

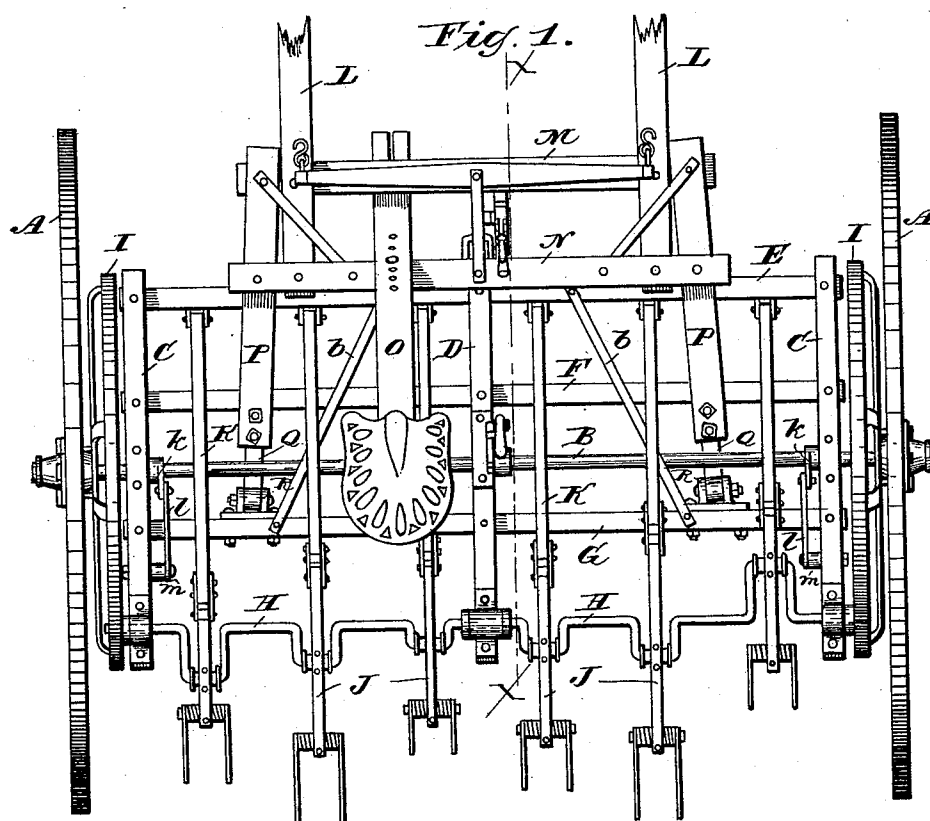
(No Model.)

4 Sheets—Sheet 1.

A. F. BROWN & W. R. KNAUB.
TEDDER.

No. 465,155.

Patented Dec. 15, 1891.



