B. R. BENJAMIN.

MOTOR ATTACHMENT FOR HARVESTERS.

APPLICATION FILED NOV. 10, 1910.

1,041,952.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

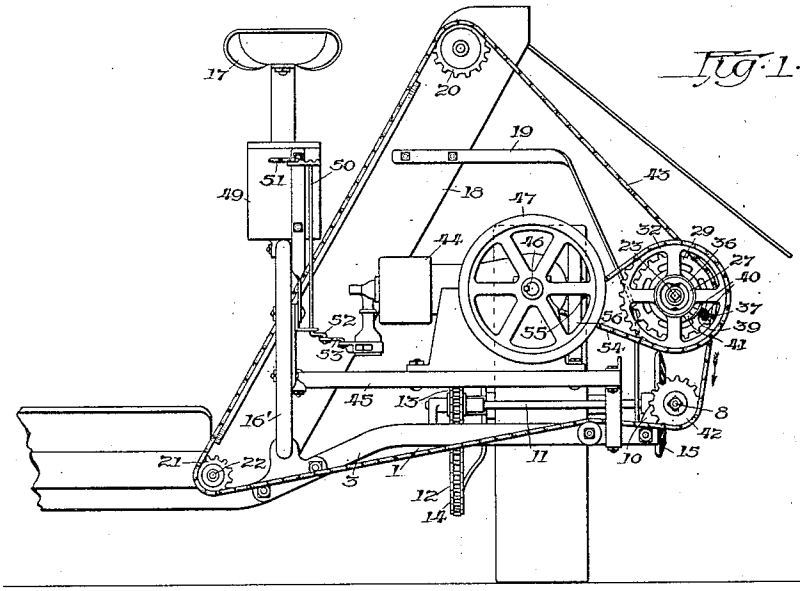
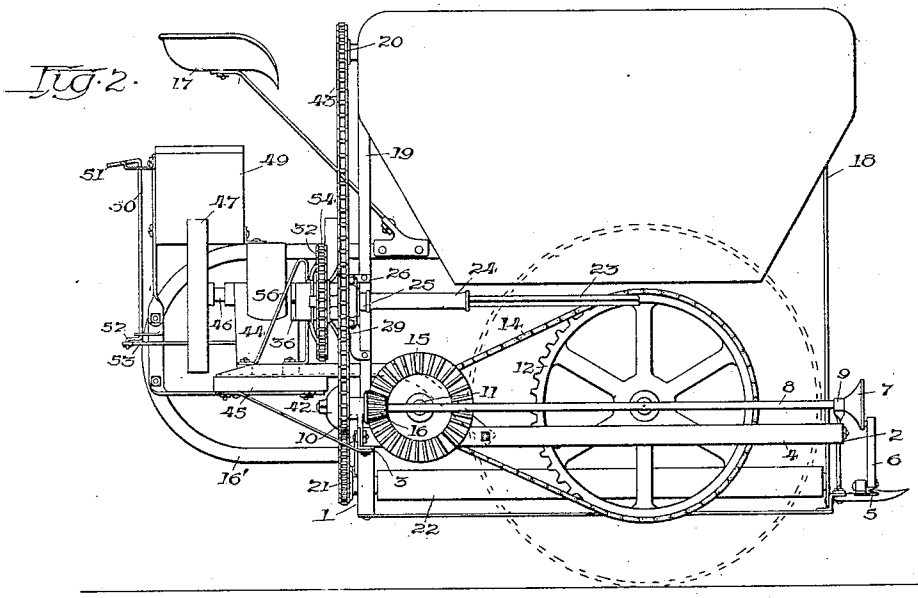


Fig. 2.



Witnesses:
F. W. Hoffmaster.
W. A. Hyatt.

Inventor.
Bert R. Benjamin.
By E. W. Burgess
Attorney.

B. R. BENJAMIN.

MOTOR ATTACHMENT FOR HARVESTERS.

APPLICATION FILED NOV. 10, 1910.

1,041,952.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 2.

Fig. 3.

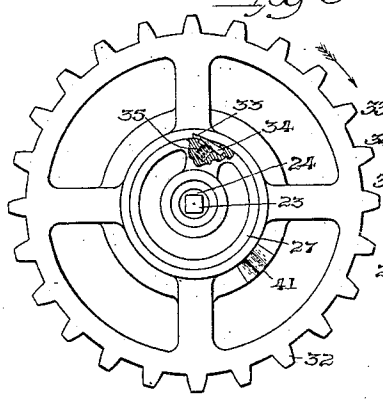


Fig. 4.

