

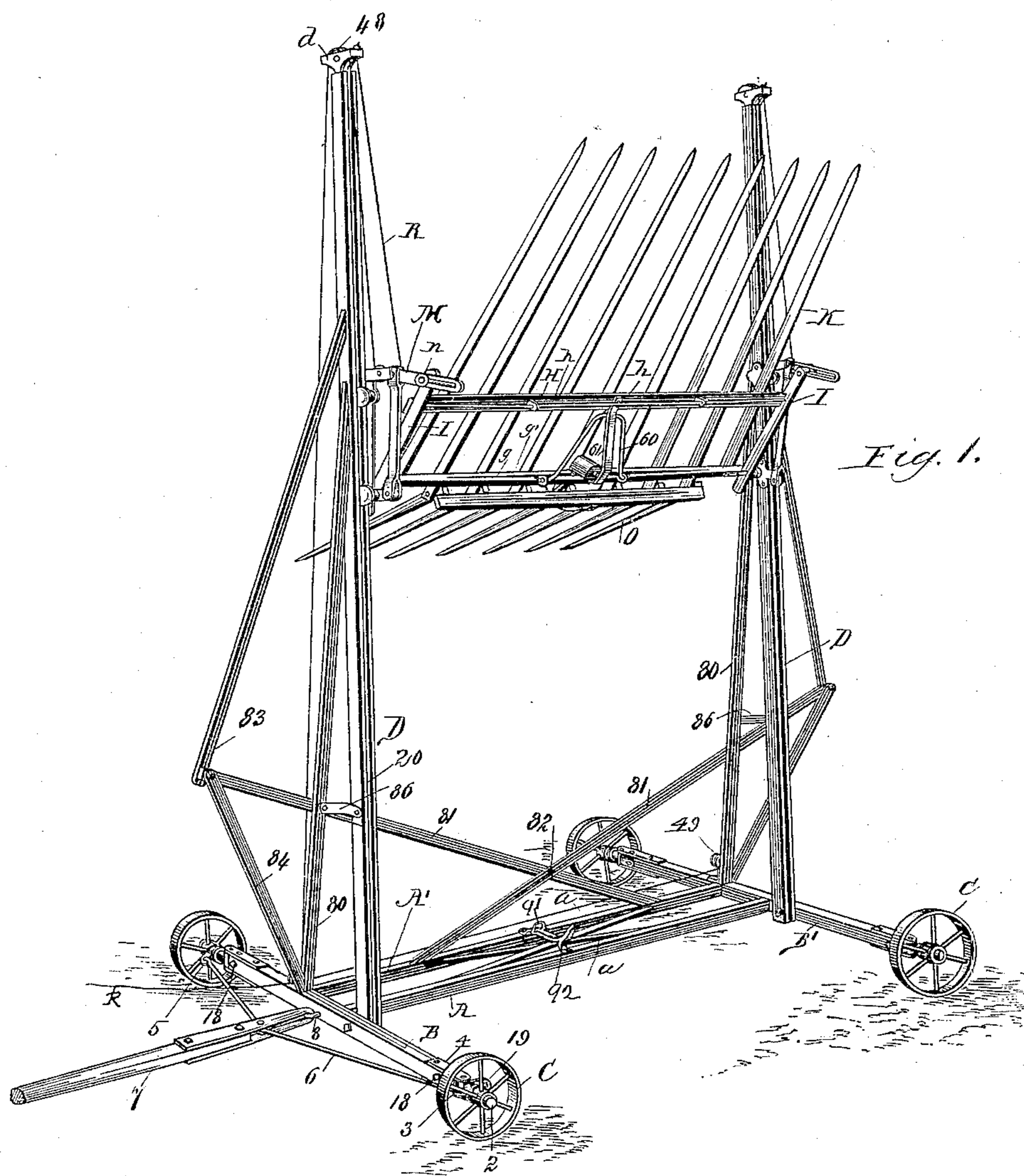
(No Model.)

3 Sheets—Sheet 1.

D. F. OLIVER.
HAY RICKER.

No. 436,741.

Patented Sept. 16, 1890.



