

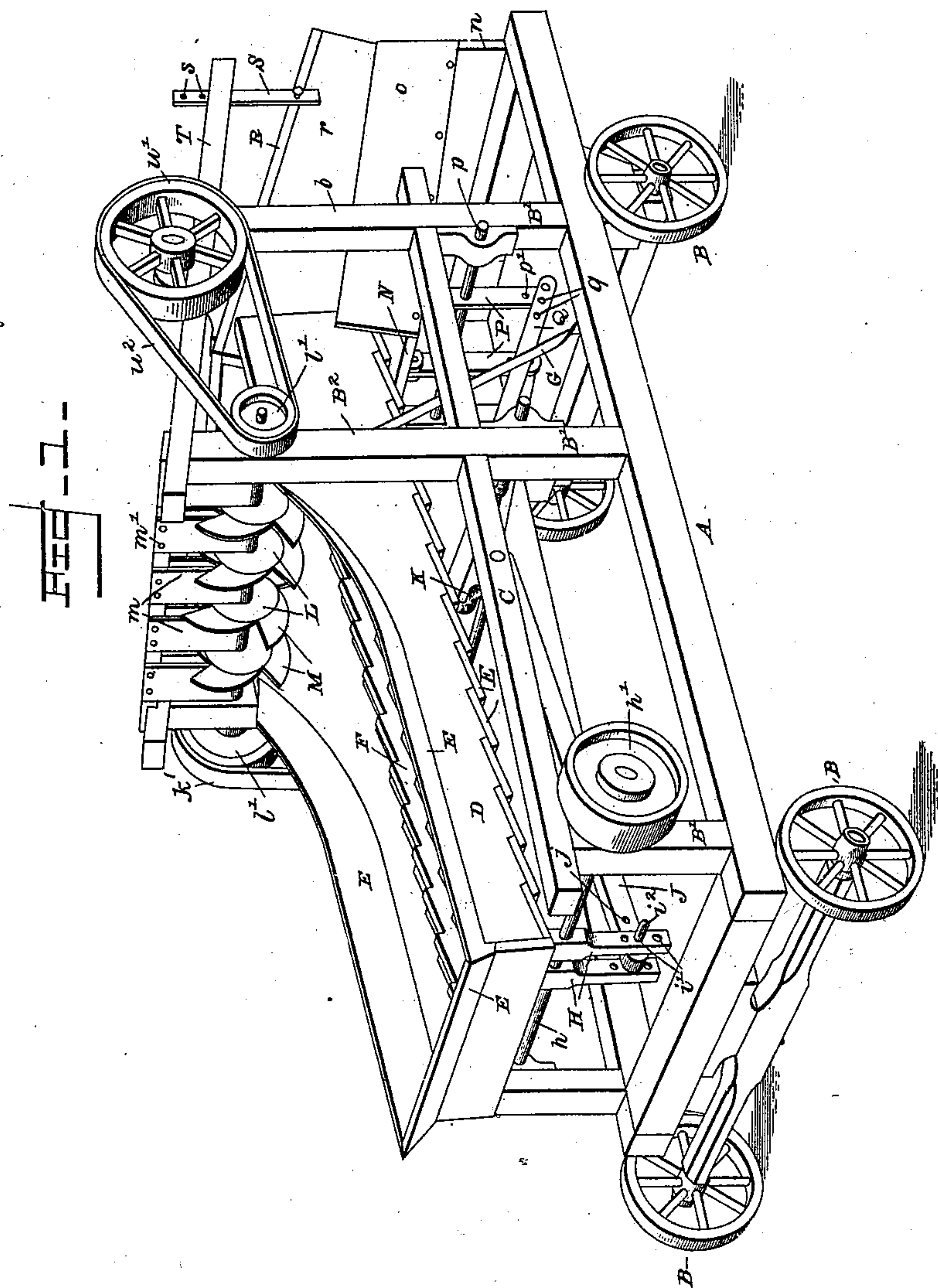
(No Model.)

