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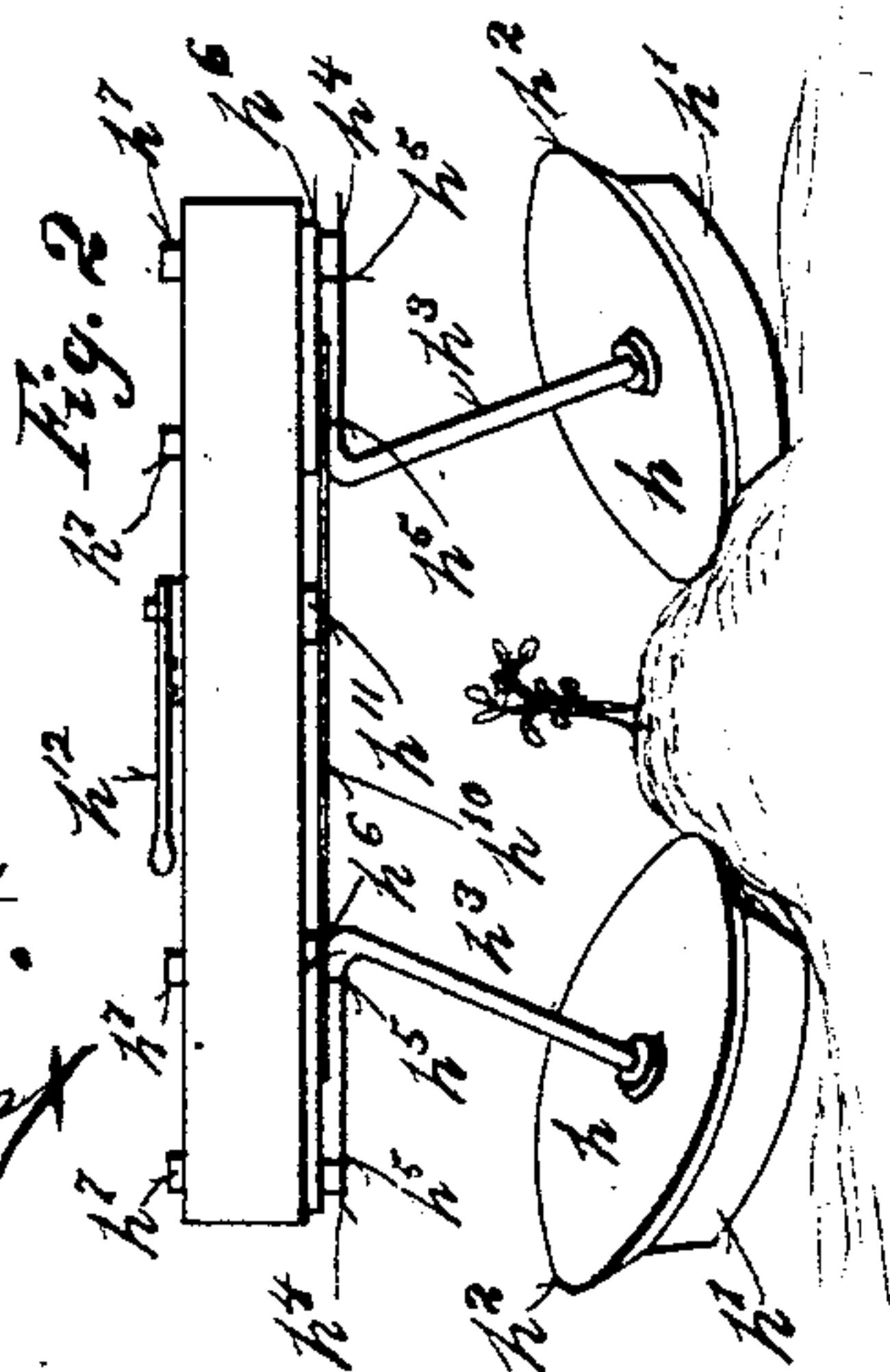
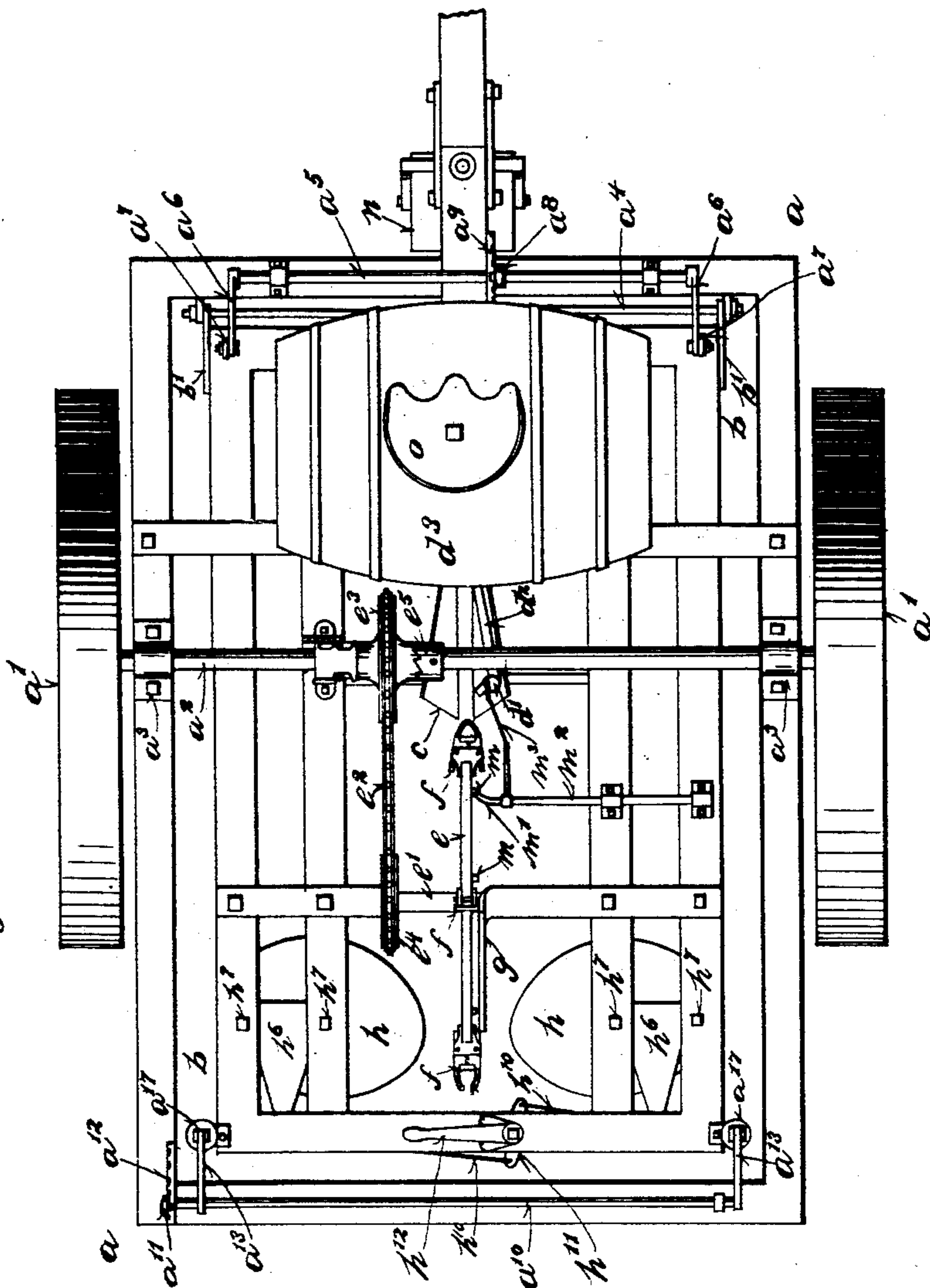
3 Sheets—Sheet 1.