Witnesses

H. Rositer
J. B. Carpenter

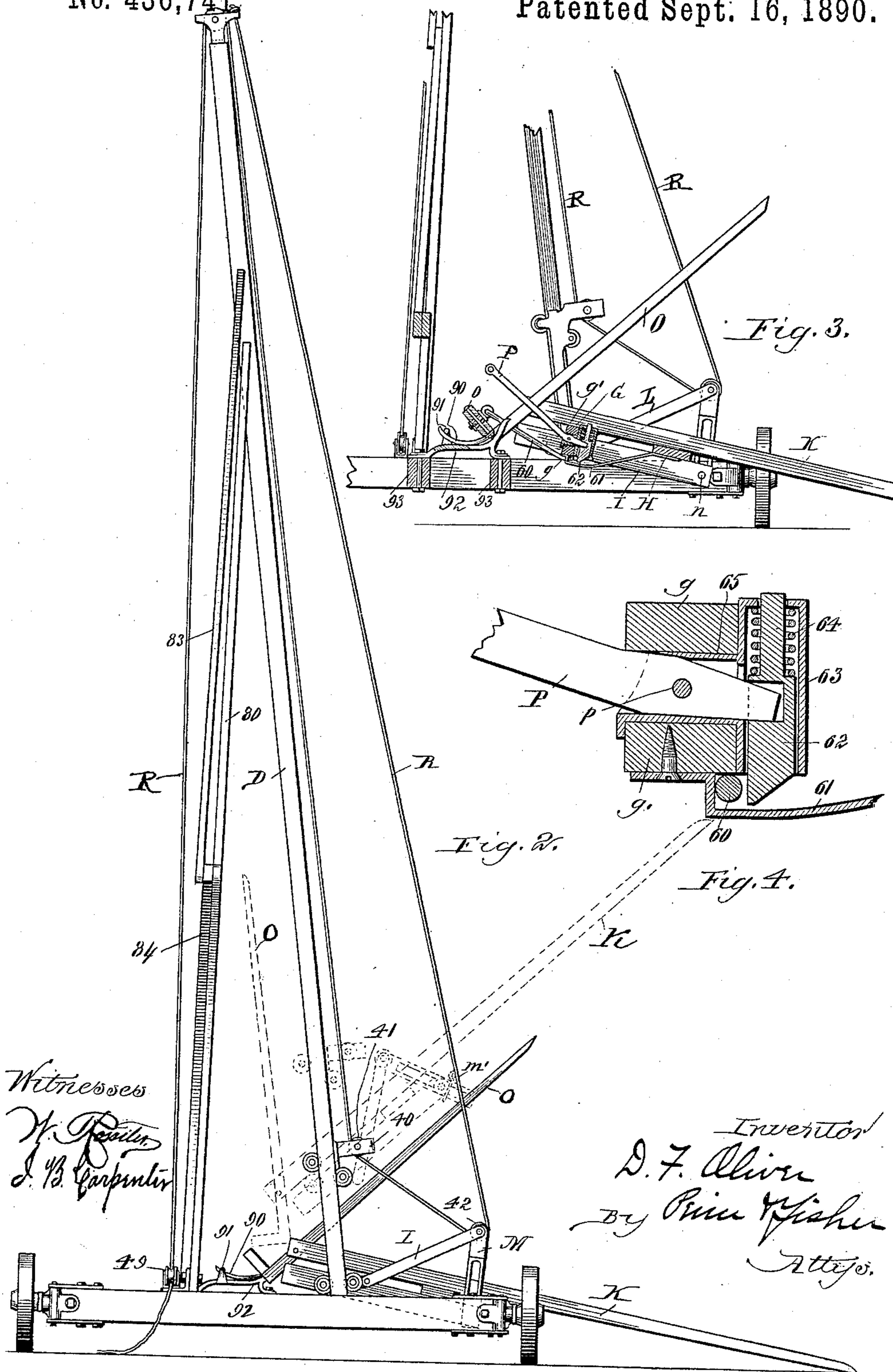
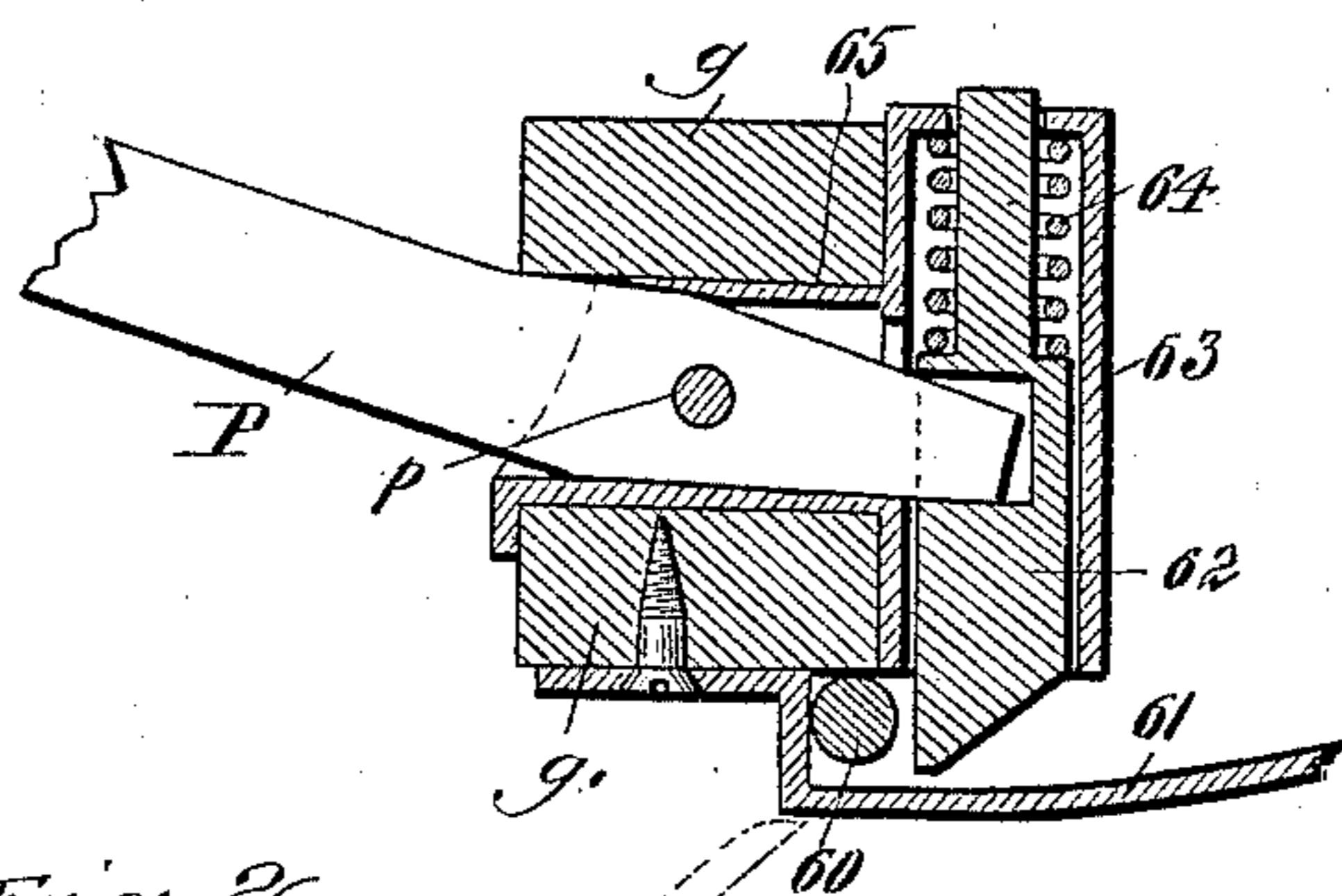
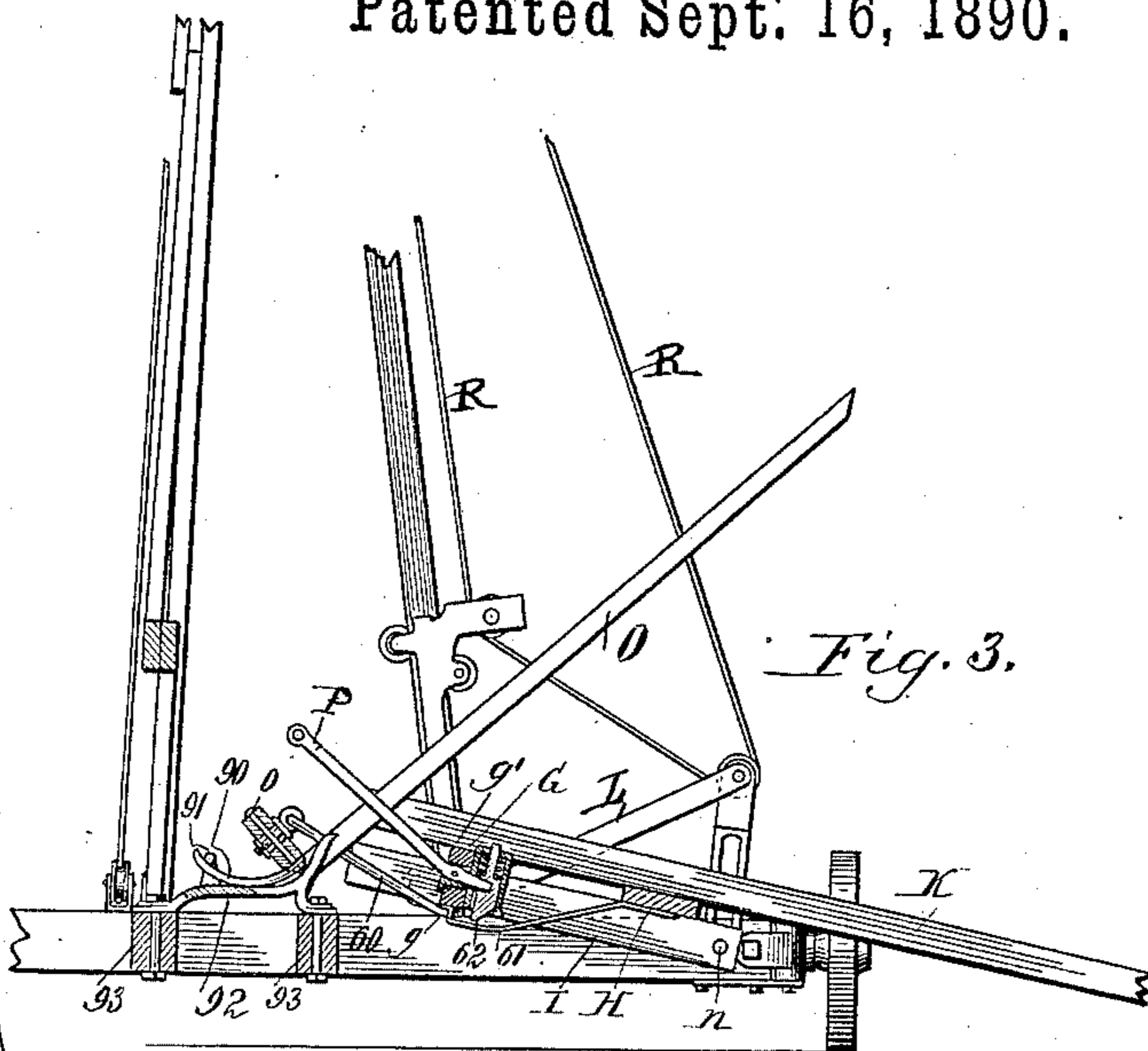
Inventor

