

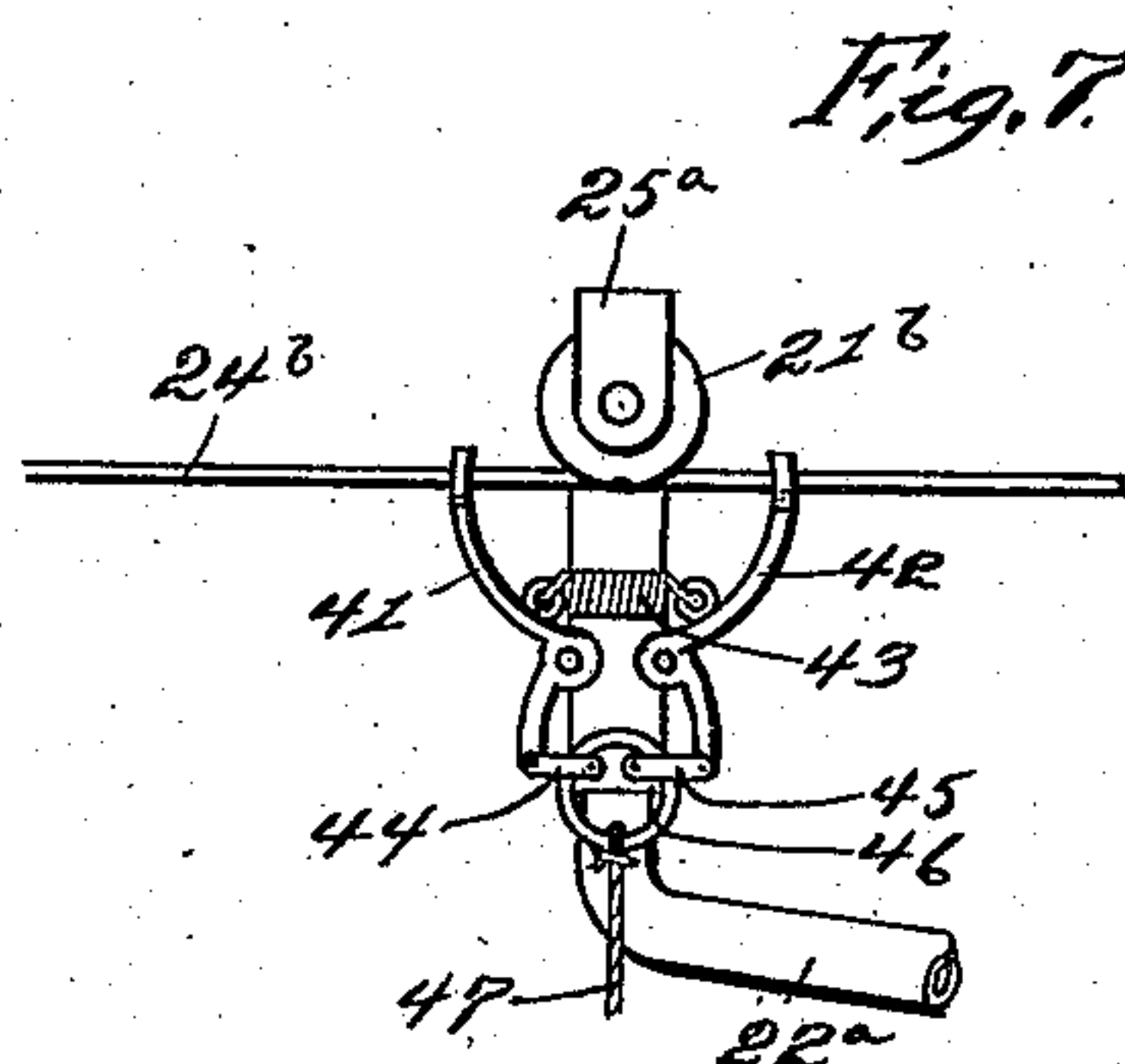
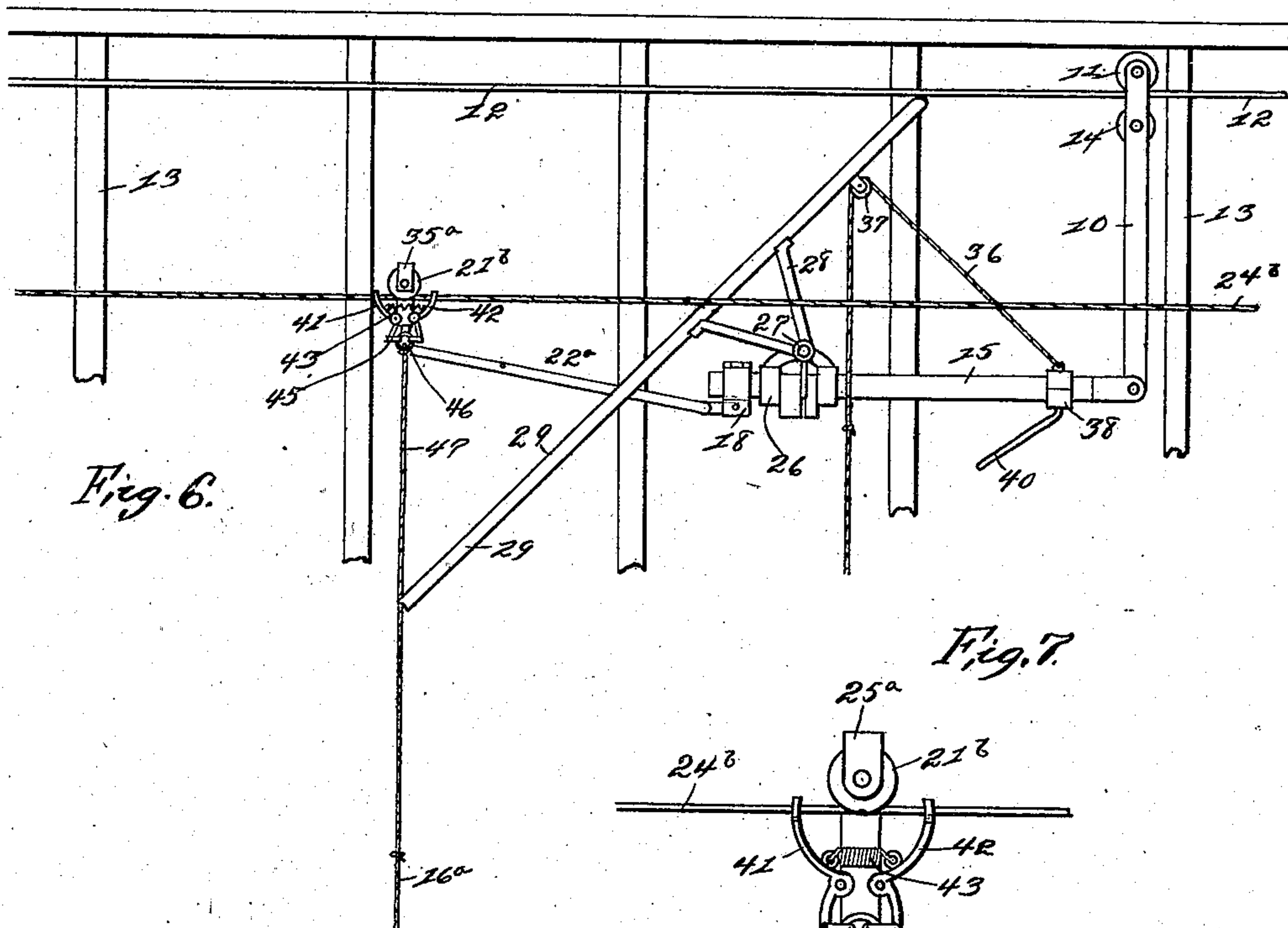
