

(No Model.)

2 Sheets—Sheet 1.

C. P. HASKELL.
CORN HARVESTER.

No. 473,926.

Patented May 3, 1892.

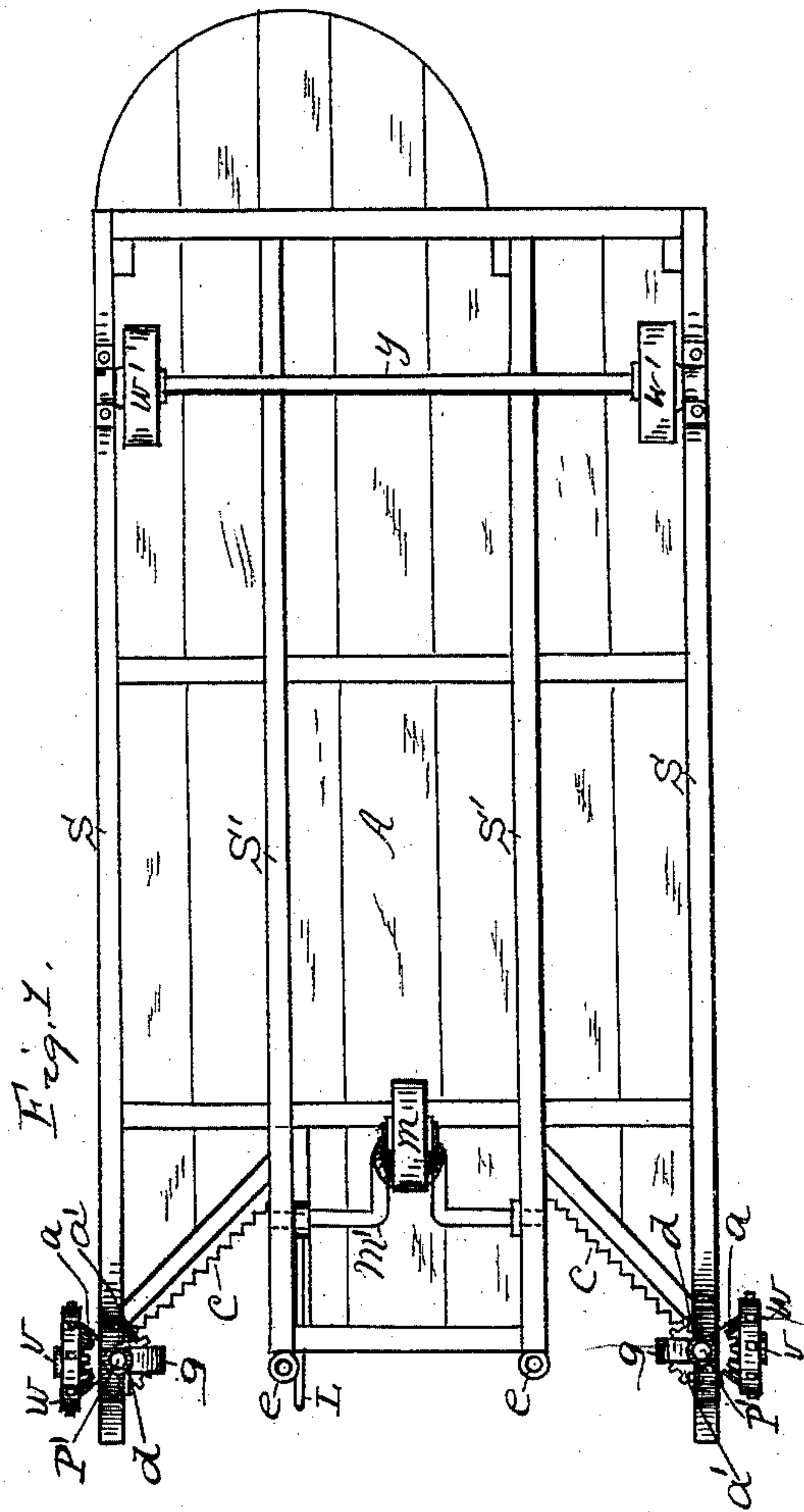
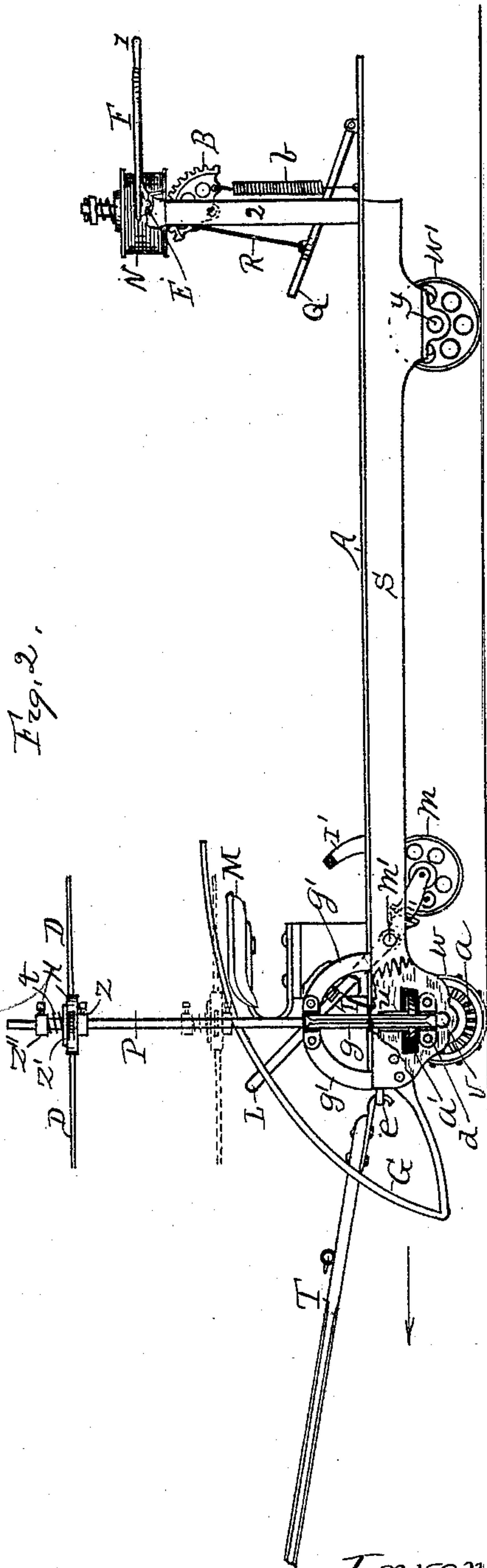


