No. 614,715. Patented Nov. 22, 1898.

W. D. HARRIS.

PLOW AND CULTIVATOR.

(Application filed Nov. 15, 1897.)

(No Model.)

Fig. 1.

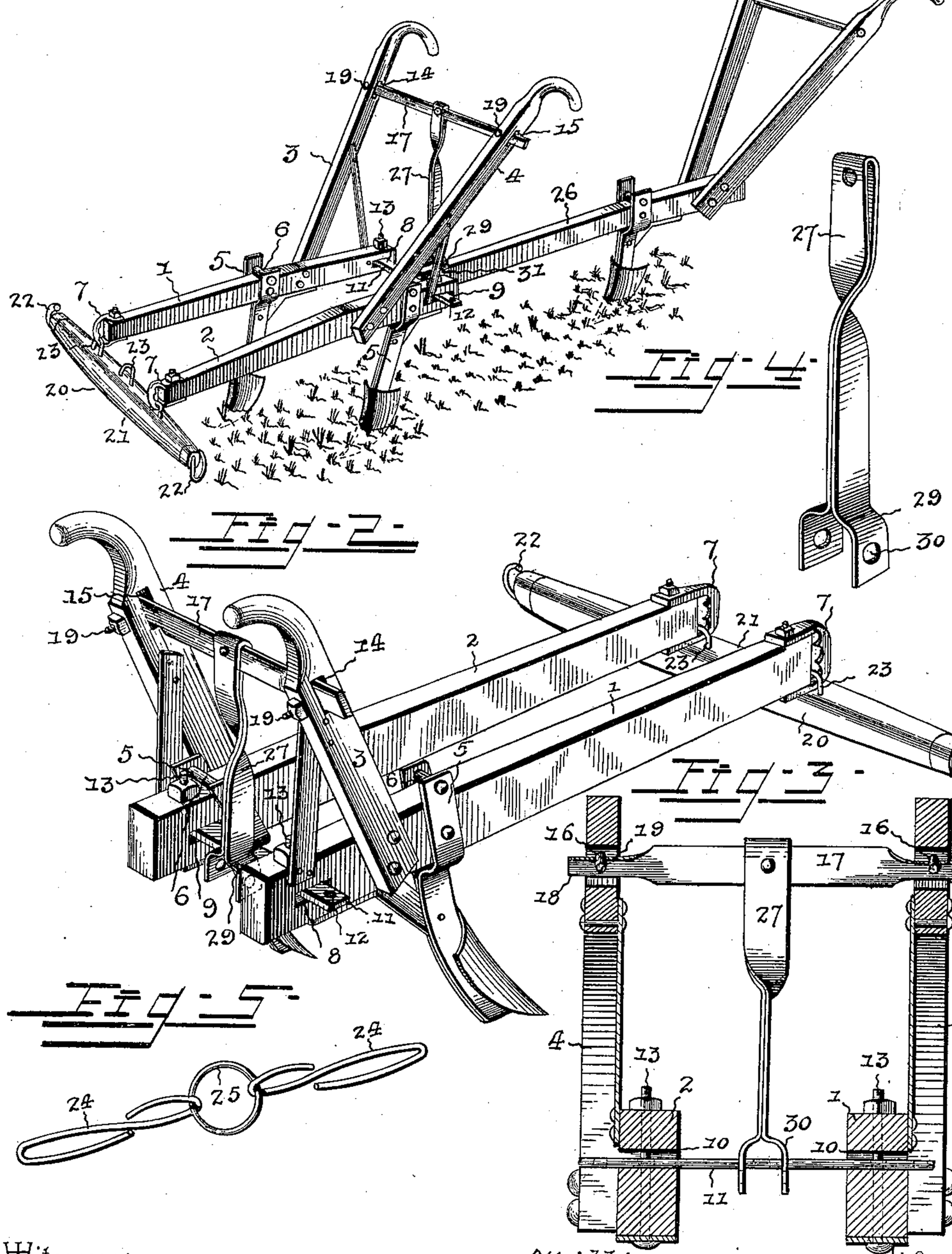

Fig. 4.

Fig. 2.

Fig. 3.

Fig. 5.

