

No. 788,205.

PATENTED APR. 25, 1905.

J. E. GOODHUE.
CORN HARVESTER.

APPLICATION FILED JAN. 25, 1905.

3 SHEETS—SHEET 2.

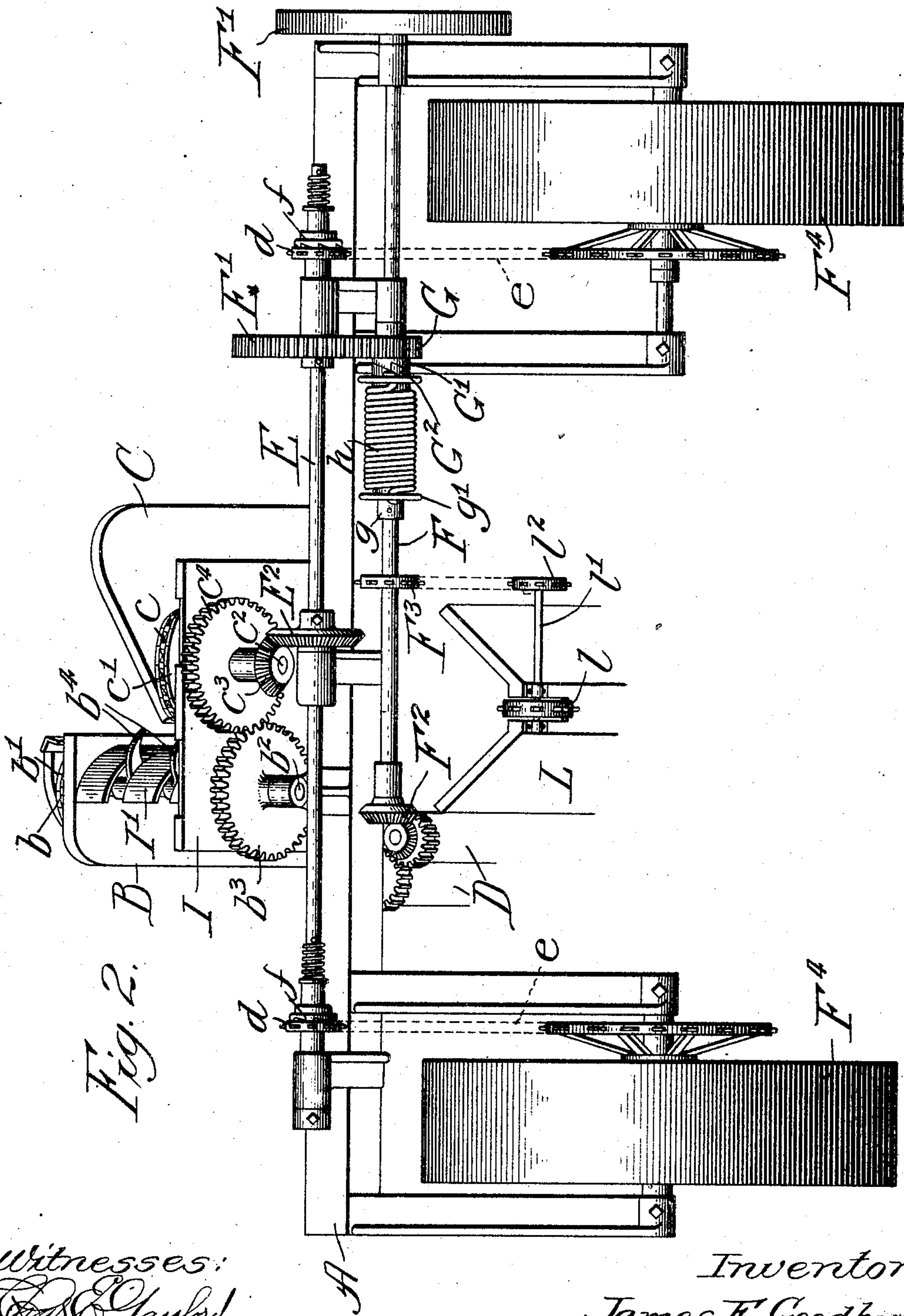


Fig. 2.

Witnesses:
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John Enders

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3 SHEETS—SHEET 3.

Fig. 3.