3 Sheets—Sheet 1.

C. H. ZISHKA.  
BAND CUTTER AND FEEDER.

No. 504,383.

Patented Sept. 5, 1893.



Witnesses

Inventor:

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By *his* Attorneys,

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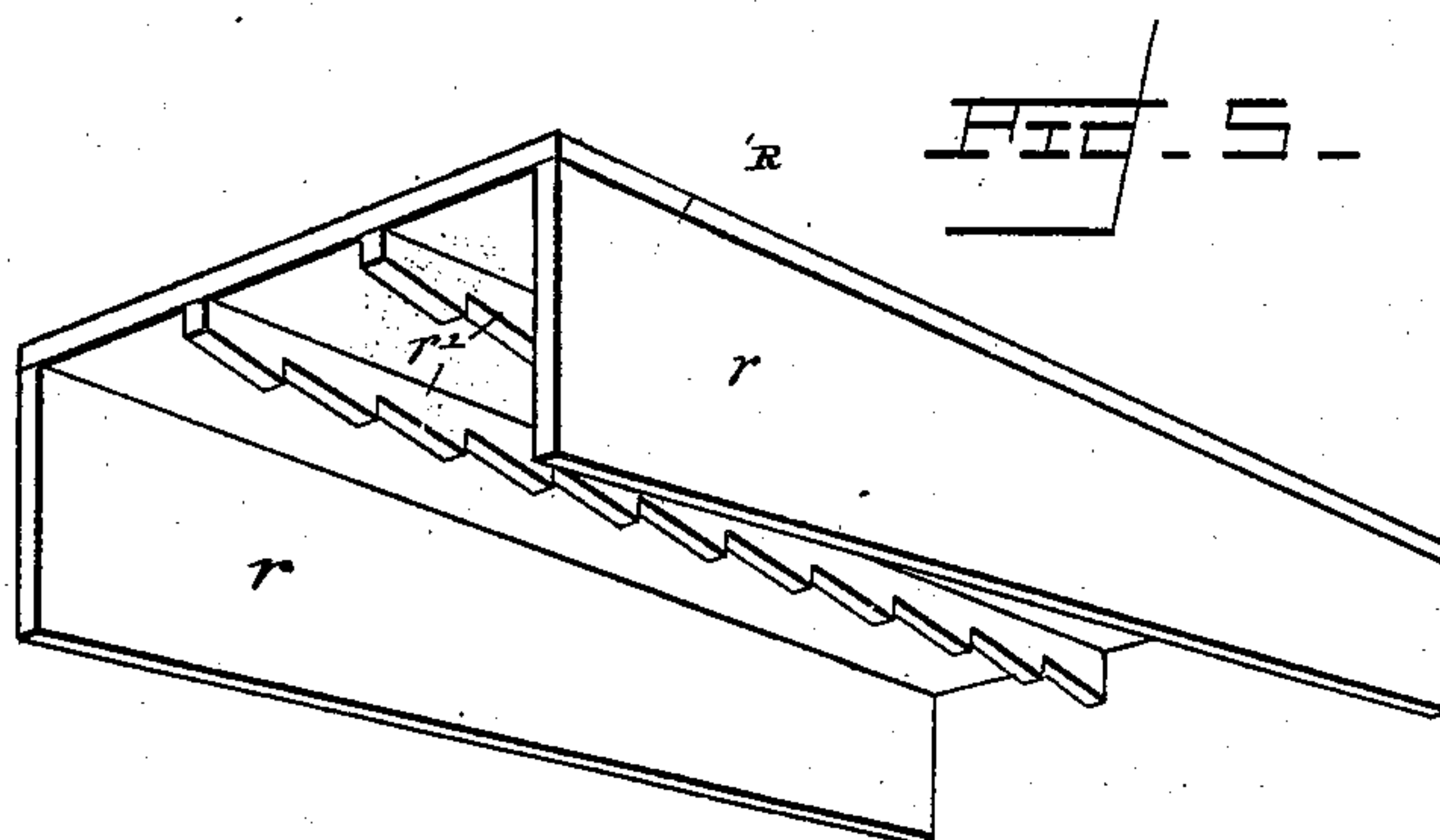
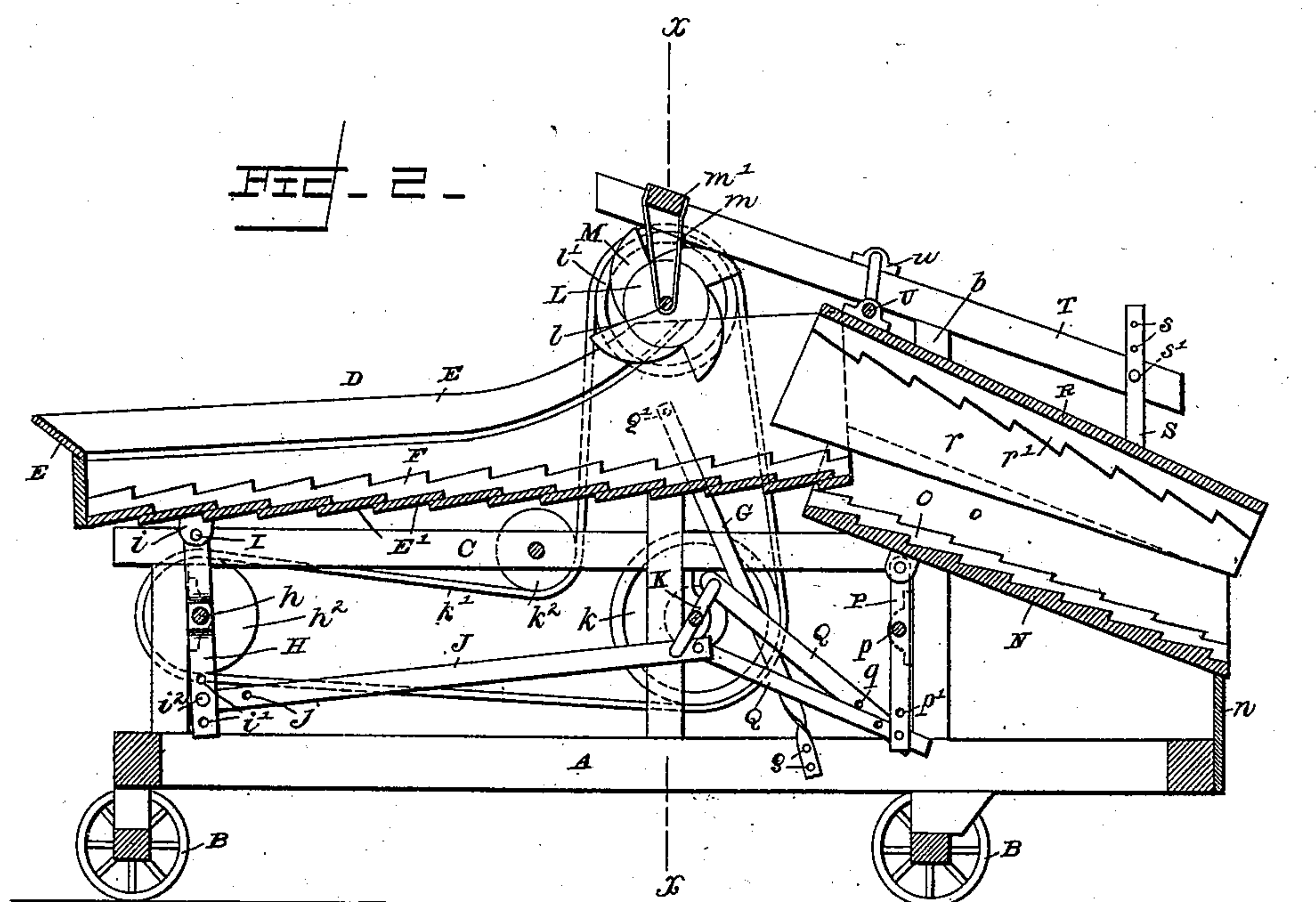
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Witnesses

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CA Snow & Co.

