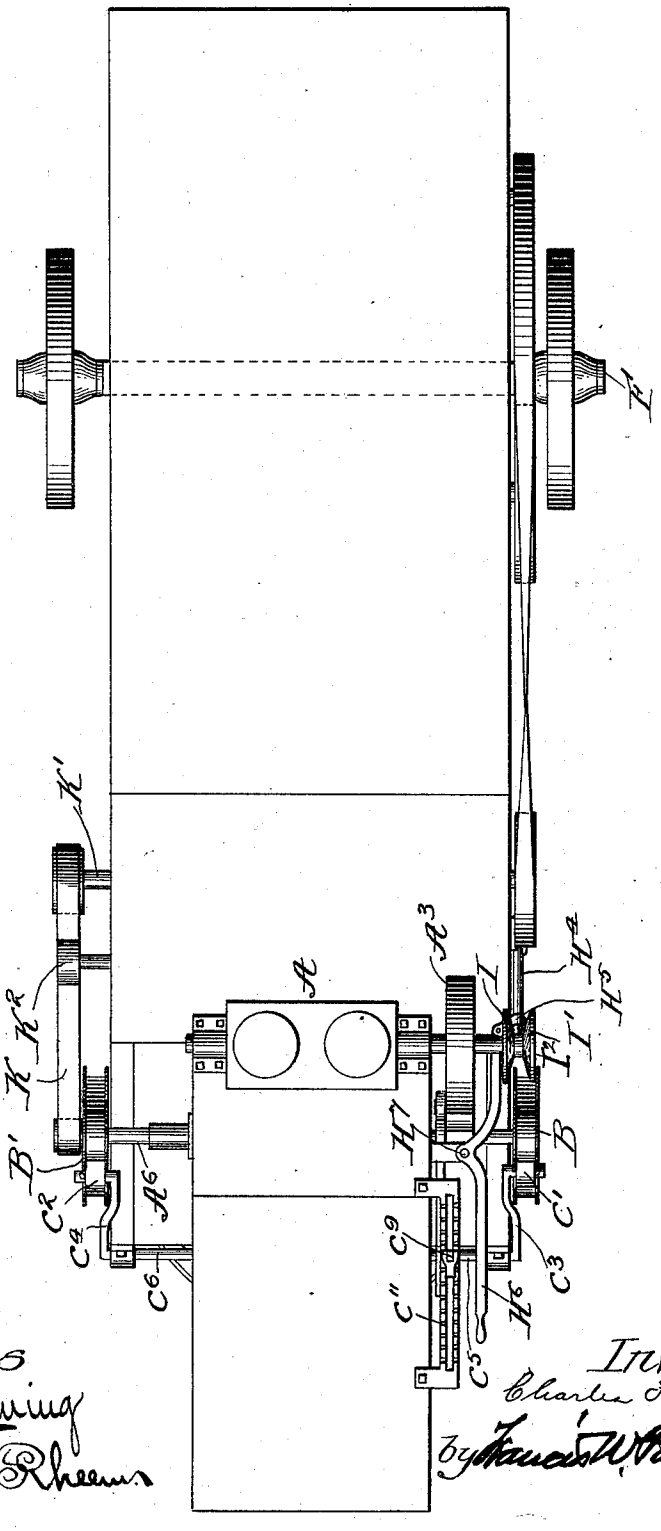
(No Model.) 3 Sheets—Sheet 1.

C. F. GODDARD.

THRASHING MACHINE.

No. 542,520. Patented July 9, 1895.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 1.

