

(No Model.)

4 Sheets—Sheet 1.

E. C. SCHWINGEL.
POTATO HILLER.

No. 551,513.

Patented Dec. 17, 1895.

Fig. 1.

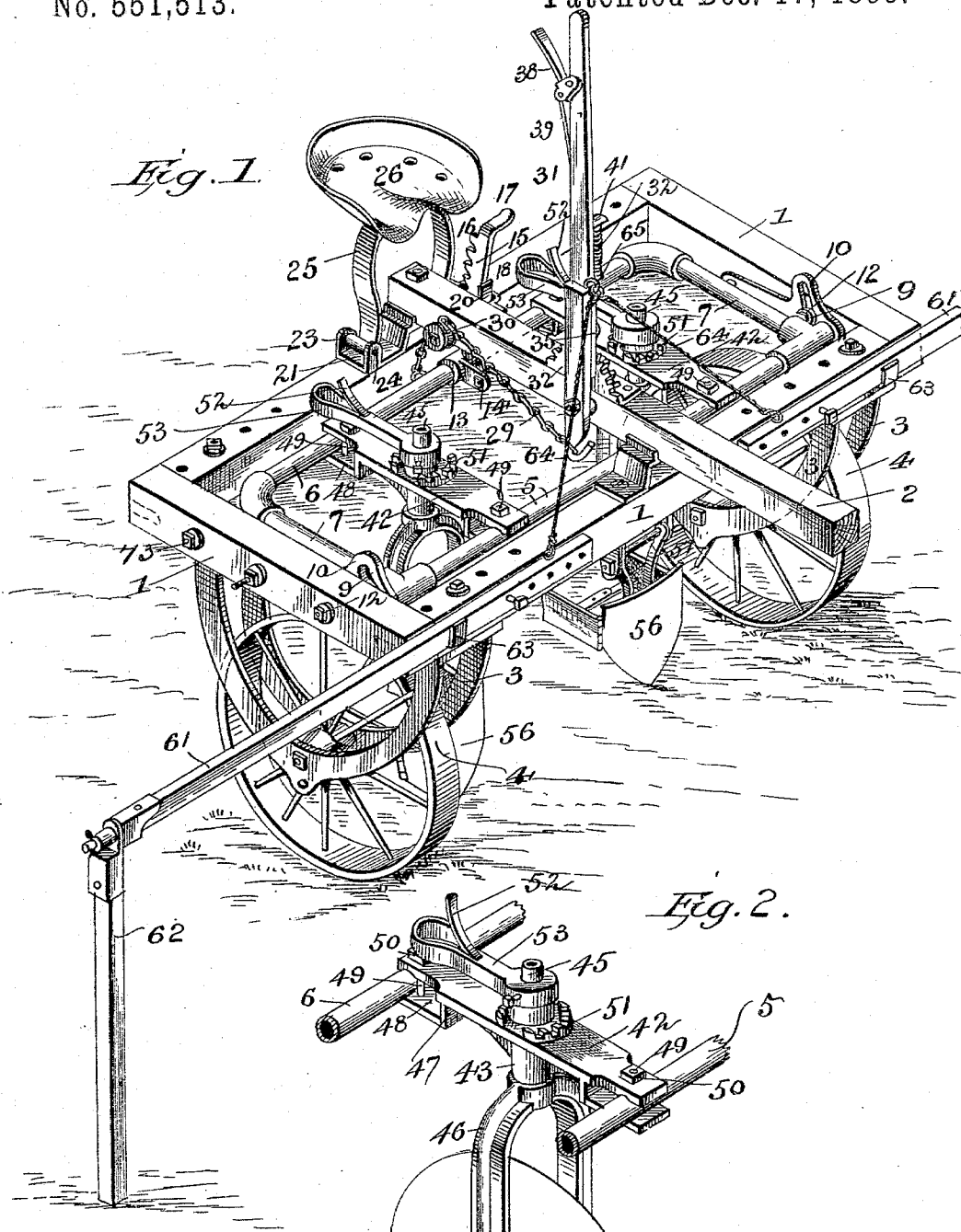
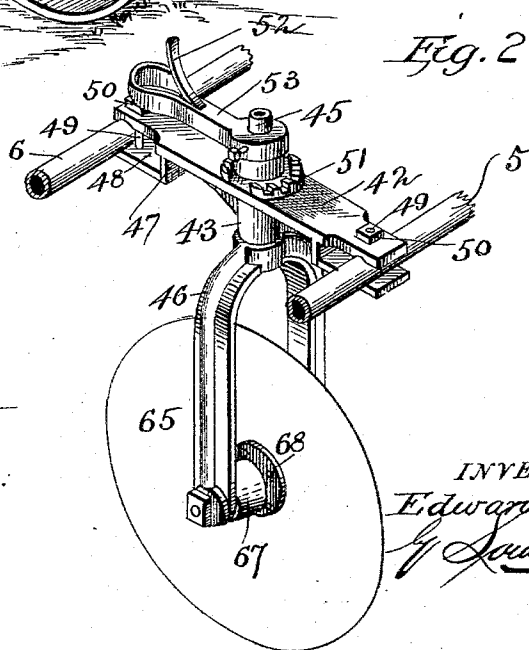


