

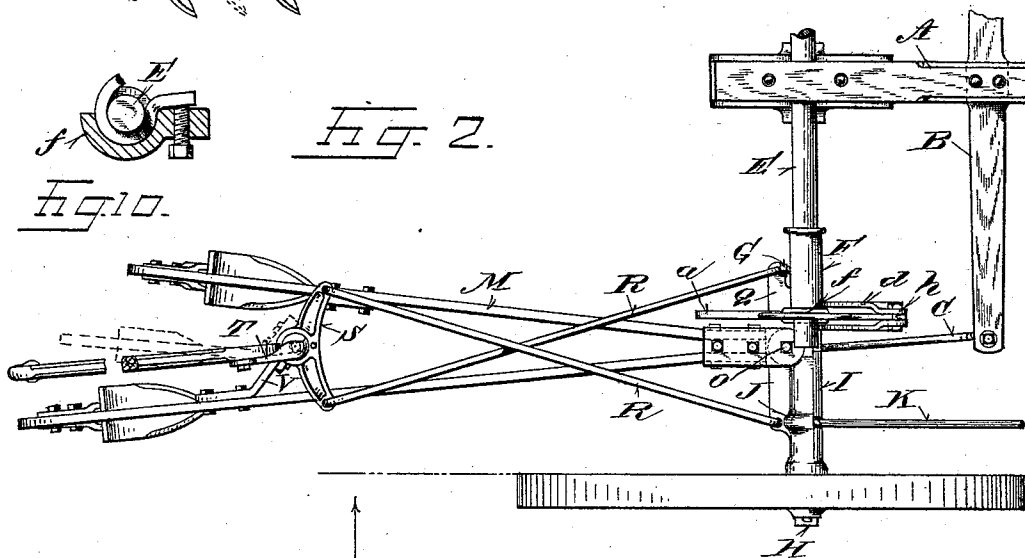
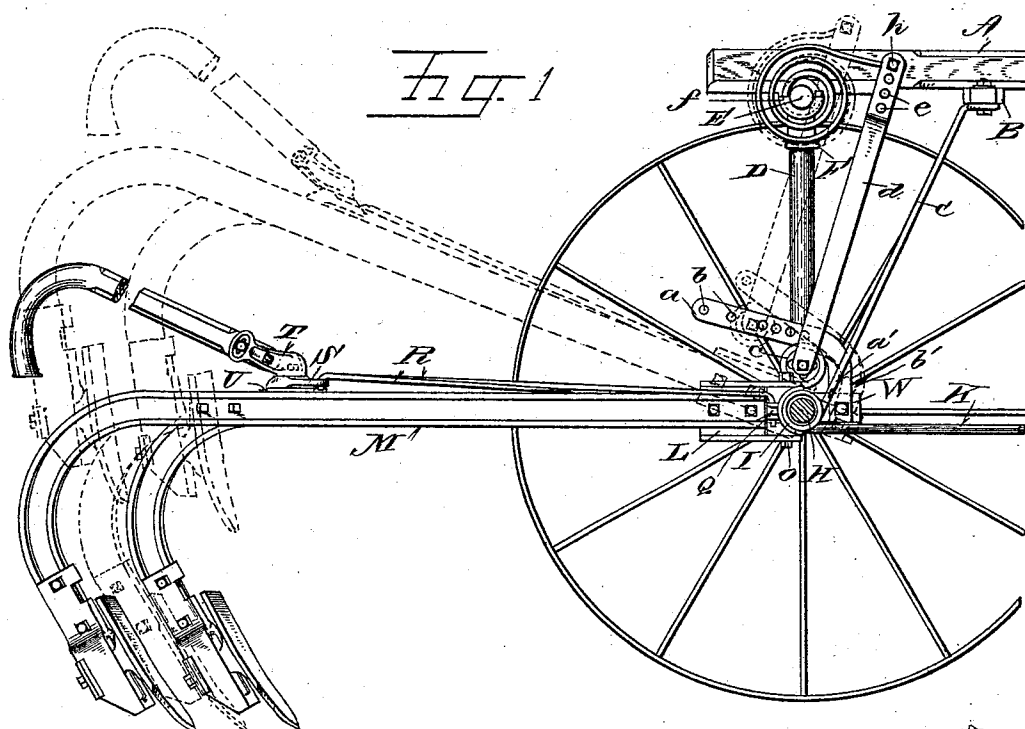
(No Model.)

