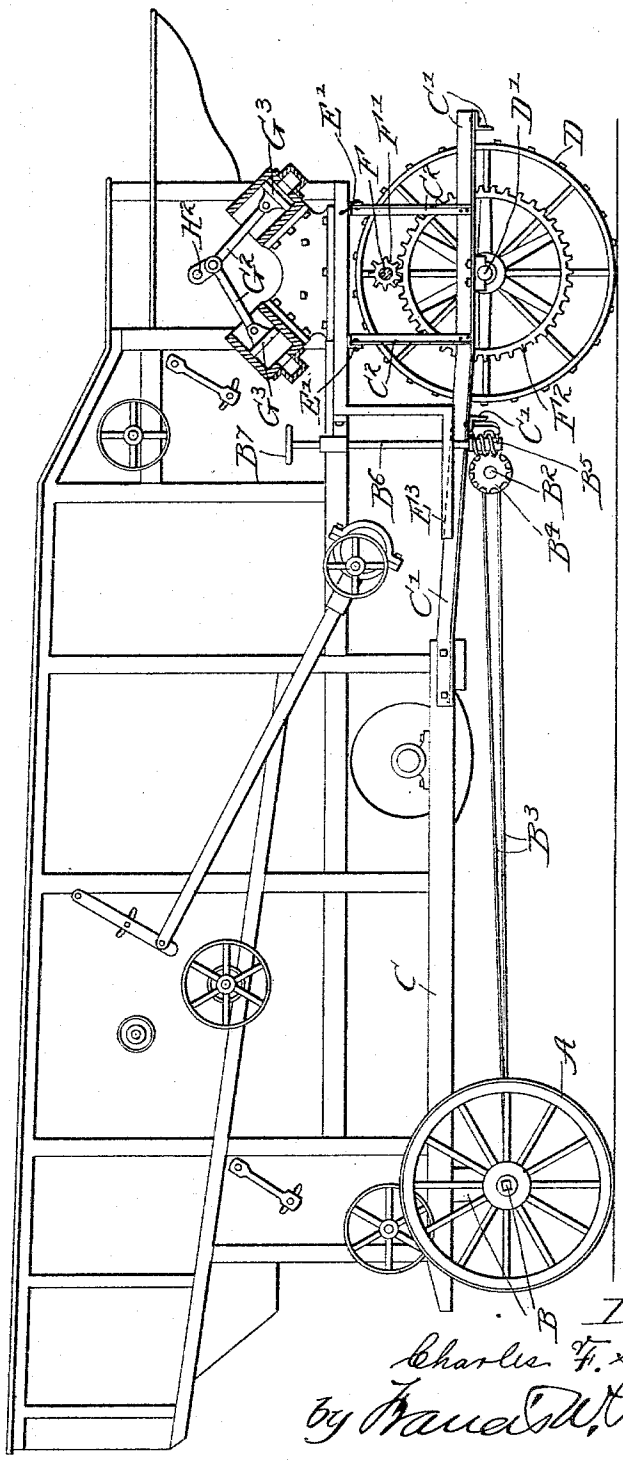

Fig. 4.

Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

CHARLES F. GODDARD, OF MITCHELL, IOWA, ASSIGNOR OF FOUR-FIFTHS TO LEON O. BAILEY, HENRY F. GLIDDEN, AND RICHARD LEE DUVALL, OF CHICAGO, ILLINOIS.

THRASHING-MACHINE AND ENGINE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 531,995, dated January 1, 1895.

Application filed July 26, 1894. Serial No. 518,612. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. GODDARD, a citizen of the United States, residing at Mitchell, county of Mitchell, and State of Iowa, have invented certain new and useful Improvements in Thrashing-Machines and Engines Therefor, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to threshing machines and engines therefor, and has particular reference to improvements in such devices whereby a light and portable engine may be combined with the thrashing machine on one and the same truck or carriage so that there may be self-contained in the entire device means for hauling or moving the entire device from place to place, and also for actuating the operating mechanism of the thrasher.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of the entire device; Fig. 2, a plan view; Fig. 3, an end view, and Fig. 4 shows engine connected directly to the cylinder shaft.

It will of course be understood that some of the parts are omitted, particularly where entirely unnecessary to illustrate the operation of the remainder, and certain minor parts are omitted or broken away where they obstruct the view of other necessary features.

Like parts are indicated in all the figures by the same letters.

A A are the rear supporting wheels on the axle B, which is pivotally connected at B′ with the frame of the thrasher in any desired manner so as to permit the rear axle and wheels to be swung about such pivot so as to make the direction of travel of the machine controllable.

B^2 is a short shaft pivotally connected at the forward end of the machine to the lower frame thereof about midway of such shaft, and B^3 B^3 are chains or wire rope or the like connecting from opposite ends of the axle B to the opposite end of the shaft B^2. The shaft B^2 stands normally at right angles to a line drawn from the center of such shaft to the center of the axle B. On the outer end of such shaft is the bevel gear B^4 engaging the worm B^5 on the vertical rod B^6, which is controlled by the hand wheel B^7. The particular method of connecting these several parts is not material except that it should be such that by turning the hand wheel B^7 in either direction the axle B may be turned in the corresponding direction on its pivot B′ so as to vary the direction of motion of the thrasher. Moreover, by changing the position of the axle B when the machine is at rest a certain amount of protection is secured against the tendency of the machine to rock longitudinally.

