(No Model.)

A. S. LINTHICUM.

COMBINED LAND MARKER, COVERER, AND FURROWER.

No. 542,391. Patented July 9, 1895.

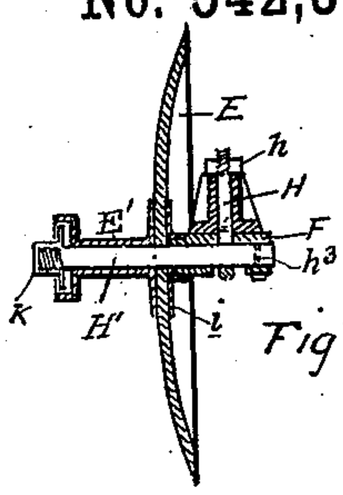

Fig 4.

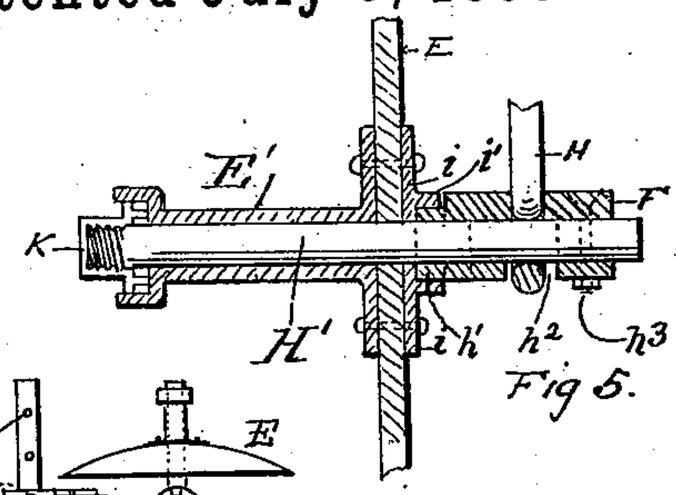

Fig 5.