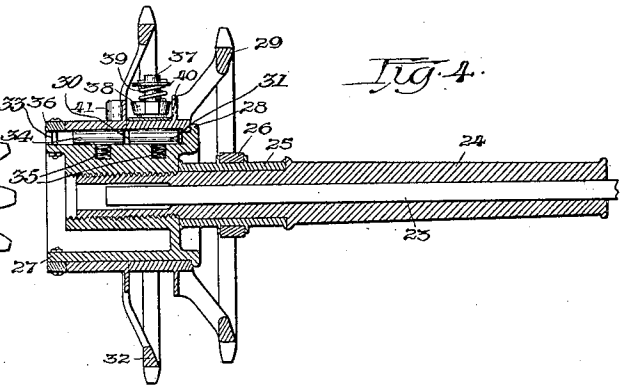
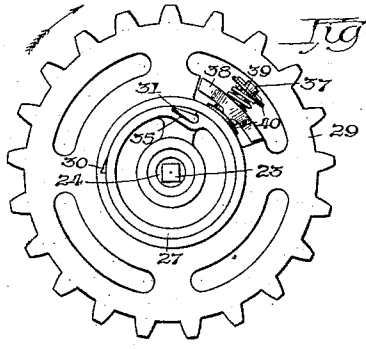


Fig. 5.



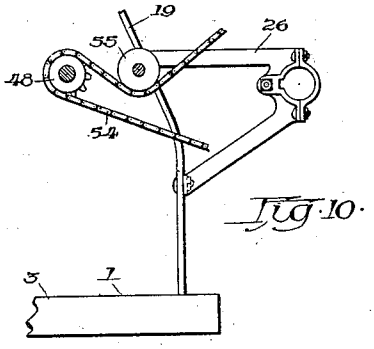


Fig. 10.

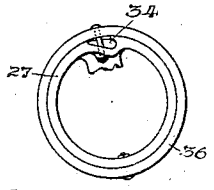


Fig. 6.

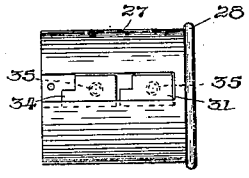


Fig. 7.

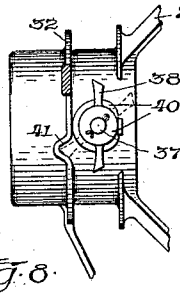


Fig. 8.

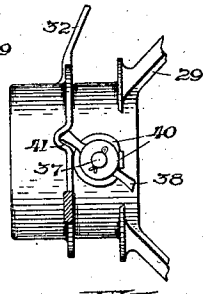


Fig. 9.

Witnesses:
F. W. Hoffmaister.
M. M. Hoffmaister

Inventor.
Bert R. Benjamin
By E. W. Burgess
Attorney.

UNITED STATES PATENT OFFICE.

BERT R. BENJAMIN, OF OAK PARK, ILLINOIS, ASSIGNOR TO INTERNATIONAL HARVESTER COMPANY, A CORPORATION OF NEW JERSEY.

MOTOR ATTACHMENT FOR HARVESTERS.

1,041,952. Specification of Letters Patent. Patented Oct. 22, 1912.

Application filed November 10, 1910. Serial No. 591,563.

To all whom it may concern:

Be it known that I, BERT R. BENJAMIN, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Motor Attachments for Harvesters, of which the following is a specification.

My invention relates to means for attaching a motor, preferably an explosive engine, to a harvesting machine in a manner whereby the power of the motor may operate as an auxiliary drive in connection with the traction wheel, or independently thereof, and consists in mechanism connecting the motor with the operative parts of the harvester for the desired purpose; the object of my invention being to provide a mechanism simple and strong in construction, comprising few parts and having a maximum flexibility in adapting itself to meet the varying conditions of load and speed incident to the operation of machines having the character indicated. I attain these objects by means of the mechanism illustrated by the accompanying drawings, in which—

Figure 1 represents a rear elevation of a harvester having my invention forming a part thereof; Fig. 2 is an elevation of Fig. 1 from its stubbleward end; Fig. 3 is a rear end view of the binder driving shaft and one of the sprocket wheels mounted thereon; Fig. 4 represents a longitudinal section of Fig. 3, showing the two sprocket wheels connected with the binder driving shaft; Fig. 5 is a plan view of one of the binder driving sprockets; Fig. 6 is a detached detail of part of the mechanism connecting the sprocket wheels with the binder driving shaft; Fig. 7 represents a sleeve upon which the binder driving sprockets are journaled; Fig. 8 is a detail showing the manner of mounting the sprocket wheels upon the sleeve; Fig. 9 is a similar view showing the parts in a different position of adjustment; and Fig. 10 is a detached detail, partly in section, showing the manner of transmitting motion from the motor to the binder driving shaft.