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By Price Fisher
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3 Sheets—Sheet 2.

Patented Sept. 16, 1890.

No. 436,741



Witnesses
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(No Model.)

3 Sheets—Sheet 3.

D. F. OLIVER.
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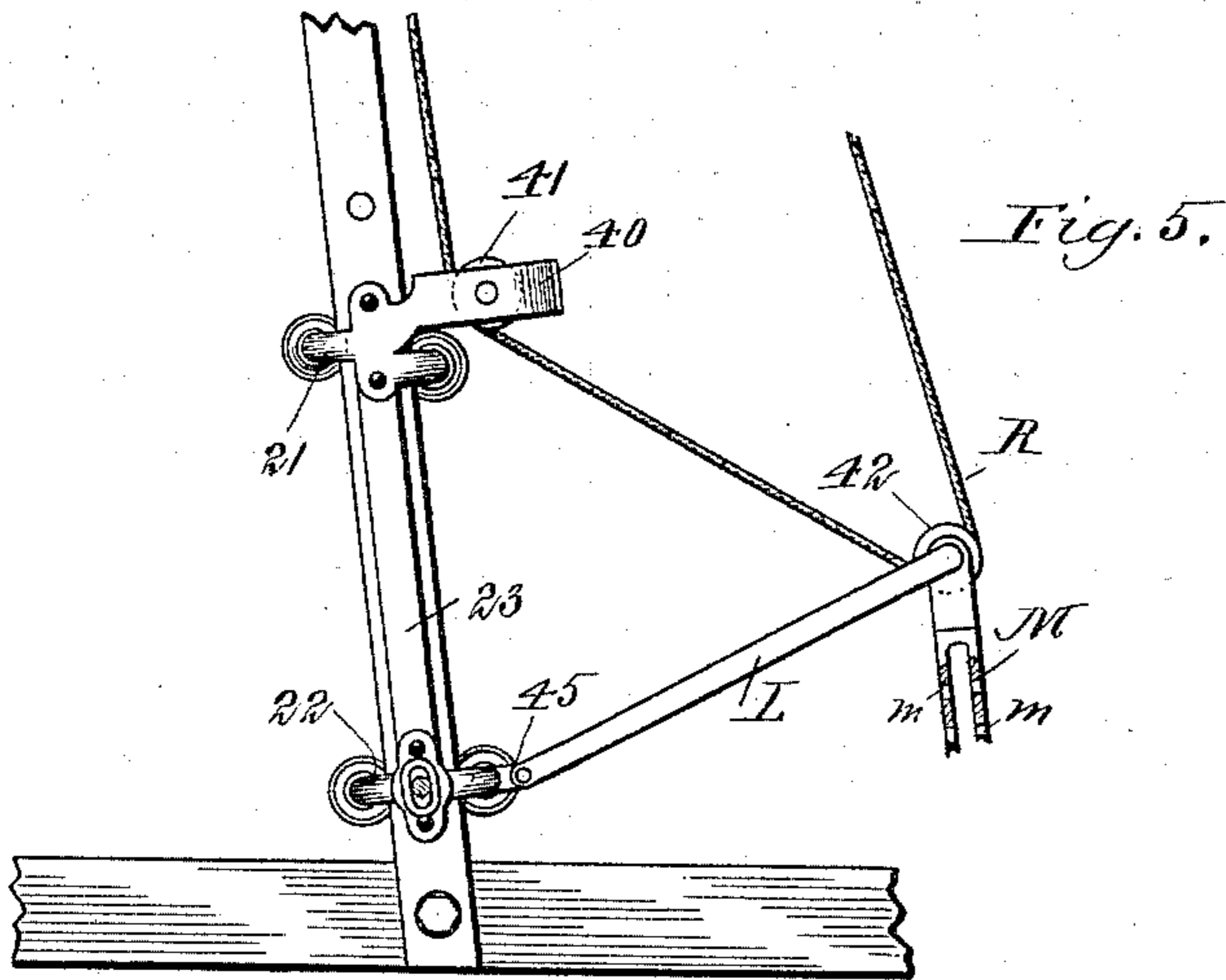


Fig. 6.

