

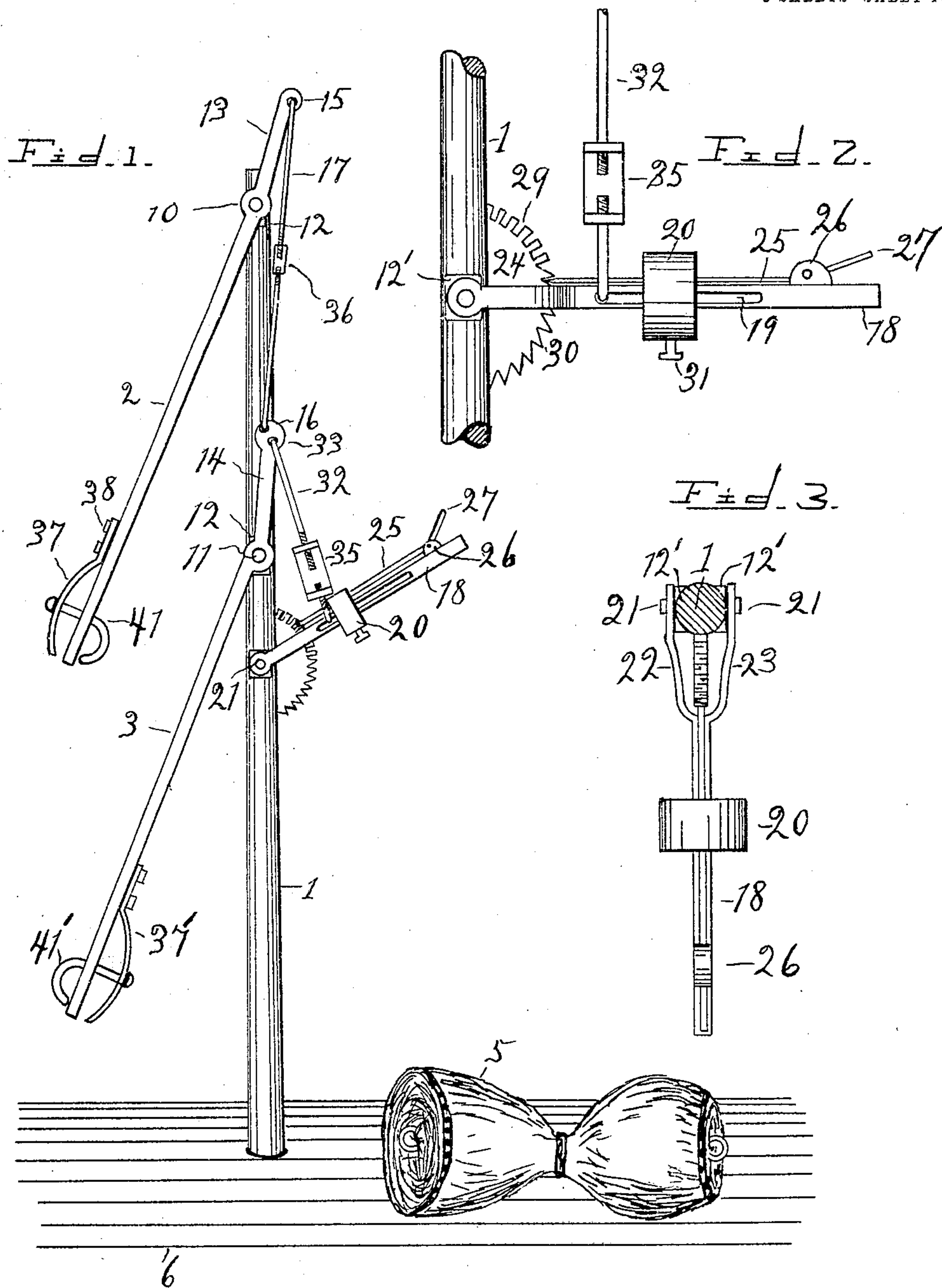
No. 810,600.

PATENTED JAN. 23, 1906.

J. L. ATHEY.
MAIL CRANE.

APPLICATION FILED OCT. 26, 1905.