Fig. 6.

Witnesses:-

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UNITED STATES PATENT OFFICE.

WILLIAM D. HARRIS, OF RUSSELLVILLE, ALABAMA, ASSIGNOR OF ONE-HALF TO WILLIAM THOMAS GAST, OF SAME PLACE.

PLOW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 614,715, dated November 22, 1898.

Application filed November 15, 1897. Serial No. 658,652. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. HARRIS, a citizen of the United States, residing at Russellville, in the county of Franklin and State of Alabama, have invented a new and useful Plow and Cultivator, of which the following is a specification.

My invention relates to plows and cultivators in which the elements are coupled in a manner to attain adjustment and suit any kind of work. The operator has control over the implement, so as to swing the handles in either direction without turning either plow out of the ground.

A further object of the invention is to provide for the adjustment of the pairs of beams to any desired width; and a further object is to enable the capacity of the implement to be varied by detachably coupling two, three, or more beams together.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of one adaptation of the implement, illustrating a series of three beams coupled together. Fig. 2 is a perspective view illustrating the implement with a pair of beams coupled in parallel relation to each other. Fig. 3 is a transverse section on a plane through the connecting-links which loosely couple the rear ends of the beams and the handles thereof. Fig. 4 is a detail perspective view of a coupling-bar for uniting the rear beam or beams with the handles of the front beams. Fig. 5 is a detail view of one draft appliance which may be used in connection with a pair of cultivator-beams.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

The numerals 1 and 2 indicate a pair of front beams which are loosely coupled together in substantially parallel relation to each other by devices embodying my invention, and these beams are provided with the upwardly-inclined handles 3 4, respectively. To the beams are clamped, as at 6, the stocks 5, adapted to carry the cultivator-shovels, and these stocks, the clamps therefor, and the shovels may be of any preferred construction approved by those skilled in the art. At the front ends the beams are provided with clevises 7 for the attachment of the draft appliances.

In embodying my invention in a cultivator I provide the beams 1 and 2 near their rear ends with transverse slots 8 and 9, and through each beam is formed a vertical bolt-hole 10, which intersects with the slot.

11 designates a beam-connecting link which is provided near each end with a series of perforations 12, and the perforated ends of the connecting-link are fitted in the slots 8 and 9 of the beams in a way to have certain of the perforations 12 in the link aline with the vertical bolt-holes 10 of the beams, thus mutually adapting the parts for the pivotal bolts 13 to pass through the bolt-holes 10 and perforations 12 in the beams and connecting-link, respectively.

The handle-bars 3 and 4 are provided at suitable points intermediate of their length with transverse slots 14 and 15, which are intersected by bolt-holes 16, and these handle-bars are loosely connected together by a connecting-link 17, which serves to maintain the handle-bars in proper relation to each other. The connecting-link 17 is provided near each end with a series of transverse apertures 18, and through certain of these apertures in the link are passed the pivotal bolts 19, which are inserted through the holes 16 in the handle-bars.

In my invention it is necessary that the cross-sectional area of the connecting-links 11 and 17 shall be less than the area of the slots in the cultivator-beams and their handles, so that the connecting-links may work or play loosely and freely in the slotted beams and handles; but the parts are prevented from separation or uncoupling by the employment of the bolts.

It is evident that the pair of beams and their handle-bars are held substantially in

parallel operative relation to each other by the described construction and arrangement of the connecting-links between the beams and their handles; but the provision of apertures in the connecting-links and the removable bolts by which the links are detachably connected to the beams and handles permits the implement to be widened or contracted, according to the work it is desired the implement shall perform.

20 designates a draft appliance by which a single horse or a team may be hitched to the implement. The tree 21 is provided at its ends with the hooks 22, to which the traces may be connected, and said tree is furthermore provided with the eyes 23 for attachment to the clevises at the front ends of the cultivator-beams. In lieu of this tree with its trace hooks and eyes for attachment to the clevises I may employ the lapped hooks 24, which are attached individually to the clevises of the beams and are united loosely at their free ends by means of a ring 25.