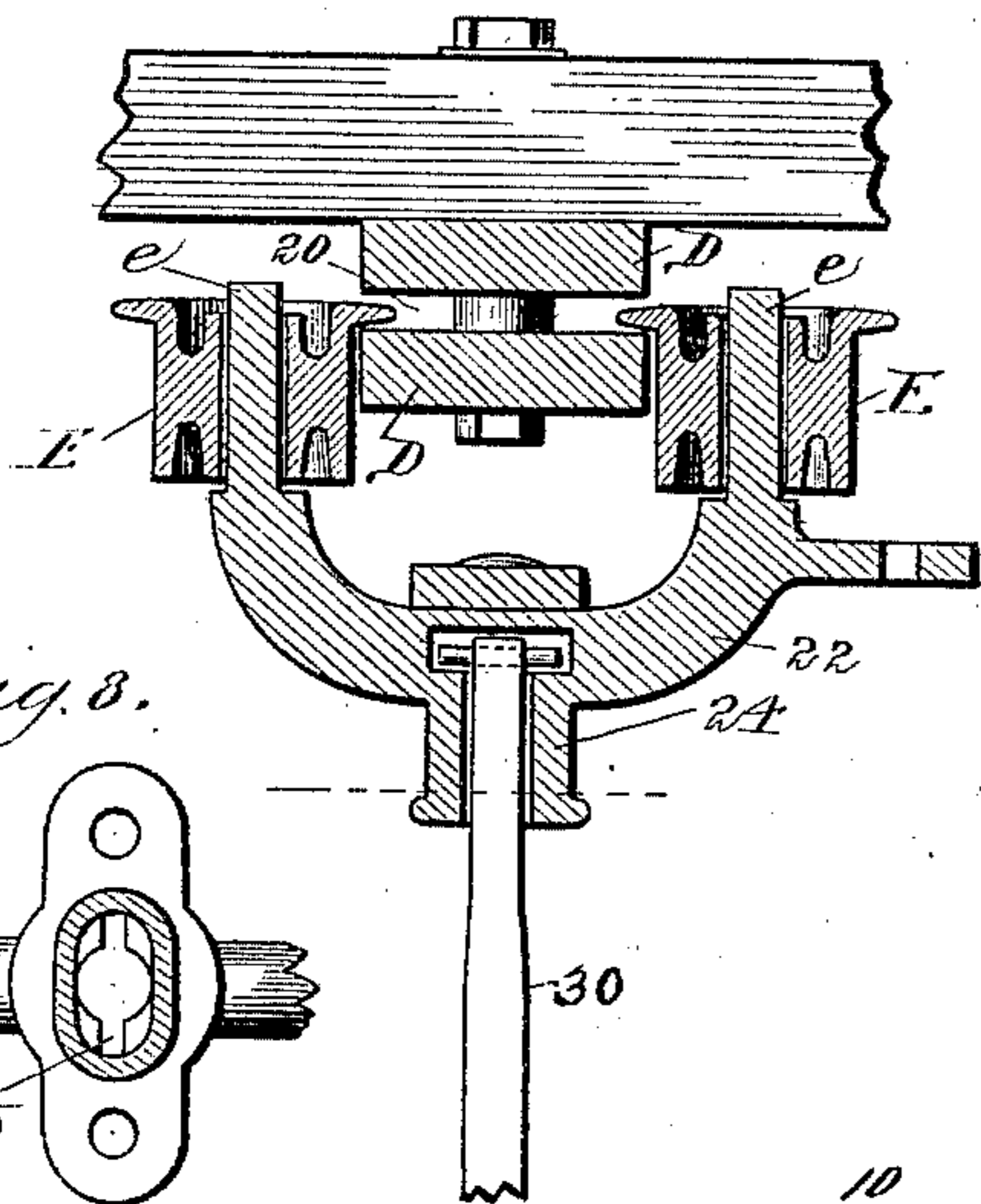


Fig. 8.

