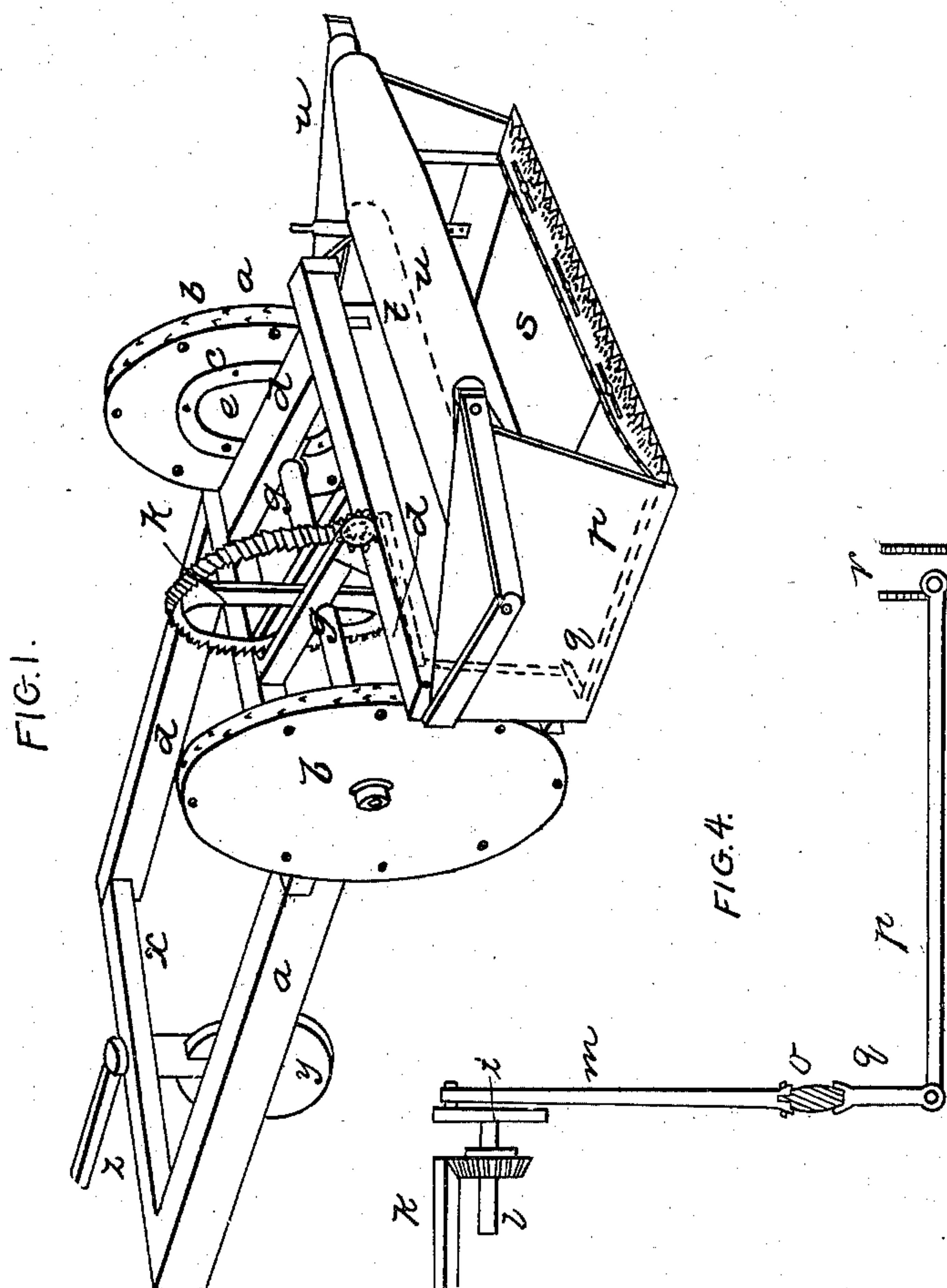


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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN REAPING-MACHINES.

Specification forming part of Letters Patent No. 3,831, dated November 18, 1844.

*To all whom it may concern:*

Be it known that I, WILLIAM F. KETCHUM, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Reaping-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of said description, in which—

Figure 1 is a general view; Fig. 2, section of the wheels; Fig. 3, plan of under side of wheels and axle, showing the manner of clutching them; Fig. 4, parts connecting the driving-gear with the cutters.

The nature of my invention consists in the manner of connecting the cutting apparatus with the wheels and inclosing the gear, and the method of carrying in the heads of grain, as hereinafter described.

In constructing the wheels I cast a ring, *a*, with internal gear thereon, as clearly represented at Fig. 2. To this ring I bolt a flat cast-iron disk, *b*, on one side, and on the opposite side an annular one, of the same thickness and diameter, that extends into the line *c*, Fig. 2, the same bolts passing through both and the ring that forms the internal gear and tread of the wheel. These wheels—two in number—I put onto an axle, on which a frame, *d*, is supported, as shown in Fig. 1. On each side of the frame there is a cast-iron plate, *e*, fastened concentric with the wheels, that extend out to the annular disk *c*, thus inclosing the interior of the wheel. On the lower side of the plates *e* wrists or studs *e'* (shown, together with the outline of the plate *e*, in red, Fig. 2) project into the wheel, on which are placed small spur-wheels *f*, one of which is represented in Fig. 2, that work into the internal gear on the rim of the wheel on which the carriage is moved, and it also meshes into a small pinion, *g*, on the shaft *g'*. This pinion has a clutch, *h*, affixed to its inner face and turns loosely on the shaft, as do the driving-wheels first described, on which the carriage is borne. A sliding clutch, *h'*, takes into that *h* on the pinion, as shown in Fig. 3, and with this the shaft turns. It is held to its place by a spring, *i*. When the wheels are moved forward they cause the axle to turn with a much greater velocity by means of the gearing above described. On this axle

there is a bevel-wheel, *k*, that drives a bevel-pinion, *l*, that is on a short crank-shaft in front of said bevel-wheel *k*, on a level with its shaft, and represented in Fig. 4. The crank *l'* is coupled by a connecting-rod, *m*, with a vertical lever, *o*, joined at its lower end with a horizontal lever, *p*, by a short bar, *q*, the front end of said lever *p* being connected with the cutters *r*, which are represented more clearly in Fig. 1. These are of ordinary construction, and are placed in front of the bottom of a box, *s*, which is made of sheet-iron, and is open in front and at one side. At the top, in front of this box, there is a roller, *t*, and at some distance behind and a little lower is another larger roller, *t'*. Around these an endless apron, *u*, passes, which serves to gather in the tops of the grain and lay it against the cutters without the danger of thrashing out any of it, as is the case where reels are used for the same purpose. The apron is moved by a band, *w*, from a pulley, *v*, Fig. 3, that passes round one of the rollers. The box is firmly affixed to the front of the frame, and the frame projects back far enough behind for horses to stand inside of it. At the center of the back cross-piece, *x*, there is a castor-wheel, *y*, with a tiller, *z*, attached to its revolving shaft, by means of which the machine is steered. The grain is raked out of the machine by hand at the open side at intervals.

The bevel wheel and pinion can be inclosed in the cap or plate, if desired, which will readily appear to any one who understands the machine, and is therefore not represented.

Having thus described my improvements, what I claim as my invention is—

1. The combination of the driving-wheels with the cutters, in the manner described, by forming internal gear on the wheels and inclosing all the driving-gear inside of them by the construction and arrangement above set forth.

2. The employment of an apron, in combination with the cutters, for turning in the tops of the grain, as herein described.

WM. F. KETCHUM.

Witnesses:

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