W. M. KUHN.
TOBACCO PLANTER.

No. 520,187.

Patented May 22, 1894.

Fig. 1



WITNESSES:

Frankelbatt.
And B. Ernst

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William M. Kuhn

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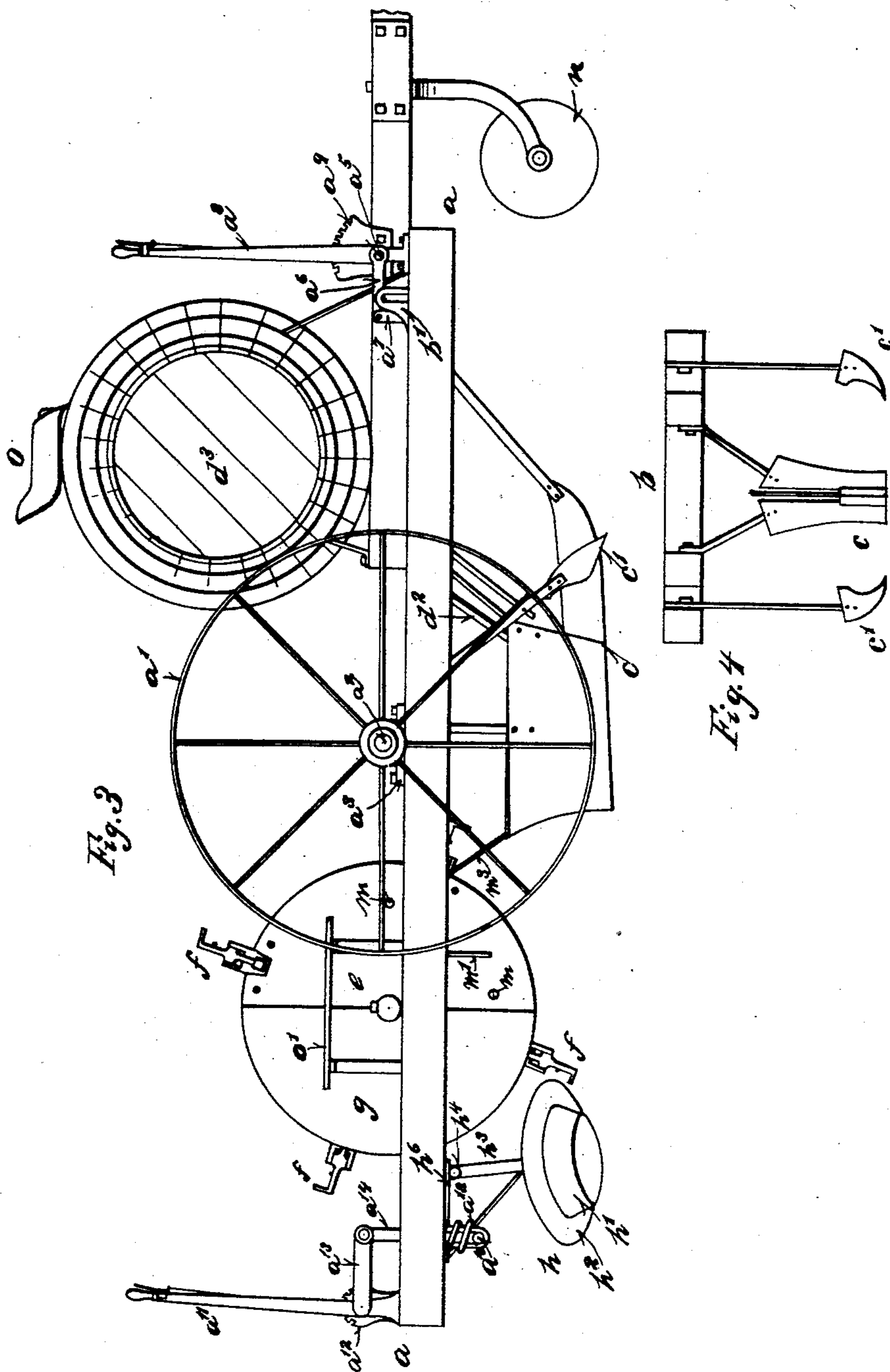
