To all whom it may concern:

Be it known that I, GEORGE W. MURRAY, a citizen of the United States, residing at Rembert, in the county of Sumter and State of South Carolina, have invented a new and useful Reaper, of which the following is a specification.

My invention relates to reapers; and the objects in view are to produce a cheap and simple construction of machine adapted to reap small grain, to gather the same into bundles, and to automatically dump the bundles at proper intervals upon the ground, whereby said grain may be readily gathered.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a plan view of a reaper embodying my invention. Fig. 2 is an end elevation thereof. Fig. 3 is a front elevation of the same with the front bars of the framework removed to show the construction in rear thereof. Fig. 4 is a rear elevation of a portion of the carrier-frame. Fig. 5 is a similar view, the parts being in a different position from that shown in Fig. 4. Fig. 6 is a detail view in perspective of the bell-crank rocking lever.

Like numerals of reference indicate like parts in all the figures of the drawings.

In the practice of my invention I employ an oblong framework, which in the present instance comprises the opposite side frame-bars 1, the front and rear cross-frame-bars 2 and 3, respectively, the former having attached thereto any ordinary draft device, as for instance, the ball 4. The framework further comprises intermediate cross-bars 5 and 6. The frame bars 1 between the rear cross-bar 3 and the intermediate cross-bar 6 are provided with bearings in which is journaled the transverse axle 7 having ground-wheels 8 at its outer ends. This axle has a sprocket wheel 9 fixed thereon to revolve therewith and also has splined at one side of the sprocket-wheel a master gear 10, whose hub is grooved to receive the lower forked end 11 of a shifting hand-lever 12 that is fulcrumed on a standard or yoke 13 that straddles the axle and has its terminals secured to the bars 3 and 6. A pair of handles 14 is bolted to the frame bars 1 and are connected at their rear ends by a tie-rod 15, beyond which the handles are shaped to produce suitable hand-holes.

Arranged longitudinally opposite each other in the bars 5 and 6 are bearings, in which is journaled a short longitudinal shaft 16. This shaft 16 accommodates a sprocket-wheel 17, and projects beyond both bearings. The front end of the shaft terminates in a crank 18, while the rear end has arranged thereon a pinion 19 which may be engaged by the master-gear 10 and thereby revolve as the axle rotates, or, on the other hand, by means of the shifting lever the said master gear 10, which is splined on the shaft, may be moved away from and out of contact with the pinion, and the latter therefore remain idle.

Extending from the right side of the machine and suitably secured thereto are the carrier frame-bars 20, which are connected at proper intervals by suitable tie-rods to render them rigid with relation to each other. This frame at its front side is provided with fingers 21, and mounted for reciprocation between the fingers is the knife or cutter-bar 22. Pivoted as at 23 to the under side of the frame is a vibratory lever 24, the front end of which is pivoted at 25 to the inner end of the cutter-bar or knife 22, while the rear end is pivoted as at 26 to a pitman 27, whose inner end is by means of a link 28, to which it is pivoted at 29, pivotally connected to the inner end of the crank 18 of the shaft 16, so that as will be obvious, the rotations of the shaft 16 will be communicated through the vibratory lever to the cutter-bar or knife, which will be rapidly reciprocated between the fingers and hence cut all grain admitted thereto.

Rising from the opposite bars 1 at the front of the machine is a pair of vertical standards 30, whose upper ends are connected by a tie-rod 31 and which are braced apart by means of an X-brace or frame 32, whose ends are mortised in the faces of the standards. This frame is suitably braced and is rigid, and is provided with transversely opposite bearings for the accommodation of a transverse shaft 33. The shaft 33 has a sprocket-wheel 34 thereon and receives its motion through the medium of a sprocket-chain 35 from the
sprocket-wheel 9 of the axle. One end of the shaft projects beyond one of the standards and has fitted thereto and secured thereto a reel-head 36 provided with radial reel-arms 57 connected by blades 38, the reel thus constructed being designed to revolve over the carrier-frame and to feed the grain to the cutters.

Inner and outer shafts 39 are arranged in the carrier frame-bars 20 adjacent to the inner and outer ends thereof, and the inner shaft is provided with a sprocket-wheel 40 which is revolved through the medium of a sprocket-chain 41 that is in engagement with the sprocket-wheel 17 of the short longitudinal shaft 16. The two shafts 39 of course accommodate rolls, and the latter are connected by an endless apron or belt, designated as a carrier 42, and which moves toward the outer end of the carrier-frame. The frame-bars 20 of the carrier are provided with openings, and in the same are mounted loosely the spindles 43, whose rear ends below the frame-bars are forked and have journaled therein caster-wheels 44. The length of the spindles exceed the width of the bars 20, and coil-springs 45 are located between the forks of the spindles and the undersides of the bars 20. A vertical bearing-eye 46 is located at the front of the main frame, and in the same a vertical spindle 47 is loosely mounted or revolved and may be adjusted through the medium of a binding-bolt 48 or any other desired means. The upper end of the spindle is provided with a handle 49, whereby it may be moved to the right or left, the rear end of said lever extending adjacent to a seat 50 employed for the accommodation of the operator, and supported upon suitable standards rising from the framework. The lower end of the spindle 47 is forked and receives a sprocket-wheel 51. A bracket-arm 52 of L-shape is secured to the fork and projects upward in front of the framework. A coil-spring 53 is arranged upon the spindle between the lower end of the bracket-arm and the under side of the eye 46. A lever 54 is connected with the upper end of the bracket 52, has an opening in it to loosely receive the spindle 47, and projects to the rear under the lever 43. This lever 54 may be depressed, and by so doing the entire framework will be depressed against the tension of the springs 53 and 45, so that the cutting-mechanism will sever the grain nearer the butts. The lever 54 may be locked in this position by means of a notched locking-standard 55, rising from the framework. By releasing the lever, the springs react to elevate the frame work and the cutter, so that the latter will sever the grain near the tops. I also provide means for raising and lowering the reel, and for this purpose I provide the standards 50 with a series of transverse notches 56, in which I removably seat metal bearings 57 which are provided above and below their centers with openings for the reception of bolts 58 and between the same provide the rear sides of these bearings with transverse ribs 59 designed to take into the recesses 55.

