No. 741,729. PATENTED OCT. 20, 1903.

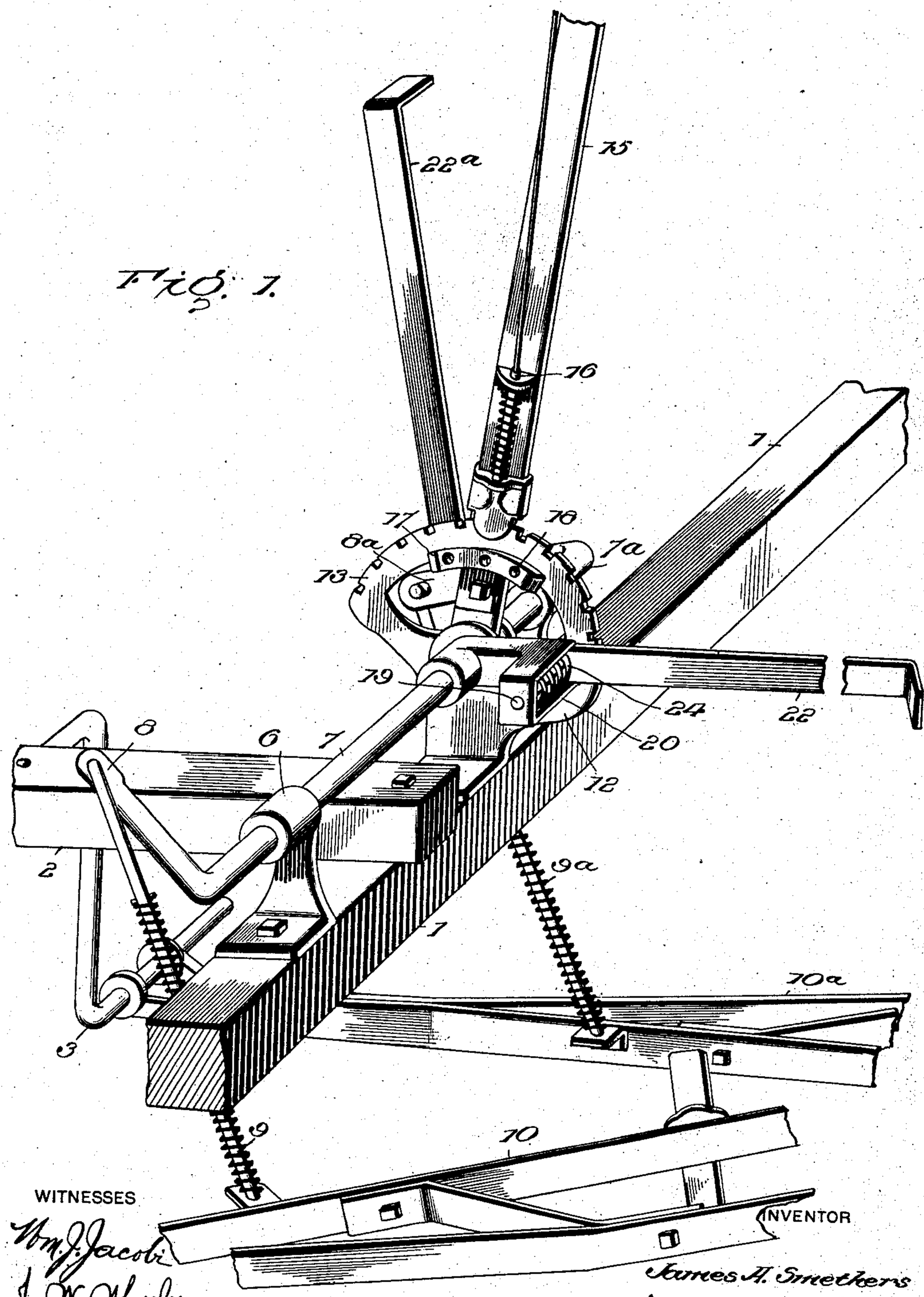
J. A. SMETHERS.

DRAG BAR ADJUSTING DEVICE FOR CULTIVATORS.

APPLICATION FILED JUNE 4, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.




