(No Model.)

2 Sheets—Sheet 1.

W. R. STEINER.

HARVESTER.

No. 377,091. Patented Jan. 31, 1888.

Fig. 1.

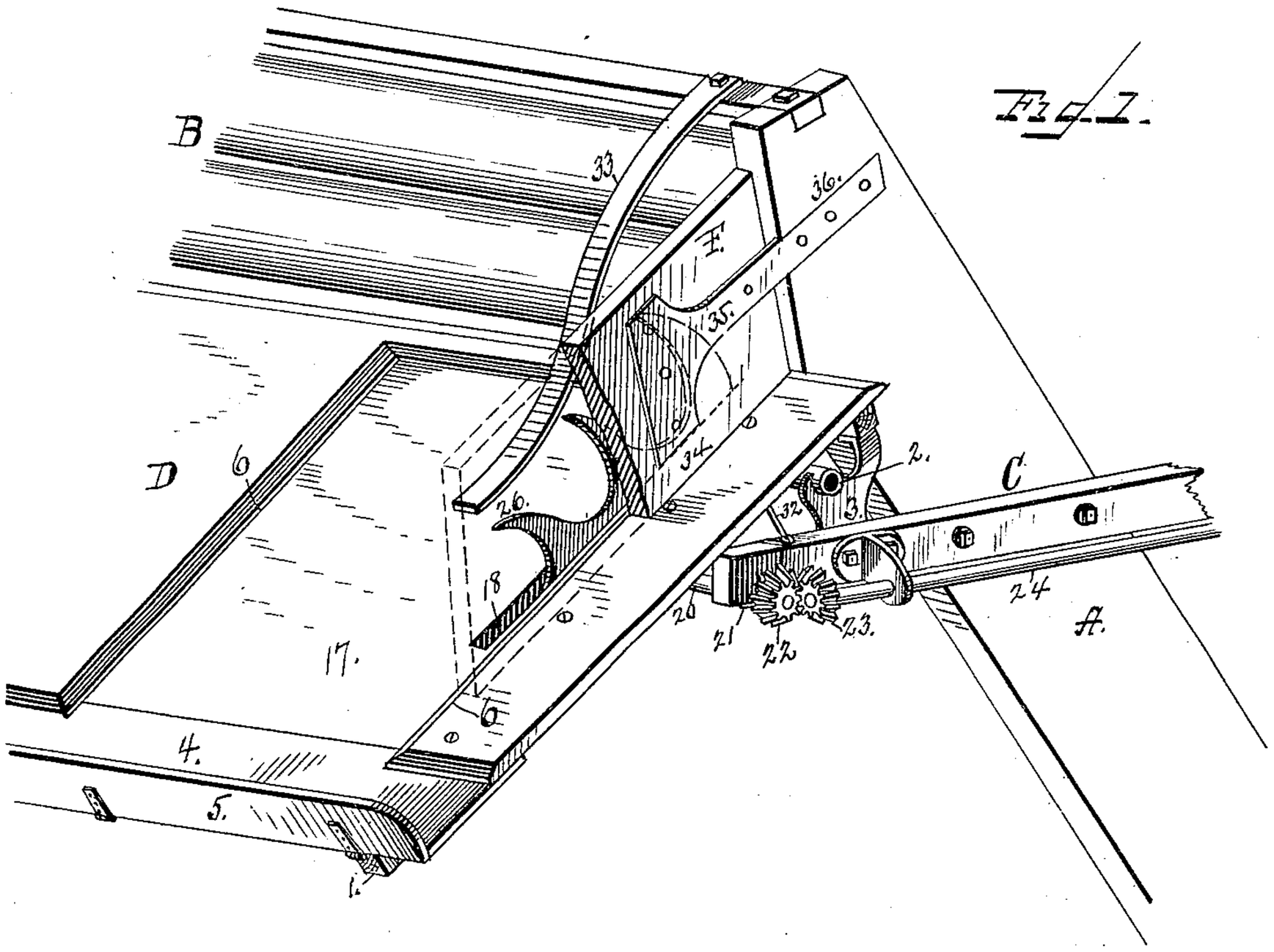