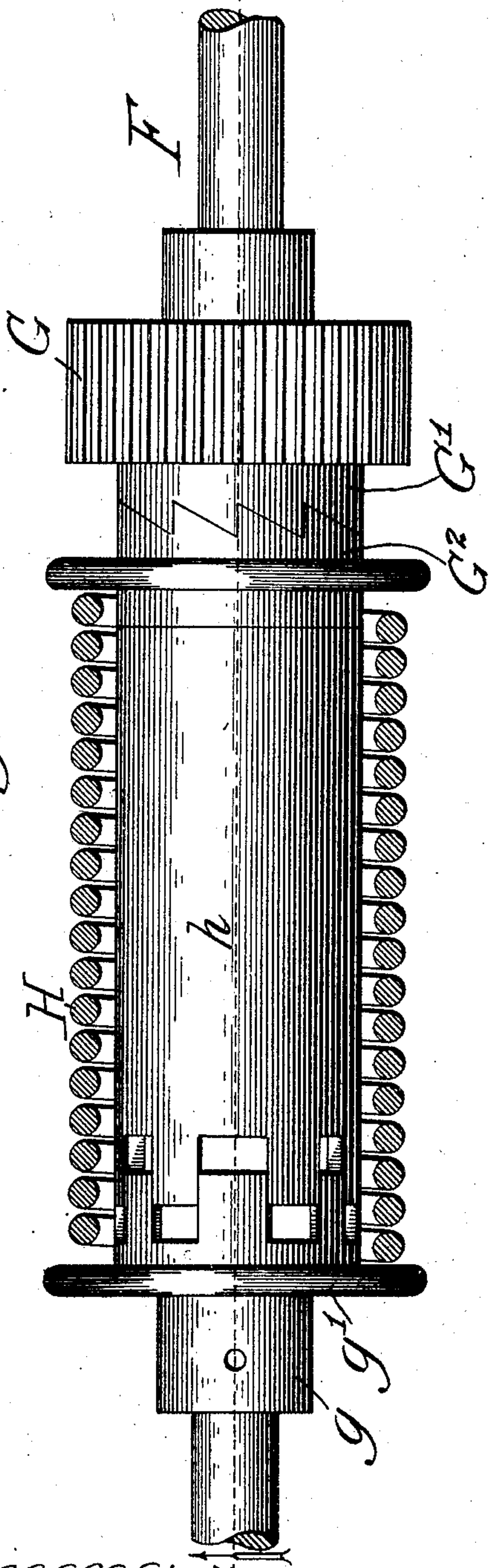
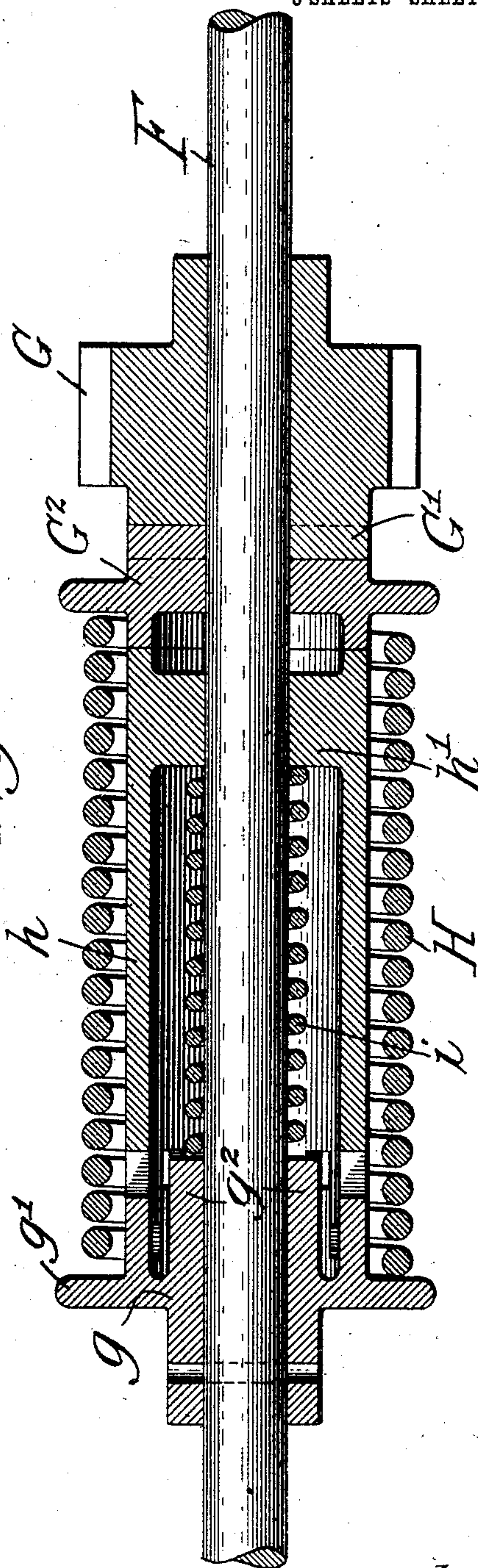


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES E. GOODHUE, OF ST. CHARLES, ILLINOIS.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 788,205, dated April 25, 1905.