Fig. 2.



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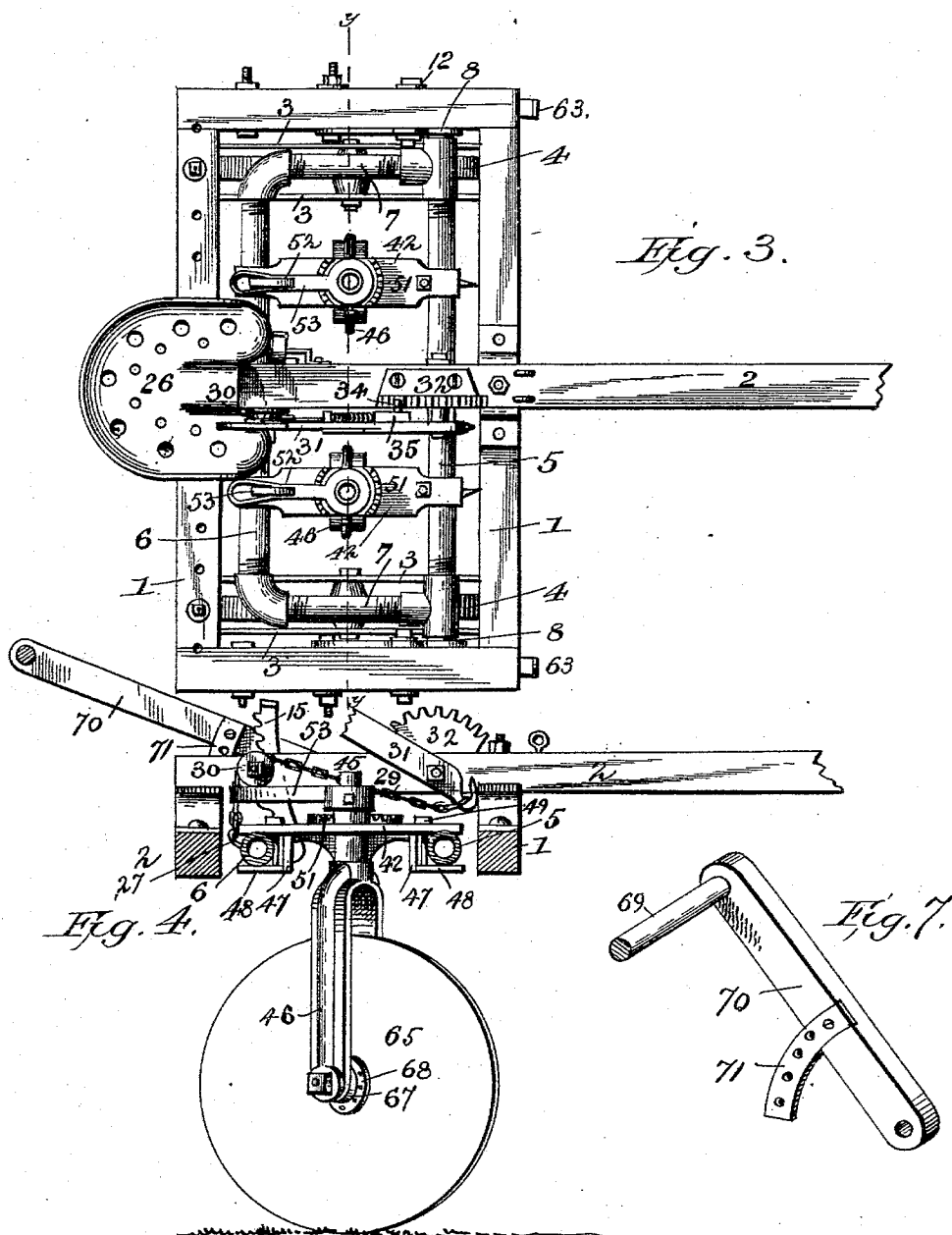
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