

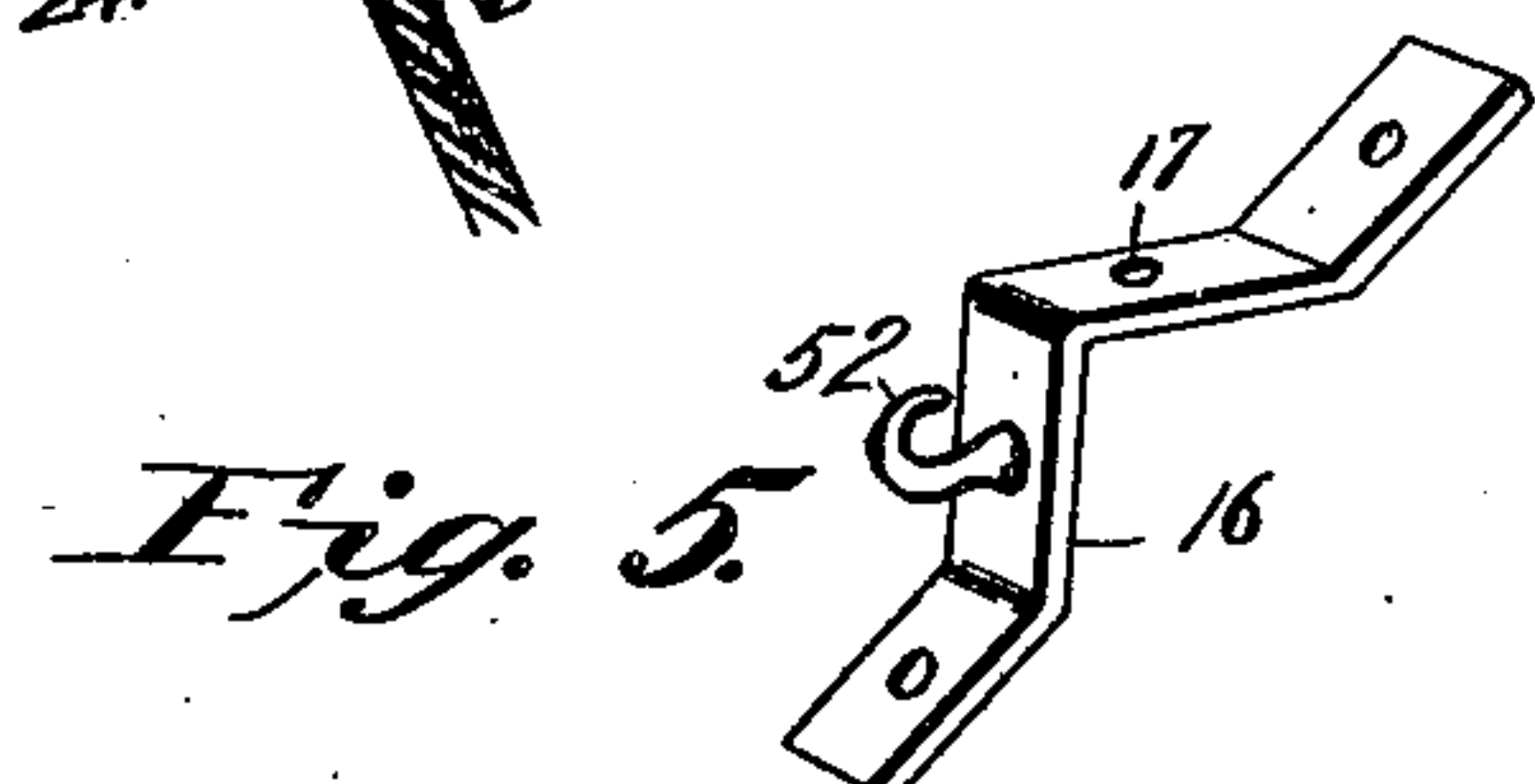