Application filed January 25, 1905. Serial No. 242,644.

To all whom it may concern:

Be it known that I, JAMES E. GOODHUE, a citizen of the United States, residing at St. Charles, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Corn-Harvesters, of which the following is a specification.

My invention relates to an improvement in corn-harvesters of the class which gather the ears from standing stalks in the field, and is in the nature of an improvement upon the construction shown and described in Letters Patent No. 779,078, granted to me January 3, 1905.

My object is to simplify the construction of the machine, provide it with means for reducing the power necessary for starting it, and also to provide it with means which tend to reduce the danger of the machine becoming clogged in operation.

In the present case I show my improvements applied to a machine adapted to operate upon a single row only of corn-plants, and as the general construction of such machines is well known I show only so much of the machine in the accompanying drawings as is considered necessary to make clear the construction and operation of the features which constitute my present invention.

Referring to the drawings, Figure 1 is a dotted side elevation of the machine, with those features which relate more particularly to my present improvements in full lines; Fig. 2, a somewhat enlarged broken rear elevation of the machine; Fig. 3, a greatly-enlarged, broken, and partly sectional view of a snapping-roller-actuating counter-shaft and yielding starting mechanism thereon for the rollers; and Fig. 4, a section taken on line 4 in Fig. 3.

A is the main frame of the machine, carrying the usual wings B C, provided with pick-up and guiding shoes *a*, which between them guide the stalks into the bite of snapping-rollers D. The snapping-rollers illustrated are shown and described in a separate concurrent application filed by me January 3, 1905, Serial No. 239,389. Mounted on the wings B C are the usual stalk-engaging gathering-chains *b c*, which coöperate with the wings in

properly guiding the stalks through the machine.

E is the main drive-shaft of the machine, provided with sprockets *d*, geared to the main wheels or running-gear F¹ by means of chains *e* in a common manner. Between the sprockets *d* and shaft E are the usual clutch devices *f*, whereby the drive-shaft may be thrown into and out of operation. On the drive-shaft are a gear-wheel E' and a bevel gear-wheel E².

F is a counter-shaft journaled in the frame and provided at one end with a fly-wheel F' and at its opposite end with a beveled pinion F², which drives the snapping-rollers D, as indicated. Loose upon the shaft F is a pinion G, meshing with the gear-wheel E'. Keyed or pinned to the shaft F in the position shown is a collar *g*, and integral with the pinion G is a clutch member G'. Also loose upon the shaft F is a collar G², forming a clutch member coöperating with the clutch member G'. Confined between the clutch member G² and the collar *g* is a sleeve *h*. A heavy spring H is fastened at one end to a flange *g'* on the collar *g* and at its opposite end to a similar flange on the clutch member G². The spring fits loosely around the sleeve *h*, and the adjacent edge portions of the latter and the collar *g* mesh into each other, as indicated in Figs. 3 and 4. Within the sleeve *h* and confined between the hub *h'* thereof and the hub *g'* of the collar *g* is a spring *i*, which tends normally to press the sleeve in the direction of the pinion G and maintain the clutch members G² G' in engagement.

As is well understood, the power necessary to start a moving object like the machine in question is much greater than that necessary to keep it in motion when once started, and the object of the mechanism described is to relieve the power from a material amount of the resistance of the moving parts of the machine in the starting operation. A fly-wheel F' is desirable, if not necessary, to contribute toward uniform turning of the snapping-rollers while in operation. When the machine is first started on its forward movement, the main shaft E is rotated from the running-gear F¹ and through the gear E' rotates the pinion G. The engagement between the

clutch members G' G^2 causes the latter to rotate with the pinion G , and as the only connection between the parts G^2 and g is through the spring H the resistance against initial
 5 turning of the counter-shaft F winds up and tensions the spring around the sleeve h until such tensioning fully overcomes the resistance of the shaft F and causes the same to rotate with the pinion G . The members g h
 10 are held normally slightly apart by the spring i while in intermeshing engagement, and the sleeve h may slide to a limited extent in the direction of the collar g to permit the clutch members G' G^2 to slide upon each other when
 15 the machine is suddenly stopped to prevent strain upon the shaft under the inertia of the fly-wheel. The spring H , as will be understood from the foregoing description, operates as a yielding gradual pick-up or starting
 20 means for the counter-shaft and the fly-wheel and snapping-rollers rotated thereby. Owing to this construction, the machine, as I prefer to build it, may be operated ordinarily by a team of two or three horses, while with-
 25 out the spring starting mechanism described the power necessary to start the machine would be much greater and cause a strain upon the moving parts, which it is desirable to avoid.