WITNESSES

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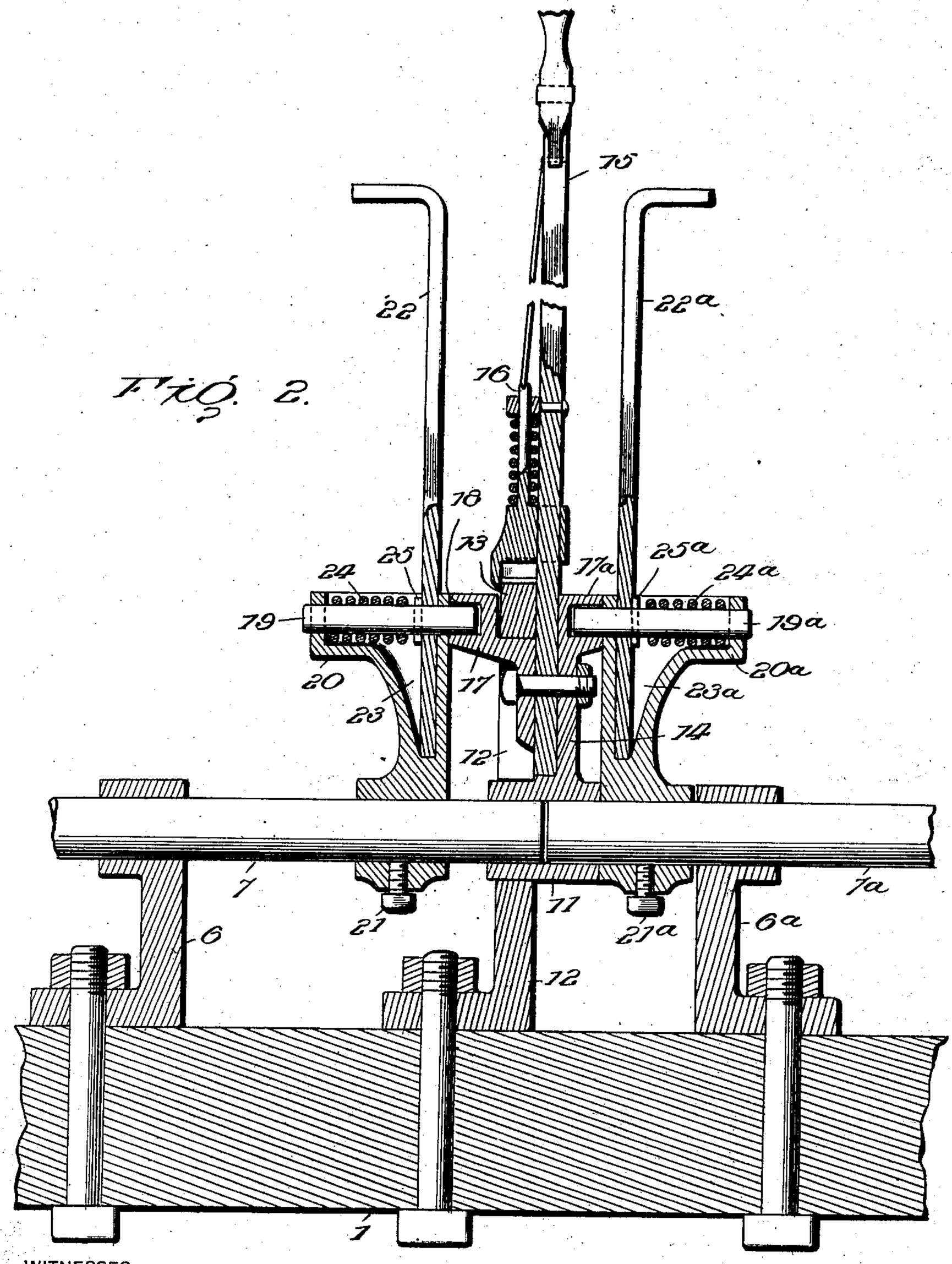
NO MODEL. 2 SHEETS—SHEET 2.

FIG. 2.

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# UNITED STATES PATENT OFFICE.

JAMES A. SMETHERS, OF BEATRICE, NEBRASKA, ASSIGNOR TO THE DEMPSTER MILL MANUFACTURING COMPANY, OF BEATRICE, NEBRASKA.

## DRAG-BAR-ADJUSTING DEVICE FOR CULTIVATORS.

SPECIFICATION forming part of Letters Patent No. 741,729, dated October 20, 1903.

Application filed June 4, 1903. Serial No. 160,050. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. SMETHERS, a citizen of the United States, residing at Beatrice, in the county of Gage and State of Nebraska, have invented certain new and useful Improvements in Drag-Bar-Adjusting Devices for Cultivators, of which the following is a specification.

My invention relates to improvements in wheel-cultivators of the type generally known as "straddle-row" cultivators, and relates especially to improved means for operating the drag-bars which carry the gangs of cultivating-shovels. It has been common in cultivators to provide means for raising and lowering the drag-bars when desired by the operator, and such means have usually consisted in some form of lever-and-ratchet device, each drag-bar being furnished with such a device, or else all the drag-bars have been arranged so as to be operated simultaneously by one elevating and lowering device. Thus in the case first mentioned the driver of a cultivator having four gangs of shovels, a common form, would have four levers to operate and could not well change the adjustment of them all without stopping the machine and leaving his seat. The latter arrangement of having all the drag-bars raised or lowered simultaneously by one lever is objectionable in many respects, it often being desirable, especially when working uneven ground, to carry one or more gangs of shovels at one elevation and another or others at a different elevation. By the use of my improvements any number of gangs up to four can be placed under complete control of the operator, so that any or all of them may be raised or lowered without his stopping the machine or leaving his seat.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a wheel-cultivator, illustrating my invention, parts not directly related thereto being removed or broken away. Fig. 2 is a vertical transverse section through a compound ratchet-and-lever device embodying my invention.