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3 Sheets—Sheet 3.

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FIG. 3 -

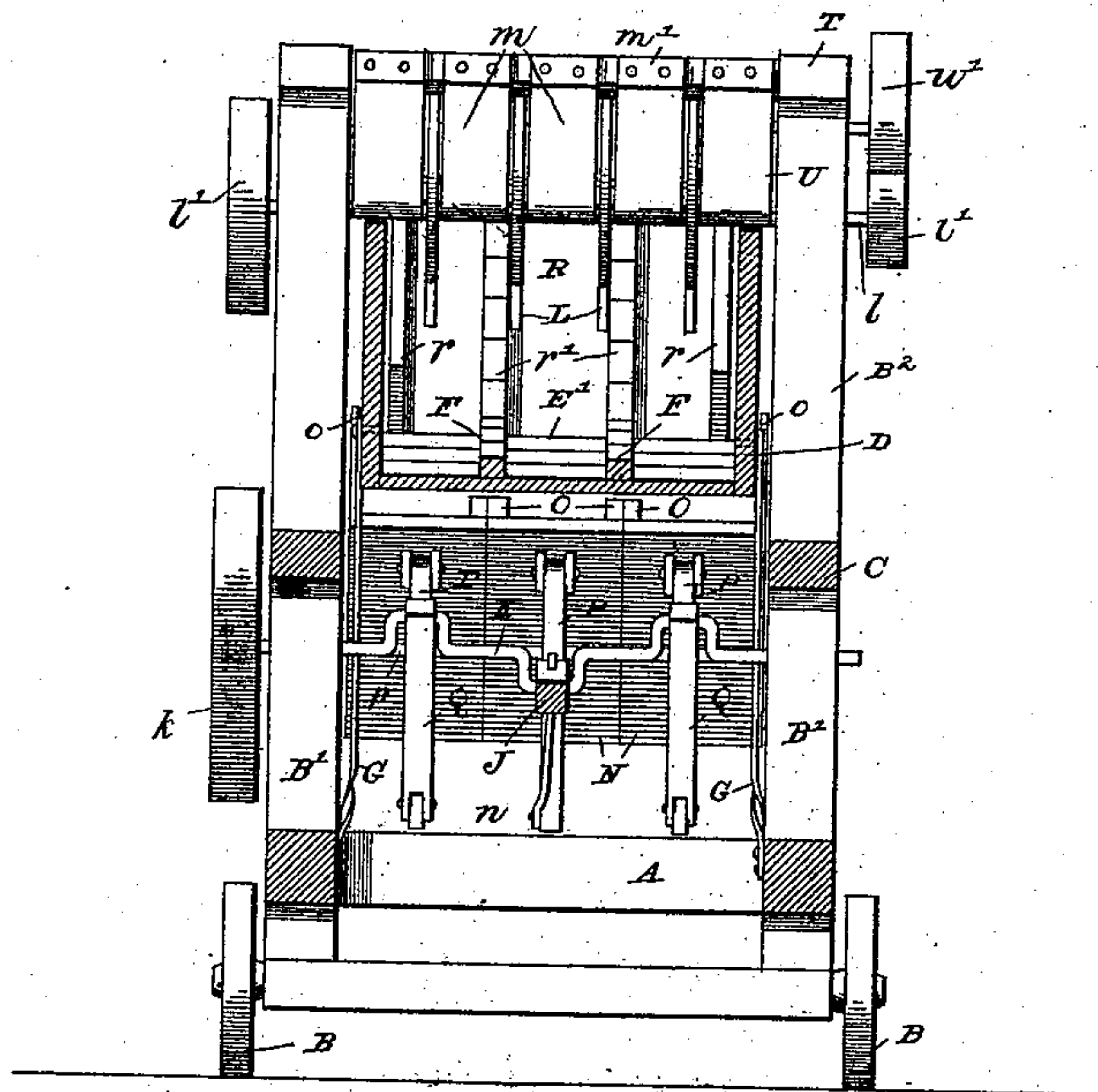
