

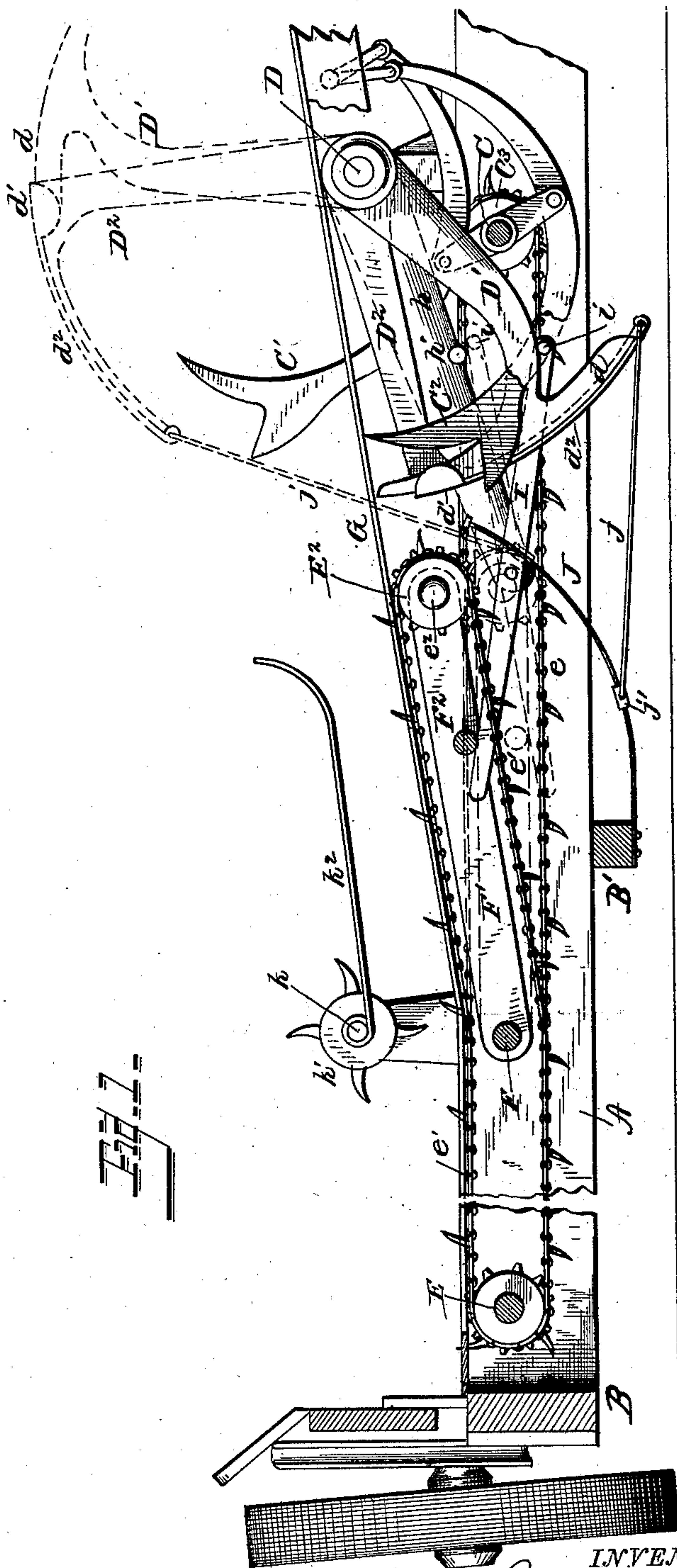
(No Model.)

2. Sheets—Sheet 1.

J. F. SEIBERLING.
GRAIN BINDING HARVESTER.

No. 311,040.

Patented Jan. 20, 1885.