Fig. 2.



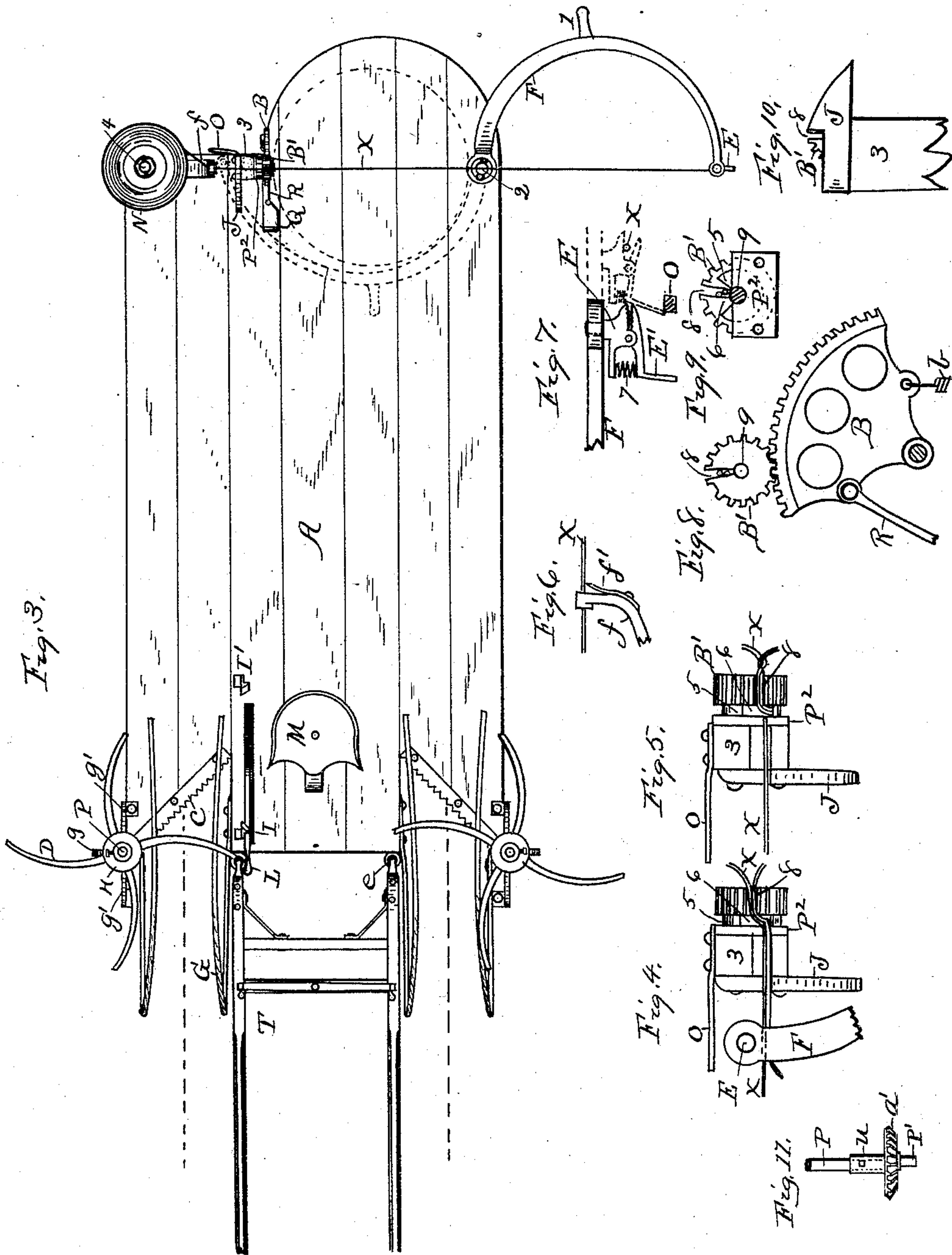
Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES P. HASKELL, OF WICHITA, KANSAS.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 473,926, dated May 3, 1892.

Application filed November 10, 1890. Serial No. 370,901. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. HASKELL, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Cornstalk-Harvesters, of which the following is a specification, reference being had therein to the accompanying drawings, and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1 is a bottom plan of the machine; Fig. 2, a side elevation of the same; Fig. 3, a top plan of the same. Figs. 4 and 5 are detailed plan views of the binding-wire holding, cutting, and twisting mechanism of the machine. Fig. 6 is a detailed side plan of a wire-guide of the machine. Fig. 7 is a detailed side plan of the grip-jaws of the binder-arm of the machine. Figs. 8 and 9 are detailed side plans of the wire holding, cutting, and twisting mechanism of the machine. Fig. 10 is a detailed side plan of the inclined wire-guide of the machine; and Fig. 11 is a detailed side view of one of the reel-operating gears, showing a portion of one reel-post stepped in the socket thereof.

This invention relates to certain improvements in harvesting-machines for cutting and binding cornstalks; and it consists of the special construction and arrangement of the several parts thereof, which improvements are fully set forth and explained in the following specification and claims.

