(No Model.) 3 Sheets—Sheet 1.

G. MOORE.

CULTIVATOR.

No. 404,922. Patented June 11, 1889.

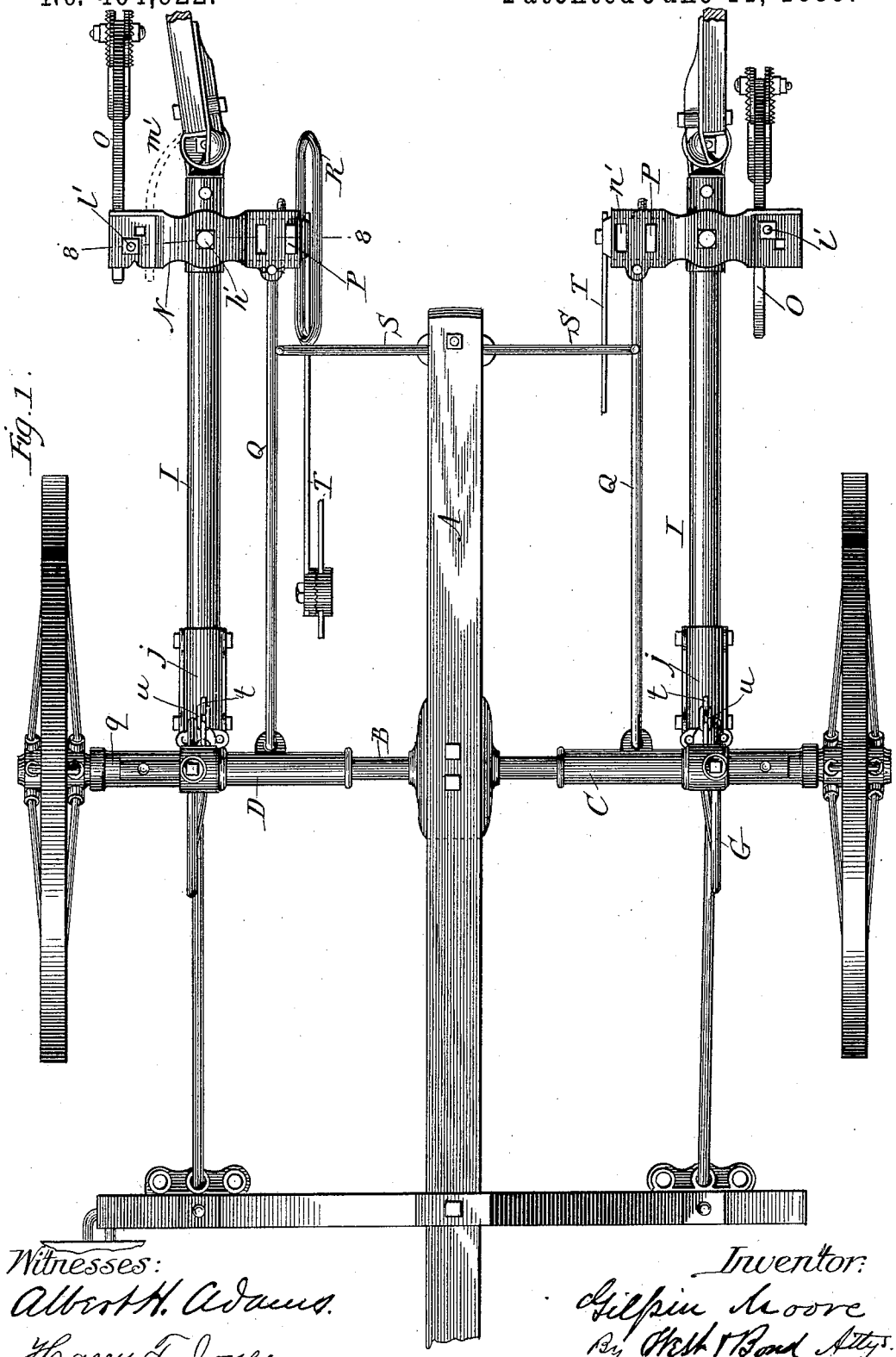


Fig. 1.

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Harry F. Jones.

Inventor:
Gilpin Moore
By Wash'n Bond Atty.