WITNESSES
F. L. Ouraud
Rex Smith

INVENTOR
John F. Seiberling
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Attorney

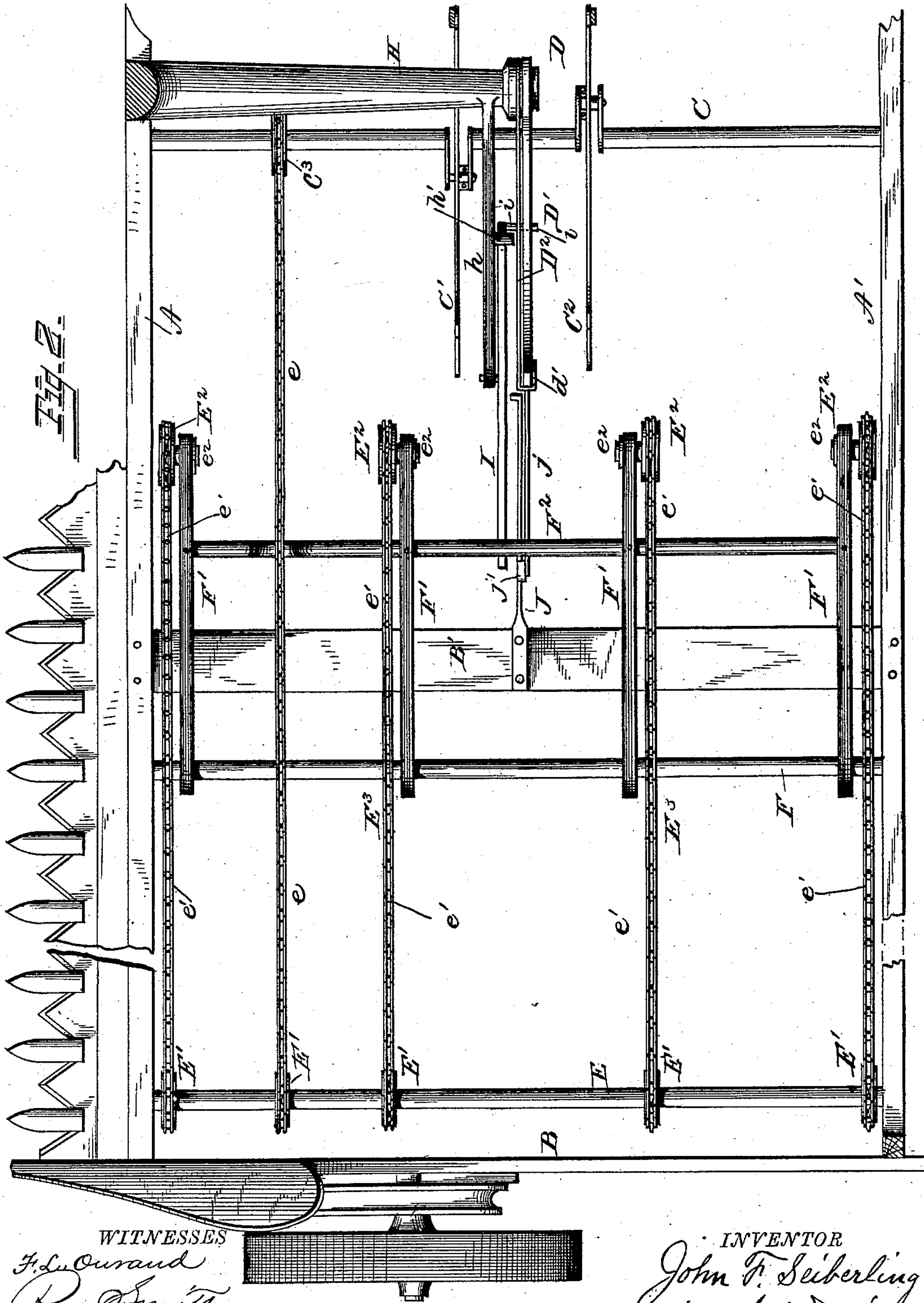
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UNITED STATES PATENT OFFICE.

JOHN F. SEIBERLING, OF AKRON, OHIO.

GRAIN-BINDING HARVESTER.

SPECIFICATION forming part of Letters Patent No. 311,040, dated January 20, 1885.