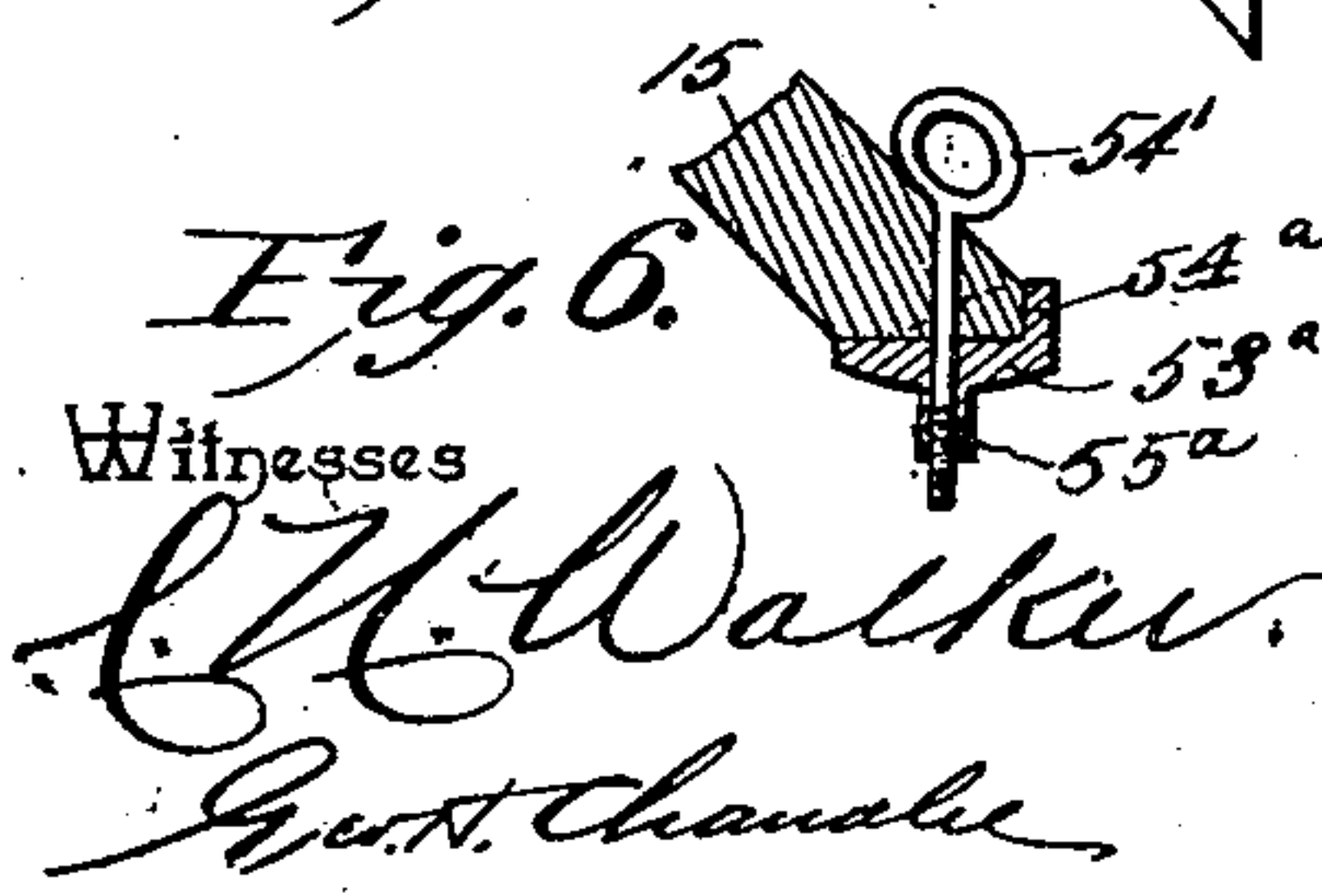