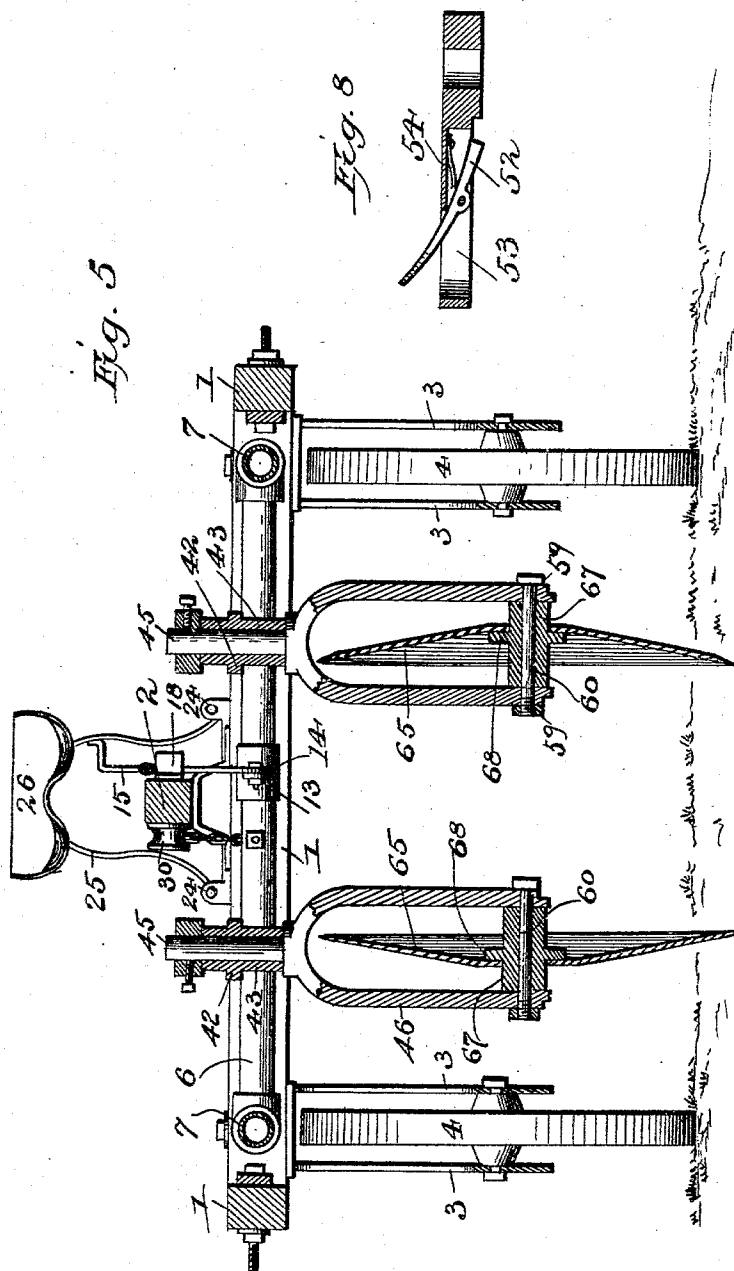
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4 Sheets—Sheet 3.