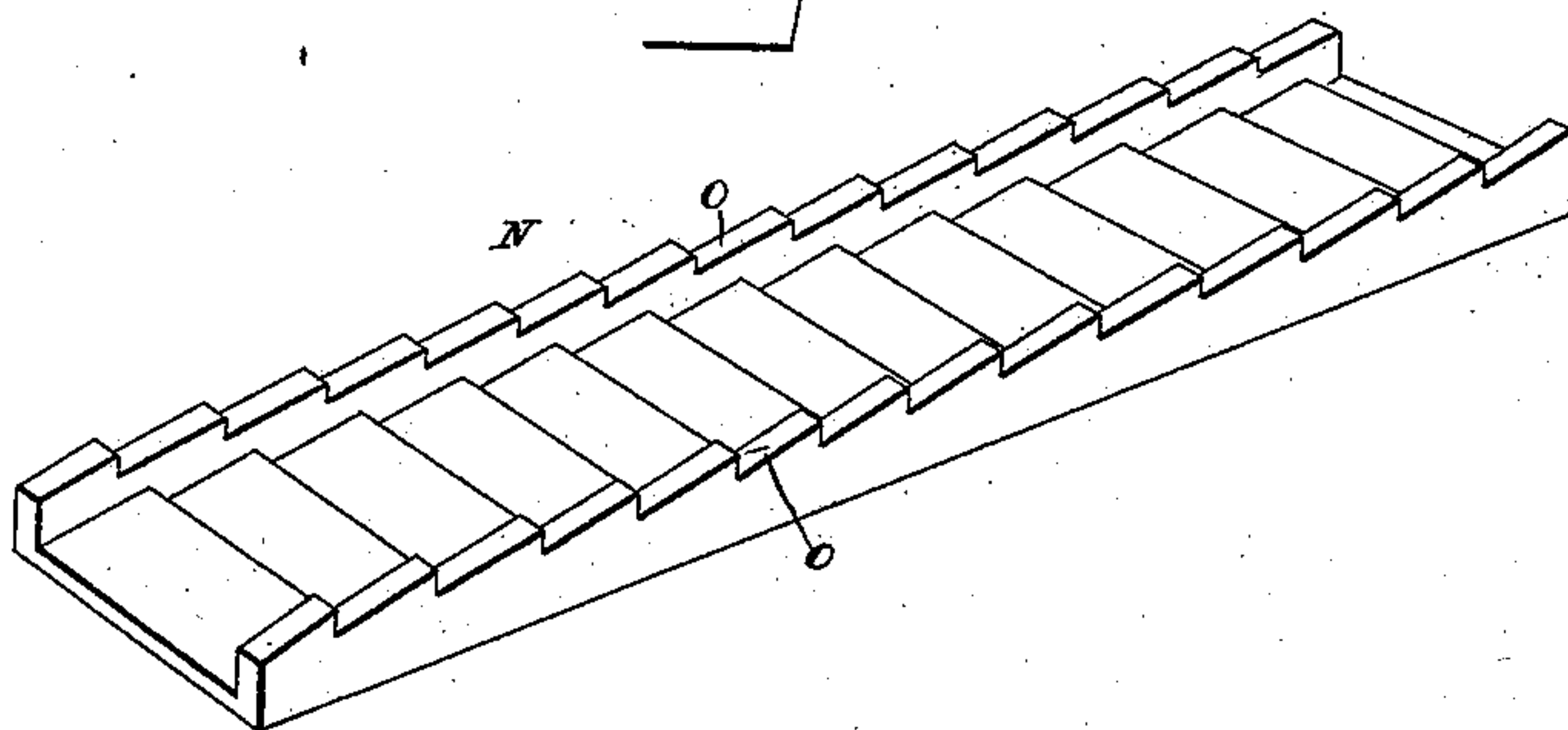


FIG. 4 -



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# UNITED STATES PATENT OFFICE.