One of the novel features of my improvement resides in the provision of means by which a single third cultivator-beam may be operatively connected with the pair of front beams to trail in rear thereof and in a plane between the paths of the front beams, or another pair of beams may be suitably coupled with the front beams to trail directly in rear thereof. In Fig. 1 of the drawings I have illustrated an adaptation of the implement by which a single trailing beam may be operatively connected with the connecting-link 17 of the beam-handles. By reference to Fig. 1 it will be observed that the rear beam 26 is provided with a handle and a stock similar to the front beams.

To operatively connect the trailing or rear beam 26 with the pair of front beams, I employ a coupling-bar 27, which is arranged in a substantially vertical position between the front beams and the handles thereof, and the upper end of this coupling-bar is united in a suitable way to the connecting-link 17 between the beam-handles 3 4. The union between the connecting-link 17 and the coupling-bar 27 may be effected in any suitable way—as, for instance, by means of a bolt which passes through apertures in the coupling-bar and the connecting-link in a way to secure vertical adjustment of the coupling-bar—but this is not essential, because the coupling-bar may be united to the link by means of a clip or clamp of any approved construction. The lower end of this coupling-bar is forked or bifurcated to provide the foot 29, which is pierced transversely by a bolt-hole 30, and this foot is adapted to embrace or straddle the front end of the rear beam 26 to permit a bolt 31 to pass through the foot or beam and loosely or pivotally couple the bar 27 to the rear beam 26.

In case it is desired to couple a pair of rear beams to the front beams I employ a draft appliance similar to either of the devices heretofore described, and which draft appliance is loosely connected with the clevises on the front ends of said rear beams, connecting-links similar to the links 11 and 17 being also coupled to loosely connect the pair of rear beams together in a manner similar to the front beams heretofore described. The loosely-connected rear beams, with the draft appliance, are united to the foot of the coupling-bar 27, which is attached to the connecting-link between the handles of the front beams, and thus the implement consists of two pairs of bars, which are loosely connected to each other in a manner to have the rear beams trail behind the front beams.

By having the pair of beams loosely connected together the operator can swing the handles to the right or left in guiding the implement with the same facility as a single plow and without being under the necessity to turn or lift either plow out of the ground. This attains a very desirable result, which renders the combination of plows a success in breaking land or for cultivating purposes. The beams of the implement may be readily adjusted to any required width, owing to the provision of the apertures in the links and the employment of movable and adjustable pivotal bolts, and the plow-stocks may be adjusted on the beams to suit the kind of work which it is desired to perform.

The implement is adapted to be used for breaking the soil, bedding cotton-land, for covering corn, or for cultivating purposes, and this adaptation of the implement is rendered possible by the employment of the links which loosely connect the beams and handles and the loosely-attached draft appliance. I may use either a singletree or a doubletree, according as the implement is used with a single pair of beams or a double pair of beams, coupled together as described. The coupling-bar which unites the rear beam or beams with the connecting-links between the handles of the front beams serves to regulate the rear beam or beams and to govern or control the same in the travel of the implement across the field.

It is evident that changes in the form and proportion of parts may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of the invention.

Having thus described the invention, what I claim is—

1. In an agricultural implement, the combination with a handle-connecting link on a front pair of beams, of a rear beam or beams, and a coupling-bar which is united to said connecting-link and is attached to the rear beam or beams, substantially as described.

2. In an agricultural implement, the combination of a pair of front beams, a connecting-link which unites the handle-bars of said front beams together, a coupling-bar clamped to the connecting-link at a point between the handle-bars, and a rear beam detachably con-

nected to the lower end of said coupling-bar, substantially as described.

3. In an agricultural implement, the combination with a pair of front beams and a connecting-link which unites the handle-bars of said front beams together, of a coupling-bar united to the connecting-link at a point between its attachment to the handle-bars and provided at its lower end with a forked foot, and a rear beam fitted in the foot of the coupling-bar and removably bolted thereto, substantially as described.

4. In an agricultural implement, the combination of a pair of front beams provided with handle-bars, a lower connecting-link loosely attached to the rear ends of said beams, an upper connecting-link loosely attached to the handle-bars of said front beams, a vertical coupling-bar united to the upper connecting-link between the handle-bars, and a rear beam attached to the lower end of said coupling-bar, substantially as described.

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