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4 Sheets—Sheet 4.

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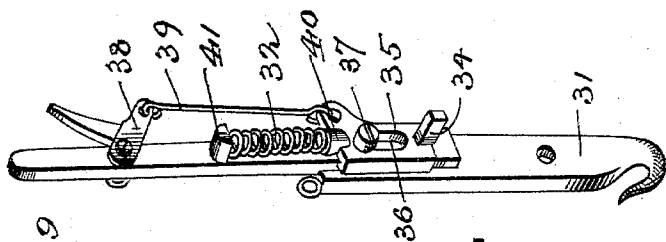


Fig. 9

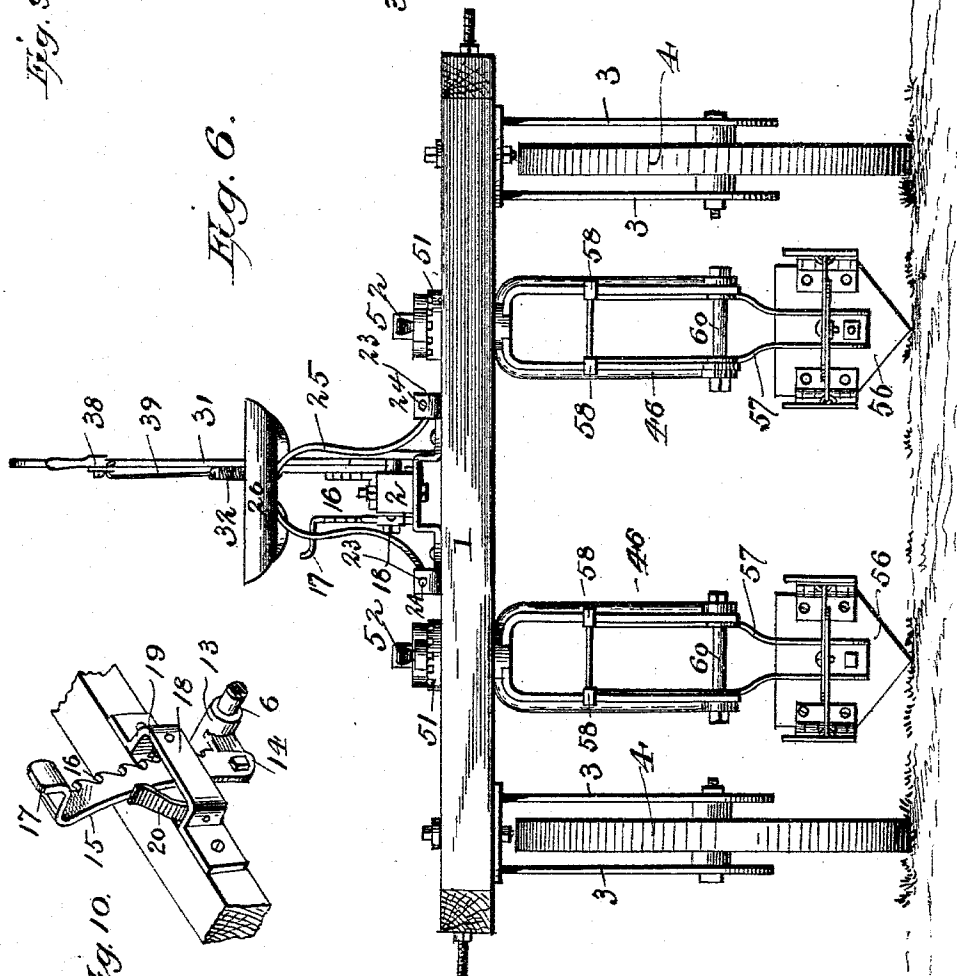


Fig. 6.

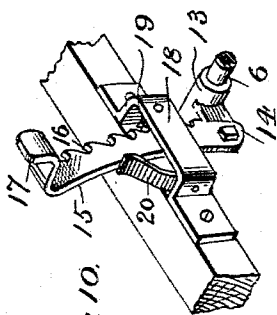


Fig. 10.