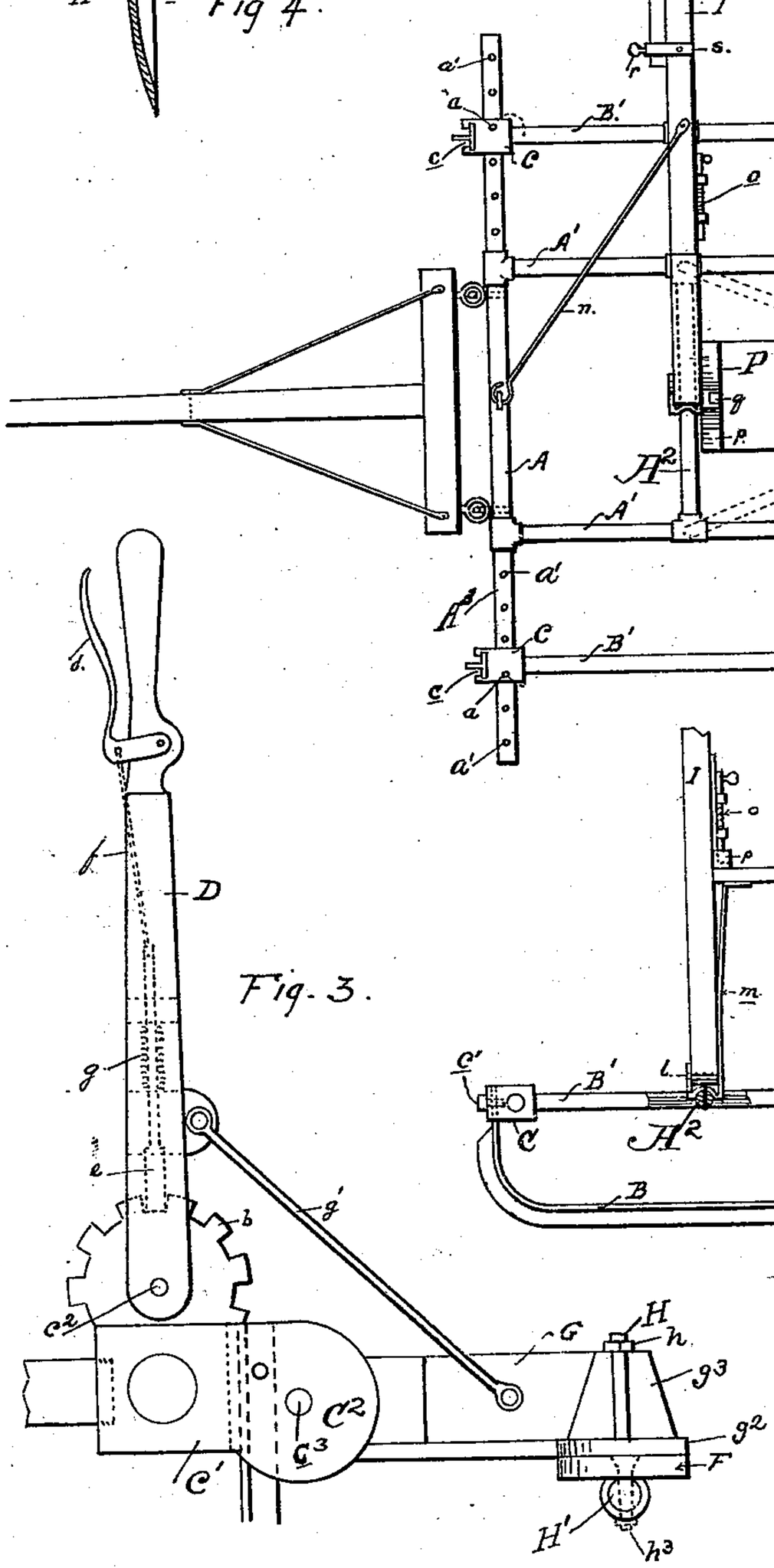

Fig 1

Fig. 3.