Referring to the drawings, the frame of the machine consists of the two opposite longitudinal side beams S S, the two similar center beams S' S', and a system of cross-beams, as shown in Fig. 1, and upon this frame is laid a floor or platform A, made with a rear semicircular extending portion A', as shown. The rear portion of the frame is supported off the ground by means of the traveling wheels *w' w'*, which are fixed on the cross-axle *y*, which is journaled at each end in bearings secured to the side beams S S. The forward portion of the frame is supported off the ground when the harvester is in operation by means of the traveling wheels *w w*, which are studded by means of studs *v* (shown in Fig. 2) to the outer side of beams S S at the extreme forward end of the frame. Each

of said wheels is provided with bevel gears *a*, formed integral with its side. Above the studs of wheels *w w* the beams S S are mortised horizontally, as shown in Fig. 2, and within each said mortise is arranged a bevel gear-wheel *a'*, in mesh with the gears of wheels *w w*, which gears *a'* are supported in step-boxes *d*, fixed to the inner side of beams S S, the said gears being provided with the depending spindles P', respectively, (shown in Fig. 1,) which operate in said step-boxes. Said gears *a'* are provided on their side opposite their spindles P' with sockets *u*, which extend upward, and set in these sockets is a pair of opposite reel-posts P, which posts are supported jointly by said sockets and boxes supported by the arched standards *g'*, which standards are braced sidewise by means of the side braces *g*, which are formed at their lower ends integral with the cap of the step-boxes *d* and at their upper ends integral with the cap of the arched standard-boxes; but, however, the exact manner of the arrangement of said bracing is not essential and the said reel-standards may extend upward from either the inner or outer side of the side beams of the machine-frame, as may be desired.