CARL H. ZISHKA, OF SPENCER, IOWA.

## BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 504,383, dated September 5, 1893.

Application filed February 25, 1893. Serial No. 463,715. (No model.)

*To all whom it may concern:*

Be it known that I, CARL H. ZISHKA, a citizen of the United States, residing at Spencer, in the county of Clay and State of Iowa, have  
5 invented a new and useful Band-Cutter and Feeder, of which the following is a specification.

This invention relates to band cutters and feeders for thrashing machines; and it has for  
10 its object to provide certain improvements in machines of this character, whereby the cutting of the bands of every bundle is insured, as well as an equal distribution of the grain into the cylinder end of the thrasher.

15 To this end the main and primary object of the invention is to provide certain improvements in the general construction of band cutters and feeders, which are portable, so as to render the same more efficient in operation.

20 With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more  
25 fully described, illustrated and claimed.

In the accompanying drawings: Figure 1 is a perspective view of a band cutter and feeder constructed in accordance with my invention. Fig. 2 is a central vertical longitudinal sectional view of the same. Fig. 3 is  
30 a central vertical sectional view on the line  $x-x$  of Fig. 2. Fig. 4 is a detail in perspective of one of the inclined notched feed plates. Fig. 5 is a bottom perspective view of the upper vibrating feed box.

Referring to the accompanying drawings, A represents a rectangular truck frame mounted on the supporting wheels B, which provide  
40 means for transporting the machine independently of the thrasher, from place to place, to facilitate the placing thereof into and out of position for work.

Arising from opposite sides of the rectangular truck frame A, are the frame uprights  
45 B', supporting a raised horizontal frame C, inside of which moves the longitudinally reciprocating and oscillating bundle carrier pan D. The longitudinally reciprocating and oscillating bundle carrier pan D, is provided  
50 with the inclosing outwardly flared sides E, which serve to allow the bundles to be easily thrown into the said pan, and the same is

further provided with overlapping bottom boards E', forming a notched bottom the shoulders of which are disposed toward the  
55 inner open end of the pan so as to force the bundles under the cutters to be described.

Secured longitudinally on the notched bottom of the bundle carrier pan D, and parallel with each other are the notched feed bars F, 60 extending from end to end of the pan, so as to provide intermediate spaces to force the bundles on the bottom of the pan under the knives, while at the same time by this construction of pan, the bundles are forced under the knives either head or butt first, and  
65 if two or more bundles are piled on top of each other in the carrier, the top bundles slide back while the bottom bundles are carried upward and under the knives. The latter effect is due to the reciprocating-oscillatory movement of the pan, as well as having  
70 the outer end thereof disposed somewhat lower than the inner open end. The inner end of the reciprocating and oscillating pan D, is supported to swing on the inner swinging supporting arm G. The inner swinging supporting arms G, are of suitable spring material, made fast at their lower ends at  $g$ , to opposite sides of the frame A, and at their upper  
75 ends are loosely connected to the opposite inner side ends of the pan D, at  $g'$  whereby the pan is not only supported for a swinging movement, but is also assisted in its reciprocations in one direction by the tension of such  
80 spring arms. The other outer end of the pan D is supported on the upper ends of the swinging operating arms H. The swinging operating arms H, are pivotally mounted at their centers on the drive shaft  $h$ , mounted  
85 transversely at one end of the frame A and carrying at opposite ends thereof the pulleys  $h'$  and  $h''$ , respectively, the former of which receives the belt from the driving power. The upper ends of the arms H, above the  
90 shaft  $h$ , are pivotally connected to the bottom front end of the pan D, on the rod I, supported in brackets  $i$ , beneath said pan, and the lower ends of said arms H, below the shaft, are provided with adjustment perforations  $i'$ ,  
95 to receive the pin  $i''$ , adjustably connecting the outer end of the pitman, J, thereto. The outer end of the pitman J, is also provided with adjustment perforations  $j$ , which to  
100