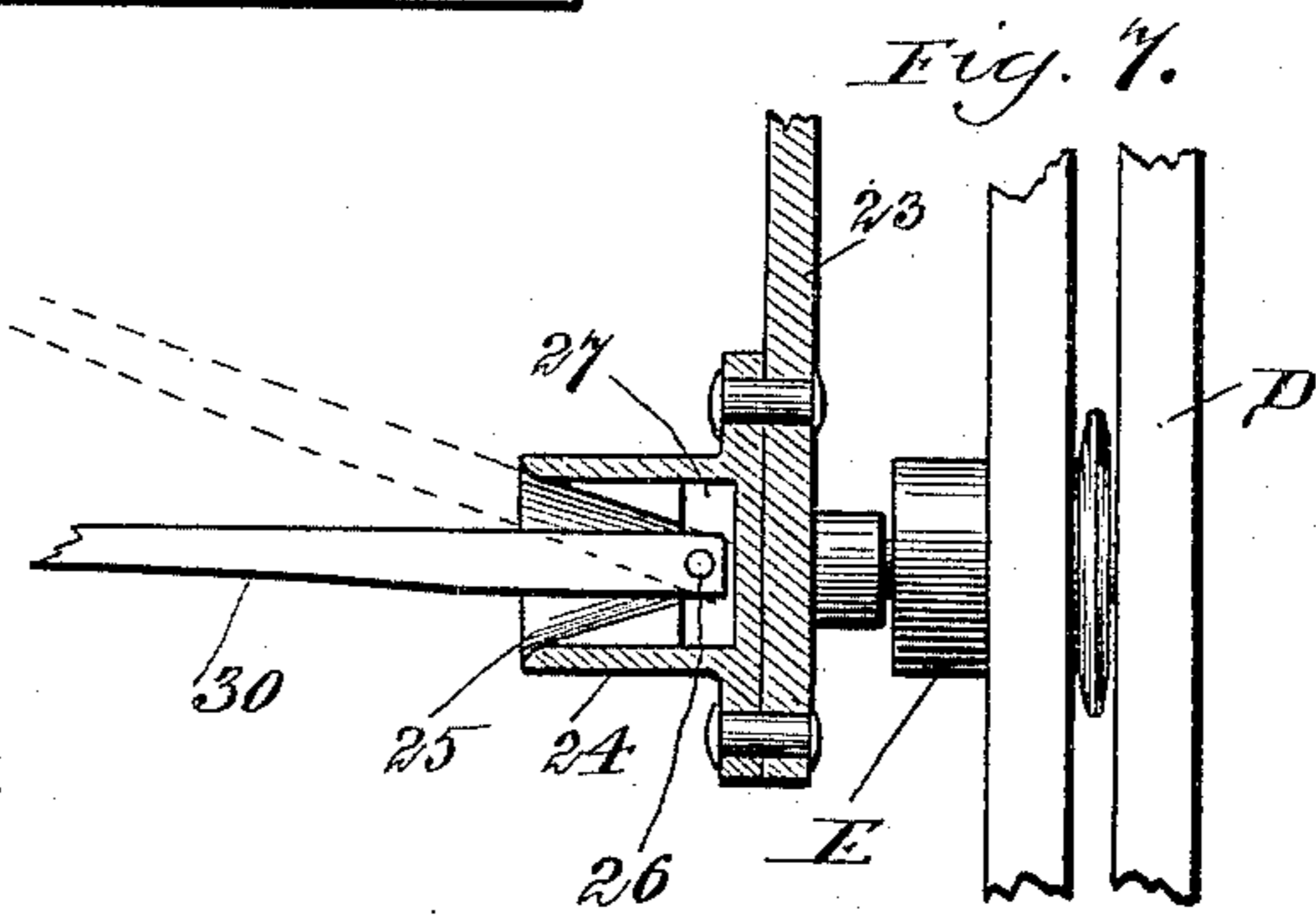


Fig. 7.

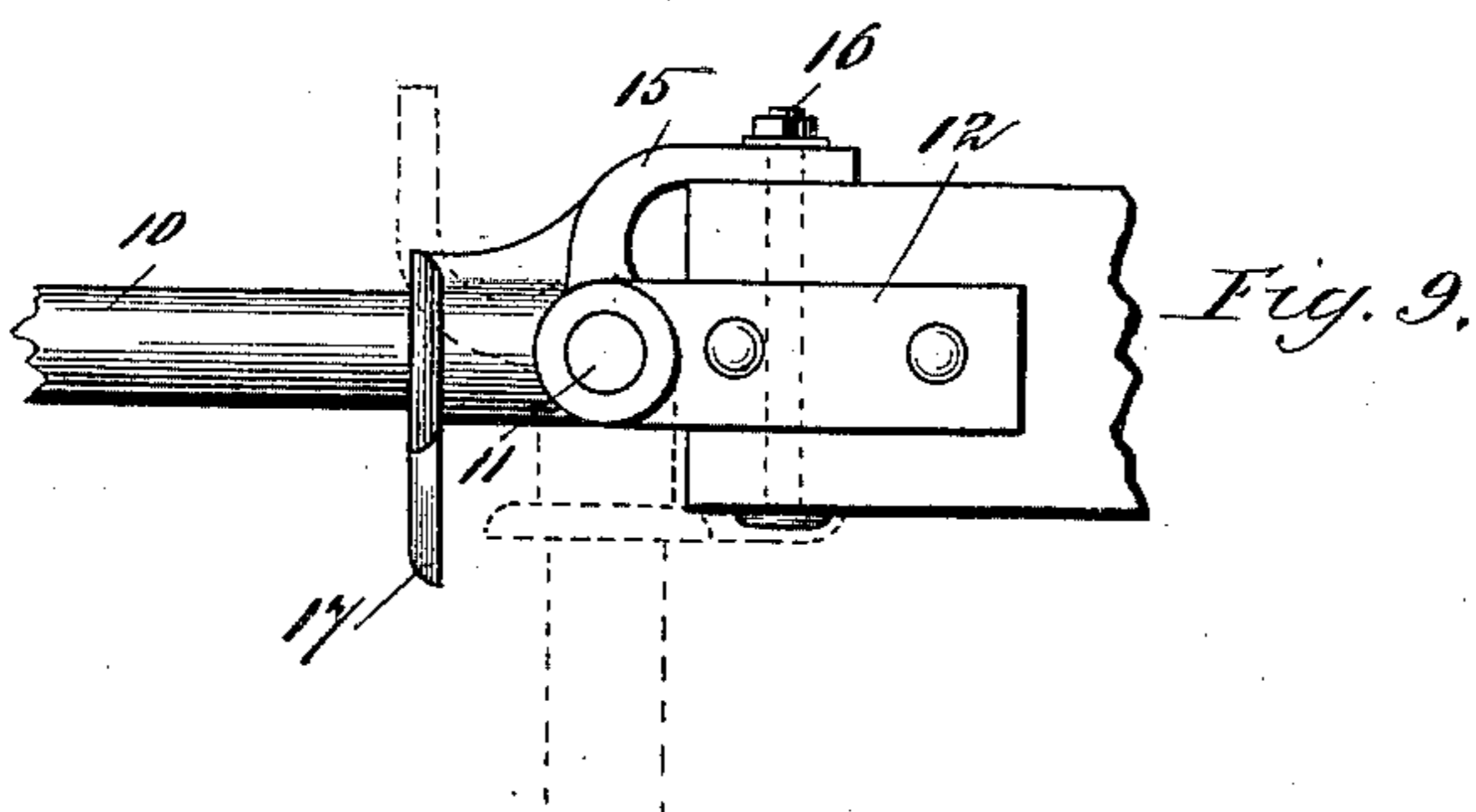


Fig. 9.

Witnesses

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UNITED STATES PATENT OFFICE.

DOCTOR FRANKLIN OLIVER, OF SAN FRANCISCO, CALIFORNIA.

HAY-RICKER.

SPECIFICATION forming part of Letters Patent No. 436,741, dated September 16, 1890.

Application filed February 6, 1890. Serial No. 339,442. (No model.)

To all whom it may concern:

Be it known that I, DOCTOR FRANKLIN OLIVER, a citizen of the United States, residing at San Francisco, in the State of California, have invented certain new and useful Improvements in Hay-Rickers, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention has relation more particularly to hay-rickers of that class commonly known as "vertical" rickers or stackers, examples of this type of ricker being illustrated in Letters Patent No. 292,038, granted to me January 15, 1884, and No. 305,325, granted to me September 16, 1884.