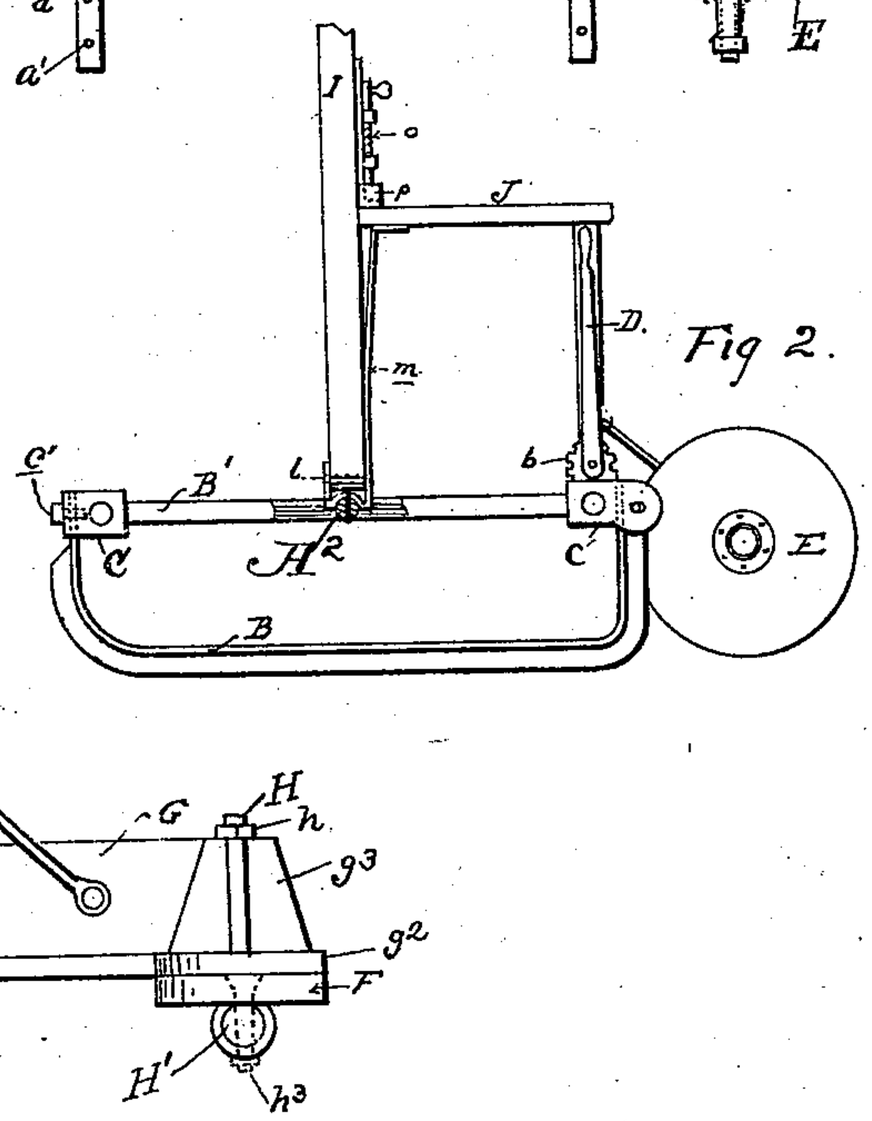

Fig 2.

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COMBINED LAND MARKER, COVERER, AND FURROWER.

SPECIFICATION forming part of Letters Patent No. 542,391, dated July 9, 1895.

Application filed March 1, 1895. Serial No. 540,154. (No model.)

To all whom it may concern:

Be it known that I, ASA S. LINTHICUM, a citizen of the United States, residing at Wellham's Cross Roads, in the county of Anne Arundel and State of Maryland, have invented certain new and useful Improvements in a Combined Land Marker, Coverer, and Furrower; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in combined land markers, coverers, and furrowers; and it consists in the construction and arrangement of parts hereinafter described, and definitely pointed out in the claims.

The aim and purpose of the invention are the provision of an improved machine of the nature above indicated which will be susceptible of quick and easy adjustment of the members and embodying structural simplicity, and, further, to so construct the several details and connections that durability is assured and the expense of production comparatively slight.

The objects of the invention are attained by the construction illustrated in the accompany drawings, wherein like letters of reference designate corresponding parts in the several views, and in which—

Figure 1 is a plan view. Fig. 2 is a side elevation showing parts broken away. Fig. 3 is a detail elevation of a coupling member. Fig. 4 is a detail section through one of the disks, and Fig. 5 is a similar view on an enlarged scale.

In the drawings, A A designate the two end bars of the frame, and A′ A′ the side bars, the latter being centrally connected by a central cross-bar A^2, the whole forming a rigid frame. From opposite ends of the end bars extend the extensions A^3, each having a series of perforations a', which are arranged substantially throughout the length of the same. On these extensions are the sliding blocks C C′, which have perforations therein, through which suitable pins pass into the apertures a'. The blocks C C′ are rigidly connected by the connecting-bars B′ B′. The outer ends of the blocks C are bifurcated, as at c, and in this bifurcation the upper ends of the T-runners B are secured by suitable screw-bolts c'.

Centrally on the upper face of the blocks C′ are cast or otherwise rigidly secured the sector-racks b, which carry the adjusting-levers D, the same being bifurcated and spanning the sector, their lower ends being pivotally secured to the sectors by the pivot-pins c^2. The levers carry the usual spring-actuated dogs e, which are withdrawn by the thumb-piece d through the connecting-rods f.

On the rear faces of the blocks C′ are ears C^2 spaced apart and between which the rear ends of the runners B pass and are suitably secured.

G designates the disk-carrying arms, which are bifurcated at their forward ends and pivotally secured between the ears C^2 by the journals c^3, so as to have a vertical swinging movement. Heretofore it has been suggested to adjust these arms G by employing a perforated segment and passing pins through the perforations and arms. Such adjustment required considerable trouble and in each case the pins required removal. To avoid such objections I connect the arms at a point near their ends back to the levers D by the rigid rods g', which have pivotal connections at opposite ends. By this means the lever through the dog and sector firmly retains the arm in its adjusted positions and enables the adjustments to be made very quickly and during the employment of the machine. On the outer ends of the arms G are the swiveling plates g^2, braced by the tapering ribs g^3 on their upper faces, through the connected edges of which the eyebolt H passes, the latter being capped by the binding-nut h. On the under side of the plate g^2 is the hub-plate F, closely fitting the plate g^2 and having the cylindrical edge extension h' and recessed under face, as at h^2. The hub-plates have the transverse bores, in which the shaft H′ passes, the same passing through the extension h' and eye of the eyebolt H. The shaft is fixedly secured in the plate F by screw-bolts h^3 passing through the plate and end of the shaft.