Arranged upon the reel-posts P are horizontally-operating friction-driven reels consisting of a hub H, sleeved upon the post, and of the curved radially-extending arms D, adjustably held upon the post by means of a collar Z, (see Fig. 2,) and upon hub H is placed a washer Z', and above the washer a coil-spring *t*, which is held hard but yieldingly against the washer by means of a collar Z'', sleeved on the post above the spring, and by reason of said yielding pressure upon the washer it is held in contact with hub H sufficiently hard to cause the reel to rotate with the post. Two of these reels may be used on one post, if desired, as represented in Fig. 2 by the full and dotted lines. The traveling wheels *w w*, which drive the reels through the agency of said geared mechanism described, are provided with peripheral lugs, which engage and press into the ground to cause the wheels to operate at all times and not slip upon the ground.

Adjacent each reel-post the platform A is cut away a distance toward the center of the platform at an angle of about forty-five de-

grees, the lines of the angles extending from a point at the forward corners of the platform rearward toward the center of the platform, and fixed to the margins of said angles upon the platform are the stalk-cutting knives *c*, one adjacent each reel-post, as shown in Figs. 1 and 3, and in advance of each cutter *c* are arranged the guards *G*, fixed, respectively, to the sides of beams *S* and *S'*, one at each end of each cutter, with their forward portions near the ground and their upper body portions curved upward and arranged extending over and in rear of the cutters, as shown in Figs. 2 and 3.

T represents a pair of thills attached to the harvester-frame at its forward end by means of hooks of the thills being hooked into the eyes *e* of the frame, which are arranged to support the thills between the path of the cutters *c*, and fixed upon the platform in rear of the thills *T* is a driver's seat *M*.

As a means of supporting the forward end of the harvester independent of the wheels *w w* when turning or traveling upon the road I have provided the harvester with a caster-wheel *m* centrally below the driver's seat, which is supported by means of the cranked cross-shaft *m'*, journaled at each end in bearings in beams *S' S'*. This shaft is provided with a hand-lever *L*, which extends up through a slot in the platform. When thrown forward, it is held by being placed under the catch *I*, and in such position it will hold the caster-wheel turned rearward and up off the ground. When moved rearward, it will cause the cranked portion of the shaft to turn down, bring the caster-wheel upon the ground, raise the forward end of the harvester, and bring wheels *w w* off the ground. When in such position, the lever is held by being placed under the opposite latch *I'*.

At the rear end of platform *A* are arranged three posts 2, 3, and 4, each similar to the post 2 shown in Fig. 2. To two of these posts 2 and 3 is attached the binding mechanism of the harvester, and upon the post 4 is placed a spool of wire *N*, which is held by friction, so the wire will be given proper tension by means of a spring similar to those of the reels, as shown in Fig. 2. *f* is a guide through which the wire *x* is drawn from the spool, which guide is fixed to the post 4 by means of an arm extending below the spool and is provided with a spring-grip *f'* (see Fig. 6) for preventing the wire from back movement.

Pivoted to post 3, facing post 2, is a small gear-wheel *B'*, having a radial slot 8 and extending to its stud 9, as shown in Figs. 8 and 9, and secured to the inner side of wheel *B'* is a rotating cutter 5, having a recess 6 adjacent the slot 8 of wheel *B'*, which recess is of greater width than said slot, and between the said cutter and post 3 is a cutting-plate *P²*, against which cutter 5 bears. Pivoted to post 3 below wheel *B'* is a toothed segment *B*, arranged in mesh with wheel *B'*, which segment

is held to its full movement in one direction by means of the coil-spring *b*, which connects with the segment at its upper end and to the platform at its lower end. When in such position, the slot 8 in wheel *B'* will be held upright, as shown in Fig. 8. The opposite side of the segment is connected with a foot-treadle *Q*, which is fulcrumed to the platform through the agency of the connecting-rod *R*, and by pressing down on the treadle *Q* with the foot the segment *B* will be operated to rotate wheel *B'*. When the foot releases the treadle, spring *b* will return the segment and wheel *B'* to their normal position.