gether with those of the arms H, provide means whereby the length of reciprocations and oscillations of the pan D, can be regulated as may be required. The inner end of the pitman J, is loosely connected to the central crank of the triple or multiple crank shaft K, journaled in bearings on intermediate uprights B', and carrying at one end a belt wheel  $k$ , which preferably receives its motion from the belt  $k'$ , passing over the wheel  $h^2$  and an intermediate belt tightener  $k^2$ . The bundles which are forced by the reciprocating-oscillatory movement of the pan D, toward the inner end thereof, are forced under a series of band cutting knives L, mounted on a transverse knife shaft  $l$ , journaled in opposite upright extensions B<sup>2</sup>, so as to be arranged over the upper edges of the opposite sides of the pan D, and said knife shaft receives its motion from the belt  $k'$ , which passes over one of the pulleys  $l'$ , on each end of said knife shaft.

Each of the band cutting knives L, comprises a series of cutting blades M, having rounded sharpened cutting edges adapted to pass through the bands of the bundles of grain, as they are forced thereunder, and arranged between the several knives, and the outer knives and the sides of the pan D, are the intermediate fender strips  $m$ . The fender strips  $m$ , encircle the exposed portions of the knife shaft between the knives, and are secured at their upper ends to the transverse supporting bar  $m'$ . The said intermediate fender strips, owing to their disposition, provide efficient means whereby the straw is prevented from wrapping on the knife shaft. The cutting knives are arranged over the bundle carrying pans so that, after the bands are cut, the movement of the pan distributes the grain evenly across the same before discharging onto the upper ends of the inclined reciprocating notched feed plates N. The said inclined notched feed plates are arranged to receive the discharge from the bundle carrying pan, and are adapted to have their lower ends slide above the upper end of the back rest  $n$ , which when the machine is placed in position is designed to rest against the frame of the separator, which is immediately in front and under the cylinder, so that the lower ends of the feed plates N, will pass over this part of the separator frame, and within a few inches of the cylinder as will be readily understood. The notched feed plates N, are further provided at their adjacent edges with the toothed flanges O, which not only serve to confine the grain onto the plate but also assist in evenly feeding the same to the cylinder of the separator, while the outer edges of the outer feed plates are provided with the upwardly extending sides  $o$ , which hold the grain onto the feed plates and form an inclined chute through which the grain is forced.

To the inner upper ends of the several

notched feed plates N are pivotally attached the upper ends of the vibrating rock arms P, pivotally mounted on the stationary rod or shaft  $p$ , suitably mounted, and provided with lower perforated ends  $p'$ , to which are adjustably connected one end of the connecting bars or arms Q. The connecting bars Q, are provided with a series of perforations  $q$ , at their ends attached to the arms P, to provide for regulating the movement of the feed plates N, and the other ends of said connecting bars are pivotally attached to the remaining cranks of the triple crank shaft K, except the central connecting bar which is pivotally attached to the inner end of the pitman, J. Now it will be readily seen that as the triple crank shaft K, is put in motion by the means described, the bundle carrying pan D, is given a lifting or oscillating-reciprocatory movement, simultaneously with the rotation of the band cutting knives and the reciprocation of the vibrating feeding plates N, so that means are provided for automatically feeding the bundles to the knives cutting the bands, and evenly distributing the grain to the separator.