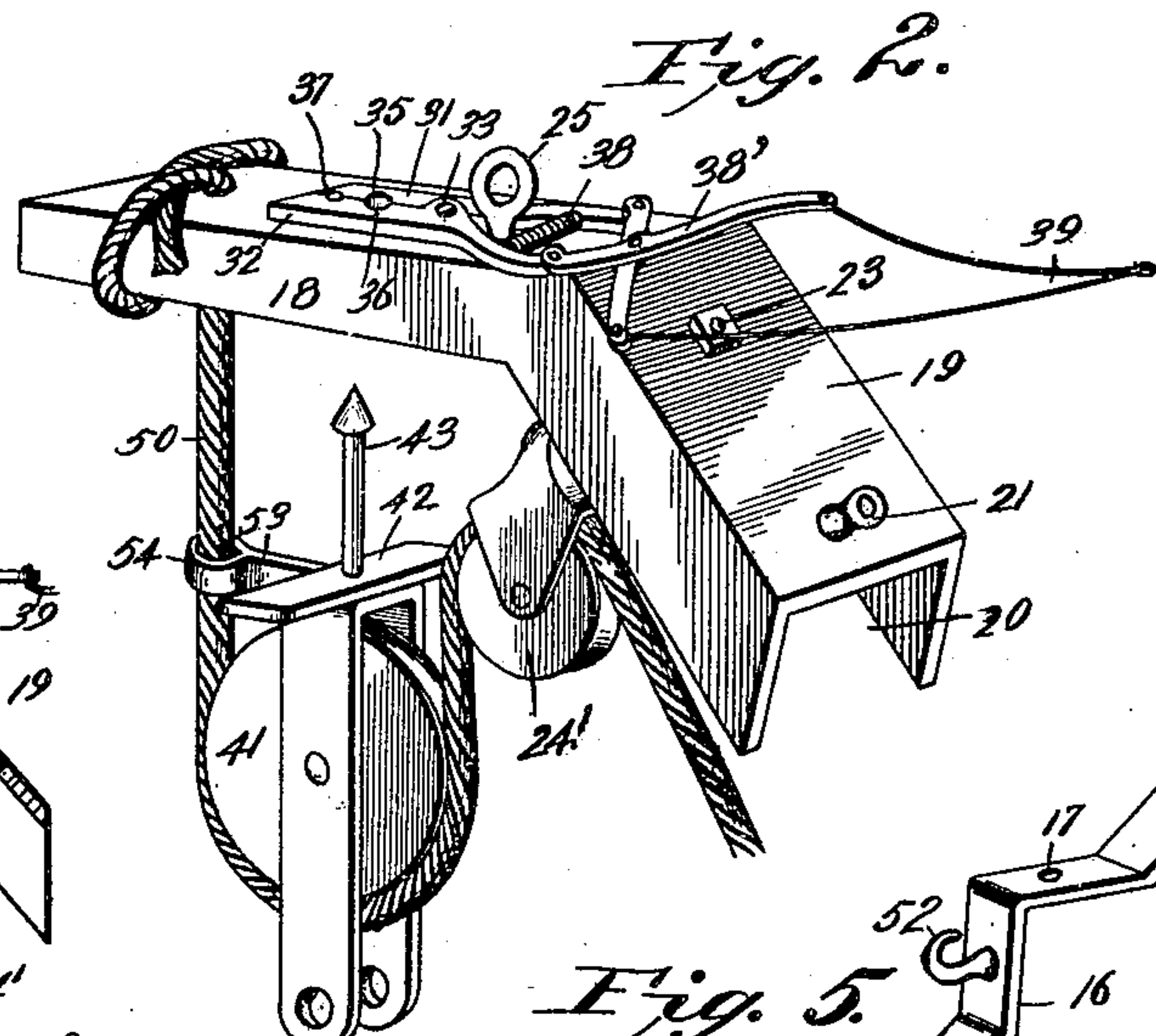