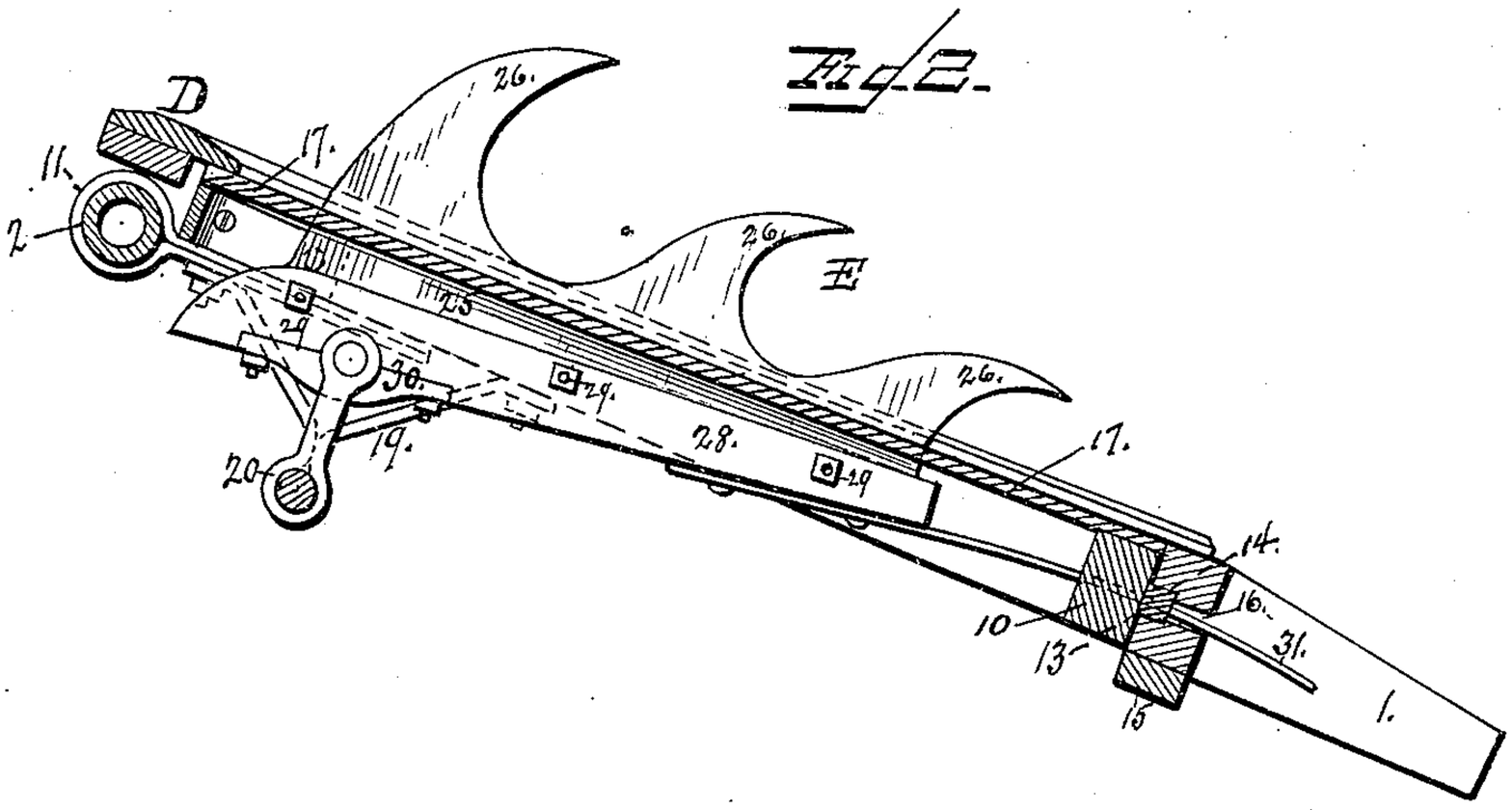


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

W. R. STEINER.

HARVESTER.

