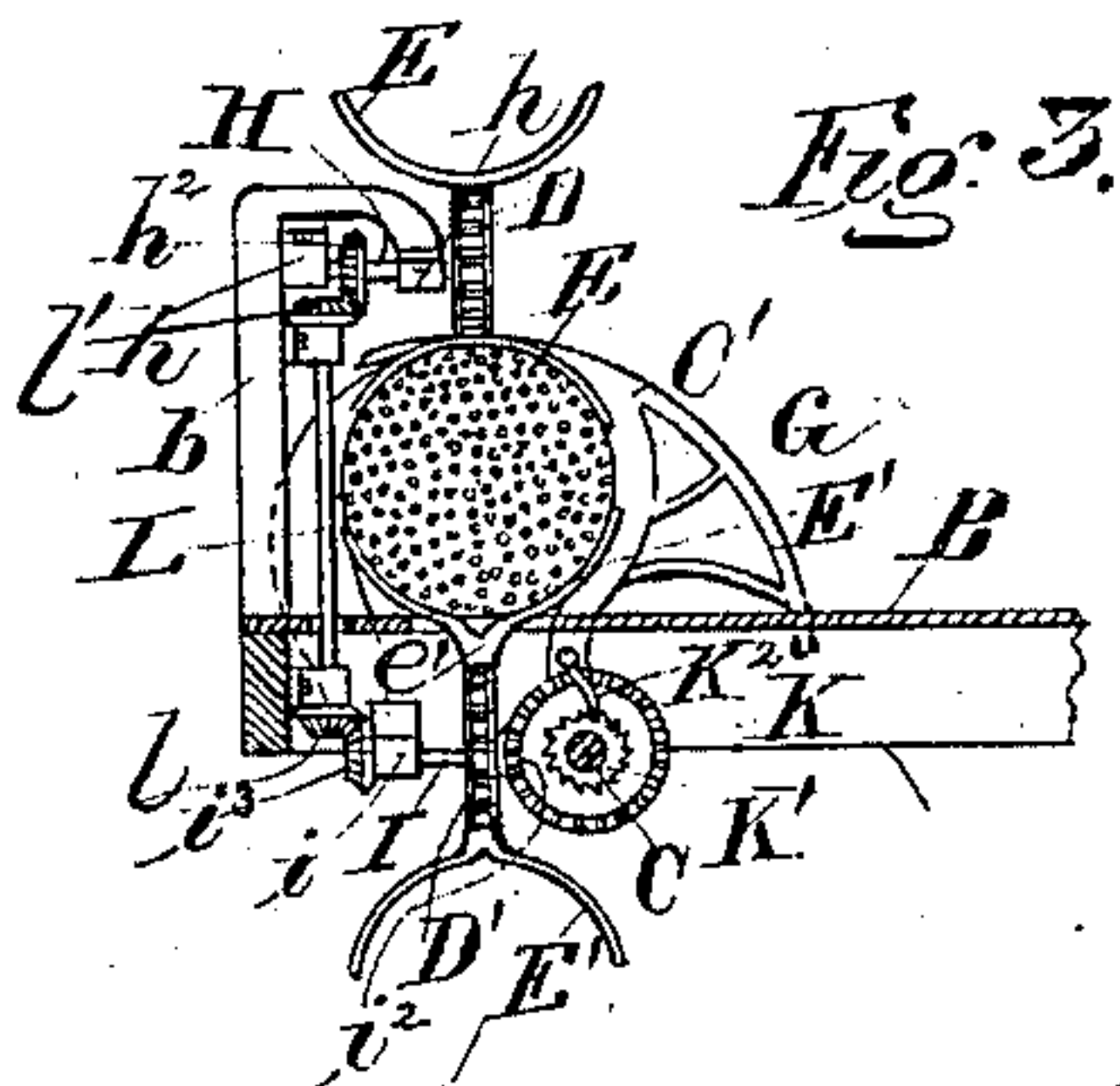