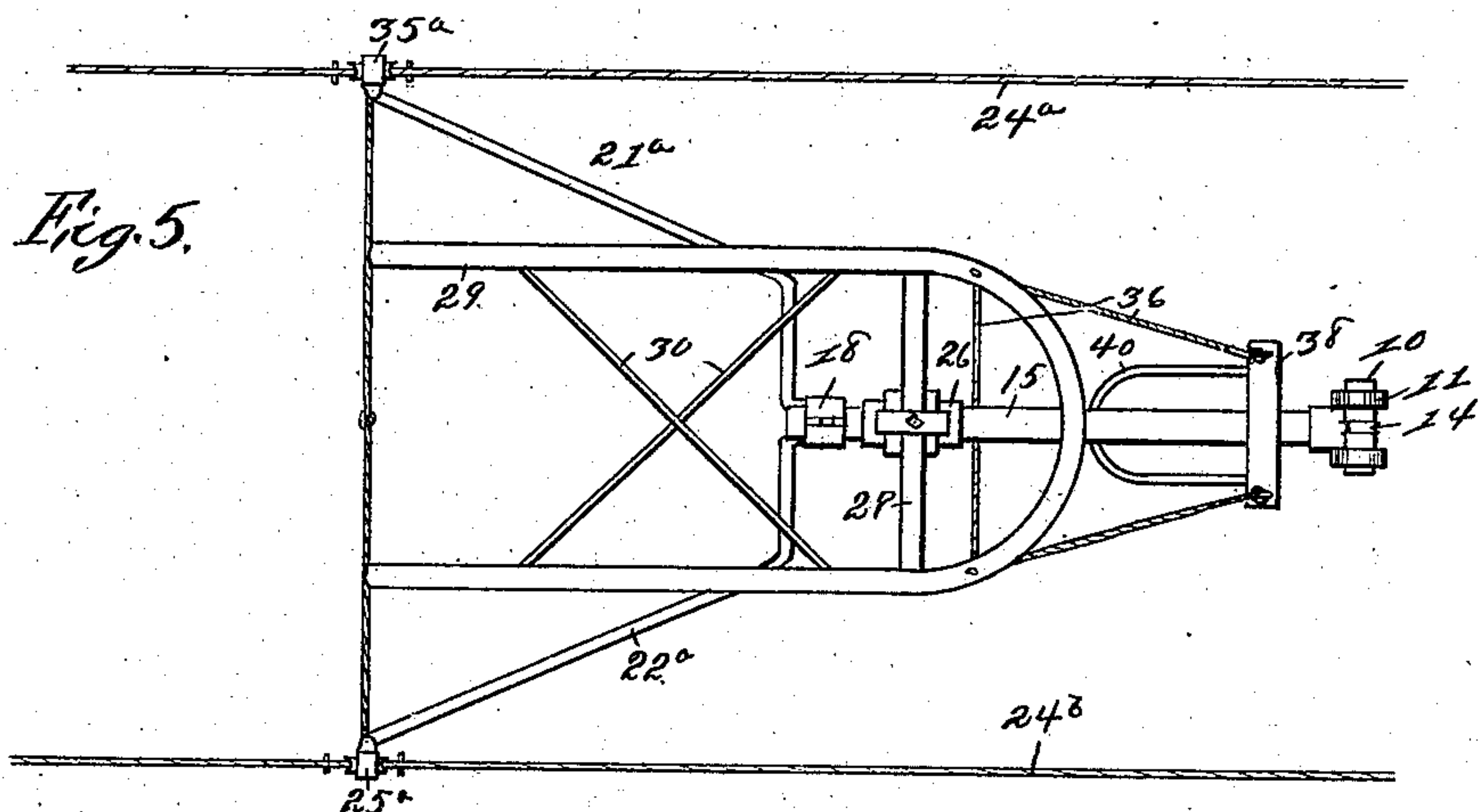
No. 881,426.