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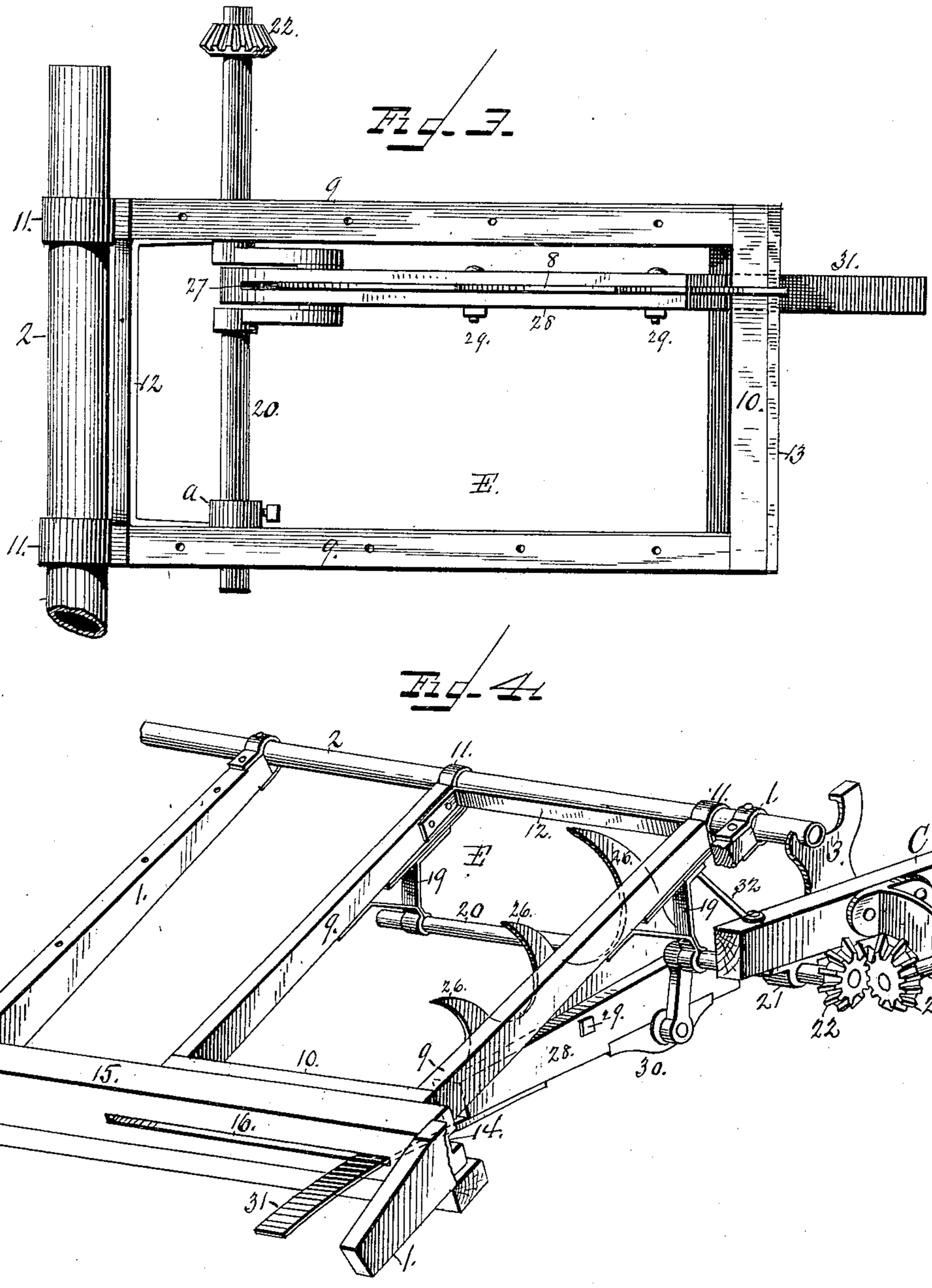

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UNITED STATES PATENT OFFICE.