30 The chain c is driven by a sprocket-wheel c' on a shaft c^2 , carrying a beveled pinion c^3 , meshing with the pinion E^2 , and the chain b is driven by a sprocket-wheel b' on a shaft b^2 , carrying a gear-wheel b^3 , meshing with a gear-
 35 wheel c^4 on shaft c^2 . As is well known, the office of the chains b' c' is to guide the stalks and move the upper end portions thereof and hold them until they are drawn downward through the snapping-rollers, the stalks be-
 40 ing drawn downward between the middle and end portions of the rollers in a common manner while being overridden by the machine.

Mounted on the main frame and extending over the gear-wheels b^3 c^4 beneath the chain sprocket-wheels is a guard-plate I , on which
 45 leaves, parts of stalks, and the like waste material are deposited when torn off as the stalks are dragged in the downward direction. Were this material allowed to accumulate upon the
 50 guard plate or platform I it would tend to fall onto the snapping-rollers and clog the same. To prevent this, I provide upon the shaft b^2 throw-off fingers b^4 , curved as indicated, which move through slots in a vertical
 55 curved guard-plate I' , extending upward from the platform I . Thus in the rotation of the shaft b^2 the fingers b^4 rotate and throw the waste material from the platform onto a guard plate or chute K , which is hinged at its up-
 60 per end to the platform I .

It will be understood, particularly with a knowledge of the operation of my aforesaid patented corn-harvesting machine, that as the
 65 plants by the snapping-rollers they are de-

posited in a trough L , mounted in the machine, as shown, and provided in its base with a backwardly-traveling belt or conveyer-chain. The conveyer chain or belt is driven
 70 from the sprocket-wheel l shown, which is upon a shaft l' , carrying a sprocket-wheel l^2 , driven by a chain (not shown) from a sprocket-wheel F^3 on the shaft F . The ears when de-
 75 posited in the trough are thus moved to the rear end of the machine and dropped onto a chute m , which guides them into an elevator n , also mounted on the frame in a common
 80 manner. The guard-plate K directs the waste material so that it is discharged past the rear of the elevator, as indicated in Fig. 1.

While I prefer to construct my improvements as shown and described, they may be variously modified in the matter of details of construction without departing from the spirit of
 85 my invention as defined by the claims.

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

1. In a corn-harvester, the combination with the frame, running-gear and snapping-rollers, of a drive-shaft for said rollers, and a yielding,
 90 starting and driving connection interposed between the shaft and rollers.

2. In a corn-harvester, the combination with the running-gear and snapping-rollers, of snapping-roller-driving mechanism actuated
 95 from the running-gear, and a resilient connection coöperating with said mechanism to yieldingly control the starting and stopping operations of the rollers.

3. In a corn-harvester, the combination with
 100 the running-gear and snapping-rollers, of snapping-roller-operating mechanism provided with a fly-wheel, and a yielding starting and driving connection between the running-gear and said mechanism.

4. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, and a yielding, start-
 110 ing and driving connection between the said main shaft and the counter-shaft.

5. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, a fly-wheel on the
 115 counter-shaft, and a yielding, starting, and driving connection between the said main shaft and counter-shaft.

6. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and
 120 main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting, and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and ro-
 125 tated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member, a collar keyed to the counter-shaft, and a
 130

starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member.

7. In a corn-harvester, the combination with
5 the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, and a yielding, starting and driving connection between the said main shaft and the counter-shaft, comprising
10 a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member,
15 a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member, and a slidable sleeve surrounded by the spring.

8. In a corn-harvester, the combination with
20 the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting and driving connection between the said
25 main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally
30 engaging the first said clutch member, a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member, and a slidable

sleeve surrounded by the spring and inter- 35 meshing with the said collar.

9. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting
40 and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally
45 engaging the first said clutch member, a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and
50 said second clutch member, a slidable sleeve surrounded by the spring and intermeshing with the said collar, and a second spring within the sleeve pressing said second clutch member normally into engagement with the first
55 said clutch member.

10. In an ear-gathering corn-harvester, the combination with the traveling frame, snapping-rollers, gathering-chains and driving
60 means therefor on the frame, of a waste-material-receiving platform at the rear ends of the gathering-chain, and rotary throw-off fingers above the platform actuated from said driving means.

JAMES E. GOODHUE.

In presence of—

J. H. LANDES,

L. HEISLAR.