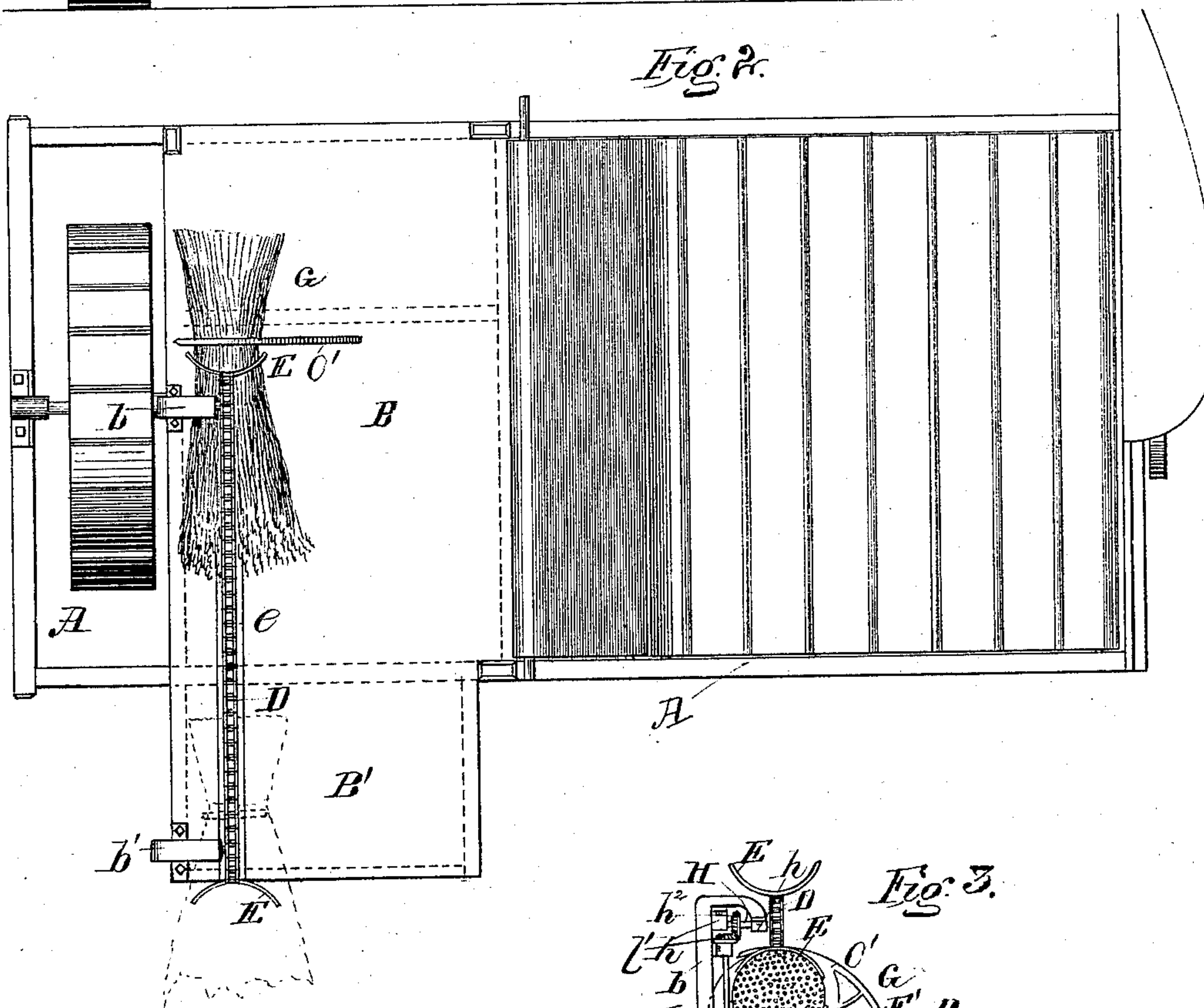