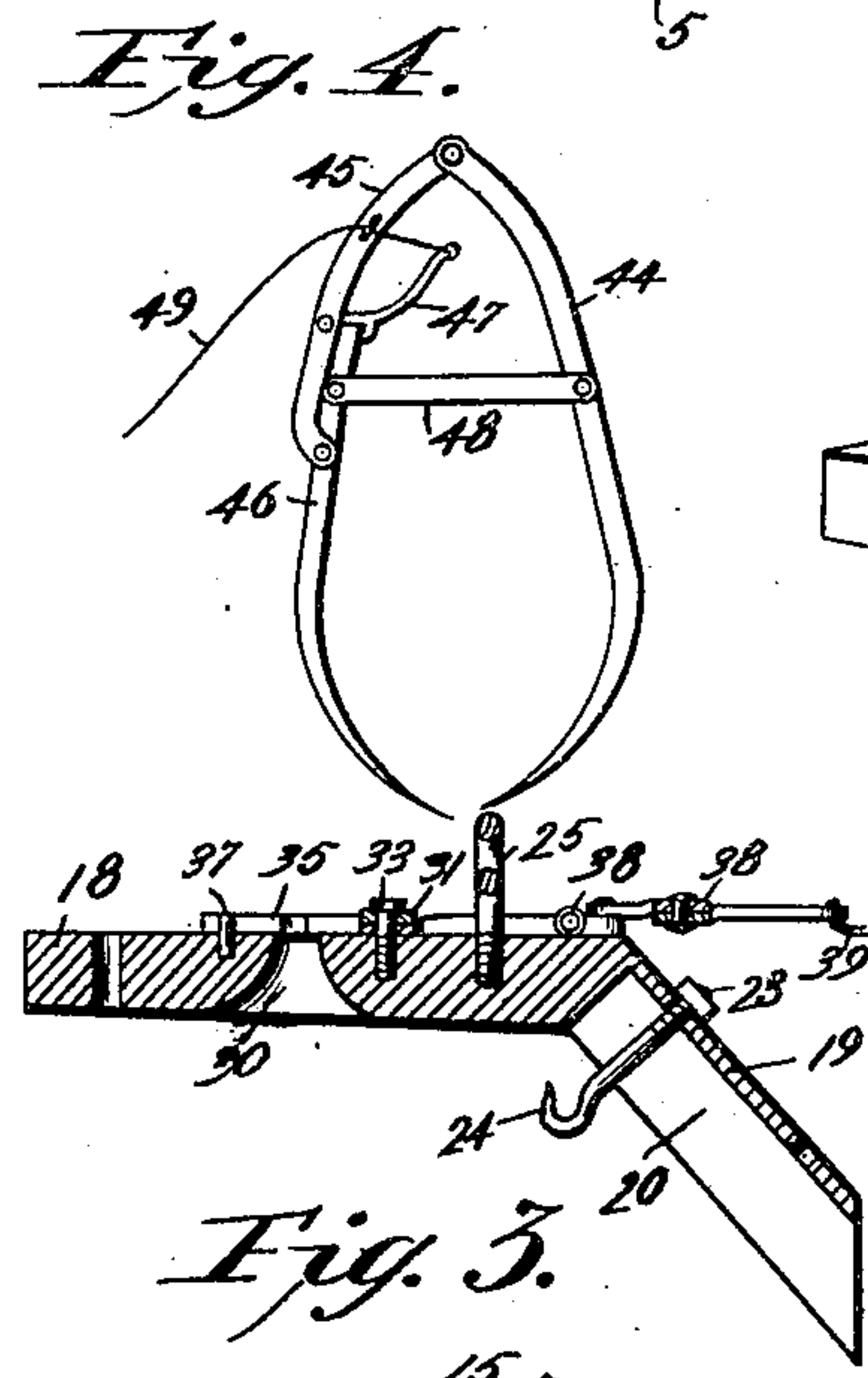