E designates the disks, each having the elongated bearing-sleeves E′ on their outer faces, through which the shaft passes. The outer ends of the sleeves E′ are flared, and suitable securing-nuts K, in the form of dust-

caps, are threaded onto the ends of the shafts and located in the flared ends of the sleeve. By this means a close tight joint is formed. On the inner faces of the disks apertured plates *i* are secured, each having circular flanges *i'*, within which the projections *h'* enter, the latter thereby acting as an additional bearing for the disk. By this construction it will be seen that the angularity of the disk can be quickly effected by loosening the eye-bolt in the usual manner, and when it is necessary to oil the bearing it is only necessary to remove the nut K and draw the disk off, the shaft remaining in place.

The additional advantage of the flange *i'* and extension *h'* is that a close dust-tight joint is formed at that point.

On the cross-bar A^2 is pivotally supported the marker I, which carries the extension-arm I', the inner end of which passes through clamps *s* on the arm and is secured in adjusted positions by set-screws *r*. On the side of the arm is a spring-bolt *o*, which engages the inclined faces of the latch-plate P, mounted on the forward end of the seat J. The plate P has a depression *q* at its center, into which the bolt *o* enters when the arm I is in a vertical position.

n designates a swinging brace-rod for the arm, loosely secured to the front bar A. L (shown in dotted lines) designates seat-braces which may be employed. The forward end of the seat is supported by a rigid extension *m* of the pivot-bracket *l* of the arm.

It is evident from the above-described construction that a quick interchange of the runner-blocks can be had and their adjustment readily effected without the use of bolts, which necessitate wrenches or other hand-tools when removal is necessary.

It is further apparent that the fewest possible number of parts are employed, each block C C' being an integral unit.

In the event that coverers are required, the same will be placed on the outer ends of the rearmost extensions. These coverers are in all respects the same as the furrowers, with the disks arranged in a reverse order—that is to say, the blocks C' alone are sleeved on the outer ends of the extensions beyond the recesses, and the disks are arranged on their proper angles to effect the proper covering of the seed.

I am aware that slight changes can be made without in the least departing from the nature and principle of my invention.

Having thus fully described my invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a marker and furrower, the combination with a central rigid frame, of parallel extensions projecting laterally from the opposite corners of the frame, and provided with a series of apertures, runner sections comprising connecting bars, runners, and the blocks C C', having horizontal openings through which the extensions pass and vertical apertures, removable pins fitting through the apertures in the blocks and extensions, ears on the blocks C', a disk-supporting arm pivotally secured to the ears, an adjustable disk on the arm, a sector rack fixedly secured to the block C', a lever carrying the dog engaging the rack, and a rigid rod pivotally connecting the lever with the disk-supporting arm, substantially as described.

2. The combination with the rectangular frame, of projections extending laterally from the ends thereof, parallel with each other and formed with a series of perforations, a laterally adjustable runner section comprising a runner, a cross-bar, and single piece blocks connecting the same formed with horizontal openings through which the extensions pass, and apertures in line with the apertures in the extensions, and removable securing pins passing through the apertures, substantially as described.

3. The combination with a frame, of a laterally adjustable runner section and means for effecting the adjustment thereof, a single piece coupling block at the rear of the runner formed with integral lateral projections and a rigid sector, a lever secured on the sector carrying a suitable locking dog, a vertically adjustable disk-supporting arm pivotally secured to the projections of the block, a disk at the outer end of the arm, and a rigid rod pivotally connected to the arm at one end and with a lever at the opposite end, substantially as described.

4. The combination with a frame, of laterally adjustable runners, coupling blocks between the frame and rear ends of the runners consisting of single piece blocks having ears, vertically adjustable disk supporting arms pivotally secured to the ears, a disk on the arms, a lever pivoted on the machine, means for holding the lever in adjusted positions, and a rigid link connecting the lever with the arms, substantially as described.

5. The combination with a disk-supporting arm having a bearing plate at its outer end, of an apertured hub plate an eye-bolt passing through the plates, a shaft passing through the hub plate and eye-bolt, independent means for securing the shaft in the hub plate, a disk, an elongated sleeve secured to the outer face of the disk, and a nut on the shaft entering a recess in the sleeve and engaging the same for securing the disk on the shaft, substantially as described.

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

ASA S. LINTHICUM.

Witnesses:
G. A. PENNINGTON,
L. S. BACON.