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UNITED STATES PATENT OFFICE.

EDWARD C. SCHWINGEL, OF DANSVILLE, NEW YORK.

POTATO-HILLER.

SPECIFICATION forming part of Letters Patent No. 551,513, dated December 17, 1895.

Application filed March 16, 1895. Serial No. 541,982. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. SCHWINGEL, a citizen of the United States, and a resident of Dansville, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Potato-Hillers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in machines for forming furrows for planting potatoes and which may be converted into coverers or hillers; and its object is to provide an improved construction of the same which shall possess superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view showing the machine used for forming furrows. Fig. 2 is a similar view of one of the forks with the shovel removed and a disk substituted therefor, as when the machine is employed as a coverer. Fig. 3 is a plan view. Fig. 4 is a longitudinal section, the seat, wheels, and hangers being removed, as when the machine is used for hilling potatoes. Fig. 5 is a transverse section on the line *y y*, Fig. 3. Fig. 6 is a rear elevation, and Figs. 7, 8, and 9 are detail views. Fig. 10 is a detail perspective view showing the toothed arm for depressing the swinging frame and the bracket and pin for holding the arm in place.

In the said drawings, the reference-numeral 1 designates a rectangular frame provided with a tongue 2 and at each end with brackets 3, to which are journaled the wheels 4. Located within this frame is a swinging frame, consisting of front and rear transverse bars 5 and 6 and side bars 7, which are preferably of gas-pipe. The ends of the front bar 5 are formed with studs 8, which are journaled in adjustable brackets 9, secured to the side bars of frame 1. The rear ends of these brackets are pivoted to said bars and near their front ends are formed with slots 10, with which en-

gage bolts 12, for securing them in their adjusted positions. Secured to the rear transverse bar 6 is a collar 13, provided with lugs 14, to which is pivoted an upwardly-extending bar 15, provided with teeth 16, and its upper end is bent outwardly at a right angle, forming a foot-piece 17 by which the swinging frame can be depressed. This bar passes through a bracket 18, provided with a pin 19, with which the teeth engage. A spring 20 is secured to said bracket for pressing the teeth into engagement with the said pin. Secured to the rear cross-bar of the frame 1 is a bracket 21, formed at each end with two lugs 23, through which pass pins 24.

The numeral 25 designates a bent spring upon which is mounted a seat 26. The ends of this spring are formed into loops which engage with said pins. Also secured to the said rear cross-bar is a hook 27, with which is connected one end of a chain 29, which passes over a pulley 30, secured to the tongue. The other end of this chain is secured to a lever 31, pivoted to the tongue.

The numeral 32 designates a segment-rack with which engages a pin 34 carried by a block 35. This block is provided with a slot 36, through which passes a headed screw 37. This block is connected with a crank-lever 38 by means of a rod 39, and is also provided with a lug 40, between which and a lug 41 on the lever 31 is confined a coiled spring 32, the tendency of which is to press the block downward and cause its pin 34 to engage with the teeth of the segment-rack. By pulling the lever 31 backward the rear cross-bar of the frame with which the chain is connected will be elevated, the front cross-bar turning on the bearings secured to the frame 1. Connected with said bars 6 and 7 are laterally-adjustable cross-heads 42, formed with hubs 43, through which pass shafts 45 of forks 46, which carry the removable and interchangeable shovels and covering-disks hereinafter described. The said cross-heads at each end are provided with a lug 47, against which abut the inner ends of clamping-plates 48, which are held in place by means of screw-bolts 49 and nuts 50. By loosening the said nuts the cross-heads can be adjusted on the said bars. The upper sides of the cross-heads are formed with rack-

segments 51, with which are adapted to engage levers 52, pivoted in slots in arms 53, secured to the shafts of the forks. Springs 54 serve to throw the said levers into engagement with the racks.