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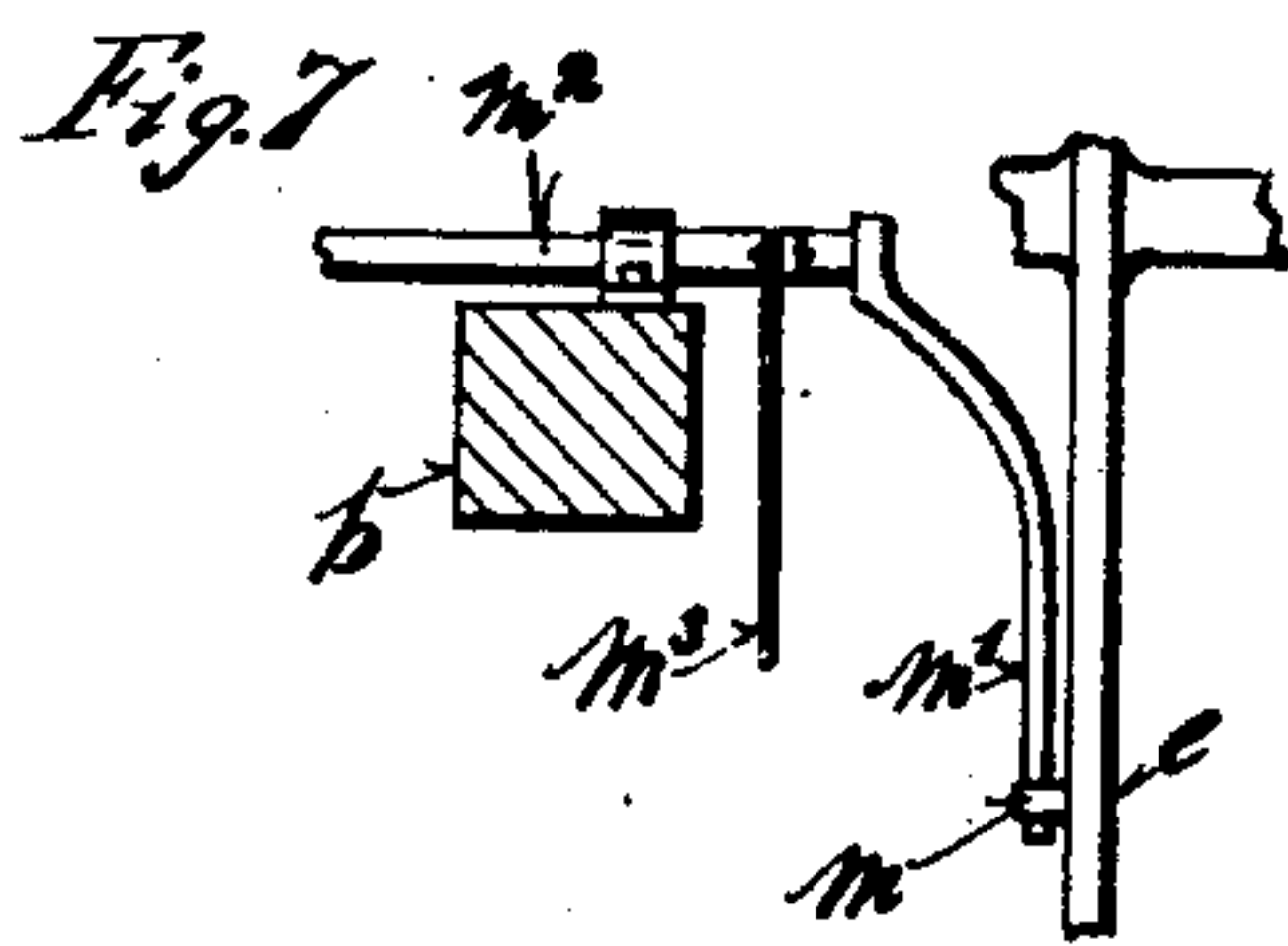
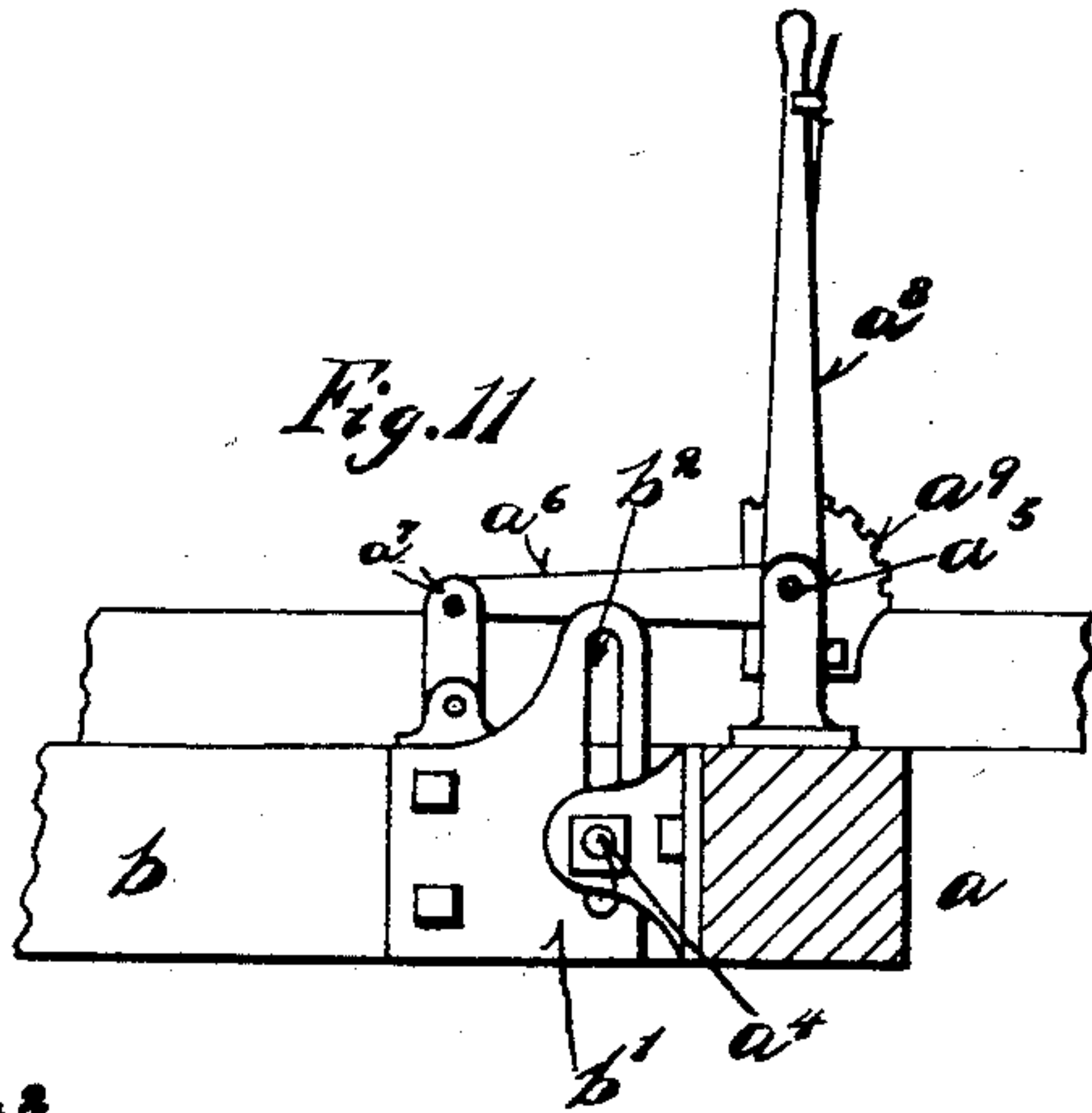
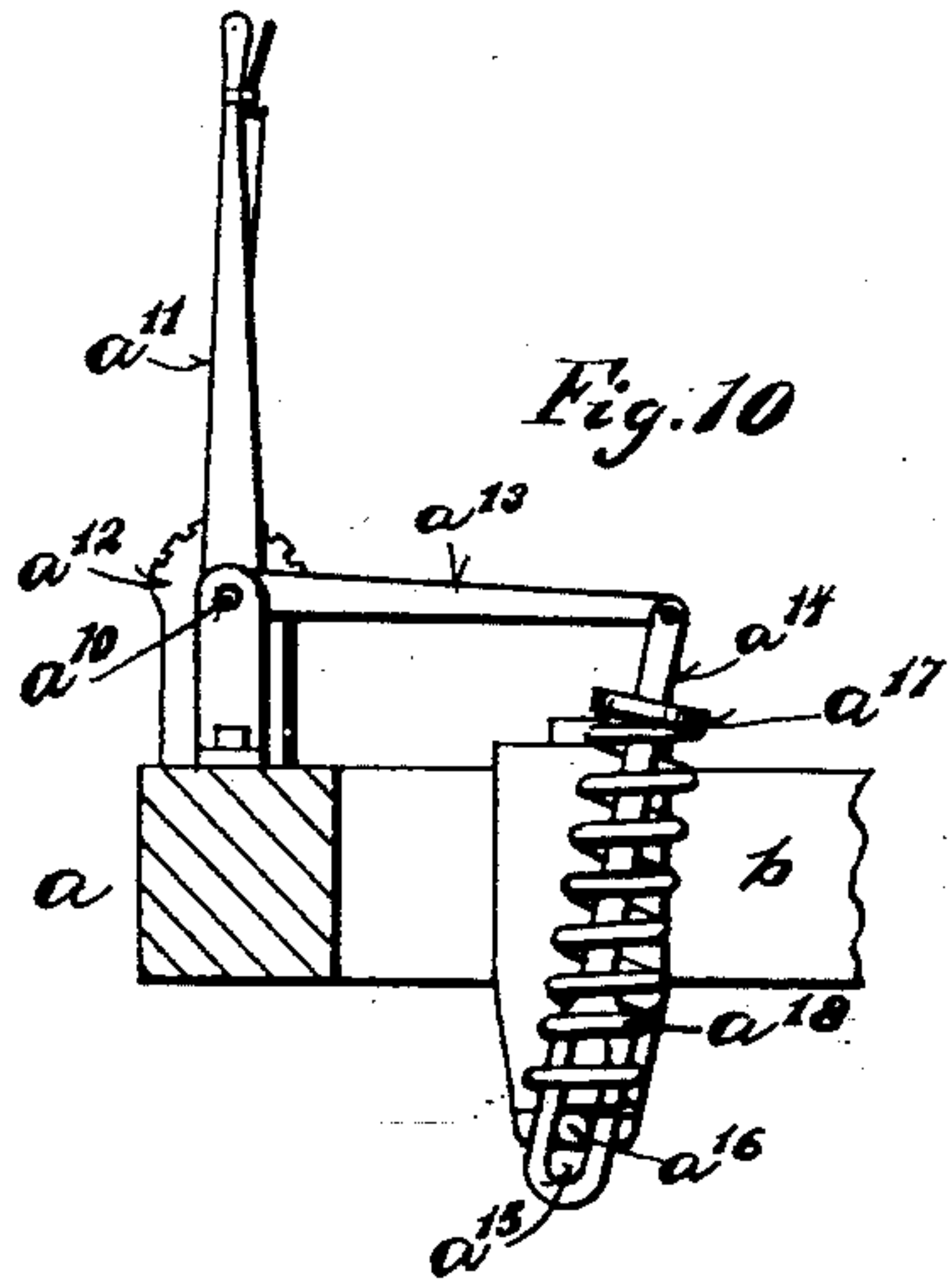