PATENTED MAR. 10, 1908.

M. H. MADSEN.
HAY HANDLING MECHANISM.

APPLICATION FILED APR. 18, 1907.

2 SHEETS—SHEET 2.



Attest:
R. H. Heibrock.
J. W. Winters.

Inventor:
Mads H. Madsen,
By *J. Schwab* Att'y

UNITED STATES PATENT OFFICE.

MADS H. MADSEN, OF KIMBALLTON, IOWA.

HAY-HANDLING MECHANISM.

No. 881,426.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed April 18, 1907. Serial No. 369,380.

To all whom it may concern:

Be it known that I, MADS H. MADSEN, a citizen of the United States of America, and resident of Kimballton, Audubon county, Iowa, have invented a new and useful Hay-Handling Mechanism, of which the following is a specification.

The object of this invention is to provide improved means for receiving, supporting and laterally dumping hay in a barn or mow.

A further object of this invention is to provide improved means for supporting hay-handling mechanism in a barn or mow.

My invention consists in the construction, arrangement and combination of elements hereinafter set forth, pointed out in my claims and illustrated by the accompanying drawing, in which—

Figure 1 is a plan of one form of my improved device in position for practical use.

Fig. 2 is a side elevation of the same device in position to receive a quantity of hay.

Fig. 3 is a cross-section of the device on the indicated line 3—3 of Fig. 1. Fig. 4 is a

cross-section on the indicated line 4—4 of Fig. 1. Fig. 5 is a plan of a modified form of my device. Fig. 6 is a side elevation of the form shown in Fig. 5. Fig. 7 is an enlarged detail view, in side elevation, illustrating the means employed to clamp a supporting device to a cable.