The numeral 56 designates the furrowing-shovels, which may be of any ordinary construction and are provided with standards 57, the upper ends of which are provided with lugs 58, which engage with the edges of the forks. The standards are formed with holes, through which pass shafts 60, which also serve as axles for the covering-disks when the latter are substituted for the shovels.

Pivoted to the front of frame 1 are two laterally-extending arms 61, having gages 62 pivoted to their outer ends which travel in the furrows. Brackets 63 secured to the front of frame 1 support the arms 61. Secured to said arms 61 are cords or ropes 64, the opposite ends of which are secured to a lug 65 on the lever 51, so that when said lever is operated to elevate the swinging frame the arms and gages will also be elevated or raised out of the way.

The numeral 65 designates the covering-disks which are connected with the forks when the shovels are removed. This disk is a circular concavo-convex plate of metal provided with a central hole for the passage of a hub 67, having a flange 68 which is bolted to the disk. The axles or shafts 60 of the forks pass through these hubs.

The operation is as follows: The shovels are secured to the forks and the gages set in place and the machine drawn across a field, the shovel forming the furrows for the potatoes. After the latter have been planted, the gages and shovels are removed and the disks connected with the forks. If the machine is now pulled over the field the disks will turn the earth over upon and cover the potatoes. The proper angle can be given to the disks by turning the arms of the shafts of the forks.

For hilling potatoes the seat, the wheels, and their brackets are removed and a handle 69 secured to the frame 1. This handle consists of a transverse bar provided at each end with arms 70, which are pivoted to the sides of the frame. Near their lower ends these arms are provided with segments 71, formed with a number of holes 72 to receive pins 73 by which the inclination of the same can be adjusted. In this form the operator walks behind the machine and guides the same by the handle.

Having thus fully described my invention, what I claim is—

1. The combination with the rectangular frame, of the swinging frame comprising the front and rear transverse bars and the side bars, the studs on the ends of the front transverse bar, the laterally adjustable cross heads, the forks and the shafts journaled in said cross heads, the rack bar pivotally connected with the rear transverse bar, the bracket through which it passes provided with a pin,

the chain secured to said bar, the pulley over which it passes, the pivoted lever, its slidable block and pin, the connecting rod and crank lever, the segment rack and the coiled spring for actuating said block and pin, substantially as described.

2. The combination with the rectangular frame, the swinging frame journaled therein, and the laterally adjustable cross heads, provided with segment racks, of the shafts journaled to said cross heads, the arms secured thereto, the forks, the disks journaled thereto, the arms secured to the upper ends of said shafts, the levers pivoted to said arms and the springs secured to said arms and bearing upon the levers substantially as described.

3. The combination with the rectangular frame and the swinging frame journaled therein, of the laterally adjustable cross heads, the shafts and forks journaled therein, the shovels the standards to which they are secured provided with holes intermediate their ends and with lugs at their upper ends and the shafts passing through said holes, substantially as described.

4. The combination with the rectangular frame, the swinging frame journaled therein, the laterally adjustable cross heads, the forks, and the shovels, of the arms pivoted to said rectangular frame, the gages pivoted to the ends thereof, the cords secured to said arms, the lever pivoted to said rectangular frame to which said cords are also secured, the chain connected with said lever and with the swinging frame, substantially as described.

5. The combination with the rectangular frame and the swinging frame journaled therein of the laterally adjustable cross heads, the rotatable shafts journaled therein, the forks the disks journaled thereto, the lever and chain for elevating said swinging frame, the removable brackets and wheels and the removable seat, substantially as described.

6. The combination with the rectangular frame, the swinging frame journaled therein, the laterally adjustable cross heads, the shafts journaled therein and the forks, of the concavo-convex disks, the hubs having flanges to which said disks are secured and the axles passing therethrough, substantially as described.

7. The combination with the rectangular frame, the slotted bearings secured thereto and the bolts passing through said slots, of the swinging frame journaled in said bearings, the laterally adjustable cross heads, and means for elevating and depressing said swinging frame, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

EDWARD C. SCHWINGEL.

Witnesses:

ELIZABETH BURGESS,
HIRAM F. ADAMS.