The object of my present invention is to improve the ricker in various particulars, and this object I have accomplished by the novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a perspective view of a hay-ricker embodying my invention. Fig. 2 is a view in end elevation. Fig. 3 is a view in central vertical transverse section, a portion of the framework being broken away. Fig. 4 is an enlarged detail view of the latch mechanism for temporarily holding the auxiliary carriage. Fig. 5 is an enlarged detail view in side elevation of one of the carrier-trucks that serve to sustain the main carriage and adjacent parts. Fig. 6 is an enlarged detail view in horizontal section through the journals of one of the carrier-trucks, showing also the manner in which these trucks are held upon the guide-frame and showing some of the adjacent parts. Fig. 7 is an enlarged detail view in vertical section through one of the pivot or journal pins that serve to unite the main carriage with the trucks. Fig. 8 is a view in vertical section on line 8 8 of Fig. 7. Fig. 9 is a detail plan view of one of the journals of the main wheels that support the ricker-frame.

The base of the main frame of my improved ricker consists, preferably, of the longitudinal bars A and A', that are mortised into suitable end bars B and B', that serve as axles, to the ends of which will be connected the wheels C, upon which the ricker will be sustained in

such manner that it can be freely moved from point to point. By preference the front wheels C will be connected to the front axle-bars B by means of a journal 2, projecting outwardly from the swivel or pivot block 3, the ends of which are journaled in suitable bearing-plates 4, bolted to the ends of the cross-bar B. From these pivot-blocks 3 project the lugs 5, having suitable eyes therein to receive the ends of the rods 6, that project outwardly from the tongue 7, that is pivotally connected, as at 8, to the center of the axle-bar B. My purpose in thus connecting the tongue or pole 7 with the pivot-blocks 3 is to permit the blocks and the wheels to be shifted in order to more readily guide the machine. The rear wheels C are by preference also attached to the rear axle-bar B' in such manner that the wheels can be turned to a position parallel with the axle-bar B', and these wheels are preferably sustained upon a journal 10, (see Fig. 9,) provided with vertical pivot or bearing pins 11, that are journaled within suitable seats formed in the ends of the bearing-plates 12.

In order to hold the wheels C in proper position, I provide at the base of the journal 10 a laterally-extending lug 15, having a curved end adapted to be secured by a bolt 16 to the end of the axle-bar B', as more particularly shown in Fig. 9 of the drawings, and the journal 10 is also provided with a laterally-projecting lug 17, having an eye therein adapted to come coincident with a hole formed through the end of the axle-bar B', so that when the wheel is turned to a position parallel with the said bar it may be securely held in such position by passing the bolt 16 through the lug 17, as shown by dotted lines in Fig. 9. The front wheels C can also be turned to position parallel with the front axle-bar B by merely withdrawing the bent ends of the guide-rods 6 from the lugs 5, after which the wheels may be turned to the desired position and can there be secured by means of a bolt 18, passing through a lug 19, projecting from the pivot-blocks 3. My purpose in thus connecting the wheels with the main frame so that they can be shifted is not merely to permit the frame to be more readily and conveniently moved from point to point, but when the wheels are turned to a position parallel

with the axle-bars the danger of the striking of the wheels next to the main carriage by the rake-teeth that deliver the hay thereon is avoided.

5 Between the longitudinal bars A and A' are preferably placed the diagonal brace-bars *a*, which serve to give greater rigidity to the frame. From each of the axle-bars B and B' rises a guide-bar D, which may consist of
10 two separate bars suitably bolted together in such manner as to leave a narrow space 20 between them, or may consist of a single bar or beam having grooves in its sides corresponding to the space 20, the purpose of this
15 space being to admit the flanges of the wheels E of the carrier-trucks that serve to sustain the main carriage of the ricker. The guide-bars D are bolted at their lower ends to the
20 axle-bars B and B' at points in front of the longitudinal bars A and A', and these guide-bars are sustained in their vertically-inclined position by means of the vertical brace-bars
25 80, that are fastened at their base by suitable angle-irons to the axle-bars B and B' and at their upper ends are bolted to the sides of the guide-bars D. To the vertical brace-bars 80 are suitably bolted the inclined transverse stay-bars 81, the inner ends of which extend
30 downwardly to a point beyond the center of the ricker-frame and are suitably bolted to the longitudinal bar A'. The stay-bars 81 cross each other at a point about the center of the ricker-frame and are suitably bolted
35 together, as at 82. The outer end of each of the stay-bars 81 projects to a distance beyond the vertical brace-bars 80, and to this outer end is bolted the lower end of a truss-bar 83, the upper end of which is bolted to the guide-
40 bar D, and to this outer end of the stay-bars 81 is also bolted the upper end of a similar truss-bar 84, the lower end of which is suitably attached to the brace of the vertical brace-bar 80. By this arrangement of brace-
45 bars and truss-bars I am enabled to sustain the vertically-inclined guide-bars D much more securely than was possible with prior constructions, and it is plain that when the load of hay is carried upward on the guide-
50 bars D the strain upon these guide-bars will be resisted not merely by the vertical brace-bars, but also will be distributed through the truss-bars 83 and 84 and by the brace-bars 81 to the base of the main frame. By preference also I extend between the vertical
55 brace-bars 80 and the guide-bars D suitable cross-braces 86, which serve to give greater rigidity to these bars.

The carrier-trucks consist, preferably, of the journal-yokes 21 and 22, that straddle the
60 inner sections of the upright guide-bars D, the ends *e* of the yokes constituting the journals for the wheels E. The yokes 21 and 22 at each side of the machine are connected together by the tie-bar 23, and the lower yoke
65 22 of each truck will be furnished with a socket 24, this socket serving to receive the end of the pivot or journal pin 30 of the main

carriage. As it frequently happens that in the lifting of the main carriage of the elevator one side is raised more quickly than the
70 other, I guard against the danger of the binding of the trucks upon the guide-bars under such condition by connecting each of the pivot or journal pins 30 with the trucks in
75 such manner as to permit a vertical oblique play or movement of these pins, as seen by dotted lines in Fig. 7, and as well also a slight lateral movement thereof. Preferably this
80 connection of the pivot-pins to the trucks is effected by forming the sockets 24 with the oblong slots 25, which will permit the pins or lugs 26, formed on the ends of the pivot-pins
85 30, to be inserted therein, but will guard against the withdrawal of these lugs when the pivot-pins have been turned a quarter-revolution and have been bolted to the ends
90 of the main carriage. Preferably the inner ends of the pivot or journal pins 30 are extended through the end bars of the main carriage and are bolted to the under side of the
95 rear longitudinal bar of such carriage. The sockets 24 should be provided each with a recess 27 of sufficient size to permit a slight lateral movement of the ends of the pivot or journal pins 30 and the guard-pins or lugs
95 projecting therefrom.