Witnesses:
G. S. Wentworth
Thomson Cross

Inventors
Arthur F. Brown
Wm R. Knaub
By *Peck & Rector*
Attorneys

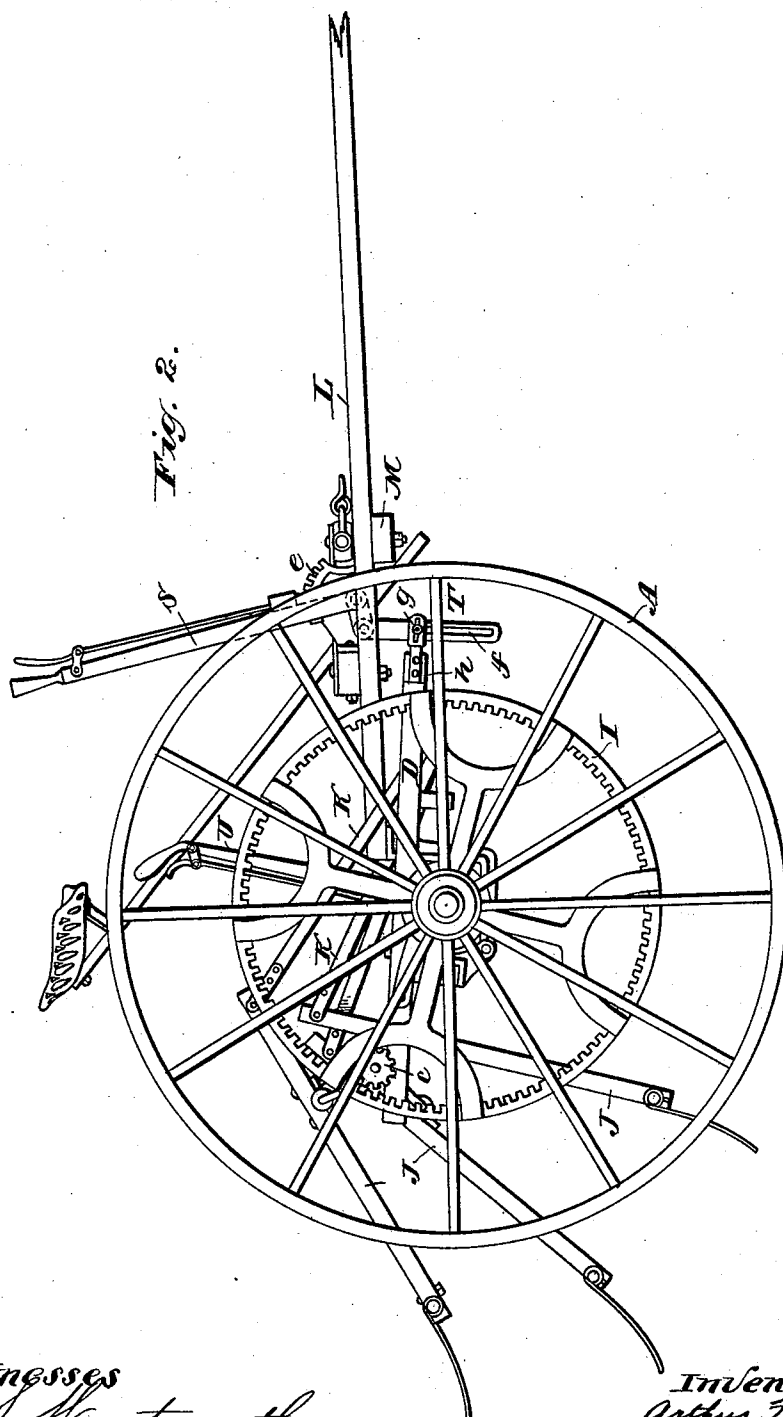
(No Model.)

4 Sheets—Sheet 2.

A. F. BROWN & W. R. KNAUB.
TEDDER.

No. 465,155.

Patented Dec. 15, 1891.