In the construction and mounting of the device as shown, the numeral 10 designates a hanger bar provided with track rollers 11 adapted to travel on a track 12 and support said bar. The hanger bar 10 and rollers 11 may be adapted in form to any desired track, but in this instance I show the bar forked in its upper end to straddle the track and provided with a roller on each arm and extending inwardly therefrom to contact with the upper surface of the track 12, said track supported in any desired manner from rafters 13 of a barn or mow. A roller or pulley 14 is mounted on the fork of the hanger bar 10 below the track 12 and is adapted to support the draft rope of the hay-fork or slings (not shown) employed to lift and convey hay to the mechanism illustrated. A supporting bar 15 is pivoted at one end to and extends forward from the lower end of the hanger bar 10. A cable 16 is fixed at one end to the supporting bar 15 in front of the hanger bar and extends through a pulley 17 in the fork of said hanger bar above the supporting bar. The cable 16 depends from the pulley 17

within reach of the operator. Straps 18 are provided and each strap may be formed in two pieces hinged together and having eyes 19, 20 on their extremities. The straps 18 may be mounted on and embrace the forward end of the supporting bar 15 or they may be located midway of the length of the bar as shown by dotted lines in Fig. 2.

Arms 21, 22 are mounted by the insertion of their rear end portions in the eyes 19, 20 of the straps 18 and are secured therein preferably by bolts or pins 23 extending through said eyes and arms and serving the additional purpose of clamping the straps to the supporting bar. The arms 21, 22 extend forward and downward in diverging planes from the supporting bar 15 and terminate in straight portions 21^a, 22^a adapted to rest on a cross-tie or collar-beam 24 and hooks 25, 25 adapted to engage said cross-tie and prevent rearward movement of the mechanism. It is the function of the arms 21, 22 to support the bar 15 and devices and load thereon supplemental to the support furnished by the hanger bar 10, and in so doing relieve said hanger bar of a material portion of strain to which it otherwise would be subjected. The arms 21, 22 are adjustable within limits longitudinally of the bar 15, through changing positions of the straps 18 as indicated, for the purpose of adjusting the extreme length of the apparatus in respect of the distances of separation of cross-ties or collar-beams 24, which may vary considerably in different barns. A bearing 26 is mounted loosely for rotary oscillation on the forward portion of the supporting bar 15 and a shaft 27 is mounted in and extends transversely of the lower portion thereof below said bar. Brackets 28, one only of which is shown in Fig. 2, are mounted for rotary oscillation on or with the shaft 27 and a U-shaped frame 29 is mounted on said brackets. The frame 29 is arranged with its closed end portion rearward and the brackets 28 are arranged beneath the central portions of the sides or arms of said frame. Crossing braces 30 may be mounted on and connect the sides of the frame 29. The bearing 26 is forked and a collar 31 is mounted on the supporting bar 15 within the fork thereof and is secured to said bar, as by a transverse pin 32. A stem 33 is formed on and rises from the collar 31 and springs 34, 35 connect the upper end of said stem to the sides of the frame 29. It is the function of the springs 34, 35 to center the frame 29

above the supporting bar 15 and return said frame to normal position as shown. A rope 36 has its center beneath the supporting bar 15 and extends upward on opposite sides of said bar through pulleys 37, one only of which is shown in Fig. 2, on the sides of the frame 29 and near the closed end portion thereof, and extends thence to points of attachment at its ends on the ends of a cross-head 38 fixed to and extending transversely of the supporting bar adjacent the hanger bar 10. A cable 39 is fixed to and depends from the center of the rope 36 beneath the supporting bar 15, within reach of the operator. A yoke 40 is fixed to or formed on and extends downward and forward from the cross-head 38.

In the practical use of this device the mechanism is adjusted as to length and then is moved longitudinally of the barn into the desired position by manipulation of the cable 16, said cable serving to lift the supporting bar and arms and frame thereon so that the hooks 25 clear the cross-tie or collar-beam 24 and permit such longitudinal movement of the mechanism. When the mechanism is located to the satisfaction of the operator, the frame 29 occupies an inclined position, as shown in Fig. 2, open to the direction from which a quantity of hay may approach. A quantity of hay is elevated and conveyed, by a fork or slings, in any desired manner and is carried upon the frame 29, the impact of the hay having the effect of positioning the frame horizontally. The fork or slings is then released from the quantity of hay on the frame 29, and said frame is tilted laterally by manipulation of the cable 39 and rope 36 in contact with and straining laterally against the yoke 40, thus depositing the hay from the frame to one side or the other of the median line of the barn. The direction of lateral tilting of the frame 29 is determined by engaging the cable 39 or rope 36 with one side or the other of the yoke 40. After the portion of hay is dumped laterally from the frame 29, the draft on the cable 39 is relaxed and one or the other of the springs 34, 35 returns the frame 29 to normal position in respect of lateral tilting and the said frame over-balances forwardly into the inclined position shown in Fig. 2 preparatory to receiving another load. When the desired number of loads or portions of hay have been dumped laterally from the frame in one location, the entire mechanism is shifted to another location by manipulation of the cable 16 and is re-set with the arms 21 22 supported on another cross-tie or collar-beam.