The main carriage, by which the hay will be raised from the ground, consists of the longitudinal bars G and H, that are suitably
100 bolted to the end bars I, and to these bars G and H are fastened the teeth K. By preference the bar G is split longitudinally and its center portions *g* and *g'* spread apart and separated by suitable blocks, so as to truss
105 and strengthen the bar, and at the same time form a convenient space within which can be held the casting of the lever that controls a locking-latch of the auxiliary carriage, as will presently more fully appear. Beneath the
110 under side of the longitudinal bar H is extended, preferably, a truss-rod *h*, the ends of which are suitably fastened to the ends of the bar H. The upper yoke 21 of each of the carrier-trucks is provided with a suitable extension 40, in which is journaled the pulley
115 41, around which will pass the main lifting-cord R, that passes also around a pulley 42 carried at the end of the tilting bar L, that is pivoted at its inner end to a lug 45, projecting from the lower yoke and each of the carrier-trucks. Each of the tilting bars L has
120 connected thereto a slotted bar M, the upper end of which sustains the pulley 42, and within the slot of which bar extends the pin *n*, projecting laterally from the corresponding end bar of the main carriage, and in this
125 slotted bar M is formed a series of perforations *m* to receive a pin *m'*, that serves to limit the movement of the pin *n* within the slot of the bar M. Each lifting-rope R which
130 passes around the pulleys 41 and 42 has one end connected to the pulley-frame *d* at the top of the vertical guide-bar D, while the main portion of the rope passes around a

suitable pulley 48, held in said pulley-frame, and passes thence downward and around a sheave 49, fastened to the cross-bar B, and thence to the singletree of the draft-horse.

5 To the rear ends of the teeth of the main carriage are pivotally connected the teeth O of the auxiliary carriage, the rear ends of these teeth O being attached to the cross-bar o, that is preferably strengthened by splitting
10 it centrally and separating its central portions. The teeth O of this auxiliary carriage are held normally at an acute angle with respect to the teeth of the main carriage by means of a bail or bent bar 60, that is pivotally connected at its ends to the transverse
15 bar o of the auxiliary carriage and extends through a suitable loop 61, fastened to the under side of the main carriage, as more particularly shown in Figs. 1, 3, and 4 of the
20 drawings. At the base of this loop 61 is placed a catch-pawl 62, that is held within a suitable socket 63, and is pressed normally downward, as seen in Fig. 4, by means of the coiled spring 64, and through the side of the socket 63 extends a throw-off lever or trigger P, that is
25 pivotally mounted, as at p, within a lateral extension 65 of the same casting that comprises the socket 63, this lateral extension of the casting being suitably bolted between the sections g and g' of the transverse bar G. The beveled end of the pawl 62 permits the
30 bail 60 to readily pass behind the pawl, and when in this position it will serve to hold the teeth O of the auxiliary carriage at an acute angle with respect to the teeth of the main
35 carriage until by the movement of the releasing lever or trigger P the pawl 62 is lifted and the bail 60 is permitted to pass from engagement therewith, thereby allowing the
40 teeth O of the auxiliary carriage to drop downward in such manner as to discharge the hay therefrom, as will presently more fully appear. From the end of the trigger P a suitable tripping-cord will pass to the ground.

45 From the foregoing description it will be seen that if the main carriage be assumed to be in position shown in Fig. 2, with the points of its teeth resting upon the ground, and the draft-horse be started to raise the load of the
50 carriage for the purpose of depositing it upon a stack or rick the strain of the lifting-ropes R will first cause the tilting bars L to give an initial tilting action to the main carriage about its journal-pins, causing the teeth of this carriage to assume a vertically-inclined position,
55 as seen by dotted lines in Fig. 2, after which the further strain upon the lifting-rope will cause the main and auxiliary carriages to be raised to the desired height. In order to secure this initial tilting action of the main carriage, which serves to throw the load back-
60 ward in position against the teeth of the auxiliary carriage, I provide a check-arm 90, secured to the center of the bar o of the auxiliary carriage, as seen in Fig. 3 of the drawings, this check-arm being preferably curved

at its outer end to engage with a suitable loop or stirrup 91, cast on or attached to the upper part of the latch-guide 92, that is bolted, as at 93, to the longitudinal bars A and A' of
70 the main frame.

By preference the bolt-holes of the latch-guide 92 are formed as long slots, so as to permit the adjustment of this latch-guide and of the stirrup to secure the release of the
75 check-arm 90 at the proper time. The latch-guide 92 is curved upon its upper face, so as to direct the curved end of the check-arm 90 into the stirrup 91, and also cause the proper swinging of the auxiliary carriage necessary
80 to bring the bail in loop 60 into proper position behind the pawl 62. Hence it will be seen that when the load of hay is lifted the main carriage will receive a tilting action, as before described, thereby throwing the load
85 of hay against the teeth O of the auxiliary carriage, and when the main and auxiliary carriages are lifted to the desired height the tripping lever or trigger P will be operated to raise the pawl 62 and permit the weight of
90 the load of hay against the teeth O of the auxiliary carriage to swing these teeth backward and downward, thereby permitting the hay to discharge onto the rick. In the ordinary operation of stacking the hay the pin
95 m' of the slotted bar M will be set at the base of the slotted bars, and in such position will permit the tilting action of the main and auxiliary carriages after these carriages have been raised and after the tripping-lever P has
100 been operated to permit the release and outward movement of the auxiliary carriage—that is to say, when the release of the auxiliary carriage has been effected and the load of hay slides from the teeth K of the main
105 carriage onto the teeth O of the auxiliary carriage the weight of this load will cause a tilting action of the main and auxiliary carriages, this action being permitted by the movement of the pin n within the slots of the
110 slotted bars M. When it is desired to top out the stack, it is not desirable that the entire load of hay should be discharged at once from the carriages, and in order to temporarily retain the hay upon the carriages after they
115 have been raised to the desired height the pins m' are set in front of the pins n, that pass through the slotted bars M, so that the movement of the pins n is arrested, and the tilting of the carriages, after they have been
120 raised to the desired height, is prevented, thereby retaining the hay upon the teeth of the auxiliary carriage to be taken off as desired by the builder of the stack.