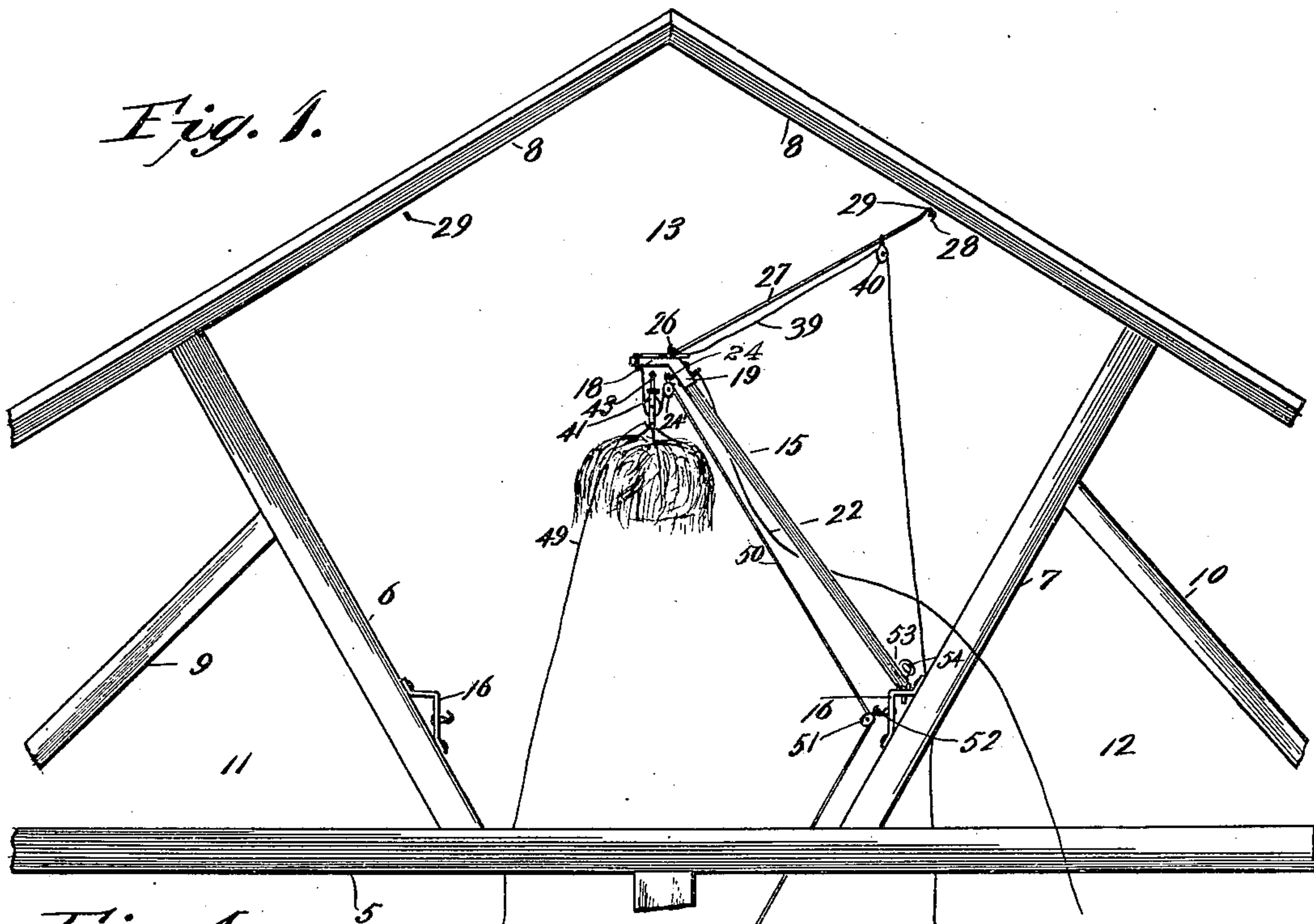
No. 673,486.