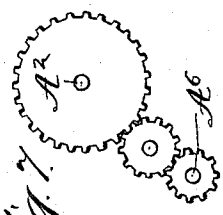
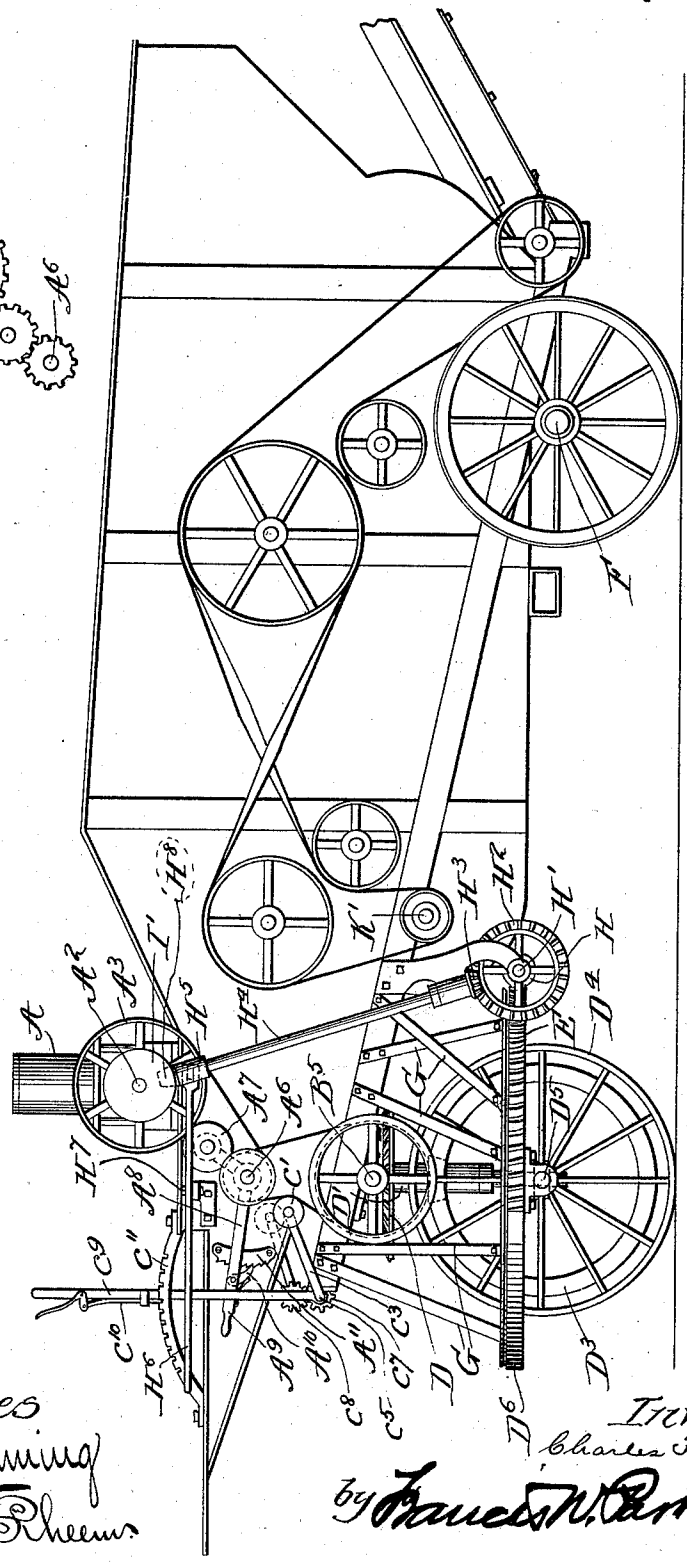


Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

C. F. GODDARD.

THRASHING MACHINE.