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

1. In a hay-ricker, the combination, with a suitable supporting-frame and wheels whereon said frame is mounted, of pivot-journals
130 for the front wheels, a pivoted tongue or pole, suitable guide-rods connecting said journals

with the tongue or pole, and suitable means whereby said wheels may be secured in different positions, substantially as described.

2. In a hay-ricker, the combination, with the main frame and suitable wheels whereon said main frame is sustained, of suitable journals for the front and rear wheels pivotally connected with the axle-bars of the main frame, said journals being arranged to extend normally in the plane of the axle-bars and to swing in a horizontal plane, and suitable means whereby said journals may be secured to the axle-bars in different positions, substantially as described.

3. In a hay-ricker, the combination, with the main frame and suitable wheels whereon said main frame is sustained, of the pivoted journal-blocks for said wheels, provided with journals extending normally in the plane of the axle-bars and adapted to swing in a horizontal plane, and suitable means whereby said journal-blocks may be bolted to the axle-bars in different positions, substantially as described.

4. In a hay-ricker, the combination, with a main base-frame, of upright guide-bars D, one at each end of the ricker, having suitable grooves or spaces in their opposite edges, and a main carriage provided at its ends with suitable carrier-trucks having wheels to travel upon said bars, said wheels being provided with flanges to enter the grooves or spaces of said bars, substantially as described.

5. In a hay-ricker, the combination, with a main base-frame, of the upright guide-bars, one at each side of the base-frame, the brace-bars 80, attached to the upright bars and to the main base-frame, the inclined transverse stay-bars 81, and the truss-bars 83 and 84, said truss-bars being arranged in the inclined position shown and being fastened to said brace-bars 80, substantially as described.

6. In a hay-ricker, the combination, with the main base-frame, of the guide-bars D, one at each end of said frame, suitable carrier-trucks comprising journal-yokes provided with wheels and adapted to straddle the guide-bars, and a main carriage pivotally sustained with respect to said carrier-trucks, substantially as described.

7. In a hay-ricker, the combination, with the main base-frame and suitable uprights or guide-bars, of suitable carriers adapted to move upon said uprights or guide-bars and a main carriage pivotally connected to said carrier in a manner permitting a vertical inclined movement of said carriage with respect to the carriers, whereby the danger of binding the carriers in case of the uneven lifting of the main carriage is avoided, substantially as described.

8. In a hay-ricker, the combination, with a suitable base-frame, of suitable uprights or guide-bars, carriers adapted to travel upon said guide-bars, said carriers being provided with sockets, suitable journal-pins entering the sockets of said carriers and held therein

in a manner permitting them to be moved in a vertical direction, and a main carriage sustained by said journal-pins, substantially as described.

9. In a hay-ricker, the combination, with the main base-frame and suitable guide-bars or uprights, of carriers adapted to travel upon said guide-bars, said carriers being provided with sockets 24, having oblong recesses 25, suitable journal-pins 30, adapted to enter said sockets 24 and provided with suitable guard pins or lugs at their ends, and a main carriage connected to said journal-pins 30, substantially as described.

10. In a hay-ricker, the combination, with suitable guide-bars and carriers arranged to move upon said guide-bars, of a main carriage, an auxiliary carriage pivotally connected with respect to said main carriage, a suitable bail or rod 60, connected to said auxiliary carriage, a suitable loop 61, connected to said main carriage, and a suitable pawl and trigger carried by said main carriage for engaging and releasing said bail or rod of the auxiliary carriage, substantially as described.

11. In a hay-ricker, the combination, with the main frame, suitable guide-bars, and suitable carriers adapted to move upon said guide-bars, of a main carriage pivotally connected to said carriers, an auxiliary carriage pivotally connected to said main carriage, suitable tilting levers connected to said carriers, and suitable means for adjustably connecting the ends of said tilting levers with the main carriage, substantially as described.

12. In a hay-ricker, the combination, with the main frame, suitable guide-bars, and suitable carriers adapted to move upon said guide-bars, of a main carriage pivotally connected to said carriers, an auxiliary carriage pivotally connected to said main carriage, tilting bars connected to said carriers, and slotted bars connecting said tilting bars with the main carriage, substantially as described.

13. In a hay-ricker, the combination, with the main frame, suitable guide-bars, and suitable carriers adapted to move upon said guide-bars, of a main carriage pivotally connected to said carriers, an auxiliary carriage pivotally connected to said main carriage, tilting bars connected to said carriers, and slotted bars connecting said tilting bars with the main carriage, said slotted bars being provided with suitable adjusting-pins whereby the tilting action of the main carriage can be restricted, substantially as described.

14. In a hay-ricker, the combination, with the main frame, suitable guide-bars, and suitable carriers adapted to move upon said guide-bars, of a main carriage pivotally connected to said carriers, suitable means for tilting said main carriage, and a check-arm for temporarily holding the main carriage until the forward ends of its teeth are tilted upward, substantially as described.

15. In a hay-ricker, the combination, with the main frame, suitable guide-bars, and suit-

able carriers adapted to travel upon said main
frame, of a main carriage pivotally connected
to said carriers, suitable means for raising
and tilting said main carriage, an auxiliary
5 carriage pivotally connected to said main car-
riage, a check-arm connected to said auxiliary
carriage, a suitable loop or stirrup attached
to the main frame for engagement with said
check-arm, and a latch-guide attached to the
10 main frame, whereby the auxiliary carriage

is moved into proper position to be locked
with respect to the main carriage and the
main carriage is temporarily held during its
initial tilting movement, substantially as de-
scribed.

DOCTOR FRANKLIN OLIVER.

Witnesses:

GEO. P. FISHER, Jr.,
JNO. E. KIRK.

Correction in Letters Patent No. 436,741.

It is hereby certified that Letters Patent No. 436,741, granted September 16, 1890, upon the application of Doctor Franklin Oliver, of San Francisco, California, for an improvement in "Hay Rickers," was erroneously issued to the said "Oliver" as owner of the patent; that said Letters Patent should have been issued to the *Acme Hay Harvester Company, of Peoria, Illinois*, as sole owner, said *Acme Hay Harvester Company*, being the assignee of the entire interest, as shown by the assignments of record in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 21st day of October, A. D. 1890.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,
Commissioner of Patents.