Patented May 7, 1901.

J. E. THOMPSON.
HAY CRANE.

(Application filed Nov. 12, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH E. THOMPSON, OF REESE, MICHIGAN.

HAY-CRANE.

SPECIFICATION forming part of Letters Patent No. 673,486, dated May 7, 1901.

Application filed November 12, 1900. Serial No. 36,281. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. THOMPSON, a citizen of the United States, residing at Reese, in the county of Tuscola and State of Michigan, have invented a new and useful Hay-Crane, of which the following is a specification.

This invention relates to cranes in general, and more particularly to that class designed specifically for handling hay and similar material to engage it and after lifting it from a wagon to deposit it in a mow, one object of the invention being to provide a simple and efficient construction which may be easily operated for the purpose designed and which may be quickly shifted from one side to the other of a building to deposit in either of two mows or may be shifted longitudinally of the building to deposit at different points in the same mow.

Further objects and advantages of the invention will be evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a view showing the interior of the upper portion of a barn or other building having side mows and an intermediate runway which may be used also as a mow, the position of the crane to lift from below to the runway and to swing from there to a side mow being shown. Fig. 2 is a perspective view showing the upper end portion of the crane-arm and illustrating the arrangement of the tackle thereon for raising and lowering the hay-grapple. Fig. 3 is a sectional view of the casting that forms the upper end portion of the crane-arm. Fig. 4 is a side elevation of a form of grapple that may be used and which may be tripped to permit of discharge of the hay therefrom. Fig. 5 is a detail perspective view of a stepping-bracket. Fig. 6 is a detail sectional view of the lower end of the crane-arm with the foot-plate thereof and the pivot-lug.

Referring now to the drawings, 5 represents the beam of a mow upon which are fixed uprights 6 and 7, the upper ends of which are diverged and support the rafters 8 in the usual manner, the uprights being held in proper positions by the batter-posts 9 and 10.

The crane consists of an arm 15 of suitable length and which is adapted to hang in an inclined position, its lower end being stepped upon a bracket 16, of which one is secured to each of the uprights 6 and 7. The bracket comprises a vertical portion and a horizontal portion, the latter directly receiving the foot-plate 53^a at the lower end of the crane-arm. This foot-plate has an upwardly-extending flange 54^a at its rear edge to prevent displacement from the arm and has a depending annular lug 55^a for pivotal engagement with a perforation 17 in the bracket. An eyebolt 54' is passed through the lower end of the crane-arm and through the lug 55^a and is held in place by a nut. By grasping the eyebolt, which forms a handhold, the crane may be raised from the bracket.

Upon the upper end of the crane-arm is fitted a casting which includes a horizontal portion 18 and a depending inclined portion 19, the latter having a socket 20, in which is fitted the upper end of the crane-arm. The casting is held in place on the crane-arm by means of a bolt 21, passed through alining perforations in the portion 19 and the crane-arm, said bolt having an eye at its upper end for engagement of a guy-line 22 for swinging the crane pivotally. The casting is further secured to the crane-arm by means of the stem 23 of a screw-hook 24, which stem is also passed through alining perforations in the casting and crane-arm and is held in place by a nut engaged with its upper threaded end. A pulley-block 24' is engaged with screw-hook 24.

To hold the crane-arm in an inclined position, an eye 25 is engaged with the horizontal portion of the casting at the upper end of the crane-arm, and with this eye is engaged a hook 26 at one end of a rod 27, said rod having a hook 28 at its opposite end engaged with an eye 29 in a rafter of the building. Instead of using a single hook-rod a number of rods may be hooked together to increase the inclination of the crane-arm, as will be understood. This arrangement of the hooked rod permits of swinging of the crane-arm with its upper end in the arc of a circle.

In the horizontal portion 18 of the casting of the crane-arm there is formed an upwardly-tapered perforation 30, and adjacent to this perforation are pivoted the jaws 31 and 32 of

a clutch, the pivot-pin 33 of the jaws being common to both and forming the means for holding the jaws to the portion 18 of the casting, this casting, as understood, forming the head of the crane-arm. The jaws have gripping portions 35 and 36 in the form of slight concavities, which when the jaws are in closed position align with the perforation in the head of the crane. A pin 37 in the head on the opposite side of the perforation 30 from the pivot-pin 33 limits pivotal movement of the jaws in one direction and prevents disalignment of the gripping portions of the jaws from the perforation 30 when the jaws are in closed position.

Between the rear portions or handles of the jaws is disposed a helical spring 38, which acts to hold the gripping portions of the jaws yieldably in closed position, and to open the jaws against the tendency of this spring. Tongs 38' are provided, the gripping portions thereof being pivoted to the handles of the clutch, while the opposite ends have a bifurcated line 39 connected therewith, said line running through a block 40 upon the suspending-rod 27, the free end of this line depending so as to be readily grasped by the operator to actuate the clutch to separate its jaws.

The lifting-tackle of the crane comprises the pulley 24', above referred to, and a second pulley 41, which latter has a frame 42 extending above and below the pulley-wheel, the upper portion thereof carrying a headed rod 43, which is adapted to be passed upwardly through the perforation 30 to engage and separate the clutch-jaws and to rise thereabove to permit the jaws to close upon the stem below the head, it being understood that said head is upwardly tapered to permit it to have this action.