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Fig. 3

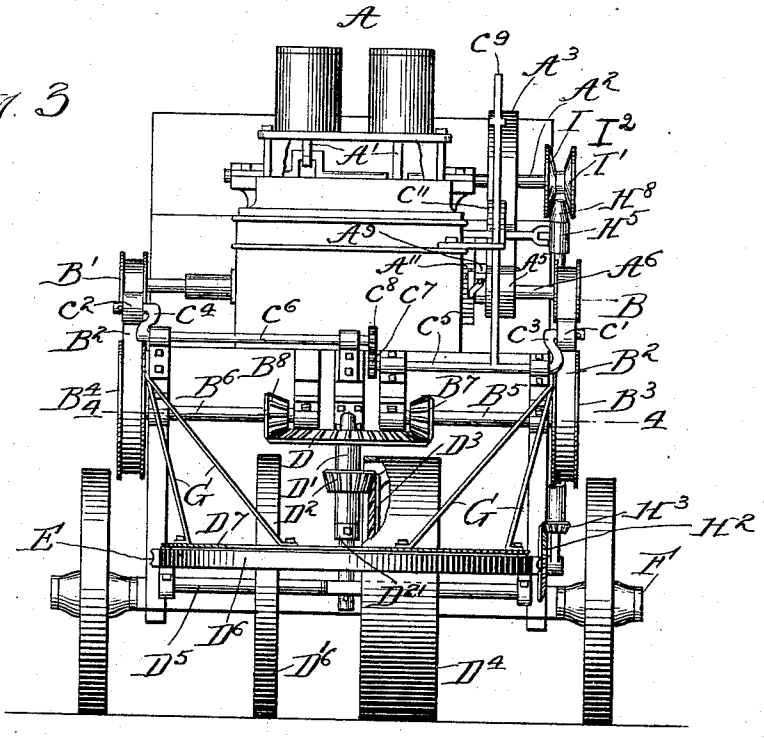


Fig. 4.

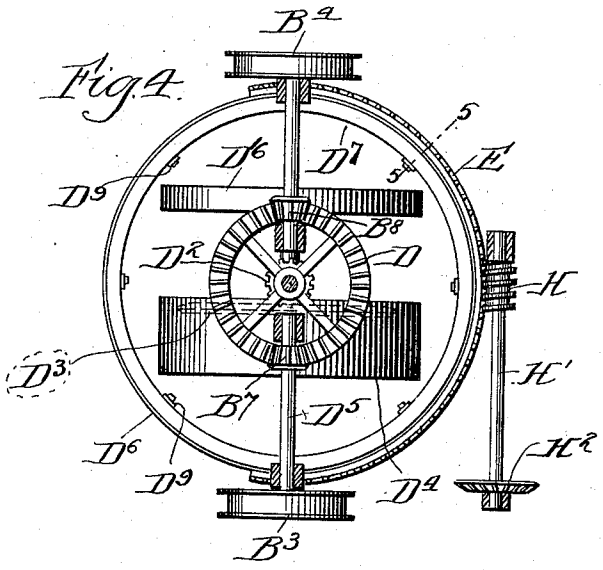


Fig. 5.

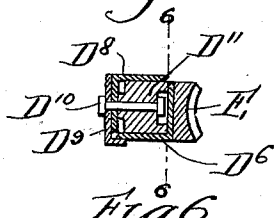
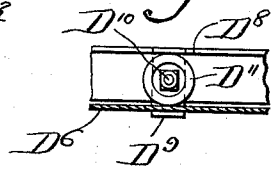


Fig. 6.



Witnesses
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Inventor
Charles F. Goddard
by Francis H. Parker, Atty.

UNITED STATES PATENT OFFICE.

CHARLES F. GODDARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO RICHARD LOVE DUVALL, OF SAME PLACE.

THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 542,520, dated July 9, 1895.

Application filed December 24, 1894. Serial No. 532,837. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. GODDARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Thrashing-Machines, of which the following is a specification.

My invention relates to thrashing-machines and engines therefor, and has particular reference to thrashing-machines in which the separator and the motor mechanism by which the separator is operated and conveyed from place to place are mounted upon the same frame.

The object of my invention is to produce an improved thrashing-machine of the kind described embodying certain novel features set forth in the following specification and pointed out in the claims thereof.

My invention is illustrated by the accompanying drawings, wherein—

Figure 1 is a plan view of a thrashing-machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation with parts broken away. Fig. 4 is a section on line 4 4, Fig. 3, with parts omitted, looking down. Figs. 5 and 6 are details. Fig. 7 is a detail modification of means for connecting the engine-shaft and the cylinder-shaft.

Like letters refer to like parts throughout the several figures.

A A are the cylinders of the engine, which is preferably a gas-engine. The piston-rods A′ A′ are connected in the ordinary manner to the shaft A^2. A pulley A^3 is keyed to said shaft and is provided with a belt which passes over a pulley A^5 on the cylinder-shaft A^6. An idle-pulley A^7, which is used as a belt-tightener, is journaled to one end of the bell-crank lever A^8, which is pivotally connected to the shaft A^6. The other arm A^9 of said bell-crank lever acts as the handle by which the belt-tightener is moved. Said arm or handle is held in any desired position by means of the pawl A^{10} and rack A^{11}. The shaft A^6 is provided at each end with grooved pulleys B B′, which are connected by the belts B^2 B^2 with the pulleys B^3 B^4, keyed to the shafts B^5 B^6.