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G. MOORE.

CULTIVATOR.

No. 404,922. Patented June 11, 1889.

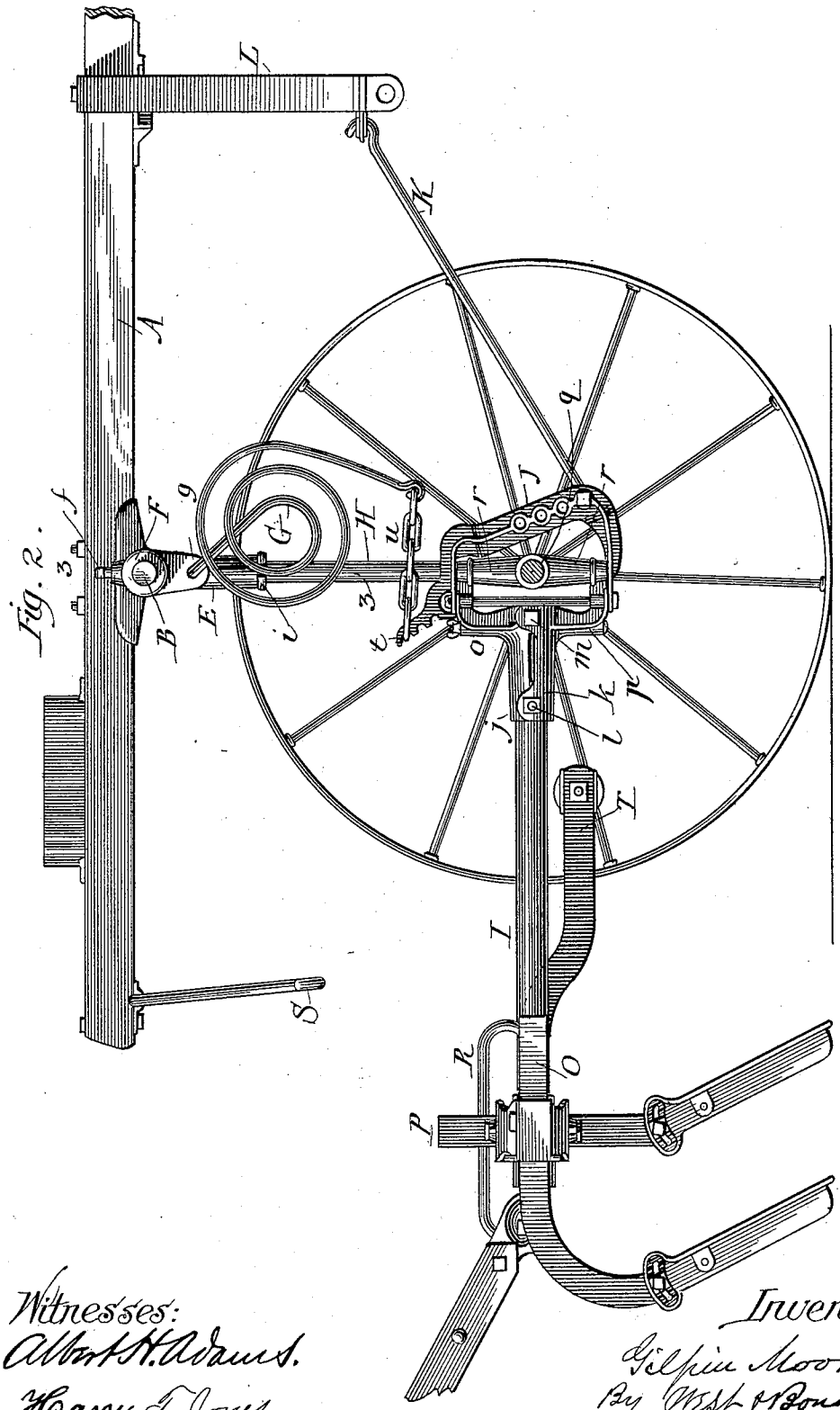


Fig. 2.

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G. MOORE.

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Fig. 3.