2 Sheets—Sheet 1.

A. W. BUTT.
CULTIVATOR.

No. 530,075.

Patented Nov. 27, 1894.



Witnesses
Geo. P. Dawley
W. M. Mc Nair.

Inventor
Addison W. Butt,
By his Attorney *A. A. Coulman*

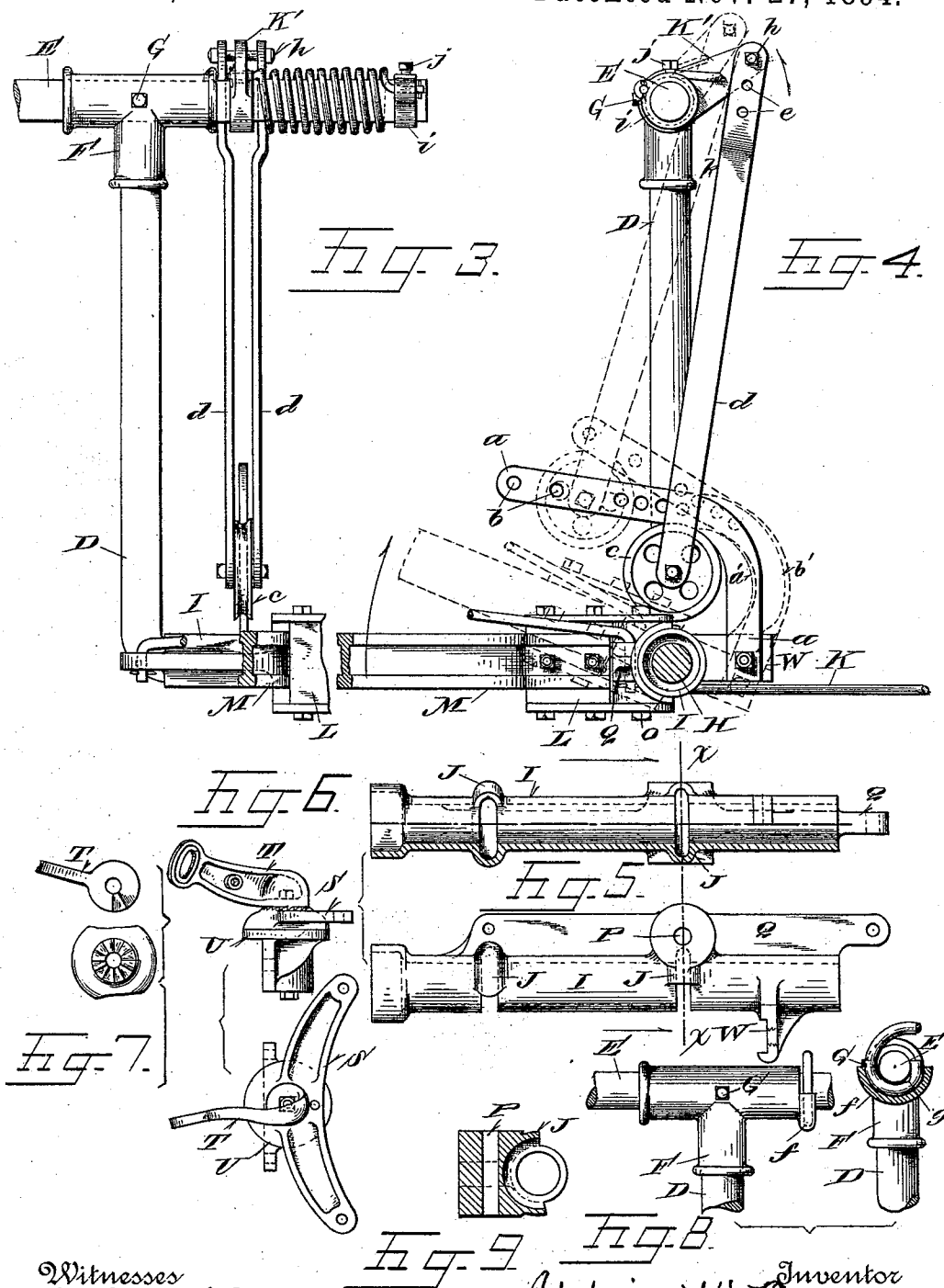
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UNITED STATES PATENT OFFICE.