Witnesses
H. S. Wentworth
Thomson Cross

Inventors
Arthur F. Brown
Wm R. Knaub
By *Per K. Rector*
Attorney

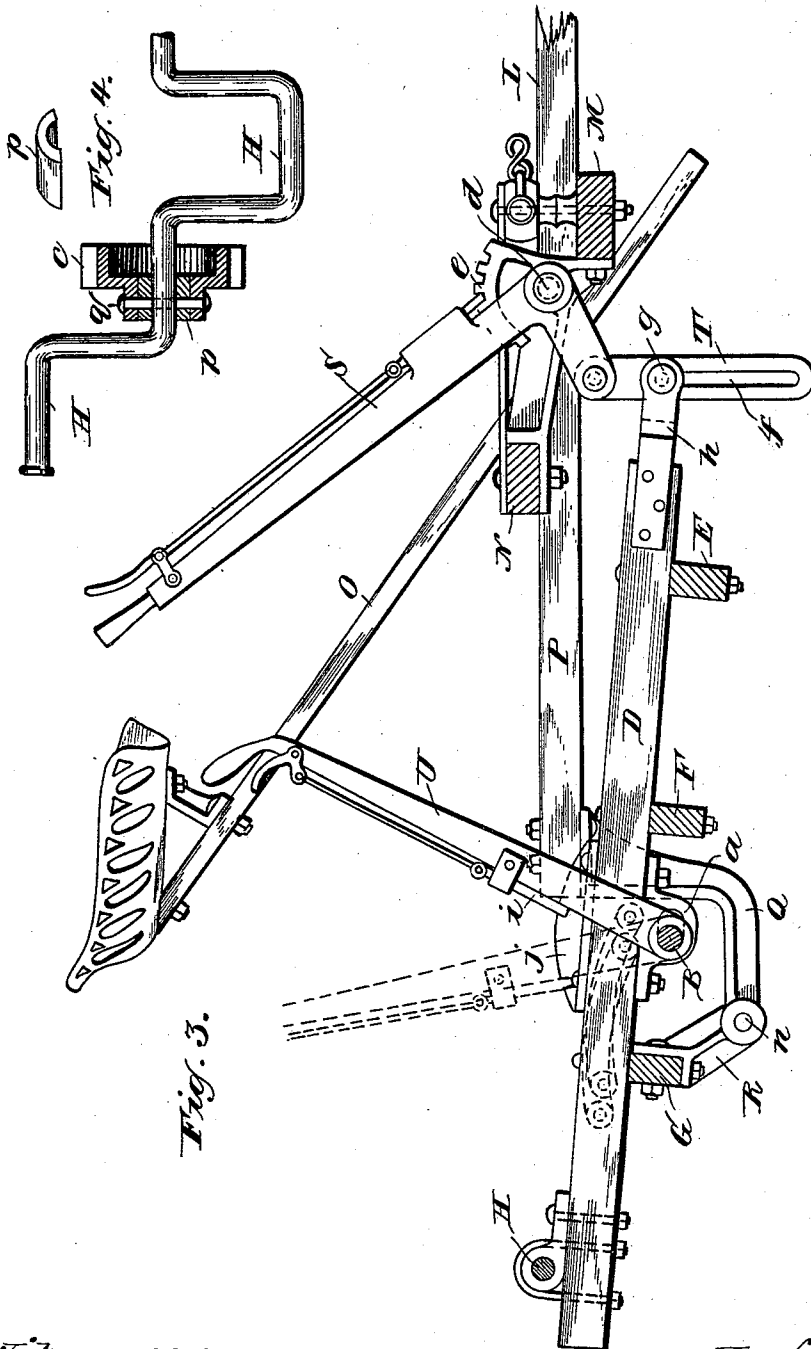
(No Model.)

4 Sheets—Sheet 3.

A. F. BROWN & W. R. KNAUB.
TEDDER.

No. 465,155.

Patented Dec. 15, 1891.



Witnesses:
G. S. Wentworth
Thomson Cross

Inventors
Arthur F. Brown
Wm R. Knaub
By *Peck & Rector*
Attorney

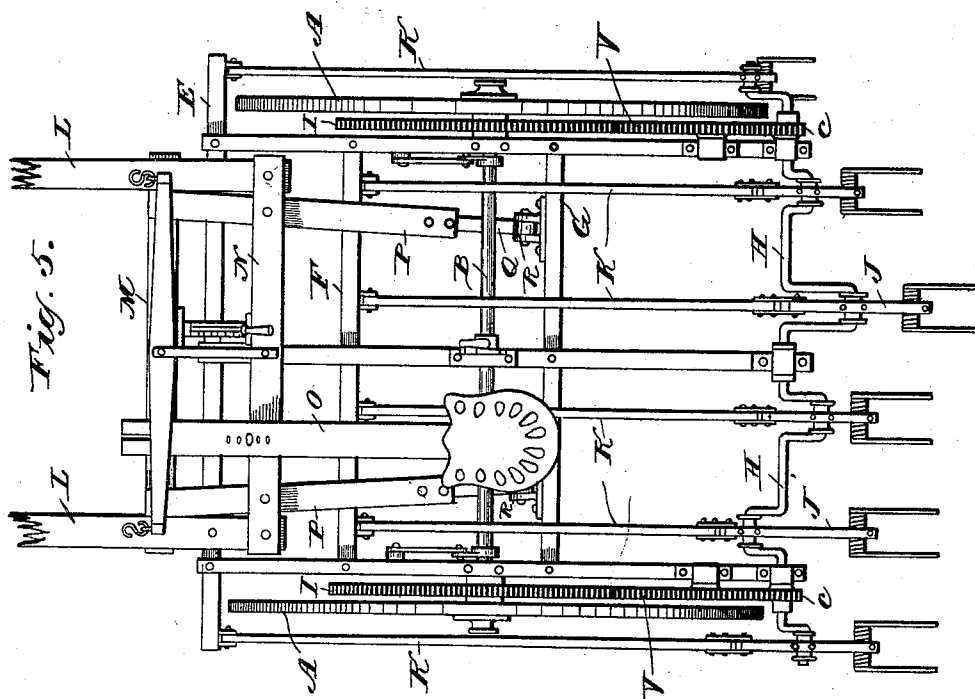
(No Model.)