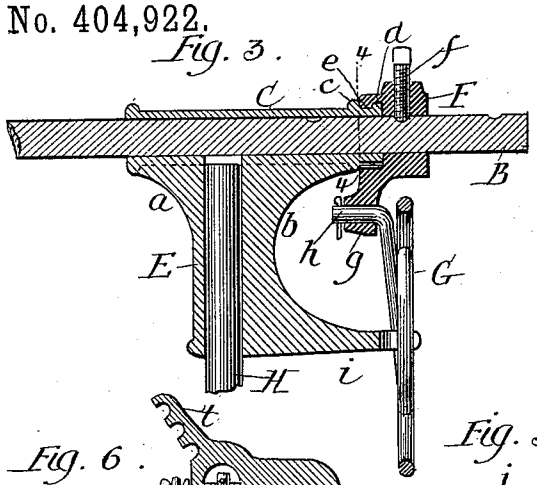


Fig. 4.

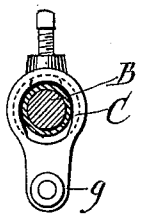


Fig. 6.

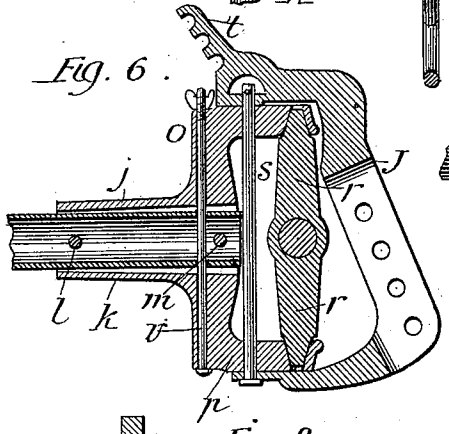


Fig. 5.

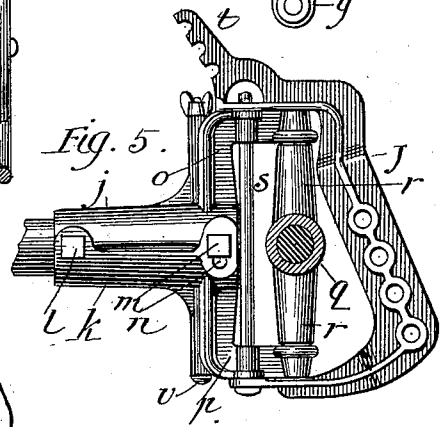


Fig. 7

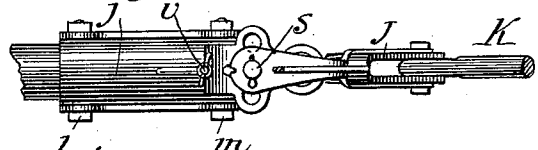


Fig. 8.

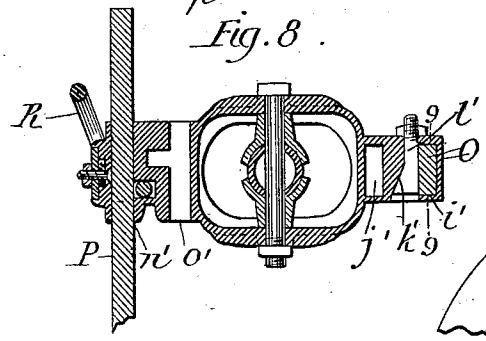


Fig. 9.

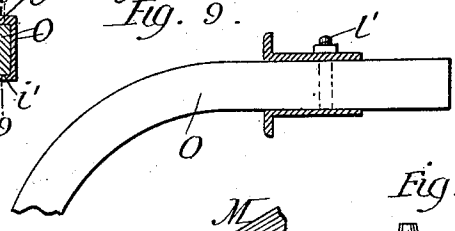


Fig. 10.

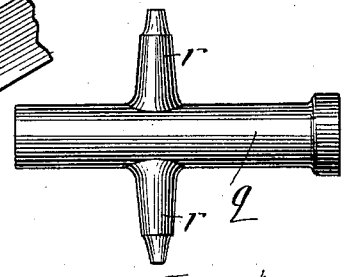


Fig. 11.