Arranged to vibrate over and partly within the feed chute formed by the inclosed feed plates N, is an upper vibrating feed box R. The upper vibrating feed box R, is provided with the opposite depending sides  $r$ , which are adapted to work inside of and above the opposite sides  $o$ , of the outer feed plates N, and also the inner ends of the opposite sides of the pan D, so as to form together with the feed plates, an inclosed chute, which completely confines the grain therein, until it reaches the cylinder of the thrasher, it being readily seen that the upper vibrating feed box R, necessarily, must extend almost to the cylinder cap of the separator to make the space in front of the cylinder an inclosed one. The said box R, is further provided, between the sides thereof, with the notched feed bars  $r'$ , which combine with the feed plates to force the grain into the thrasher cylinder. The outer end of the upper vibrating feed box R, is supported on the swinging links S. The swinging links S, are pivotally attached at their lower ends to the box R, near its lower end and are provided at their upper ends with a series of adjustment perforations  $s$ , which receive the supporting pins  $s'$ , projecting from one end of the opposite inclined frame pieces T, supported on the extension uprights  $b$ , and by means of the adjustment of said arms, the space between the feed plates and the upper feed box is regulated to accommodate different kinds of grain. The said upper vibrating feed box R, receives its motion from the transverse crank shaft U, journaled on the inclined frame pieces T, at  $u$ , and carrying a pulley  $u'$ , at one end, which receives its motion from the belt  $u^2$ , passing thereover and one of the pulleys at one end of the knife shaft. It will be apparent, that as the crank shaft rotates, the upper feed box R, must necessarily be given a long swing-



ing-vibratory movement which greatly aids in the even distribution of the grain to the thrasher.

It is thought that the operation and advantages of the herein described band cutter and feeder will be apparent, and it will of course be understood that changes in the form, proportion and the minor details of construction as embraced within the scope of the appended claims, may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a band cutter and feeder, the combination of a longitudinally swinging bundle carrier pan having a notched bottom, a series of band cutting knives arranged to rotate over said pan near its inner end, and an inclined inclosed feed chute leading from the inner ends of said pan and having a vibrating top and bottom, substantially as set forth.

2. In a band cutter and feeder, the combination with the oscillating notched bundle carrier pan and the cutters thereover; of a series of alternately vibrating notched feed plates provided at their adjacent edges with toothed flanges and adapted to work under the inner discharging end of said pan and in front of the cylinder of a thrasher, and a vibrating feed box arranged over the top of and inclosing the lower feed plates substantially as set forth.

3. In a band cutter and feeder, the combination with a portable truck frame; of an inclosed feeder pan arranged within said frame, swinging supports for the inner ends of said pan, swinging operating arms arranged on a support under the outer end of the pan and pivotally connected at their upper ends thereto, a multiple crank shaft mounted on said frame under the pan, a pitman connected to one of the cranks of said shaft and adjustably to said swinging operating arms, a series of alternately-vibrating notched feed plates provided with toothed flanges at their adjacent edges and adapted to work under the inner

discharging ends of said pan and in front of the thrasher cylinder, vibrating rock arms pivotally mounted on a stationary support on the truck frame and pivotally connected at their upper ends to the upper inner ends of said vibrating feed plates, connecting bars adjustably connected at one end to the lower ends of said vibrating rock arms and at their other ends to said multiple crank shaft, and the band cutting knives, substantially as set forth.

4. In a band cutter and feeder, the combination of a longitudinally swinging bundle-carrier pan, the rotary cutters, a series of inclined alternately vibrating notched feed plates arranged to work under the inner discharging end of said pan and in front of the thrasher cylinder, the outer of said feed plates being provided with upwardly extending sides, and an upper vibrating feed box arranged to vibrate over said feed plates and provided with depending sides working therebetween to form therewith an inclosed vibrating feed chute, substantially as set forth.

5. In a band cutter and feeder, the combination with the bundle carrier pan and the cutters; of an inclined series of alternately vibrating feed plates receiving the grain from said pan and inclosed by oppositely upwardly extending sides attached to the outer of said feed plates, an upper vibrating feed box arranged over said feed plates and having depending sides working between the inclosing sides of said feed plates and the inner ends of the pan, and notched feed bars facing said feed plates, adjustable swinging supports pivotally attached to the lower end of said box and adjustably to a suitable point of support, and a rotating crank shaft loosely connected to the upper inner end of said feed box, substantially as set forth.

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

CARL H. ZISHKA.

Witnesses:

GUY H. MARTIN,  
J. E. STEELE.