1 designates one of the transverse main sills of the machine-frame; 2, one of the forwardly-projecting tongues; 3, one of the cranked transverse share-bars to which the drag-bars 10 10ª are suitably attached. On the sill 1 are mounted brackets or trunnions 6 6ª, each bored to receive a section 7 or 7ª of a divided crank-shaft having at its outer ends crank-arms 8 8ª, to which are pivotally attached lift-rods 9 9ª, extending downward to suitable connections with the drag-bars 10 10ª. The inner and meeting ends of the sections 7 7ª of the crank-shaft are loosely held in a hub 11, surrounding the joint, and said hub is rotatably held and supported in a ratchet-frame 12, secured at its base to sill 1 and extending upward and terminating in a notched arc or segment 13. The hub 11 has an upward extension 14, in which is secured a main lever 15, provided with the usual spring-catch 16, adapted to engage the notches of arc 13. It will be seen that when said catch 16 is released from arc 13 lever 15 and hub 11 are free to rotate about the divided crank-shaft, the hub supporting the meeting ends of the sections 7 7ª of the shaft and being in turn supported by the frame 12.

The outer faces of the extensions 14 of hub 11 carry, either integral or attached, segments 17 17ª, provided with a series of holes or notches 18, adapted to receive spring-pins 19 19ª, which are mounted in boxes 20 20ª, firmly secured on the crank-shaft sections by set-screws 21 21ª, or otherwise. In the boxes 20 20ª are secured side levers 22 22ª, by means of which the respective sections of the crank-shaft may be rotated to lift or lower the drag-bars 10 10ª to any desired degree of elevation.

The boxes 20 20ª are open or slotted longitudinally at the top, and said openings extend downward into the castings, forming sockets 23 23ª to receive the side levers 22 22ª. The pins 19 19ª pass through openings in levers 22 22ª, and the spiral springs 24 24ª surround said pins, being interposed between the outer ends of boxes 20 20ª and keys 25 25ª, which pass through pins 19 19ª. Sufficient space is provided in the bottom of sockets 23 23ª, on the outer sides of levers 22 22ª, to permit said levers to be inclined outwardly far enough to release pins 19 19ª from the holes in segments 17 17ª when said levers are moved outwardly

against the stress of springs 24 24ª. When it is desired to reëngage the pins with the segments, the recoil of the springs carries the pins back to proper position.

It will be seen that the main lever 15 can be operated to lift or lower the drag-bars whenever the pins 19 19ª are in engagement with one of the holes or notches 18 of the segments 17 17ª. If this engagement exists in the case of both the side ratchets, then both sections of the crank-shaft, and consequently both drag-bars, may be operated simultaneously by the main lever 15. If only one side ratchet is in engagement, then only the drag-bar on that side will be operated by said lever, and if both the side ratchets are thrown entirely out of engagement with the segments then each drag-bar will be dependent for operation on its individual lever 22 or 22ª, as shown in Fig. 1, section 7 of the crank-shaft, and consequently drag-bar 10, is thrown out of connection with main lever 15, while section 7ª and drag-bar 10ª are still controlled by said main lever 15.

It is to be understood that when four drag-bars are used in one machine, as is common, the driver's seat will be so located that he will have a set of the compound ratchet-levers described on each side of him, thus placing all four drag-bars within his easy control without his leaving his seat.

I do not limit my claims to the special forms of ratchets shown and described, and any form of ratchet or any preferred means of securing the main lever in fixed position or of connecting the side levers to said main lever may be substituted for those shown without departing from my invention.

It is obvious that this invention need not necessarily be limited in its use to cultivators for elevating or lowering the drag-bars, but that it is equally applicable to grain-drills, plows, harrows, or any other implement in which a plurality of tools of any description, whether shovels, plows, hoes, disks, or furrow openers or closers of any kind, are to be operated intermittently or at varying elevations.

Having described my invention, I claim as new and desire to secure by Letters Patent—

1. In a cultivator or like implement, the combination with the main frame of a drag-bar-adjusting device comprising a divided crank-shaft mounted on said frame, lift-rods connecting the sections of said shaft with the drag-bars, a lever secured to each of said sections, a main lever pivoted on said shaft between said first-mentioned levers, means for connecting at will either or both of said side levers with the main lever, and means for adjusting said main lever at any desired angle to said shaft, substantially as set forth.

2. In a cultivator or like implement, a drag-bar-adjusting device comprising a crank-shaft made in two sections, lift-rods connecting said sections with the drag-bars, a rotatable hub covering the meeting ends of said sections, a main ratchet-lever secured to said hub, side ratchets carried by said main lever, side levers secured to each section of said shaft, and means for connecting or disconnecting either or both said side levers with said main lever, substantially as set forth.

3. In a cultivator or like implement, a drag-bar-adjusting device comprising a divided crank-shaft, lift-rods connecting the sections of said shaft with the drag-bars, a rotatable hub surrounding the meeting ends of said sections, a main lever secured to said hub, a spring-catch carried by said main lever, a fixed ratchet to engage said catch, an upward extension of said hub provided with lateral ratchets, a side lever secured to each section of the shaft, and catches carried by said side levers adapted to engage said lateral ratchets, substantially as set forth.

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

JAMES A. SMETHERS.

Witnesses:
D. W. CARRE,
O. J. EMERY.