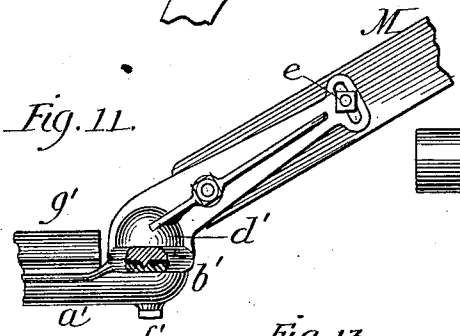
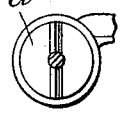


Fig. 12.



Fig. 13.



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By Wm. H. Bond
Attys

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UNITED STATES PATENT OFFICE.

GILPIN MOORE, OF MOLINE, ILLINOIS, ASSIGNOR TO DEERE & COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 404,922, dated June 11, 1889.

Application filed November 19, 1888. Serial No. 291,200. (No model.)

To all whom it may concern:

Be it known that I, GILPIN MOORE, residing at Moline, in the county of Rock Island and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Cultivators, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan. Fig. 2 is a side view, one wheel being removed. Fig. 3 is a detail, being a section at line 3 3 of Fig. 2. Fig. 4 is a detail, being a section at line 4 of Fig. 3. Fig. 5 is a detail, being a side elevation of the coupling and draft-clevis. Fig. 6 is a vertical longitudinal section through the parts shown in Fig. 5. Fig. 7 is a plan of the coupling and draft-clevis, the pipe-box on the axle being omitted. Fig. 8 is a section through the head which holds the shovel-standards, taken at line 8 of Fig. 1. Fig. 9 is a section at line 9 of Fig. 8. Fig. 10 is a detail, being a rear elevation of one of the pipe-boxes on the axle. Fig. 11 is a side elevation of the devices for adjusting the handles. Fig. 12 is a detail, being a plan of one part of such adjusting devices. Fig. 13 is an under side view of the upper part of such adjusting devices.

My improvements relate to straddle-row cultivators; and the leading objects of my invention are to provide an improved coupling for connecting the plow-beams with the axle; to provide draft devices by the use of which the draft will be on the couplings at the forward ends of the beams and at points in rear of the wheel-axles, and not on the axles; to provide springs acting on the plow-beams to aid in counterbalancing and operating the same, so connected with the machine that their tension will remain practically the same, although the position of the beams be changed longitudinally, either forward or backward, by the movement of the swinging parts of the arched axle; to provide an improved head which carries the shovel-standards, and an improved device for holding such standards in the head, and to provide minor improvements, all of which I accomplish as illustrated in the drawings, and hereinafter described. That which I claim as new will be pointed out in the claims.

In the drawings, A represents the tongue.

B is a rod, which is permanently secured to the tongue and forms a part of the arched axle.

C D are two sleeves upon the part B of the axle and adjustable thereon.

E is a socket depending from, and it may be made integral with, the sleeve.

a b are strengthening webs or flanges.

c is a flange cast upon the sleeve C.

d is a flange or projection on the upper side only and at the outer end of the sleeve.

F is a collar having a projection on one side, which is provided on the under side with a depending flange *e*, which fits into the space between the flange *c* and the projection *d* on the sleeve.

f is a set-screw.

g is an arm or projection extending downward from the collar F, which projection is provided with a hole to receive one end *h* of a spring G.

i is an arm or extension from the socket E, which arm is provided with a notch in its end, into which one coil of the spring G enters, as shown in Figs. 2 and 3.

In putting the parts together the collar F can be placed upon the sleeve C by turning the collar half-way round from the position shown in Fig. 3 and then turning it back to the position shown in such figure, the screw *f* being, of course, partly withdrawn. Then the end of the spring G can be placed in the projection *g*, the sleeve C can be adjusted longitudinally on the part B by loosening the screw *f*, and then the sleeve and the collar F can be moved upon the sleeve, either out or in, and both are held in position on the part B by the screw *f*, the lower end of which, as shown, enters a depression in the part B.

H is a part of the arched axle. The lower end is bent outward and forms a spindle for one of the wheels, and the upper end is inserted in the socket E and is permanently secured therein in any known manner.

The opposite sides of the cultivator are duplicates of each other.