ADDISON W. BUTT, OF SPRINGFIELD, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 530,075, dated November 27, 1894.

Application filed December 18, 1893. Serial No. 493,942. (No model.)

To all whom it may concern:

Be it known that I, ADDISON W. BUTT, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in cultivators, and the peculiarities have special reference to the spring equipment, the novel features of which are hereinafter fully described and pointed out in the claims.

In the accompanying drawings on which like reference letters indicate corresponding parts: Figure 1, represents a side elevation of a cultivator with my improvements applied thereto; Fig. 2, a plan view of what is shown in Fig. 1; Fig. 3, an elevation of a part of the arched axle looking from the rear and showing a rear view of the spring equipment, the spring in this figure being a modified form; Fig. 4, a side elevation of what is shown in Fig. 3; Fig. 5, a partial sectional view and a plan view of the coupling sleeve; Fig. 6, a side elevation and a plan view of the handle bracket and a cross-yoke; Fig. 7, detail views of what is shown in the side elevation of Fig. 6; Fig. 8, detail views of the T-iron which forms a part of the arched axle and the spring support, and Fig. 9, a sectional view on the line *x x* of Fig. 5; Fig. 10, a view of certain details.

My improved spring equipment may be applied to any approved type of cultivator, and I have shown so much of a cultivator of the type being manufactured by The A. W. Butt Implement Company as is necessary to illustrate the application of the spring equipment. The pole is shown at A, with its cross-beam B, which is braced to the lower part of the axle by rods C. The axle is composed of two upright pieces D and a horizontal piece E, and these pieces are connected together by a T-iron F, a set-screw G being provided to hold the iron to the horizontal piece E so as to vary the distance between the upright pieces, as also their position from the perpendicular to the pole, should it be desired to rake them backward or forward. The lower ends of the uprights D are turned out to form wheel spin-

dles H. On these spindles are placed sleeves I fashioned with enlargements J to receive the brace-rods C, before referred to, and the draft rods K. To these sleeves are pivoted the couplings L of the beams M by a bolt O passing through a hole P. The sleeves further have a web Q, with which engage the cross-rods R which connect with the yoke S operated by the handle and its bracket T and pivotally supported by the block U which is secured to the beams by brackets V.

The sleeve I has a lug W to which is bolted or otherwise fastened the track *a*, which consists of a stout bar of metal which extends up a convenient distance and then passes rearward at a slight incline, sufficiently divergent from the beam itself to permit the traveling device to run rearward on it as the beam moves upward. This track has a number of holes *b*, in either of which a pin or stop may be inserted to limit the distance the traveling device may travel. The preferred form of traveling device is a grooved wheel *c*, which is supported and held against the track by a pitman or link *d*, preferably composed of two bars, one side of the wheel and track, as clearly shown in Figs. 2 and 3. The upper end of this pitman or link has several holes *e*, in it, with either of which the spring may be connected, according to the tension desired. I have shown two forms of springs and two means of connecting them with the pitman. The form shown in Fig. 1 consists of a convolute spring with its inner end passed around the bar E of the axle and into the pocket *f*, of the T-iron. It will be seen in Fig. 8 that the spring is given a short bend *g*, so as to make it hug closely to the axle and prevent its pulling out of the pocket. The free end of the spring is bent to form an eye and is placed between the bars composing the pitman and receives the bolt *h*, which fits in either of the holes in the pitman.

The other form of spring and its attachment is shown in Figs. 3 and 4 in which the bar E of the axle is extended out farther than usual. The spring being of spiral form, is slipped over the bar and its fixed end held by a collar *i*, clamped to the bar by a set screw *j*. On the extended bar is pivoted a crank-arm K' to which the spring is fastened as by inserting the ends of the spring through

the crank. The crank arm is then attached to the pitman in the same manner as the spring is directly attached in the form shown in Figs. 1 and 2.