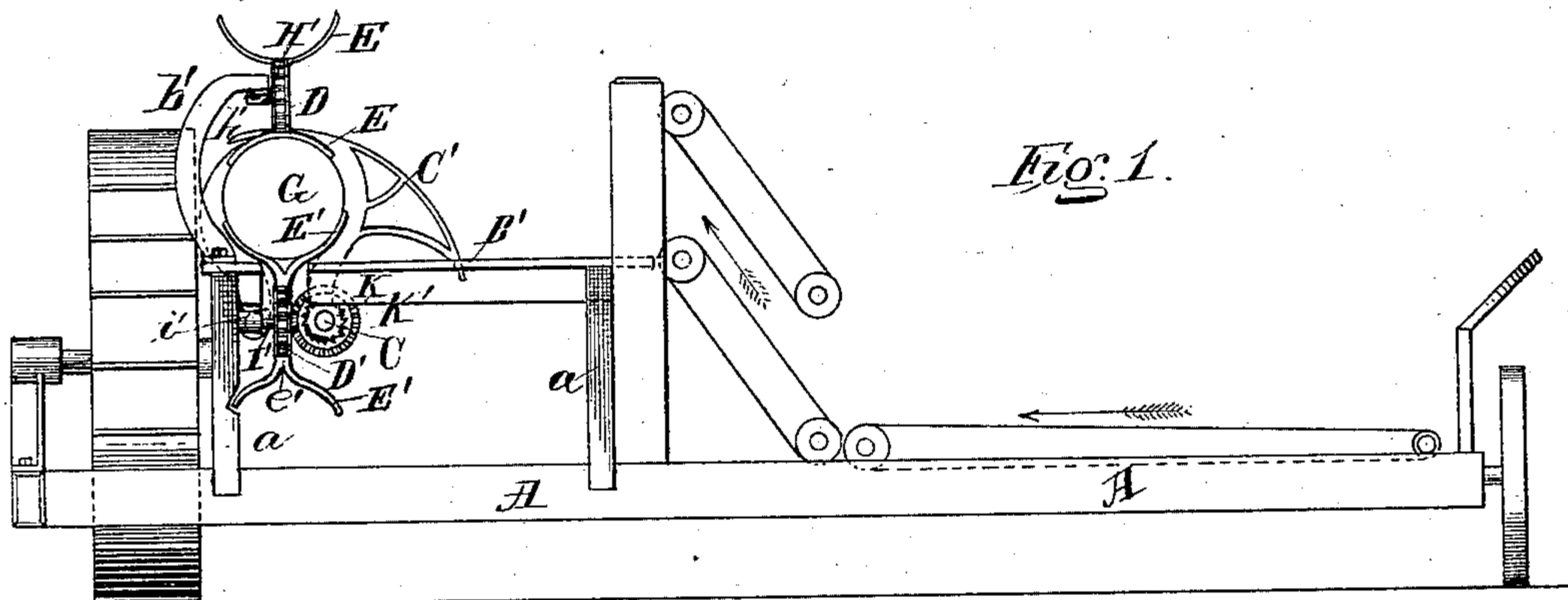