I are the plow-beams.

j k are two parts of a divided pipe-box, which parts encircle the forward end of the beam I. Each of these parts *j k* is provided at each

end with ears, and the two parts are connected together by means of a bolt *l*, which passes through the ears at one end, and another bolt *m*, which passes through slots *n* in the ears at the front ends of these parts *j k*. The part *j* is provided with an arm or bracket *o*, which passes up and then forward, and the part *k* is provided with a similar arm or bracket *p*, which passes down and then forward.

q is a pipe-box on the axle.

r are long studs on the pipe-box *q*, the ends of which enter holes in the arms or brackets *o p*, and thus these brackets are pivotally connected with the studs *r*.

v is a pin which passes through the vertical parts of the brackets *o p* and through the plow-beam. The lower end of this pin is provided with a head, the upper end with a thumb-screw, and the brackets *o p* can be tightened upon their pivots, as may be desirable in consequence of wear, by means of the pin or rod *v* and the thumb-screw thereon, the bolt *m* being first loosened.

J is a clevis, the ends of which are pivotally connected with the brackets *o p* by means of a pin *s*.

t is a diagonal arm upon the clevis, which is provided with notches.

u is a short chain, one end of which is connected with the free end of the spring G and the other end engages with one of the notches in the arm *t*.

K are draft-rods, one end of each being connected with one of the clevises and the other end with the evener L.

a' is a casting secured to the under side of the plow-beam at its rear end, which casting extends out beyond the beam and is provided with a socket *b'*, which has in it notches or teeth *c'*.

d' is a casting secured to the plow-handle M by means of two bolts, one of which *e'* passes through a slot in the upper end of such casting. The lower end of this casting *d'* is formed so as to fit upon the part *b'* of the casting *a'*, and is provided with two projections arranged to engage with the notches in *b'*. The two parts *b' d'* are held together by a bolt *f'*. By loosening the bolt *f'* the plow-handle can be adjusted toward or from the operator, and by loosening the bolt *e'* the plow-handle can be adjusted vertically.

g' is a casting secured to the rear end of the beam, and corresponds in form substantially to that portion of the casting *a'* which does not extend beyond the end of the beam.

N is a head which carries the shovel-standards, and it is pivotally secured to the rear end of the plow-beam by a bolt *h'*.

i' j' are two horizontal holes through the head N, in either one of which a curved shovel-standard O may be secured. By the side of the hole *i'*, which receives the curved shovel-standard O, is a chamber having an inclined wall *k'*, and the shovel-standard is firmly held in its place by means of a bolt *l'*, the head of which is inclined on one side to correspond with the inclined wall *k'* of the chamber. I thus avoid weakening the standard which results from providing it with holes to receive a bolt, and the standard is held firmly in its place by means of the bolt *l'*, which bears against one side of the standard. By the side of the hole *j'* there is a chamber having a similar inclined side, and when the standard is placed in this hole *j'* it is held in place by a bolt having an inclined head. The standard P on the opposite side of the head is held in place in either one of the vertical holes *n' o'* adapted to receive it by means of a bolt having an inclined head, which is located in a chamber similar to that already described, the difference being that the bolt which holds the standard P is arranged in a horizontal position instead of a vertical.

Q is a connecting-rod, one end of which is pivoted to the head N and the other end is connected with the pipe-box on the axle.

R is a long link secured to the plow-beam, by means of which the same can be hung up on the hook S.

T represents a portion of an ordinary fender and its support, as to which no claim is made.

If desired, a third shovel-standard may be used, curved in the proper direction to bring its shovel in the proper position. Such third standard is indicated by dotted lines *m'* in Fig. 1.

In use the longitudinal position of the plow-beam is liable to be changed, because that portion of the arched axle with which the beam is connected is connected with the part B of the axle by a sleeve, so that the portion of the axle which carries the beam can swing upon the part B. This change of position of the beam causes the tension of any spring corresponding with G to vary materially, as such springs have heretofore been connected with the machine; but by connecting the upper end of this spring to the projection *g* and by providing notched arm *i* to receive one of the coils of the spring this difficulty is obviated and the acting tension of the spring remains substantially the same, notwithstanding that the longitudinal position of the beam be changed either forward or back. It is not essential that this precise form of spring be used; but it is essential that the spring be made to engage with something corresponding with the notch in the arm *i* at a point between its two ends, which point is located at no great distance from the upper end of the spring. By providing the head N with four holes to receive the shovel-standard the shovels can be adjusted, bringing them nearer together or placing them farther apart, as may be desired. By means of the head N and rod Q the parallelism of the shovels in use is maintained, as usual.