The same reference characters designate like parts throughout the several views.

1 represents the traction wheel frame, including front and rear sill members 2 and 3, respectively, connected by means of cross frame members 4.

5 represents the cutting apparatus, having the pitman 6 and crank wheel 7 associated therewith, the crank wheel being secured to the forward end of a longitudinally arranged shaft 8, having its front end journaled in a bearing 9, and its rear end in a bearing 10, the bearings being secured to the wheel frame at its stubbleward side.

11 represents a cross shaft in rear of the traction wheel and journaled in bearings carried by the wheel frame.

12 represents a main sprocket wheel secured to the traction wheel and adapted to transmit motion from the traction wheel to the cross shaft by means of sprocket wheel 13 secured to the cross shaft on its grainward end, and a chain 14 connecting the said sprocket wheel to the main sprocket wheel.

15 represents a bevel gear wheel secured to the stubbleward end of the cross shaft and meshing with a pinion 16 secured to the rear end of the crank shaft in front of the bearing box 10.

16′ represents the seat supporting pipe, 17 the operator's seat, 18 the elevator frame, 19 a supporting bracket connecting the upper part of the elevator frame with the wheel frame, 20 a sprocket wheel designed to drive one of the rollers at the upper end of the elevator, and 21 a sprocket wheel at the lower end of the elevator designed to drive the roller 22 forming part of the grain carrying mechanism.

The attachment includes an angular driving shaft 23 that is slidably received by a long sleeve 24 journaled in a bearing 25 supported by a bracket 26 secured to the bracket member 19. The sleeve is extended beyond the bearing and is threaded to receive a cylindrical block 27 that is screwed thereon and provided with a collar 28 at its inner end. A sprocket wheel 29 is journaled upon the inner end of the cylinder 27 and provided with a notch 30 upon the inner surface of its hub portion that is adapted to engage with a spring-pressed driving dog 31 mounted upon the cylinder near the wheel that is rotated in the direction of the arrow.

32 represents a sprocket wheel journaled upon the rear end of the cylinder and having a notch 33 upon the inner surface of its hub portion that is adapted to engage with a driving dog 34 mounted upon the cylin-

der and yieldingly pressed into engagement with the notch when the wheel is turned in one direction by means of the spring 35, both sprocket wheels being free to rotate upon the cylinder when moving in an opposite direction, the wheels being retained upon the cylinder by means of a separable collar 36 secured to the rear end of the cylinder.

37 represents a radially arranged stud secured to the hub of the sprocket wheel 29, and 38 is a double pawl pivotally mounted upon the stud and yieldingly held against a rocking movement by means of a pressure spring 39 operative between a washer 40 at the end of the stud and the body of the pawl. The pawl may be turned in either position by the hand of the operator, when turned in the direction shown by full lines in Fig. 8, is in a neutral or inoperative position, and when turned in the direction shown by dotted lines (same figure) is operative to rotate wheel 32 with wheel 29 by having one of its pawls engaging with one of the walls of a notch 41 in the adjacent face of the wheel 32, and when the pawl is turned in the direction shown in Fig. 9 wheel 29 is caused to rotate with wheel 32, the opposite pawl engaging with the opposite wall of the notch. Secured to the rear end of the shaft 8 is a sprocket wheel 42, and a chain 43 transmits motion from the shaft 8 to sprocket wheels 21, 20 and 29, the latter driving the binder driving shaft by means of the dog 31, connecting it with the cylinder 27 that rotates the long sleeve 24.

44 represents a common type of explosive engine mounted upon a platform 45 connected with the rear end of the wheel frame, the engine including a crank shaft 46 arranged in a line parallel with the shaft 8 and binder driving shaft of the harvester, having a fly wheel 47 secured to its rear end and a sprocket wheel 48 to its forward end. A battery box 49 is supported upon the seat pipe of the harvester, and means for controlling the air admission port of the mixer includes a vertically arranged rod 50 mounted in bearings and having a hand lever 51 at its upper end within convenient reach of the operator, and a crank arm 52 at its lower end that is connected with the port controlling means by a link 53. A chain 54 connects the sprocket wheel 48 with sprocket wheel 32, and 55 represents a tightener for the chain that is adjustably mounted upon a bracket member 56 secured to the engine supporting platform.