Application filed October 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. SEIBERLING, of Akron, county of Summit, and State of Ohio, have invented a new and useful Improvement in Grain-Binding Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to that class of grain-binding harvesters in which the grain is bound upon an inclined elevating-table, and in which, also, the needle and packers are operated from beneath said table, passing up through slots therein. In this class of machines, in which the needle has to be withdrawn below the table and within the contracted space between said table and the surface of the ground, it has been found difficult to provide the needle with a guard of sufficient length to stop the upward movement of the grain behind the needle during the operation of binding the compressed gavel in front of the needle without at the same time rendering it liable, when the needle was retracted, to be caught by the ground, and thereby bent and injured or broken. It is desirable also to check the movement of the grain from the carrier and to prevent its being crowded up on the table against the needle or needle-guard referred to while the binding mechanism is in operation, with the needle above the table.

In the invention for which Letters Patent were granted to me December 19, 1882, No. 269,332, the movement of the grain to the binding mechanism was stopped by holding the grain away from and beyond the reach of the conveyer-teeth; and in an application filed by me on the 5th day of July, 1883, Serial No. 100,028, the needle was described as provided with a sliding guard, forming a needle-guard extension designed to remedy the difficulty above referred to relative to the length of the guard. In the present construction I check the flow of the grain and the crowding of the needle-guard thereby by dropping the carrier-teeth away from the grain, and thereby preventing their reaching it when the needle is up and the binding mechanism in operation, and I connect the needle-guard or the sliding extension thereof

above referred to with a rod or guideway under the table by a sliding link, serving as a guard and effectually preventing the grain from being crowded under or against the needle when up, and so interfering with its being retracted.

In the accompanying drawings, Figure 1 represents a transverse section, looking from the rear, of so much of a grain-binding harvester as is necessary to show my improvements; and Fig. 2 is a plan or top view of the same with the conveyer or gatherer removed.

A and A' represent the front and rear sills of the platform-frame, connected by suitable longitudinal bars, B and B', and extend at their inner ends to within close proximity with the plane of the adjacent side of the driving-wheel, (not shown,) to accommodate and support the binder frame, table, and gearing arranged thereon in any suitable manner. In suitable bearings on said frame, or in bearing-brackets secured thereto, are mounted the main binder gear-shaft C and needle-shaft D, motion being imparted to the former from the driving-wheel in any usual or preferred manner, the needle-shaft D in practice being geared to and operated intermittently from the shaft C, as in the well-known Appleby Binder. The shaft C is provided with oppositely-arranged cranks for actuating packers C' C'', and with a sprocket-wheel, C³, from which motion is imparted through a toothed endless chain, e, to a shaft, E, forming the outer and actuating shaft of the platform rake or carrier, which, in the present instance, is shown composed of toothed endless chains e and e', passing around sprocket-wheels E' on the longitudinal shaft E, the chains e' passing around sprocket-wheels E², arranged as follows:

F represents a rock-shaft pivoted in bearings in the platform-sills, and to which the outer ends of a series of parallel bars, F', are secured, said bars extending inward beyond the cutting apparatus and inner shoe toward the drive-wheel, and being connected near their inner ends by a rod or bar, F². The bars F' are provided at their extreme inner ends with stud-axles e², on which are mounted the sprocket-wheels E², the toothed endless chains e' extending around said sprocket-wheels, as explained. The lower end of the inclined

binder-table G covers this hinged extension of the platform-carrier formed by the rock-shaft F, bars F', and chain e, and the teeth of the latter, when in operative position, project
5 up through slots in said table.