J is a beveled or inclined wire-guide fixed to post 3 opposite wheel *B'*, with its inclined portion extending toward the forward end of the harvester and with its offset or shoulder in line between guide *f* and the slot 8 of wheel *B'*, so that when the wire *x* is brought up from the front of the post over the guide *J* it will be held above wheel *B'* until the slot 8 of the wheel and the offset of the guide *J* are reached, when it will drop down into the wheel-slot.

F is the binder-arm, and is pivotally supported on a stud on post 2 at one end and is provided at its free end with a swiveled spring-grip *E*, consisting of a pair of jaws yieldingly held together by means of a spring 7, the lower jaw of which is provided with the depending trail-arm *E'*, and by bringing said trail-arm to bear against an object the jaws may be turned to face about, as directed by such object, and if pressed back will cause the jaws to open. This grip *E* is for the purpose of grasping and holding the wire end of the binding-wire *x*. When arm *F* is turned out, as shown in Fig. 3, the grip will hold the wire and cause it to be drawn out from the spool and to assume the position shown in Fig. 3, having been brought up over guide *J* and deposited in slot 8 of wheel *B'*. In this position of the wire the cornstalks which have been cut and deposited upon the platform, are taken by the person operating the binder and placed upright, leaning against the wire. When a sufficient quantity is thus placed, the arm *F* is turned about the side of the bundle of stalks, as represented by dotted lines in Fig. 3, thus bringing the wire around the bundle and the end of the wire adjacent the grip *E* up over guide *J* and in line with slot 8 of wheel *B'*, when it enters into the slot, together with the portion of wire previously entered.

Fig. 4 represents the position the grip end of arm *F* assumes at such times, and also shows the two wire portions in the slot of wheel *B'*. When this is done, the foot of the operator is placed upon the treadle and it is pressed down quickly, which action will cause wheel *B'* to rotate and carry with it the rotary cutter 5, and as the recess 6 of cutter 5 is broader than the wheel-slot 8 the wires in being carried about with wheel *B'* will engage the cutter-plate *P²* and be bent back before the cutting-edge of cutter 5 reaches a shear-

ing position with plate P^2 , (see Fig. 4,) which hooks the wire portions within recess 6 of cutter 5, so when they are cut loose from the binding-wire connecting the spool and the short end held by grip E they may not be withdrawn from the wheel-slot 8, but be held to rotate with the wheel B' , which action will twist them together, as shown in Fig. 5, and thus bind the bundle. When discharging the bundle from the machine, said wire ends are raised from their slot, leaving the slot empty for another like operation. At this time grip E still holds the short end portion of wire cut loose in binding a bundle, as described, and to release such short piece of wire from said grip the arm is moved so the grip will pass out beyond post 3, where the trail-arm E' will engage an arm O, fixed to post 3 and arranged extending in the path of the grip. When the trail-arm E' is passing said arm O, the grip-jaws will open (see dotted lines in Fig. 7) and release the wire end. The movement of arm F being reversed, the trail-arm E' will again engage arm O, which will face about grip E toward the wire end x extending from guide f , and as the grip-jaws open they will be brought so the wire end extending from guide f will enter between said jaws. When the trail-arm is again released, the jaws will close on said wire end. The arm F being turned out, as shown in Fig. 3, the wire will again be drawn out from the spool and again placed as shown in said figure. As a convenient means of manipulating arm F it is provided with a handle 1, which the operator grasps to turn the arm in the manner described.

Each side of the cutting mechanism of the machine is made in duplicate, and in use a horse is attached to the thills to draw the harvester, and the horse travels between two rows of standing stalks, so that both cutters c are brought into contact with the stalks and cut them. The reels operate to support their tops while being cut and lay them over upon platform A when cut, and the advanced guards G act to straighten leaning stalks. The upper curved and rearwardly-extending portion of said guards act as fenders or guides to prevent the cut stalks from falling improperly upon the platform.