5 The tendency of the spring is to recoil or throw its free end upward and rearward. Thus it lifts upon the pitman directly in Fig. 1, or indirectly and through the crank-arm in Figs. 3 and 4. When the plow beam or
10 gang is in working position the wheel *c*, is in the curve of the track, and the line of strain, passing from the center of the bolt *h*, through the axis of the wheel, will intersect or substantially intersect the center of the
15 axle spindle. Thus the actual effect of the spring equipment on the beam, when it is in working position, is simply *nil*, or is not felt. When, however, the operator lifts the beam from working position, the wheel begins to
20 move backward on the track, and the spring consequently exerts an appreciable lifting force on the beam, which is augmented as the beam rises by the increase of leverage produced, as the wheel moves farther and
25 farther backward and upward on the track. As this is going on the spring-arm or the crank-arm, (according to the form) is moving more and more nearly over the center on or from which the spring acts when the
30 roller arrives at resting-position. The spring or crank-arm has also reached its resting-position; and at this time the line of strain is nearly through the last named center, and consequently the beam remains held up.
35 I lay particular stress upon these two actions, namely, the position of the traveling device, when the beam is down, so as to pull or be pulled substantially in a line intersecting the center on which the beam turns, reducing the effect to *nil*; and the position of
40 the spring-arm or crank-arm when the beam is up, so as to place the line of strain substantially through the center on or from which the spring acts.

45 I am aware that in cultivators it is old to provide a spring equipment for lifting on the beams, so that the operator will be assisted in lifting them from working position.

I am further aware that it is not new to
50 make these spring equipments operate to not only lift on the beam, but to press its shovels deeper into the soil when the beam is in working position.

I am still further aware that it is not new
55 to provide for augmenting the leverage in lifting, more rapidly than the decrease of tension takes place in the spring.

I am also still further aware that spring
60 appliances have heretofore been made and applied, not only in the cultivator art, but in other arts, and in various classes of machines, where the springs, through their adjunctive devices operate with *nil* or no effect when the parts were in one position, and with increasing
65 effects when the parts are adjusted to either side of such dead center position, and

generally, that all this is old and may be regarded as belonging to the art of counterbalances; but my invention differs from each and all of these in the new and improved combinations and arrangements which are herein
70 shown and described; which are efficient in operation, easy of manufacture, strong and durable, and produce important results in maintaining the beam in its up-position without the usual hang-up-hooks, in relieving the
75 throats of the draft animals by creating a down pressure rather than an up-pressure on the pole, so that the strains are brought on the breast chains, to the extent that any strains
80 occur, and in taking away the effect of the springs, by my peculiar arrangement of parts, when the beam is in working position. When the beams are held up by the spring their weight practically balances the weight of the
85 pole; say in driving from field to field or place to place. The pitman or link might be substituted by some other form of connection between the spring and traveling device. Should the track be arranged to allow the
90 wheel to pass far enough forward to pull forward of the axle center, then the effect would be changed from *nil*, or lifting on the beam, to pressing down on it at the rear or shovel-end.

95 In Fig. 10 the casting *f*, has a lug *f'*, carrying a set-screw *g'*, and the inner end of the spring is adjusted by the screw so as to set the spring in the exact position desired.

In Fig. 4 I have shown by dotted lines *a'*
100 and *b'* my improved track extended forward so as to allow the traveling device or wheel to move in front of the axle center and thus exert a depressing effect on the cultivator beams.

105 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cultivator, the combination with its axle, a beam coupling thereon, a beam pivoted to the coupling in the rear of the axle on a vertical pivot, a track secured to the coupling forward of the axle, running rearward and diverging upward from the beam
110 a wheel traveling on the track, a pitman or link connected to the wheel, a spring encircling a part of the axle, a crank on the axle with which the spring connects, and a connection between the crank and the link or pitman.
115

2. In a cultivator, the combination with its axle, a beam coupling on the axle, a beam pivoted to the coupling in the rear of the axle on a vertical pivot, a track secured to the coupling forward of the axle, running rearward
120 and diverging upward from the beam, a wheel traveling on the track, a link or pitman connected to the wheel, and a spring drawing upward on the link or pitman and supported by the axle.
125

3. In a cultivator, the combination with its axle, a coupling on the axle, a beam pivoted
130

to the coupling in the rear of the axle on a vertical pivot, a track secured to the coupling forward of the axle, running rearward and diverging upward from the beam, the
5 track having a bend in its forward end and a series of holes in its rear portion, and a spring actuated wheel running on the track and adapted to enter such bend so as to pull forward of the axle, and pins adapted to fit

either of the holes to limit the rear movement of the wheel.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON W. BUTT.

Witnesses:

OLIVER H. MILLER,
W. M. MCNAIR.