C′ C^2 are idle or belt-tightening pulleys which bear against the belts B^2 B^2. Said pulleys are loosely mounted on the crank-arms C^3 C^4, which are preferably integral with the shafts C^5 C^6. The shaft C^5 is provided with the pinion C^7, which meshes with a similar pinion C^8 on the shaft C^6. A lever-arm C^9 is rigidly connected to the shaft C^5, and is provided with an ordinary spring-catch C^{10}, adapted to engage the notches in the arc-shaped piece C^{11}. By this construction a movement of the lever-arm C^9 rotates the shaft C^5, and since the shaft C^6 is connected to said shaft by the pinions C^7 C^8 said shaft C^6 will be rotated in an opposite direction. It will therefore be seen that when the lever C^9 is moved to bring the belt-tightening pulley C′ in contact with the belt B^2 the pulley C^2 will be moved out of contact with its associated belt, and vice versa.

The shafts B^5 and B^6 are provided with the beveled pinions B^7 B^8. Said pinions are connected rigidly to said shafts and engage the beveled gear-wheel D, which is rigidly connected to the sleeve D′ on the vertical shaft D^{21}. A beveled pinion D^2 is rigidly connected to the sleeve D′ and engages the beveled gear-wheel D^3, rigidly connected with the driving-wheel D^4 on the axle D^5. By this construction the bevel-gear D is rotated in one direction when the pinion B^7 is operatively connected with the engine-shaft A^2 and is rotated in the opposite direction when the pinion B^8 is connected with said engine-shaft.

D^{16} is a supporting-wheel on the axle D^5. Said axle D^5 is supported by the movable annular frame D^6, which surrounds the stationary annular frame D^7. A segment E of a worm-gear is fastened to the movable frame D^6. The construction of this frame is shown by Figs. 5 and 6. The stationary frame D^7 is composed of the angle-irons D^8 and D^9, which are connected by the bolts D^{10} D^{10}.

D^{11} D^{11} are rollers of iron or other suitable material. (See Fig. 5.) The movable frame D^6 is composed of an angle-iron upon which the rollers D^{11} rest, as shown. By this construction the movable frame D^6 is free to move with relation to the stationary frame D^7, and hence the axle D^5 may be moved at an angle with the rear axle F, so as to steer or guide the machine when moving from place to place.

The annular frame D^7 is connected to the frame of the thrashing-machine in any convenient manner, as by the rods G G.

A worm H on the shaft H′ engages the worm-gear segment E on the movable annular ring D^6, and hence the revolution of said worm will cause the frame D^6 to revolve. Keyed to the end of the shaft H is a bevel-gear H^2, that engages a bevel-pinion H^3 on the shaft H^4. The upper end of said shaft works in a movable bearing H^5 on the end of the lever H^6. Said lever is pivoted at H^7 and is placed within convenient reach of the operator. A friction-cone H^8 is rigidly attached to the end of the shaft H^4. Said friction-cone is interposed between the conical faces I I′ of the grooved pulley I^2 on the engine-shaft A^2, and hence may be made to rotate in opposite directions by being alternately brought into contact with the faces I I′ of said pulley.

I have not described in detail the separator or thrashing-machine proper, as such details are no part of my invention.

The several parts of my invention have been described in detail; but it is evident that they may be varied considerably in form and construction and that some parts may be used and others omitted without departing from the spirit of my invention, and I therefore do not wish to be limited to the exact construction shown.

The engine is operatively connected to the separator in any desired manner, as by the belt K, which passes over a pulley on the cylinder-shaft A^6 and on the shaft K′. This belt passes loosely over the pulleys on the shafts A^6 and K′, so that the separator will not be operated until it is tightened by the belt-tightening pulley K^2.

I have shown the engine-shaft as connected to the cylinder-shaft by means of a belt; but such connection may be made in any other convenient manner, as by means of the gear-wheels. (Shown in Fig. 7.) I have shown the rollers D^{11} D^{11} as attached to the stationary frame; but they may be fastened to the movable frame as well. The size and proportion of these several parts may also be varied as desired.