Two persons are required to operate the harvesters. One, who occupies the seat M, drives the horse and manipulates lever L when turning at the end of the rows of stalks, the other, standing upon the rear of the platform, gathers the stalks as they are delivered upon the platform and binds them into bundles in the manner heretofore described.

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

1. The cornstalk-harvesting machine consisting of the combination, with the platform A, formed with a beveled forward portion at each side, of the cutters c , fixed to and projecting forward from said beveled portions, the guards G, fixed to the platform-frame and

extending forward one each side of each cutter and having portions curved upward and extending over and rearward of the cutters, the traveling wheels w w and w' w' for supporting the platform horizontally, the former of said wheels having integral side bevel-gears a , the corresponding gears a' , journaled in the harvester-frame and arranged in mesh with said wheel-gears, the reel-posts P P, supported by suitable bearings and adapted to rotate with said gears, the reels having the curved arms D, supported and driven by said posts and operating horizontally above the cutters c , the caster-wheel m , supported by the crank-shaft m' , the lever L for operating said caster to bring it to bear upon the ground and raise the forward portion of the harvester, and the thills T, attached to the forward portion of the harvester between the path of the cutters for hauling the same, substantially as and for the purpose set forth.

2. In the cornstalk-harvester described, the combination, with the platform A, of the binder mechanism consisting of the curved binder-arm F, carrying the swiveled grip E and pivotally supported at one end on the post 2, the slotted gear-wheel B' and the rotary cutter 5 thereof pivoted to the side of post 3, the segment B, arranged to be operated by means of a treadle in one direction and a spring in the reverse direction for rotating said slotted gear, the stationary cutting-plate fixed to said post and arranged to shear with the rotary cutter, the guide J, fixed to said post opposite the gear and cutters, the arm O, extending laterally from said post in the path of the grip of the binding-arm, and the spool-supporting post 4, and wire-guide f f' , substantially as and for the purpose specified.

3. In combination with the binding mechanism in the harvester described, the wire holding, cutting, and twisting mechanism consisting of the slotted gear B' , the recessed rotary cutter 5, fixed to the gear, the stationary cutting-plate P^2 , arranged to shear with the rotary cutter to cut the wire, and the segment and treadle mechanism for rotating the gear to twist the wire ends to secure a bundle, substantially as set forth.

4. In the harvester described, the combination, in the binder mechanism, of the curved binder-arm F, pivotally supported at one end by means of a post and provided at its free end with the swiveled grip E, adapted to grasp and hold the binding-wire in its jaws, and the arm O, supported in the path of said grip for engaging and operating the trail-arm of said grip to open its jaws and turn it on its swivel to face it about, substantially as and for the purpose set forth.

5. In the binder mechanism of the harvester described, the combination of the slotted gear B' , carrying therewith at its side in contact with a stationary cutting-plate the rotary recessed cutter 5, the segment B, arranged in mesh with said gear, the treadle Q,

connected with said segment through the agency of rod R for giving movement to said segment to rotate the gear in one direction, and the spring *b*, arranged connecting said
5 segment for giving movement thereto to reverse the said gear when the treadle is released, substantially as set forth.

6. In the binder mechanism of the harvester described, the combination, with the
10 slotted gear B', studded to a post 3, of the inclined and offset guide J, fixed to the opposite side of the post, with its offset in line with the gear-slot, substantially as and for the purpose set forth.

15 7. In the binder mechanism of the harvester described, the combination, with the binder-arm F, of the grip E, swiveled to the free end of said arm and consisting of a pair of jaws pivoted together yieldingly, held closed
20 by means of the coil-spring 7, arranged between

rearwardly-extending arms of said jaws, and the lower jaw thereof provided with the depending trail-arm E', adapted to be engaged to open the jaws and turn about the grip, in the manner substantially as and for the purpose set forth.

8. In the harvester described, the combination, with the frame thereof, of the caster-wheel *m*, the cranked cross-shaft *m'*, bearing on its cranked portion said caster-wheel, of
30 the lever fixed to said shaft and arranged to be grasped by a person upon the harvester to operate the shaft to bring the caster upon the ground and of the catches I and I' for holding the lever, substantially as and for the
35 purpose set forth.

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