The shovel-standard O can be adjusted longitudinally in its socket, and the shovel-standard P can be adjusted vertically in its socket.

The upper end of the spring G is not at-

tached to the swinging part of the arch, but to a projection connected with the shaft part B of the arch. If the upper end of the spring were connected to the vertical portion of the swinging part of the arch, the action would not be the same as when arranged as shown and described. It is not essential that the notch be provided to receive one coil or part of the spring. A simple stud or projection would answer the purpose.

The draft-clevis J is pivoted to the arms *o p* by means of a pin *s* in the rear of the pivotal point of the beam in such manner as to swing freely with the rod K in connection with the evener L. The clevis is provided with holes below the pivotal point of the beam and axle for the purpose of attaching the draft-rod K, thereby producing a greater penetrating power on the shovels when acted on by the draft of the team.

By pivoting the draft-clevis to the plow-beam in rear of the pivotal point of connection of such beam with the axle such clevis rocks with the beam and throws the draft-strain thereupon at a point in rear of the pivotal connection proper of the beam with the axle, and the arrangement of the draft, besides forcing the shovels in the ground, also provides for counteracting the side pressure of mold-board shovels on cultivator-shanks.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a cultivator, a divided pipe-box, which forms a part of the coupling, the two parts of which *j k* are connected together and to the beam, the forward ends of said two parts being adjustably connected, each part carrying an arm or bracket, as *o* and *p*, substantially as and for the purpose specified.

2. A coupling for connecting the plow-beam of a cultivator with the axle, consisting of a divided pipe-box, the two parts of which are connected together and to the beam, each part carrying an arm or bracket, as *o* and *p*, in combination with a pipe-box adapted to be placed on the axle and provided with two studs or pivots, as *r*, substantially as and for the purposes specified.

3. A coupling for connecting the plow-beam of a cultivator with the axle, consisting of a divided pipe-box, the two parts of which are connected together and to the beam, each part carrying an arm or bracket, as *o* and *p*, in combination with a pipe-box adapted to be placed on the axle and provided with two studs or pivots, as *r*, and an adjusting or tightening bolt, as *s*, substantially as and for the purpose specified.

4. The combination, with the axle and the laterally-swinging plow-beam, of a pipe-box on the axle, a bracket rigidly secured to the plow-beam and pivotally connected with parts of the pipe-box, and a draft-clevis extending back of the axle and pivoted to the bracket by a vertical pivot behind the axle and in rear of the pivotal point of connection of the bracket with the pipe-box, said draft-clevis being free to swing laterally on the bracket, substantially as described.

5. The combination, with the axle and the plow-beam, of a pipe-box mounted on the axle and having an upward and a downward projecting stud *r*, a bracket rigidly secured to the plow and having upper and lower portions pivoted, respectively, on the ends of said studs, and a draft-clevis having its ends extending under and over the axle and embracing and pivoted to the bracket by a vertical pivot *s* in the rear of the pivotal attachment of the said bracket to the ends of said studs, substantially as described.

6. A spring supported at its upper end by the shaft B, or by a projection thereon, and engaging at some distance from said fixed end with a projection on one of the swinging parts of the arch, whereby, when such swinging part of the arch swings either forward or backward, the lower end of the spring will be carried correspondingly forward or backward, while the beam retains its horizontal position, substantially as and for the purposes specified.

7. In combination with a plow-beam, a cross-head, as N, provided with two vertical holes and with two horizontal holes to receive the shovel-standards, substantially as specified.

8. In a cross-head, a socket adapted to receive a shovel-standard, a chamber by the side of and communicating with such socket and provided with an inclined wall, in combination with a key-bolt *l'*, extending transversely to the standard through the socket and having an inclined head, substantially as and for the purposes specified.

9. In a cultivator, the combination of a handle and a plow-beam with the castings *a'* and *d'*, constructed and connected substantially as and for the purposes specified.

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