The use and operation of my invention are as follows: When it is desired to move the machine from one place to another, the engine is started up with no load. When the engine-shaft A^2 and shaft A^6 have reached their normal speed, the lever C^9 is moved in the direction of the arrow, Fig. 2, so as to force the belt-tightening pulley C′ against the belt B^2 until said belt is tightened sufficiently to cause the shaft B^5 to rotate. The motion of said shaft is conveyed by pinion B^7, gear-wheel D, sleeve D′, pinion D^2, and gear-wheel D^3 to the driving-wheel D^4, and the machine is moved forward. The speed with which said machine moves depends upon the force with which the pulley C′ is pressed against the belt B^2. Said pulley is held in position by allowing the spring-catch C^{10} to enter one of the notches in the arc-shaped piece C^{11}. When the parts are in this position, the belt-tightening pulley C^3 is out of contact with the belt B^2 and the pulley B^4 runs as an idler. When it is desired to reverse the machine, the lever C^9 is moved in a direction opposite to that indicated by the arrow and the shaft C^5 is rotated so as to move the belt-tightening pulley C′ out of contact with the belt B^2. The motion of shaft C^5 is conveyed by pinions C^7 and C^8 to shaft C^6, and said shaft is rotated so as to force the belt-tightening pulley C^2 against the belt B^2 and operatively connect the pulley B^4 with the shaft A^6. The bevel gear-wheel D will now be rotated in a direction opposite to that described above, and the machine will be moved backward. The tightening-pulleys C′ and C^2 are so arranged that there is an intermediate position in which both are out of contact with their opposed belts, and hence the machine may be stopped without stopping the engine.

If it is desired to change the direction in which the machine is moving, the lever H^6 is moved so as to bring the friction-cone H^8 in contact with one of the conical faces I I′ of the grooved pulley I^2, so as to be set in motion. The motion of said pulley is conveyed by shaft H^4, pinion H^3, gear H^2, shaft H′, and worm H to movable frame D^6, and said frame is moved so as to place the axle D^5 at an angle with the rear axle F. The direction in which the machine will be turned will depend upon the face of the pulley I^2, against which the friction-cone H^8 is pressed, as said cone will be revolved in one direction when in contact with the face I and in the opposite direction when in contact with the face I′.

The rollers D^{11} D^{11} allow the two frames D^6 and D^7 to move with relation to each other without undue friction.

I claim—

1. The combination in a thrashing machine of an engine and a separator attached to the same frame, a shaft operatively connected with said engine, two shafts each operatively connected with the driving wheel of the thrashing machine, a frictional connection between each of said latter shafts and the former shaft and a controlling device associated with each of said frictional connections and adapted to be controlled by a single handle whereby the driving wheel may be disconnected from the engine, or alternately connected therewith so as to rotate in alternate directions while the engine shaft is continuously rotating in one direction.

2. In a thrashing machine the combination of a separator proper with a cylinder, a driving engine mounted above the cylinder, a traction wheel mounted beneath the cylinder and engine, and connecting and driving mechanism about the cylinder from engine to traction wheel, the parts so arranged and of such proportions as that the traction wheel comes sub-

stantially under the center of gravity of the forward end of the machine on which the cylinder and driving engine are mounted.

3. In a thrashing machine the combination of a separator proper with a cylinder, a driving engine mounted above the cylinder, a traction wheel mounted beneath the cylinder and engine, and connecting and driving mechanism about the cylinder from engine to traction wheel, and a movable frame for the traction wheel, and driving and connecting mechanism therefor to the engine.

4. In a thrashing machine the combination of a separator proper with a cylinder, a driving engine mounted above the cylinder, a traction wheel mounted beneath the cylinder and engine, and connecting and driving mechanism about the cylinder from engine to traction wheel, and a movable frame for the traction wheel, and driving and connecting mechanism therefor to the engine, and a supporting wheel associated with the traction wheel.

Signed at Chicago, Illinois, December 18, 1894.

CHARLES F. GODDARD.

Witnesses:
DONALD M. CARTER,
FRANCIS W. PARKER.