WILLIAM R. STEINER, OF FREDERICK, MARYLAND.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 377,091, dated January 31, 1888.

Application filed June 23, 1887. Serial No. 242,251. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. STEINER, a citizen of the United States of America, residing at Frederick, in the county of Frederick and State of Maryland, have invented a new and useful Improvement in Harvesters, of which the following is a specification.

My invention has relation to improvements in harvester attachments, and the object is to construct a new and useful butter attachment for grain-binder harvesters.

My invention consists in combining with the shifting binding-floor of a binder-harvester a reciprocating rotary butt-rake supported in a frame arranged under the binding-floor, as will be hereinafter more fully specified.

My invention further consists in the novel construction and combination of parts, as will be hereinafter fully described, and specially, as the same is pointed out in the claims.

I accomplish the purposes of my improvements by means of the mechanism illustrated in the accompanying drawings, forming a part of this specification, and wherein similar parts illustrated in the different figures are designated by the same notations.

Reference being had to the drawings, Figure 1 is a perspective view of my improved butt-rake attached to the binding-floor of a binder-harvester, only so much of the binding-floor, elevator-rollers, and operative mechanism being shown as is essential to a proper understanding of my improvements. Fig. 2 is a side view of the butt-rake arranged in its stationary frame, the binding-floor and frame of the butt-rake being shown in section. Fig. 3 is a plan view, the floor of the butt-rake frame being removed. Fig. 4 is a perspective of the butt-rake and its immediate mechanical connections, the shifting binding-floor and the floor of the butt-rake frame being removed.

A designates the side timber or support of the elevator; B, the elevator-rollers having the usual carrying-aprons about them, and C the side timber which supports the mechanism to operate the butt-rake. These elements or parts are of the usual construction, it being intended that my improved butt-rake shall be adapted and applied to any of the approved styles of binder-harvesters. It is therefore not deemed requisite that a more particular enumeration and description of these parts be made herein.

D designates the shifting binding-table, having its sills 1 supported on and secured to the sliding rod 2, mounted to slide in bearings 3, fastened to the side timber, C, of the elevator, or supported by such other suitable means as may be used in machines of this character. The supporting-rod 2 is shown broken off; but it may be here stated that the usual construction of this rod in the part broken off, and hence not shown, is to provide it with a rack, which is engaged by a cog-wheel having a vertical shaft on the projecting end, on which is a crank-handle placed in convenient position for the operator to reach and thus shift the binding-floor and the binding mechanism.

To the outer end of the binding-table is secured the board 4, having a hinged leaf, 5, of the usual construction.

To meet the requirements of my improvements the shifting binding-table D is formed with a rectangular opening, 6, which opening is made shorter and narrower than the superficial area of the floor of the butt-rake frame, in order that the latter may at all times, under any condition of shift of the former, have its edges covered by the edges of the binding-table about the opening therein.

E designates my improved butt-rake, consisting of the frame composed of the side supports, 9, and the end piece, 10, which are of such substantialness as to meet all the purposes intended. The side supports, 9, are provided with metal sleeves 11, through which the sliding rod 2 is passed, as shown, and the side supports at this end may be connected by a cross-piece, 12, substantially as shown in the drawings. The sleeves 11 are formed to encircle the sliding rod, so as to permit it to be shifted back and forth through them without disturbance to the butt-rake frame. The end piece, 10, is formed with a tongue, 13, fitted to a groove, 14, in the timber 15 of the shifting binding-table. This same timber is also formed with a horizontally-arranged slot, 16, through which the end supporting rod or bar of the butt-rake is projected, as seen best in Fig. 4 of the drawings. On the frame of the butt-rake is secured a floor, 17, in which is a slot, 18, through which the teeth of the butt-rake pro-

ject and engage with the butts of the cut grain to carry them down on the binding-floor to proper engagement with the binding mechanism.

To the under faces of the side supports, 9, are secured hanging bearings 19, in which is mounted a crank-shaft, 20, also having a bearing, 21, on the side timber, C, and has on its projecting end a bevel-gear, 22, which meshes with a bevel-gear, 23, on a shaft, 24, mounted on the side of the machine, substantially as shown.