Fig. 5

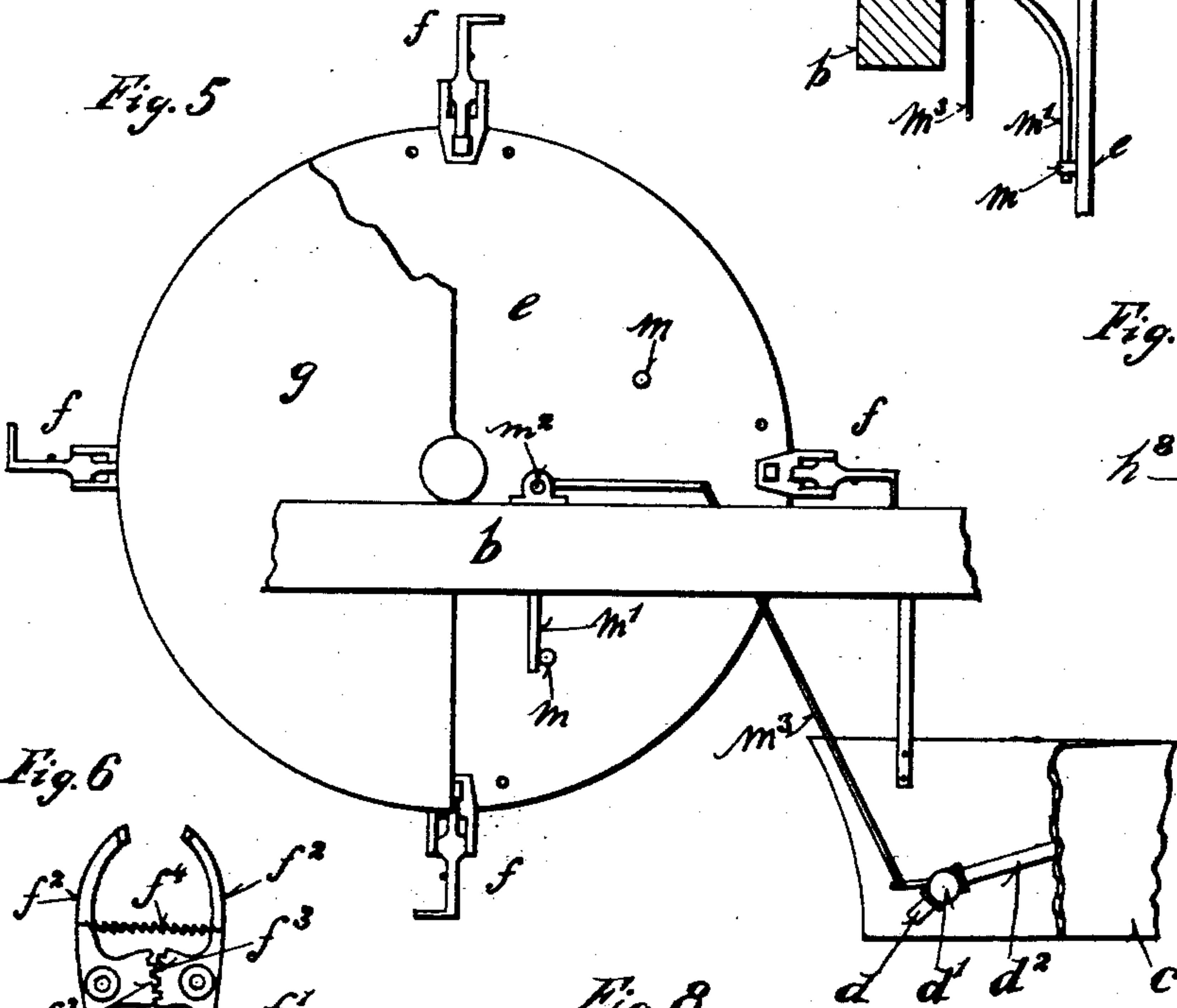


Fig. 9

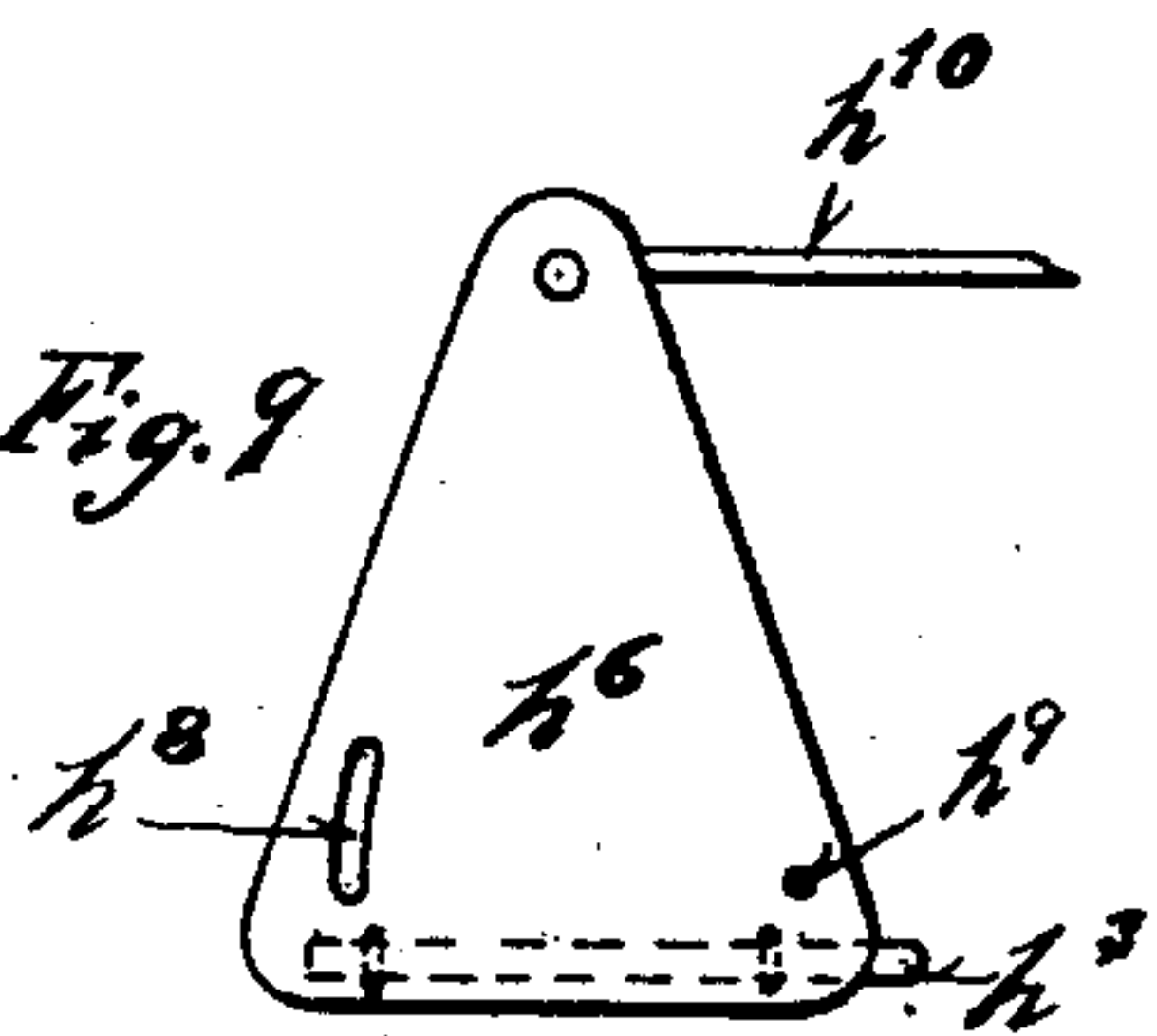


Fig. 6

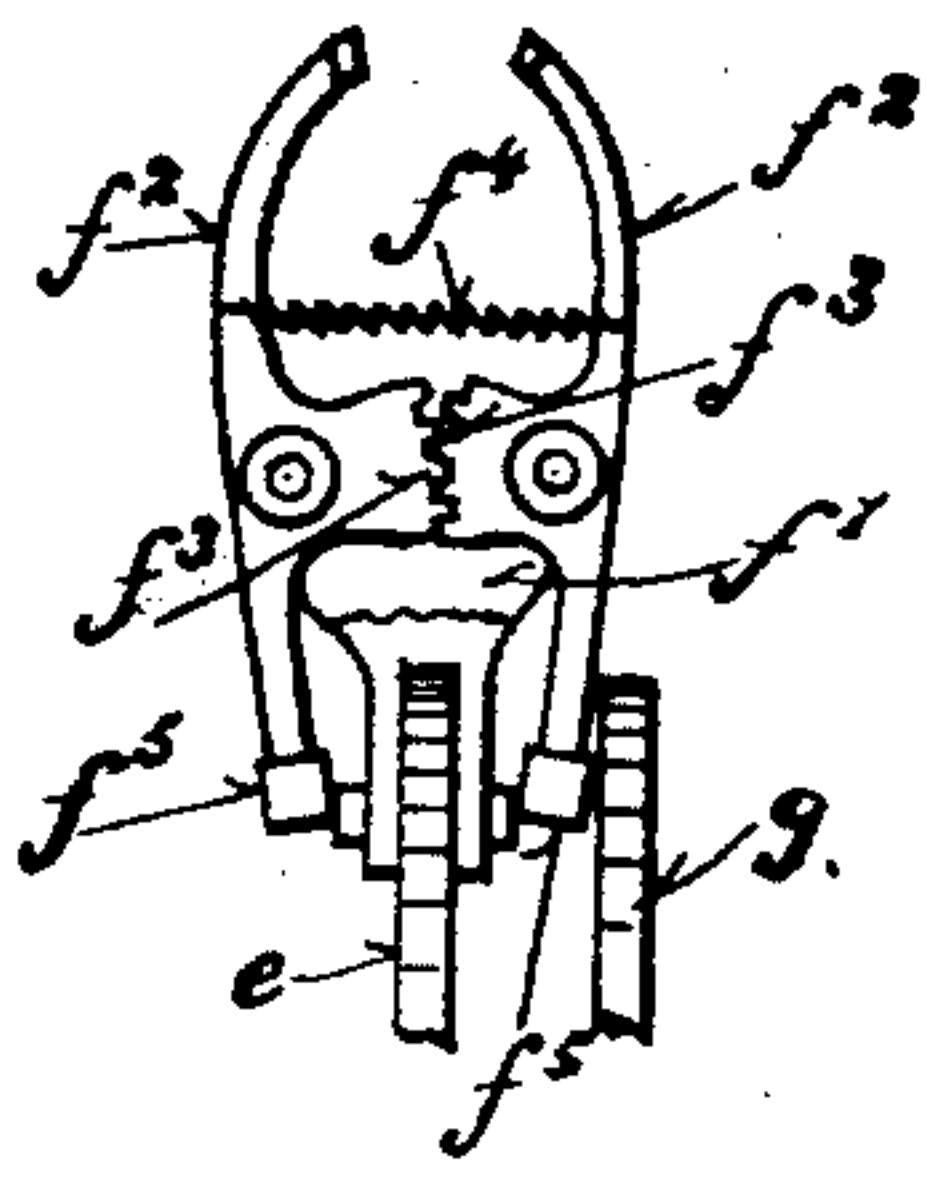
