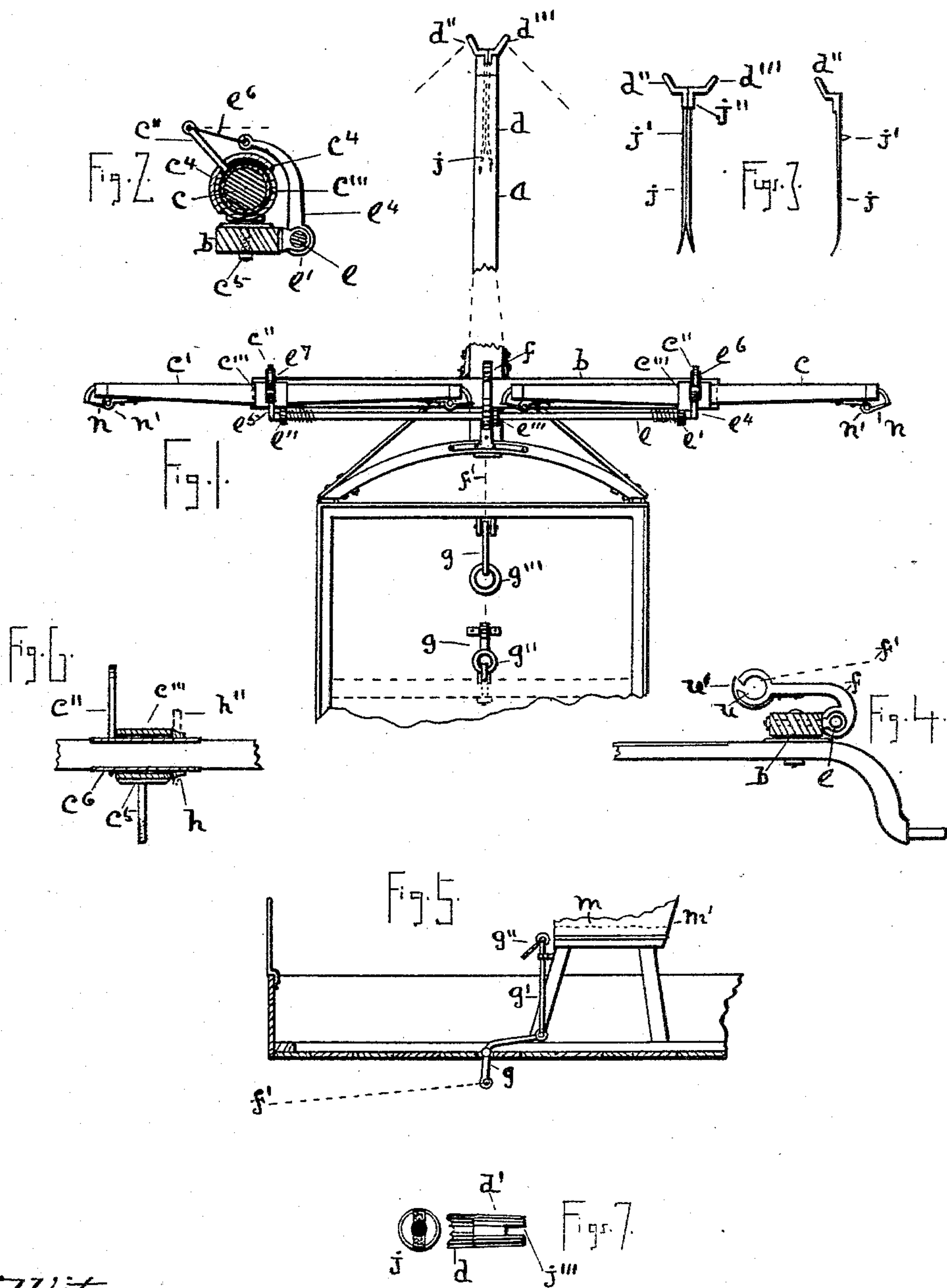


(No Model.)

A. B. DALE.  
WAGON.

No. 411,788.

Patented Oct. 1, 1889.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ALFRED BENJAMIN DALE, OF ITHACA, NEW YORK.

## WAGON.

SPECIFICATION forming part of Letters Patent No. 411,788, dated October 1, 1889.

Application filed December 15, 1887. Serial No. 258,045. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED BENJAMIN DALE, a citizen of the United States, residing at Ithaca, Tompkins county, New York, have invented an Improved Wagon-Gearing, of which the following is a specification, reference being had to the accompanying drawings.

My object is to make efficient a partial rotation of whiffletree, especially of double teams, thus securing the detachment of the horses from the wagon in any emergency, or in the daily use of horses and wagons.

Figure 1 is a view looking down on the whiffletree and evener with portions of the wagon tongue and box. Fig. 2 is a detached transverse sectional view of a whiffletree attached to the evener, the whiffletree-ring, and rotating lever. Fig. 3 is a detached view of a divided tongue-slip rod of the front end of my wagon-pole. Fig. 4 is a detached view of the lever that operates the evener-rod, by which the horses are detached. Fig. 5 is a view of a wagon-box with my box-lever for the whiffletree rotation. Fig. 6 is a view indicating several forms of holding the whiffletree in the ring-bolt. Fig. 7 are views of the ferrule and end of my wagon-tongue and the tenon-slot in the ferrule.

In the figures, *a* is the wagon-pole, and *b* the evener, with two whiffletrees *c c'*, and *d* is the end of the wagon-pole with the hold-back-rod *j* in the cavity or socket of the front end of the pole, with loops *d'' d'''* attached to it. (Indicated by dotted lines.) The evener has the rod *e* held to it by the bearings *e' e'' e'''*, as many as are necessary. A lever *f* is attached to this rod, preferably at its middle portion, and to it is made fast the rod, cord, or chain *f'*, whose position is indicated by the dotted lines. By the impulse through the cord to the lever as much rotation is given to the whiffletrees as is necessary to detach the horses.