To the sleeve H of the binder-gear standard, in which the needle-shaft C has its bearings, or to any other suitable point, is rigidly secured an arm or bracket, h, in the outer end
10 of which a beam or lever, I, is pivoted at or near the center of its length, the outer end of said lever extending under the bar F² of the frame of the hinged portion of the carrier, and serving, as said lever is vibrated, to raise
15 or lower the swinging end of said carrier, for projecting its teeth up through the binder-table or for dropping them below said table, and so stopping their acting upon the grain resting upon the table. The lever I is provided at its inner end with a rearwardly-projecting spur, i, which reaches under and is adapted to be acted upon by the vibrating
20 needle, and a stop at h' on the arm h, or at any other suitable point, serves to limit the upward movement of the inner arm of the lever I when the needle is raised. The needle D' is fast on its shaft D, and is shown provided with a short guard or heel-extension, d, which, in the construction shown, is made to serve as a way
30 or track on which a hook or angular loop, d', on the outer end of the arm D² slides as the needle is vibrated. The arm D² is pivoted loosely on the needle-shaft by the side of the needle-arm, and the outer end or loop, d', is provided
35 with an arm, d², curved, like d, in an arc of a circle of which the needle-shaft is the center, said arm forming a telescopic or sliding extension of the heel or guard d; and to the heel end of this arm d², or to the heel end of the
40 guard d, where the sliding extension is not used, is pivoted one end of a short link or rod, j, the other end of which has a loop or eye, j', formed upon it, which surrounds and is adapted to slide freely on an inclined or
45 curved rod, J, secured at its lower end to a longitudinal bar, B', of the frame. The upper end of the rod J has a spur formed upon it, preventing the escape of the loop or eye j' of the link j, which is of sufficient length
50 to permit the needle to be raised to the desired point (indicated in dotted lines, Fig. 1) for carrying the band to the knoter. The link j may be used either with or without the sliding extension d² or of the guard, and serves
55 effectually to prevent the grain from being crowded behind and under the needle, and so preventing the retraction of the latter after it has been raised for carrying the band around the gavel.

60 Just over the foot of the binder-table is arranged a horizontal rod or shaft, k, supporting one or more toothed disks, k', the teeth of which enter the inwardly-moving grain and serve to move it upward on the inclined table,
65 as described in my application above referred to, and under a spring-rod or series of rods, k²,

secured to the longitudinal rod k, and which serve to hold the grain down upon the lower portion of the binder-table with a yielding pressure sufficient to insure its gradual movement inward under the pressure of the incoming grain behind it when the hinged extension of the carrier is depressed. 70

In the arrangements of parts described it will be seen that, when the needle is retracted after the operation of binding a bundle, as it descends it comes in contact with the spur i on the inner end of the lever I, and carries said end with it during the latter part of its retractive movement, thereby lifting the outer end of the lever, and with it the hinged extension of the platform-carrier, lifting the teeth of the latter up through the slots in the binder-table, for causing them to act upon and carry the grain upward thereon to within reach of the packers and needle. The upward movement of the needle in carrying the band around the bundle releases the lever I and allows the hinged end of the carrier to drop by its own gravity until checked by the action of the stop i on said lever, thereby withdrawing the teeth of the carrier-extension below the table and out of the grain resting thereon until the needle is again retracted and lifts the carrier-teeth into action, as above described. Sufficient space
95 is left between the gatherers or conveyer-disks k' and the needle and packers or binding mechanism to accommodate the grain accumulated under the action of said gatherer and the outer portion of the platform-carrier, while the needle is raised and the hinged part of the carrier depressed without crowding the needle-guards, the rods k² yielding to permit such accumulation until the hinged carrier is again thrown into action. 105

Parts of the machine not particularly described may be constructed and arranged as described in my former application referred to, or in any usual or preferred manner.

Having now described my invention, I claim
110 as new—

1. The inner end of the toothed grain-carrier suspended on movable supports under the fixed platform, in combination with a binding mechanism located at the end of the platform, and connections between said binding mechanism and grain-carrier, whereby the inner end of the grain-carrier will be caused to rise and fall automatically, and alternately project the teeth above and withdraw them beneath the platform with the action of said binding mechanism in binding a bundle, substantially as described. 115 120

2. The combination of the fixed platform, the hinged frame or support for the inner end of the platform-carrier, the needle, and the rocking lever between said needle and hinged carrier-frame, substantially as described, whereby the inner end of said toothed platform-carrier will be caused to drop down away from the action of the grain on the platform when the needle starts to do its work, and 125 130

raised up when the needle returns after having performed its operation in binding a bundle.

3. The combination, with the needle, of the
5 pivoted sliding link or guard, substantially as described.

4. The combination of the needle, the sliding link or guard connected therewith, and the guide rod or way underneath the platform, on
10 which said guard slides, substantially as described.

5. The platform-carrier composed of the

toothed endless chains e and e' , the former constituting also the drive-chain of said carrier, in combination with the movable sprocket-
15 wheels over which the chains e' pass at their inner ends, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 1st day of October, A. D. 1883.

JOHN F. SEIBERLING.

Witnesses:

HOWARD E. SEARS,

H. W. HOUSER.