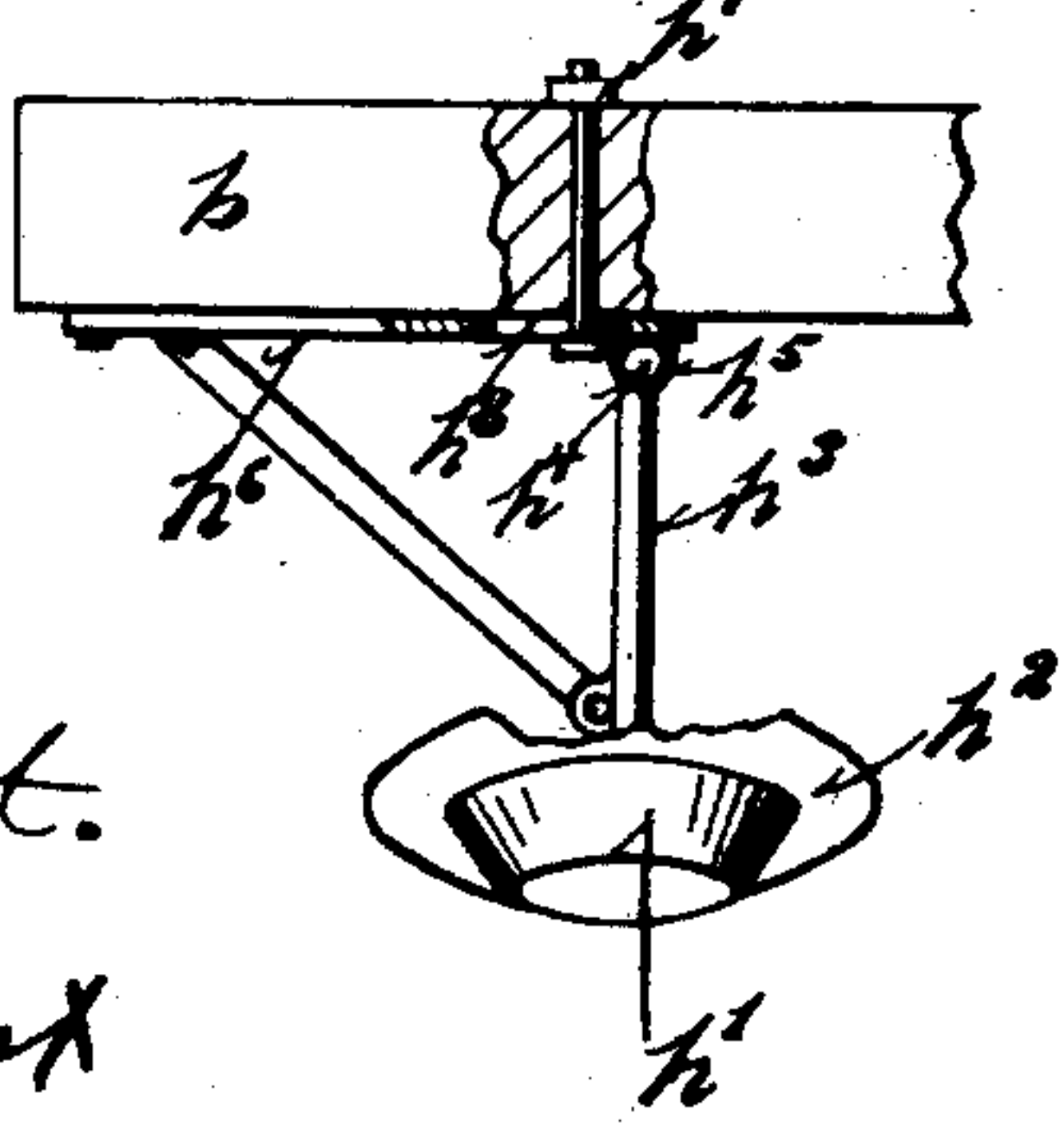


Fig. 8



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UNITED STATES PATENT OFFICE.