2 Sheets—Sheet 1.

BUNDLE DISCHARGING DEVICE FOR GRAIN BINDERS.

Patented Sept. 25, 1883.



Witnesses:

E. G. Hussey
W. Kaunheimer.

Inventor:

Charles M. Young

By

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Attorneys.

(No Model.)

2 Sheets—Sheet 2.

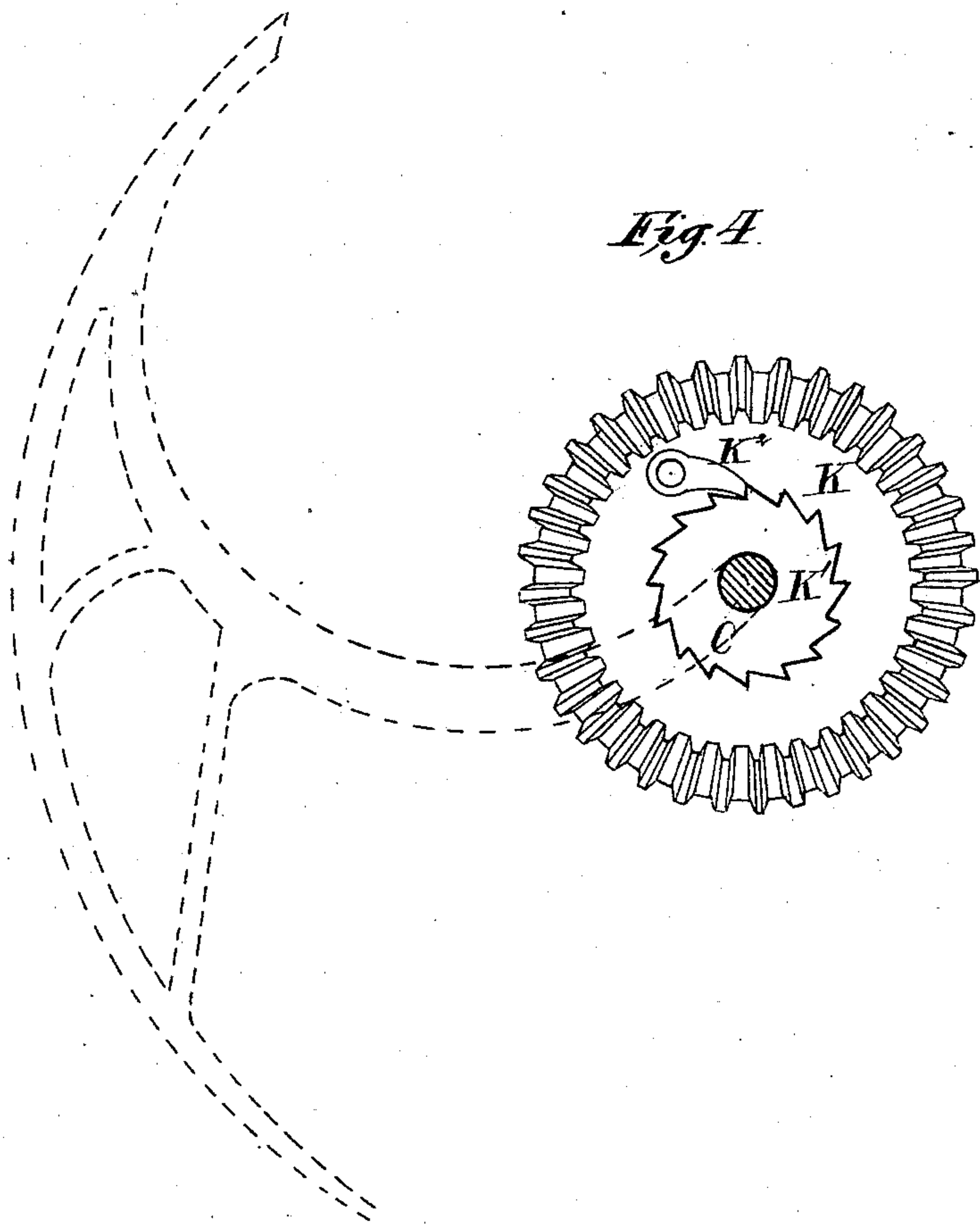
C. M. YOUNG.

BUNDLE DISCHARGING DEVICE FOR GRAIN BINDERS.

No. 285,540.

Patented Sept. 25, 1883.

Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES M. YOUNG, OF MILWAUKEE, WIS., ASSIGNOR OF ONE-THIRD TO THE DENNETT HARVESTING MACHINE COMPANY, (LIMITED,) OF SAME PLACE.

BUNDLE-DISCHARGING DEVICE FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 285,540, dated September 25, 1883.

Application filed May 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. YOUNG, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Bundle-Discharging Devices for Grain-Binders; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to grain-binders; and it consists in a device for discharging the bundles from the binder-table as fast as they are bound, as will be more fully set forth herein-after.

In the drawings, Figure 1 is an end elevation of a portion of a grain-binder embodying my device. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal vertical central section, and Fig. 4 is a detail view of a modification.

A A represent the harvester-frame, and B the binder-table, of which B' is an extension supported by braces *a a*.

C is the needle-shaft, and C' the needle operated thereby.

From near the outer edge of the table-extension B' there rises a bracket, *b'*, and another bracket, *b*, rises from the center of one edge of the binder-table B.