In operation all the operative parts of the harvester and the motor may be driven by power transmitted from the traction wheel if the double pawl be turned by the operator to the position shown by dotted lines in Fig. 8 which is desirable in starting the motor; or power may be transmitted from the motor to all the operative parts of the harvester in a manner to supplement that of the traction wheel if said pawl is in the position shown in Fig. 9, and if the pawl is in a neutral position, as shown by full lines in Fig. 8, the sprocket wheel 29 and 32 may rotate independent of each other and at different rates of speed; for if the motor causes sprocket wheel 32 to rotate at a higher rate of speed than wheel 29, the pawl 31, carried by block 27, will ride freely within the hub of wheel 29 and will not assist in driving it; and if wheel 29 is caused to rotate at a higher rate of speed than wheel 32, then the block 27 carrying the pawl 34 will turn freely within the hub of wheel 32 and not affect the operation of the motor, the power of the motor will be transmitted to the binder driving shaft alone, and the motion transmitted from the traction wheel to sprocket 29 will not be transmitted to sprocket 32 and thence to the motor. If the draft team advances beyond their normal rate of speed and the engine speed remains normal, the traction wheel will through its chain and gear connection with the cross shaft 11 and the longitudinally arranged shaft 8, having chain connection with the sprocket wheels 29, 20 and 21, drive all the operative parts of the harvester independent of the motor. If the speed of the team be below normal rate, the motor if running at its normal rate will drive the binder mechanism through its chain connection with the sprocket wheel 32 mounted upon the driving shaft 23 independent of the traction wheel when the double pawl 38 is in a neutral position.

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

1. A harvester including, in combination, a traction wheel and other operative parts associated therewith, means for transmitting motion from said traction wheel to the operative parts of said harvester, said means including a sprocket member journaled upon one of said parts, a pawl mechanism connecting said sprocket member with said operative part in a manner to drive it in one direction only, a second sprocket member journaled upon the same operative part, a pawl mechanism connecting said second sprocket member with said operative part in a manner to drive it in the same direction as said first sprocket only, a motor attached to said harvester, and power transmitting means connecting said motor with said second sprocket member.

2. A harvester including, in combination, a traction wheel and a binder driving shaft, means for transmitting motion from said traction wheel to said shaft, said means including a sprocket member connected with said shaft by means of clutch mechanism and adapted to drive it in one direction

only, a second sprocket member connected with said shaft by means of clutch mechanism and adapted to drive it in the same direction only, a motor attached to said harvester, and power transmitting means connecting said motor with said second sprocket member.

3. A harvester including, in combination, a traction wheel and a binder driving shaft, a sleeve journaled upon said harvester and having said shaft slidably connected therewith, means for transmitting motion from said traction wheel to said sleeve, said means including a sprocket member journaled upon said sleeve, a spring-pressed dog operative between said sprocket and said sleeve whereby the latter is driven in one direction only, a second sprocket member journaled upon said sleeve, a spring-pressed dog operative between said second sprocket and said sleeve whereby the latter is driven in one direction only, a motor attached to said harvester, and power transmitting means connecting said motor with said second sprocket member.

4. A harvester including, in combination, a traction wheel and a binder driving shaft, a sleeve journaled upon said harvester and having said shaft slidably connected therewith, means for transmitting motion from said traction wheel to said sleeve, said means including a sprocket member journaled upon said sleeve, a spring-pressed dog mounted upon said sleeve and adapted to engage with said sprocket member whereby said sleeve is driven in one direction only, a second sprocket member journaled upon said sleeve, a spring-pressed dog mounted upon said sleeve and adapted to engage with said second sprocket member whereby said sleeve is driven in the same direction as when connected with said first sprocket member, a double pawl mounted upon said first sprocket member and adjustable in one direction to engage with said second sprocket member in a manner to cause said second sprocket member to rotate in the direction of rotation of the said sleeve, and when said pawl is adjusted in an opposite direction to cause said first sprocket member to rotate with said sleeve, and a motor attached to said harvester, and power transmitting means connecting said motor with said second sprocket member.

BERT R. BENJAMIN.

Witnesses:
M. J. KABALANZA,
ALFRED M. CHRISTIAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."