4 Sheets—Sheet 4.

A. F. BROWN & W. R. KNAUB.
TEDDER.

No. 465,155.

Patented Dec. 15, 1891.



Witnesses:
G. S. Wentworth
J. Thomson Cross

Inventors
Arthur F. Brown
Wm R. Knaub
By *Perkins*
Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR F. BROWN AND WILLIAM R. KNAUB, OF DAYTON, OHIO, ASSIGNORS
TO THE STODDARD MANUFACTURING COMPANY, OF SAME PLACE.

TEDDER.

SPECIFICATION forming part of Letters Patent No. 465,155, dated December 15, 1891.

Application filed January 22, 1891. Serial No. 378,655. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR F. BROWN and WILLIAM R. KNAUB, both citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have jointly invented certain new and useful Improvements in Tedders, of which the following is a full, clear, and exact description, reference being had to the accompanying

drawings, forming part of this specification. Our invention relates to that class of tedders having the tedding-forks carried upon and operated by a crank-shaft; and it has for its object the improved construction of such machines.

The novelty of our invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a plan view of a tedder embodying our invention. Fig. 2, Sheet 2, is a side elevation of the same. Fig. 3, Sheet 3, is an enlarged detail in section through the dotted line *x x* of Fig. 1. Fig. 4, Sheet 3, is an enlarged detail of one end of the crank-shaft with the driving-pinion shown in section. Fig. 5, Sheet 4, is a plan view of a tedder embodying our invention in a modified form.

The same letters of reference are used to indicate identical parts in all figures.

A are the ground or supporting wheels loosely journaled upon the ends of the axle B, which does not rotate. Supported upon the axle by means of horizontally-slotted boxes *a*, Fig. 3, is the tedding-frame, composed in this instance of two side bars C, a central bar D, and three cross-bars E F G, braced, if desired, by metal straps *b*. The slotted boxes *a* are secured upon the under sides of the bars C D at about the center of the frame, and the axle passes through the slots in the boxes.

Journaled across the rear end of the tedding-frame is the usual crank-shaft H, provided on its ends with pinions *c*, meshing while the machine is at work with the internal gears I, made fast to the hubs of the wheels A upon their inner sides. The fork-arms J are carried and operated by the shaft H in the usual or any suitable manner, and

have their upper ends connected to the tedding-frame by the usual pivoted arms K.

The seat-frame is composed of the thills L, cross-bars M N, seat-beam O, and rear coupling-extensions P, which in some instances may be rear extensions of the thills. These parts are all firmly bolted together, and the rear part of the seat-frame extends over the forward part of the tedding-frame. The manner of connecting the two frames together is

as follows: From the under side of each of the extensions P in the rear an arm Q extends down and back under the axle and has its rear end pivoted, as at *n*, Fig. 3, between slotted lugs R, projecting forward from the bar G. A line drawn through the axes of the pivots should be parallel with the axle. By this manner of hinging the two frames together the weight of the driver and seat-frame is thrown upon the tedding-frame at a point

slightly below and in the rear of the axle, and this, with the draft of the horse, serves to counteract the tendency of the gearing to tip up the rear end of the tedding-frame and serves to hold the forks down to their work properly. At the same time, owing to the arrangement of the hinging-pivots with reference to the axle, should the forks encounter a solid obstacle, such as a stump or stone, the tedding-frame at once tips up in the rear, carrying the forks over the obstacle, and then becomes instantly reset, as will be readily understood, for by reference to Figs. 2 and 3 it

will be observed that the tedding-frame is pivoted on the axle, while the draft on the tedding-frame is in the rear of and slightly below the axle, so that the draft strain tends to hold down the rear end of the tedding-frame. This tendency of the draft to hold down the rear end of the tedding-frame is materially aided by the weight of the driver and draft-frame, which latter is also applied to the tedding-frame at the draft-points, which, as before stated, are below and in rear of the axle or hinging-point of the tedding-frame.

Now, on the other hand, the tendency of the gears on the supporting-wheels, acting upon the pinion on the crank-shaft carried by the tedding-frame, is to throw up the rear of the tedding-frame, and these two forces are nearly

counterbalanced, though that applied by the draft and weight of the driver is slightly the greater. When, however, a fork strikes an obstruction, it overcomes the draft force and the rear of the tedding-frame is at once lifted until the fork clears the obstruction, whereupon the draft force at once draws down the rear of the tedding-frame and resets the same to working position.