Beyond the outer roll-shaft 39 upon which 70 the carrier 42 is mounted I arrange a transverse shaft 60 and provide the same with a series of curved arms 61. These arms are arranged normally under the outer end of the carrier and are yieldingly supported in such position by means of a coil spring 62, whose outer end is attached to a bracket-arm 63 extending from the end of the carrier-frame. From the rear end of this shaft 60 extends a rock-arm 64, whose outer end is pivoted as at 65 to a link 66 whose rear end is pivoted as at 67 to a curved arm 68 that extends inwardly toward the main framework of the machine. There also extends from the shaft 60 a bell-crank lever 69 whose inner end is splined 85 upon the shaft 60 and beyond which said shaft extends and is provided with a head 70. Interposed between this head and the bell-crank is a coil-spring 71 which bears against the bell-crank and normally throws the same inward. The outer roll-shaft 39 is provided with a cam 72 which revolves therewith, and the path of the same is normally uninter rupted. The grain falling on the carrier is, by the latter, carried to the outer end thereof, where it is delivered on the curved arms 61 and by its weight causes the said arms to yield and lower against the tension of the spring 62. This operates the bell-crank lever so as to depress the same against the side of the bar 68, which, as shown, is pivoted between its ends at 74, and the said bell-crank lever the free end of which is beveled upon its inner side as shown in Fig 6 is deflected by said bar against the tension of the spring 71 so as to be moved outward against the head 70 of the shaft 60 and is thus brought into the path of the revolving cam 72, whereby it is struck and a complete dumping of the grain takes place. Owing to the action of the spring 71 the bell-crank rocking-lever is normally held in the position shown in Fig. 1, in which it is located above the bar 68, but when said rocking lever is partially depressed by the downward movement of the arms 61, the beveled side of the free end of said lever is brought into contact with the bar 68, thereby deflecting the lever and bringing it into the path of the cam. As soon as the grain is dumped, and the cam has traversed beyond the bell-crank, the spring 62 serves to return the parts to their normal position, thus leaving the cam free to rotate until a second gavel of grain has accumulated upon the arms 61, when the operation is repeated.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided a machine of simple and cheap construction, that is designed to cut grain near its tops or near its butts as desired, and may be quickly adjusted for this purpose, and which will receive the grain, form the same into bundles, and conveniently and automatically at proper inter-
vals drop the same, to be subsequently readily gathered.

I do not limit my invention to the precise details of construction herein shown and described, but hold that I may vary the same to any degree and extent within the knowledge of the skilled mechanic without departing from the principle or sacrificing any of the advantages thereof.

Having described my invention, what I claim is—

1. A reaper frame having vertical bearings, spindles arranged in the bearings and terminating at their lower ends in forked, caster wheel receiving frames, coiled springs arranged upon the spindles between the forks and under sides of the frame, in combination with means for depressing the frame against the tension of the springs, substantially as specified.

2. In a reaper, the combination with a main frame, and a carrier frame arranged at one side thereof, vertical bores in the carrier frame, spindles arranged therein and extending below the same and terminating in caster receiving forks, and coiled springs arranged on the spindles between the forks and carrier frame, of an eye at the front end of the main frame, a vertical spindle arranged thereon and terminating below the same in a caster wheel receiving fork, a bracket in front of the main frame and extending therefrom, a lever connected with the bracket and fulcrumed on the spindle, and a locking standard for the rear end of the lever, substantially as specified.

3. In a reaper, the combination with the main frame, a carrier frame, a carrier, and means for operating the same, of a transverse shaft at the outer end of the carrier provided with arms for receiving grain from the carrier, a spring for normally supporting the arms against the weight of the grain and adapted to be overcome at length by the latter, a rocking lever extending from the shaft and carried thereby, and devices arranged upon the outer roll of the carrier for striking said lever, substantially as specified.

4. In a reaper, the combination with a main frame, carrier frame, carrier, and means for operating the same, of a transverse shaft at the outer end of the carrier provided with arms for receiving grain from the carrier, a spring for normally supporting the arms against the weight of the grain and adapt it to be overcome at length by the latter, a rocking lever splined upon the shaft, a cam arranged in the path of the rocking lever and adapted to deflect the same, a spring for supporting the rocking lever in the path of the cam, and devices carried by the outer roll of the carrier-frame for striking said rocking lever and depressing the same, substantially as specified.

5. In a reaper, the combination with a main frame, a carrier frame, a carrier arranged thereon, and means for operating the carrier frame, of a transverse shaft arranged at the outer end of the carrier-frame, arms extending inwardly from the shaft below the end of the carrier, a head at the outer end of the shaft, a spring arranged on the shaft, a bell-cranked rocking lever splined on the shaft at the side of the spring and borne upon thereby, the rock arm 64 arranged on the shaft, the link 66 pivoted to the rock-arm, the immediately pivoted lever 68 pivoted at its outer end to the link 66 and at its inner end arranged in the path of and adapted to deflect the bell crank lever, and the cam 72 carried by the outer end of the outer carrier roll and adapted to strike the bell crank lever when so deflected, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. MURRAY.

Witnesses:

J. H. SIEGERS,

Geo. C. SHOEMAKER.