In the bottom of the wagon-box, as shown in Figs. 1 and 5, lies a lever *g*, out of the way, yet in reach by the rod *g'*, of the driver, who pulls on it or on the ring which is fast to the rod.

At *g'''*, Fig. 1, is a lever in the front inside end of the wagon-box, with a ring lying flat

to pull it by, to be used, if desirable, in place of the rod *g'* and the ring *g''*.

There are two arms *e<sup>4</sup> e<sup>5</sup>*, that extend from the ends of the rod *e* toward the whiffletrees, which have connecting-rods *e<sup>6</sup> e<sup>7</sup>*, that join them to the levers *c'' c'''*, fast to the whiffletrees, there being slots in the rings *c'''* for the partial rotation of the whiffletrees. These slots and levers are the subject-matter of a patent granted July 25, 1880, to Solomon June, which I am controlling owner of. By the lever *f*, rod *e*, connecting-arms *e<sup>4</sup> e<sup>5</sup>*, connecting-rods *e<sup>6</sup> e<sup>7</sup>*, and short levers *c''* the whiffletrees are rotated about one-fourth of a revolution whenever the lever *g'* in the wagon-box is moved. Thus by these means I rotate as much as is necessary both whiffletrees of a double team at the same instant.

In Fig. 6 the lever *c''* is shown at the left hand of the bolt-ring *c'''*, and holds the whiffletree from displacement on that side of the ring, and a collar *h* holds the ring on its right-hand end. Thus the whiffletree is held in the bolt-ring by this arrangement, which has the advantage that since mud gets into the slot and obstructs the action of the lever *c''* this clears the mud. A pin *h''* (indicated by dotted lines) may be used in place of the collar.

A covering-cap *c<sup>4</sup>* (seen in section in Fig. 2) about the lever *c''* and moving with the lever over the slot may cover the slot and exclude mud.

The end of the pole *a*, I make with a lengthwise socket, as indicated in Fig. 1, into which is inserted, when the horses are attached to the wagon, the breast-rod *j*, and when this rod is made single it holds the horses harnessed together; but, as indicated in Figs. 1 and 2, I prefer to make this rod in two parts or halves, so that when the traces are detached by the means described above and the rod slips out of its socket the horses shall be separated by the rod falling apart. To hold the rod together while in its socket at *j'*, I make one half of the rod to have a pin projection that fits into a cavity in the other half of the rod. Another desirable thing in this rod is that it shall not rotate, and hence I cut a slot or mortise *j''* in the front end of the ferrule *d'* and make a tenon *j'''* on the



rod next to the breast-strap loops. This keeps the loops in the perpendicular position seen in Fig. 1, while the two halves of the rod are in the pole.

5 Some friction is desirable in the socket in order to retain the loop-rod *d*; hence I make the inner ends of the rod into springs, as indicated in Figs. 1 and 3, for this purpose.

The ends of the trace-hooks have the springs 10 *n* to close them, and they both close the hooks from ordinary escapement of the traces and give a momentary check to the traces while escaping, and thus regulate their detachment, and to this end the coil *n'* is made in them.

15 On the rod *e*, Fig. 1, are spiral springs, which keep the lever *f* and the connected parts from operating until the driver wishes to detach the horses. In Fig. 4 is indicated a cavity *u*, with opening for the attachment and de- 20 tachment of the cord, strap, or rod used on the dotted line *f'*, is closed by the spring *u'* and makes a convenient device for the lever *f*.

The letter *d* designates the ferrule end of the pole *a*.

25 All other parts are believed to be apparent.

What I claim in the above-described wagon-gearing is—

1. The whiffletrees *c c'*, constructed to oscil- late in the ring-bolts *c<sup>5</sup>* by the levers *c''*, in 30 combination with the partially-rotary rod *e*, attached to the evener *b*, the ends of the rod being provided with the crank-arms *e<sup>4</sup>*, connected to the levers *c''*, and with the lever *f*, by which the rod is partially rotated, the said 35 device detaching the harness-traces from the whiffletrees, as set forth.

2. A wagon-tongue provided with a slip-rod *j*, with spring divisions on its socket end and

with holdback-loops on its outer end, whereby a retention of the rod in its socket is had, as 10 set forth.

3. A wagon-tongue provided with a slip-rod *j* at its outer end, in combination with the tenon *j''* and with the slot *j'''* in the ferrule *d'*, whereby the rod is prevented from rota- 45 tion.

4. The holdback-rod *j*, constructed in two halves, one-half for each horse of a double team, there being disconnected loops on the 50 outer ends of each half for the breast-strap of each horse, and the rod connected when in the socket and falling apart when the rod is out of the socket.

5. The lever *g* and its connecting strap, cord, or rod *f'*, in combination with the lever *f*, rod 55 *e*, cranks *c''*, and oscillatory whiffletrees, as set forth.

6. The hook-shaped socket *u* in the lever *f*, provided with the spring *u'*, whereby the lever is adapted to the ready attachment and de- 60 tachment of cord, chain, or rod, as set forth.

7. In a single-horse vehicle, the lever *g* and its chain, strap, or rod *f'*, in combination with the lever *c<sup>4</sup>*, rod or connecting link and lever *c''*, and partially-rotating whiffletrees, as set 65 forth.

8. The rod *g'* and ring *g''*, attached to the driver's seat, in combination with the lever *g* and connecting rod, cord, or chain *f'*, whereby the means is provided for the ready opera- 70 tion of the detaching device, as set forth.

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Witnesses:

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