WILLIAM M. KUHN, OF NEW CARLISLE, OHIO.

TOBACCO-PLANTER.

SPECIFICATION forming part of Letters Patent No. 520,187, dated May 22, 1894.

Application filed October 12, 1893. Serial No. 487,955. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. KUHN, a citizen of the United States, residing at New Carlisle, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Tobacco-Planters, of which the following is a specification.

My invention relates to improvements in tobacco planters; and the object of my invention is to provide a machine adapted to transplant tobacco and similar plants.

My invention consists in the various constructions and combinations of parts hereinafter described and pointed out in the claims.

In the accompanying drawings Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a rear elevation of a portion of the same in detail. Fig. 3 is a side elevation of the machine. Fig. 4 is a front elevation of a portion of the same. Figs. 5, 6 and 7 are detail views of the planting wheel and devices connected thereto, by which the plants are placed in position and watered. Figs. 8 and 9 are detail views of the covering or pressing devices. Figs. 10 and 11 are details of the raising and lowering devices.

Like parts are represented by similar letters of reference in the several views.

In the said drawings, a, a , represents a main supporting frame which is carried on the driving and carrying wheels a', a' , through the medium of a main shaft axle a^2 , running in suitable bearings a^3, a^3 , on the main supporting frame a, a , and adjustably connected thereon, in the manner hereinafter described, is an auxiliary frame b, b , which carries the planting devices. This frame b, b , is connected to the main frame a, a , at its respective corners in such a manner that it may be raised or lowered with reference to the main frame a, a . A connection between the auxiliary frame b, b , and the main frame a, a , at the front, is in the nature of an adjustable hinged connection and is formed by plates b' , on the frame b , and provided with slotted openings b^2 , and a pivot rod a^4 on the frame a, a , which rod passes through the slotted openings b^2 . A transverse shaft a^5 , on the main frame a, a , carries at each end rocking arms a^6 , from which depend links a^7 , which are pivotally connected at each end to the

frame b , and the arms a^6 , respectively. A hand lever a^8 connected to the shaft a^5 , is adapted to oscillate the same so as to raise or lower the frame b, b , within the limits of the slotted openings b^2 ; said lever being adapted to be held in any position of adjustment by a ratchet stand a^9 , and a suitable spring catch connection in the usual manner. The main frame a, a , is provided at the rear with a transverse shaft a^{10} , having a hand lever a^{11} , at one end thereof, and a suitable ratchet stand a^{12} , to hold the same in different positions of adjustment; projecting arms a^{13} , carrying at their outer ends links a^{14} , having at their lower ends slotted openings a^{15} , into which projecting pins a^{16} , engage. The link a^{14} , is provided with a shoulder or collar a^{17} , which rests against one end of a spring a^{18} , the opposite end of which bears against the pins a^{16} ; the arrangement being such that an operation of the hand lever a^{11} , will raise the rear end of the frame b, b , when moved in one direction, and force the same downwardly with a yielding pressure when moved in the opposite direction. Means are thus provided by which the front end of the auxiliary frame may be adjusted to the required height, after which the rear end of the frame may be raised and lowered, as desired, on the hinged connection formed at the front end of the frame, and may be further pressed downwardly with a yielding pressure to carry the planting devices to the proper depth, in the manner hereinafter more fully described.

The auxiliary hinged frame carries a furrow opener c , and on opposite sides thereof shovels $c' c'$, which assist in preparing the ground for the reception of the plants. The furrow opener c , may be of any suitable construction, but is preferably made in the form of a shoe, bifurcated at the rear and adapted to receive the end of a water-pipe d , provided with a suitable stop valve d' , and connected by means of a flexible connection d^2 , to a barrel or tank d^3 , supported on the main frame. Immediately in the rear of the furrow opener c , is the planting wheel e , mounted on a suitable transverse shaft e' , and adapted to be continuously revolved, as the machine is moved in a forward direction, by a sprocket chain e^2 , passing over suitable

sprocket wheels e^3, e^4 , on the main and planting wheel shafts respectively; the sprocket wheel e^3 , being provided with a ratchet connection e^5 , which permits the carrying wheels a', a' , to turn independently of said sprocket wheel when the machine is moving in a backward direction. The sprocket wheels e^3, e^4 , are made of such size that the peripheral speed of the carrying wheels and of the planting wheel is the same. The planting wheel is provided about its periphery with a suitable number of clamping devices f , detachably connected to said wheel so that they may be located in different positions of adjustment about the periphery of the wheel, and more or less of said clamping devices employed to provide for setting the plants at different distances apart. These clamping devices f , each consist of a supporting bracket f' , to which is pivoted on opposite sides clamping arms f^2 , each of said arms being provided with segmental gears f^3 , adapted to intermesh, so that a movement of one produces a like movement of the other; a spring f^4 , holding the respective clamping arms normally in contact at their upper ends. Arranged at the side of the planting wheel e , and supported stationarily on the frame b, b , is a semi-circular plate g , adapted, as the wheel e is revolved, to contact with the lower end of one of the clamping arms f^2 , which is preferably provided with an anti-friction roller f^5 , for this purpose; the shape of the contacting portion of the plate g , being such as to press said lever inwardly and thus open the respective clamps so long as they contact with the plate g .