D and D' are two endless chains, one running horizontally above the binder-table and the other running horizontally below said table. The upper chain is provided with the two crescent-shaped holders, E E, and the lower chain with two similar crescent-shaped holders, E' E', except that as those on the lower chain have to project above the table they are preferably formed with shanks *e'*, which pass through a long slot, *e*, in the binder-table and its extension. The bundle G is held or clamped between two of these holders E and E', and conveyed by them and the endless chains D and D' along the binder-table and extension to the rear edge of the latter, and there thrown to the ground, while the other holders at the other end of the chains are preparing to seize a fresh bundle and convey that along the table B and off over the edge of the extension B', and so on. - The endless chains are supported on and operated by sprocket-wheels, those for the upper chain, D, being on the outer end of the

shaft H and stud or shaft H', supported in boxes *h* and *h'*, secured to the brackets *b* and *b'*, respectively, while the sprocket-wheels for the under chain, D', are supported on the shaft I and shaft or stud I' beneath the binder-table by the bearings or boxes *i* and *i'*. If the sprocket-wheels which support the outer ends of the chains D and D' be simply idlers mounted on studs, (which is the preferred construction,) then the stud H' may be attached to the upper part of the bracket *b'* and the stud I' to one of the braces *a* that support the binder-table extension; but I regard these details as immaterial, so far as relates to the precise manner of attachment and support.

Power is communicated to operate my device from the needle-shaft C in the following manner:

K is a bevel-gear wheel, which is provided with a ratchet-wheel, K', integral or rigid therewith and turning loosely on the needle-shaft, and which may be held in place by suitable collars on the needle-shaft.

K² is a pawl secured to the arm of the needle C', which engages with the ratchet K', so that while the needle makes its forward stroke the pawl passes over the ratchet without effect; but when the needle is on its backward travel the pawl K² engages with the ratchet K' and revolves the wheel K, the cogs of which mesh with those of a pinion, *i*², on one end of the shaft I, and this shaft has another bevel-pinion, *i*³, at its other end, and this pinion meshes with a pinion, *l*, at the lower end of a vertical shaft, L, secured in suitable bearings to the bracket *b*, and whose upper end bears another pinion, *l'*, which in turn meshes with a pinion, *h*², on the shaft H, and thus, as this train of gearing is set in motion by the backward travel of the needle, after a gavel has been bound the lower and upper sprocket-wheels on the shafts I and H revolve simultaneously, and thus the chains D' and D move equally just one-half of their entire length, (this half-revolution of the chains being insured by the proper proportioning between the length of the chains and the size, number, and distance apart of the cogs on the gearing,) and one pair of the holders E' and E firmly hold the bundle just tied between

them, and, as the chains continue their movement, convey it along the binder-table and extension and off over the rear edge of the latter just as the other pair of holders are drawn into
 5 place to seize and hold the next bundle as soon as it is bound and move that backward and off, when the needle again travels backward.

A very important advantage of my present
 10 invention is that the binder may be placed on the grain-side of the road-wheel, and not elevated above it, and thereby the width of the machine is much decreased, and the grain does not require to be elevated as much as in the
 15 ordinary machines in general use, and the bundle, after being discharged, will fall a less distance, and thus decrease the tendency to thrash out the grain therefrom.

In place of making the wheels K and K' integral and loose upon the needle-shaft, it is
 20 obvious that my device would work equally well if, for instance, the ratchet-wheel K' was independent of the bevel-wheel K, and only the latter loose upon the needle-shaft, while
 25 the ratchet-wheel was rigid with said shaft, and the pawl K² was connected to the bevel-wheel K, instead of to the needle-arm, as shown in Fig. 4; or I might substitute friction-clutches for the transmission of power, instead of the
 30 pawl-and-ratchet device, though ordinarily I

prefer to construct my device as hereinafter shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters
 Patent, is—

1. A device for discharging bundles of grain from a grain-binder, consisting in endless chains above and below the binder-table, provided with holders adapted to clasp the bundle between them and carry it backward and
 40 discharge it from the machine, substantially as set forth.

2. A device for discharging bundles of grain from a grain-binder, consisting in endless chains above and below the binder-table, provided with holders adapted to clasp the bundle between them and carry it backward and
 45 discharge it from the machine, in combination with a train of gearing adapted to be operated from the needle-shaft, whereby the said chains
 50 are moved half their length at each backward movement of the needle, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, on this 9th day of May, 55
 1883, in the presence of two witnesses.

CHARLES M. YOUNG.

Witnesses:

H. G. UNDERWOOD,
 M. KAUMHEIMER.