The butt-rake consists of a metal bar, 25, having curved teeth 26, with the points projected in the direction it is intended the straw shall be moved; and as it is not necessary to take as deep a hold on the straw at the lower part of the binding-table as when it is delivered from the elevator, I form the rake-teeth to gradually decrease in length from the first or uppermost to the last. The lower edge of the butt-rake is arranged in a groove, 27, in a back frame, 28, and is clamped therein by clamping-screws 29, projected through the back frame and the rake-plate. In the back frame of the butt-rake is secured a bearing-box, 30, which is arranged on the crank-pin of the crank-shaft, substantially as shown. On the free end of the butt-rake is secured a supporting-bar, 31, projected loosely through the slot 16 in the timber of the binding-table.

To hold the butt-rake frame in its position from shifting on the sliding bar of the binding-table, I secure one end of a brace-bar, 32, to the frame and the other end to the timber of the machine; or the double-crank shaft may have collars *a* set against its bearings to hold it and the frame from such movements.

To make the engagement of the butt-rake and the grain more certain and complete, I fix to the cross-piece connecting the side supports of the elevator a spring-bar, 33, against which the cut grain is forced as it is delivered from the elevator, and is lightly pressed down on the butt-rake teeth.

F designates the butt-board, consisting of a plain board, 34, having fixed to it a bracket, 35, formed with a projecting arm, 36, secured to the side support of the elevator. This butt-board is arranged on the edge, as seen, and so that the binding-table may shift under the edge without being obstructed by it in any way.

It will be observed that it is essential to have the butt-rake maintain a position always near the butts of the cut grain, and hence in itself must not be adjustable or shifting. This I accomplish by making the butt-rake frame set in fixed position, yet leaving the binding mechanism free to be shifted to suit the length of the grain, the shifting of the table with the mechanism thereon meeting all the demands the variance of length of straw requires. By making the butt-board with a plain smooth inner face the butts of the cut grain pass along it freely, and by the direct under engagement of the butt-rake with the straw it cannot escape from being carried down the binding-table to the binding mechanism in order, with the butts in a shapely and proper condition for binding.

My improvements do away with all the costly mechanism and apparatus now attached or fixed to the harvesters in the nature of butter-boards, and in their stead is the simple contrivance of a plain butt-board; and for the carrying mechanism contacting with the butts of the cut grain I substitute the positive and direct movements of my improved butt-rake.

What I claim is—

1. The combination, with the shifting binding-table formed with a rectangular opening at its front end, of a fixed butt-rake mounted on a crank-shaft beneath said table and having its bearings in a stationary frame provided with a slotted cover arranged under and to bridge the opening in the binding-table, and means, substantially as described, for rotating the crank-shaft, substantially as specified.

2. The combination, with the shifting binding-table formed with a rectangular opening at its front end, of a stationary frame having a cover thereon bridging the opening in the table and a butt-rake slot in the cover and mounted on supports under the shifting binding-table, a crank-shaft mounted on bearings on the stationary frame, a fixed butt-rake mounted in the stationary frame with its teeth working through the slot in the cover, one end connected with the pin of the crank-shaft and the other end supported to slide in the frame of the binding-floor, and means, substantially as described, for rotating the crank-shaft, substantially as specified.

3. The combination, with the shifting binding-table formed with a rectangular opening at its front end, and the sliding rod of the binding-table, of a stationary frame with a slotted cover arranged under the binding-table, and having its upper end supported on the shifting rod and the other arranged in a groove in the frame of the binding-table, a crank-shaft supported in bearings on the stationary frame, a fixed butt-rake arranged with its teeth working through the slot of the covering of the stationary frame, and mounted at one end on the pin of the crank-shaft and at the other end supported on a bar arranged in a slot in the frame of the binding-table, and means, substantially as described, for rotating the crank-shaft, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

WILLIAM R. STEINER.

Attest:

S. F. MARSHALL,

A. G. HEYLMUN.