10 Pivoted as at *d*, Fig. 3, is a bell-crank hand lock-lever *S*, engaging a segment-rack *e* upon the cross-bar *M*. The lower arm of this lever carries a pivoted pendent slotted link *T*, in the slot *f* of which is confined a pin *g*, carried by a lug or arm *h*, secured to and projecting from the bar *D*. By means of the lever *S* and its connection with the tedding-frame the latter can be adjusted to bring the forks in proper position to suit the requirements of the work, while at the same time the slot *f* is of such length that the forks can clear obstacles by the tipping of the frame, as before described, for it will be observed that this lever and its connections only serve to lock the tedding-frame against upward movement at its forward end and not against downward movement at said end. Otherwise the automatic tilting of the tedding-frame could not take place.

30 Keyed or otherwise fastened to the axle by the side of the bar *D* and extending up within easy reach of the driver on his seat is a hand-lever *U*, having a latch *i* for engaging notches in a segment-plate *j* to hold the lever locked in either of its adjusted positions. Likewise keyed or otherwise secured to the axle on the inner side of the bars *C* are two crank-arms *k*, Fig. 1, having their upper ends connected by pivoted links *l* to fixed pins or studs *m* upon the inner sides of the bars *C*. By this construction when the lever *U* is thrown forward and locked, as shown by the solid lines of Fig. 3, the entire tedding-frame is shifted forward, so that the axle is in contact with the rear walls of the slots in the boxes *a* and the pinions *c* are out of mesh with the gears *I*, as seen in Fig. 2. Under this adjustment everything is stopped, except the revolution of the wheels *A*, as will be readily understood. When it is desired to start the machine to work, it is only necessary to draw back the lever *U* to the position shown by the dotted lines, Fig. 3, whereupon the tedding-frame is shifted back and the pinions *c* are thrown into mesh with the gears *I*, as will be readily understood.

The modification represented in Fig. 5 consists in applying a fork outside of the tread of each of the ground-wheels *A*, to do which

it is only necessary to narrow the tedding-frame and extend the arms *C D* back far enough to permit the crank-shaft to clear the wheels *A*. The gears *I* are external gears, and intermediate pinions *V*, carried in boxes on the bars *C*, are applied between the gears *I* and pinions *c* on the crank-shaft. The forward bar *E* is sufficiently extended to permit the outside arms *K* to be pivoted thereto.

In order to readily replace the pinions *c* in case of breakage should the tedder have outside forks requiring the pinions to occupy a position between two cranks, as seen in Figs. 4 and 5, we make the bore of the pinions sufficiently large to be slipped around the bends of the crank-shaft, and when in position we insert split bushings *p*, which fill the space between the shaft and the bore of the pinion, and then by means of a pin *q*, inserted through the hub of the pinion, the bushings, and the shaft, a secure lock is effected.

In all other respects the construction of the two forms of tedders are the same.

Having thus fully described our invention, we claim—

1. In a tedder, the combination of the tilting frame carrying the fork-actuating shaft upon its rear end and unlocked from downward movement at its forward end, and the seat and draft-frame hinged to the tedding-frame below and in rear of its tilting axis, substantially as and for the purpose specified.

2. In a tedder, the combination of the tilting tedding-frame hinged and tilting upon the axle and unlocked from downward movement at its forward end, and the seat and draft-frame hinged to the tedding-frame below and in rear of the axle, substantially as and for the purpose specified.

3. In a tedder, the combination of the tilting tedding-frame, the seat and draft-frame hinged thereto below and in rear of the tilting axis, and a lock-lever with connections for locking the forward end of the tedding-frame against upward movement only, substantially as and for the purpose specified.

4. In a tedder, the combination, with the tedding-frame hung and tilting upon the axle, of the seat and draft-frame hinged to the tedding-frame below and in rear of the axle, and a lock-lever with connections for locking the forward end of the tedding-frame against upward movement only, substantially as and for the purpose described.

ARTHUR F. BROWN.
WILLIAM R. KNAUB.

Witnesses:

H. A. CRANDALL,
WARREN HALL.