In the construction of the mechanism as shown in Figs. 5, 6 and 7 the following changes are made: Arms 21^a, 22^a are connected to the supporting bar 15 by one or more clamping straps 18 in like manner and in the same

place as the arms 21, 22 are connected as above described, and the extreme length of the apparatus may be adjusted as indicated. The arms 21^a, 22^a extend forward and upward in diverging planes from the strap 18 and terminate in hooks 25^a, 25^a, and a pulley 21^b is mounted in each hook. Cables 24^a, 24^b, are mounted longitudinally of the barn or mow on opposite sides of and in a lower plane than the track 12 and the pulleys 21^b in the hooks 25^a ride on said cables and support the arms 21^a, 22^a, which arms in turn support the forward portion of the bar 15. Forked levers 41, 42 are mounted for oscillation on the hooks 25^a, a pair of levers to each hook, and a spring 43 connects said levers above the fulcrums thereof and causes the forks of the levers to engage the cable 24^a, or 24^b, on opposite sides of the pulley 21^b and clamp said cable to said pulley. Links 44, 45 are connected to the lower ends of the levers 41, 42 and are connected at their opposite ends to a ring 46, and a rope 47 depends from each ring and connect below the lowermost portion of the frame 29 with a draft rope 16^a. The rope 16 is omitted. The frame 29 and means of mounting on the bar 15 follows the form shown in my companion application pending concurrently herewith, but it can be made as shown in Figs. 1, 2 and 3, and it is operated in the manner shown and described in connection with the latter figures. The mechanism is moved into any position longitudinally of the track 12 by applying draft or rope 16^a sufficient to release the clamping contact of the levers 41, 42 on the cables 24^a, 24^b, and then pulling the mechanism endwise by the same rope. Whenever draft is released from the rope 16^a the springs 43 apply the clamping function of the levers 41, 42 to the cables 24^a, 24^b and hold the mechanism stationary.

I claim as my invention—

1. A hay-handling mechanism, comprising a supporting bar, means for suspending said bar from and for travel relative to a track, arms supporting said bar independent of the track, and a frame mounted for oscillation on said supporting bar.

2. In a hay-handling mechanism, a hanger adapted for travel on a track, a supporting bar pivoted to said hanger, arms on said supporting bar and adapted for engagement with supporting means independent of the track, and a frame mounted for oscillation longitudinally and transversely on said supporting bar.

3. In a hay-handling mechanism, a hanger adapted for travel on a track, a supporting bar pivotally connected to said hanger, a cable connected to said bar and rove through said hanger, arms adjustably connected to said supporting bar and adapted for engagement with supporting means independent of

the track, and a frame mounted for oscillation on said supporting bar.

4. In a hay-handling mechanism, a hanger adapted for travel on a track, a supporting bar pivotally connected to said hanger, means for oscillating said bar relative to said hanger, arms adjustably connected to said supporting bar and adapted for engagement with a cross-tie or collar-beam, hooks on said arms, and a frame mounted for oscillation on said supporting bar.

5. In a hay handling mechanism, a hanger adapted for travel on a track, a supporting bar carried by said hanger, a stem rigidly mounted on said bar, a frame mounted for lateral oscillation on said bar, and springs connecting the sides of said frame to the extremity of said stem.

6. In a hay handling mechanism, a supporting bar, arms mounted on the forward end of said bar and adjustable longitudinally

thereof, engaging devices on the extremities of said arms, and a frame mounted for oscillation longitudinally and transversely of said bar.

7. In a hay handling mechanism, a hanger adapted for travel on a track, a supporting bar pivoted at one end to said hanger, supporting arms connected to the forward end of said bar and adjusted longitudinally thereof, means for supporting the outer ends of said arms, a frame mounted for longitudinal and lateral oscillation on said bar, a stem rising from said bar within the frame, springs connecting the sides of said frame to the extremity of said stem, means for oscillating the bar on the hanger and means for oscillating the frame on the bar.

MADS H. MADSEN.

Witnesses:

HANS MADSEN,
J. M. GREGERSEN.