C indicates the lower supporting frame of the thrasher proper and may be constructed in any desired manner, but laterally projecting from one side of the forward end thereof is the frame C′ consisting of suitable angle bars, for example, and carrying the standards C^2 C^2; the whole together constituting a laterally projecting frame within which the traction wheel D is journaled on the end of the axle D′, on the opposite end of which is journaled the forward supporting wheel D^2. Supported upon the bars C^2 and projecting from the side of the thrasher is the bed-plate E or frame upon which the driving portions of the engine are located. Journaled in the hangers depending from this bed-plate is the short shaft F carrying the pinion F′ to engage the gear wheel F^2 on the traction wheel D. On the other end of the shaft F is the large pulley F^3 driven by the belt F^4 from the pulley F^5. F^6 is a tightener which bears against this belt. This pulley is on one end of the engine shaft G, which in the case here illustrated is suitably journaled on the standards G′ G′ rising from the bed-plate E. This shaft is properly driven from piston rods G^2 G^2 driven from cylinders G^3 G^3. On the opposite end of the shaft G is the gear wheel H meshing with the pinion H′ on the end of the cylinder shaft H^2. The cylinder is inclosed within the casing H^3 in the forward part of the thrashing machine proper. Said cylinder is preferably

connected with the engine at all times and acts as a fly-wheel to control its operation. The connection between the engine and the traction wheel D may be broken in any convenient manner, as by making the pulley F^3 loose on the shaft G and employing a clutch F^7, which, when in engagement with the said pulley, causes it to revolve with the shaft G. I prefer to have the bed-plate E of the engine rest upon the platform or table E', supported upon the angle irons E^2. To this table is attached the platform E^3 upon which the engineer stands while operating the engine. Any suitable device for reversing the motion of the thrasher may be employed.

I have not explained in detail the different parts of the engine as that is no part of my invention, and as different kinds of engines may be employed without affecting the result desired.

Fig. 4 shows the engine connected directly to the cylinder shaft H^2 of the thrasher. By this construction the engine shaft and the cylinder shaft are one and the same. This view is in part diagrammatic, the details of the engine being omitted.

I do not wish to be limited to the particular gas engine or form of gas engine employed as it will be quite evident that other engines could be employed and that great variations in this respect can be made, but I wish to call attention to those results which are accomplished by the construction here shown and which (many of them) may be equally accomplished by such suggested variations in construction. In the first place, the engine proper is mounted almost directly over the traction wheel so that the principal weight of the forward end of the machine is brought over the wheel, thus increasing its value as a traction wheel and placing the greater portion of the load where it ought to be. Secondly, the cylinder of the thrashing machine being of great weight and adapted for rapid revolutions serves in this connection as the fly-wheel or regulator of the engine whatever engine may be employed. The connection I may make directly (Fig. 4) so that the engine shaft and cylinder shaft will be one and the same or in one continuous line, but in the design of the machine illustrated in Figs. 1 to 3 inclusive, this connection is made through the medium of the intermeshing gears H and H'. When the engine is set in operation it may be connected so as to drive the traction wheel and thereupon the machine will be set in motion and may be caused to move from place to place. The application of the power of the engine to the traction wheel is substantially along a vertical line through the axis of the traction wheel, which is just as efficient for the forward direction of the whole machine as if the line of application were some other. Now when it is desired to bring the machine to rest at a given position the traction wheel is disengaged from the engine and instantly the machine is ready for use. The engine setting the cylinder in operation and from the cylinder shaft driving all the other operating parts of the machine is placed in such position that the end thrust is in a substantially vertical line and substantially through the axis of the traction wheel. Thus there is no tendency of the machine to move laterally or longitudinally responsive to such thrust and hence little if any occasion for the machine to be anchored in the manner usual with such machines. The machine, therefore, can be readily moved into and out of position and can be changed from time to time without the delay and labor incident to disengaging and subsequently anchoring the machine in its new position. In view of such easy means it is not important that any special facilities, such as conveyers or stackers, be employed for carrying away or disposing of the straw which has run from the machine, and when the machine has completed its work at a given stack or stacks it can be instantly moved, however short the distance, to another position.

The steering of the machine is easily accomplished as indicated by operating the hand wheel D^7 whereby the rear axle is turned in either direction about its pivot.

I claim—

1. The combination of a thrashing machine proper with a traction wheel at one end of one axle and a driving engine placed substantially over such traction wheel.

2. The combination of a thrashing machine proper with a forward axle having the usual supporting wheel at one end and a traction wheel at the other, and an engine and cylinder at the forward end and over the forward supporting wheel and traction wheel, the size, weight and arrangement of the engine and cylinder being such that the forward supporting wheel sustains an amount of such total weight equal to the normal burden of such supporting wheel while the center of gravity of the remaining portion of such total weight is substantially over the traction wheel.

3. The combination of a thrashing machine proper with an engine mounted on the frame thereof and adapted to drive the operating mechanism of the thrasher in combination with a traction wheel, the line of motion of such engine being substantially vertically through the axis of such traction wheel.

4. The combination of a thrashing machine proper having a cylinder with a supporting frame, having a traction wheel and an engine supported on said supporting frame connected with the cylinder so that the latter acts as a fly-wheel and adapted to be connected to the traction wheel so as to rotate the same to propel the entire machine.

5. The combination of a thrashing machine

proper, with an engine and traction wheel at one end thereof, the engine operating so that its thrust is substantially in a vertical line through the axis of the traction wheel, and an axle with supporting wheels pivoted at the other end so that one axle being placed at an angle to the other and the thrust of the engine being in a vertical direction the necessity of anchoring the machine is largely obviated.

CHARLES F. GODDARD.

In presence of—
DONALD M. CARTER,
JEAN ELLIOTT.