At the rear of and at each side of the planting wheel e , are the covering and pressing wheels h , each of which is formed with a conical portion h' , and an angularly arranged projecting flange h^2 . These wheels are supported on the end of a supporting standard h^3 , provided at the top with a projecting arm h^4 , at an angle to said standard. This arm h^4 , is journaled in suitable bearings h^5 , on a pivot plate h^6 , secured to the under side of the frame b , by bolts or other suitable fastening devices h^7 , one of which extends through a slotted opening h^8 , in said plate. These plates h^6 , are preferably made of a triangular shape; the pivotal connection being formed at one corner as at h^9 ; (see Fig. 9) the slotted opening h^8 , being arranged at the opposite corner, and a link connection h^{10} , being established from the third corner to a vibrating lever h^{11} , to which is connected a hand lever h^{12} ; the respective plates h^6 , being connected to opposite ends of the lever h^{11} , so that a movement of the hand lever h^{12} , produces a simultaneous movement of the respective plates h^6 . The result of this construction is that a movement of the hand lever h^{12} , causes a rotative movement of the standards h^3 , which standards being at an angle to the plates h^6 , causes a change in the angularity of the covering or pressing wheels

h' , and at the same time causes them to assume a position at greater or less distances apart.

The planting wheel e , in addition to the clamps f , is provided at suitable intervals with projections m , adapted to successively contact with the end of a hand lever m' , on a rock shaft m^2 , from which is connected a link m^3 , to the valve d' , in the water-pipe d . These projections m , correspond in number and location to the clamps f , so that the valve d , is operated to admit a quantity of water to the furrow at the point where the clamp f , will enter the same as the machine is advanced.

A caster wheel n , is preferably provided for supporting the front end of the main frame a, a , and seats o, o' , are provided for the driver and the plant distributors respectively.

The operation of the machine is as follows: As the machine is drawn forward in any suitable manner, the planting wheel e , is caused to rotate. Just before the clamps f , pass out of contact with the plate g , at the top, a plant is inserted by the plant distributor, with the roots upwardly. As the clamps leave the plate g , the plant is held firmly by said clamps and carried downwardly and deposited into the furrow formed by the furrow opener at the point where the water is discharged by the opening of the valve, as described. The clamp contacting with the lower side of the plate g , is opened, leaving the plant erect in the furrow. The angularly arranged covering wheels following, draw the earth inwardly toward the furrow and at the same time presses it firmly inwardly and downwardly, thus producing a ridge or hill and banking the earth firmly against the plant. The depth of planting may be regulated by the respective raising and lowering devices, and the quantity of earth and the compactness thereof may be readily adjusted by changing the angularity of the covering wheels, as described. The arrangement of the furrow opener, together with the auxiliary shovels c' , prepare the earth for the reception of the plant and for the operation of the covering wheels.

A machine as thus described is simple in its construction and very effective in its operation.

Having thus described my invention, I claim—

1. In a transplanter, a main frame supported on carrying wheels, and an auxiliary frame arranged within said main frame and carrying the planting devices, adjustably hinged connections between the main frame and one end of said auxiliary frame, and yielding raising and lowering devices at the opposite end of said auxiliary frame, substantially as specified.

2. In a transplanter, the combination with a furrow opener and planting devices, as described, of covering or pressing wheels adapted to follow said planting devices, said wheels being constructed with a conical body having

a laterally projecting flange adapted to gather and press the earth inwardly and downwardly from opposite sides of the furrow, substantially as specified.

3. The combination with a planting wheel having clamping devices on its periphery, as described, of covering wheels having conical-shaped bodies and projecting flanges adapted to follow said planting wheel, and means, substantially as described, for changing the angularity of said covering wheels, substantially as specified.

4. The combination with a furrow opener, and auxiliary shovels, a planting wheel following said furrow opener, and covering wheels following said planting wheel, said covering wheels being provided with conical-shaped bodies and laterally projecting flanges and journaled on angular standards at the rear of said planting wheel, and means, substantially as described, for adjusting said covering wheels, for the purpose specified.

5. The combination with a supporting frame and planting devices thereon, of covering wheels adapted to follow said planting devices, said covering wheels being each formed with a conical body and a laterally projecting flange, downwardly projecting standards on said frame on which said covering wheels are journaled, and means, as described, for changing the angularity of said standards to produce an adjustment of said wheels, substantially as specified.

6. The combination with a planting wheel having clamping devices, as described, conical flanged covering wheels arranged at the rear and on opposite sides of said planting wheel, angularly arranged standards for supporting said covering wheels, pivoted supports on said standards, a hand lever for operating said supports, and a connection from said hand lever to each of said supports, substantially as specified.

7. The combination with a supporting frame and planting devices, as described, conical flanged covering wheels arranged at the rear and on opposite sides of said planting devices, angularly arranged standards for supporting said covering wheels, pivoted supports on said frame for said standards, and means, as described, for moving said supports to change the angularity of said wheels, substantially as specified.

8. The combination with a bifurcated furrow opener having auxiliary shovels on opposite sides thereof, a water pipe ending in the

bifurcated portion of said furrow opener, and a valve in said water pipe, a revolving planting wheel having peripheral clamping devices, projections on said planting wheel to operate said water valve, and covering wheels adapted to follow said furrow opener and planting wheel, said covering wheels being provided with conical-shaped bodies and laterally projecting flanges, substantially as and for the purpose specified.

9. The combination with a main frame supported on carrying wheels, as described, an auxiliary frame arranged within said main frame and provided at one end with yielding raising and lowering devices, slotted plates at the other end of said auxiliary frame adapted to engage with projections on said main frame to form adjustably hinged connections between said main and auxiliary frames, and means, substantially as described, for raising and lowering said projections in said slotted plates and holding the same in different positions of adjustment, substantially as specified.

10. The combination with the main frame supported on carrying wheels, as described, an auxiliary frame arranged within said main frame and provided with yielding raising and lowering devices at the rear, slotted plates at the front of said auxiliary frame adapted to engage a stationary rod on said main frame, a rock-shaft on said main frame having projecting arms connected by links to said auxiliary frame, and means for operating said rock-shaft and holding the same in different positions of adjustment, substantially as specified.

11. The combination with a supporting frame, of angularly arranged supporting standards each provided at the top with a projecting arm at an angle to said standard, a pivoted plate on said frame to which the standard is journaled, covering wheels journaled on said standard, and a pivoted hand-lever connected to each of said pivoted plates, and adapted, by a movement thereof, to revolve said standards and thus change the angularity of said wheels, substantially as specified.

In witness whereof I have hereunto set my hand this 7th day of October, A. D. 1893.

WILLIAM M. KUHNS.

Witnesses:

B. W. MYERS,
C. R. TAYLOR.