To the lower portion of the frame 42 is connected a trip-grapple of any desired style and which in the present instance includes two arms, one arm 44 being integral, while the other arm includes two members 45 and 46, pivotally connected, the arm member 45 extending above the member 46 and the former member having a latch 47 pivoted thereto and adapted for engagement with the upper end of the member 46 to hold said member against pivotal outward movement at its lower end. Above its pivotal connection with the member 45 the member 46 is pivoted to a cross-bar 48, pivoted also to the arm 44. A trip-cord or trip-line 49 is attached to the latch and when drawn moves the latch to release the member 46 to release and drop the load, it being understood that the grapple has its arms engaged with the load to be raised.

A lifting-line 50 is attached at one end to the head of the crane-arm and is passed around the under side of the pulley 41, then upwardly and over the pulley 24', and then down and through a pulley 51, engaged with a hook 52 on the supporting-bracket for the crane. As the free end of this line is drawn downwardly the pulley 41 is of course drawn upwardly,

and the headed pin of its frame is guided to the perforation 30 by means of an arm 53 upon said frame and having a collar 54 at its outer end which encircles the lifting-line at a point between the pulley 41 and its attachment to the head of the crane-arm.

In operation the lifting-line is slacked and the grapple is lowered and is engaged with a load to be lifted to the mow. The line is then drawn and the load raised, the guy-line 22 being manipulated to swing the crane into a side mow to deposit its load, after which the trip-line of the grapple is operated to drop the load. This trip-line is then drawn upon to swing the crane outwardly, and when it is in proper position the clutch trip-line is operated to open the clutch to permit the grapple to be drawn down for another load. When it is desired to shift the crane to another position, its pivot-pin is withdrawn from its lower end and from the stepping-bracket, and the suspending-rod is disengaged from the eye in the rafter, and the entire apparatus is moved to rest the butt of the arm upon a second bracket, with which it is pivotally connected by the pin. The suspending-rod is then engaged with a corresponding eye. With this shiftable feature of the construction the hay may be advantageously deposited at different points of the length of a mow or in either mow, as will be understood.

It will be understood, further, that in practice various modifications of the specific construction shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

It will of course be understood that before shifting the crane-arm from one bracket to another the several blocks may be disengaged therefrom, as also the tackle, to lighten the load.

What is claimed is—

1. In a crane, the combination with a stepping-bracket having a perforation therein, of an arm, a foot-plate upon the lower end of the arm disposed upon the bracket and having a lug rotatably engaged with the perforation, said arm and lug having aligning perforations, an eyebolt engaged with the aligning perforations and removable therefrom to permit of shifting of the arm, and suspending means for the head of the arm.

2. A crane comprising an arm pivotally mounted at its base, a head for the arm, a clutch mechanism for the head, a pulley carried by the head, a lifting-pulley, a line connected with the head and engaged with the pulleys, a headed stem upon the lifting-pulley for engagement with the clutch mechanism to hold the lifting-pulley in raised position, and a guide movable with the lifting-pulley and engaged with the line between said pulley and the head to guide the headed stem to the clutch mechanism.

3. A crane comprising a stepping-bracket

having a perforation therein and provided with a hook, an arm, a pivot-pin removably engaged with the arm and with the perforation of the bracket a suspending device pivotally connected with the head of the arm, a pulley carried by said head, a lifting-pulley, a clutch mechanism for engagement by the lifting-pulley, a lifting-line attached to the head and engaged with the lifting-pulley and the pulley on the head, a second pulley removably connected with the hook of the stepping-bracket and with which the lifting-line is engaged, and a grapple carried by the lifting-pulley, said arm and pulley being adapted for removal for connection with a second bracket.

4. The combination with a series of step-

ping-brackets each having a bearing therein, and corresponding hooks, of a crane-arm having a pin removably engaged with its base portion and a hooked suspending-rod connected with its head, said arm being adapted for engagement of its pin and its rod with the bearings of the brackets and their corresponding hooks interchangeably to vary the position of the crane-arm.

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

JOSEPH E. THOMPSON.

Witnesses:

A. C. SMITH,
WM. L. REID.