3 SHEETS—SHEET 1.



Witnesses Arthur Sturges.
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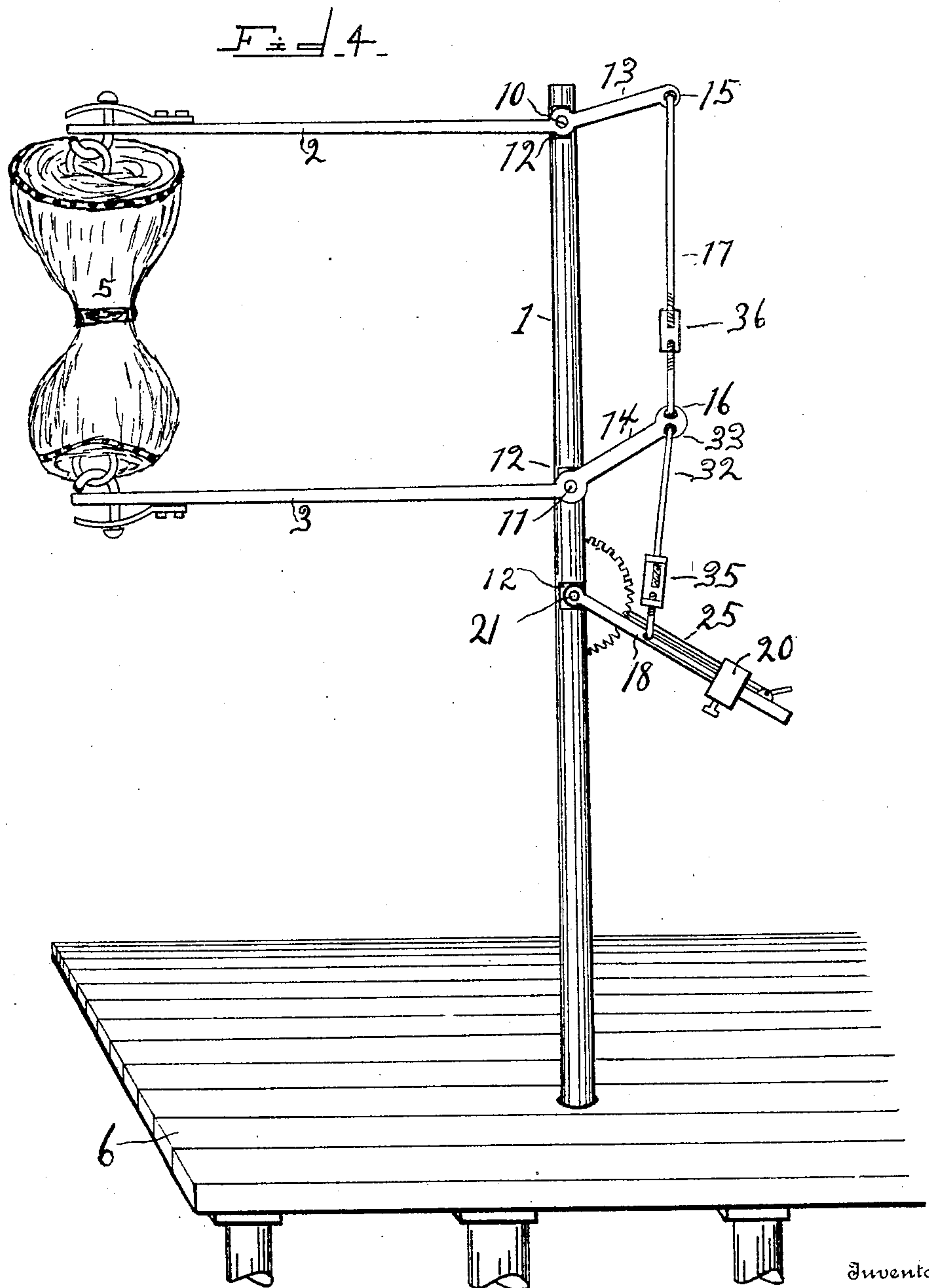
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Witnesses

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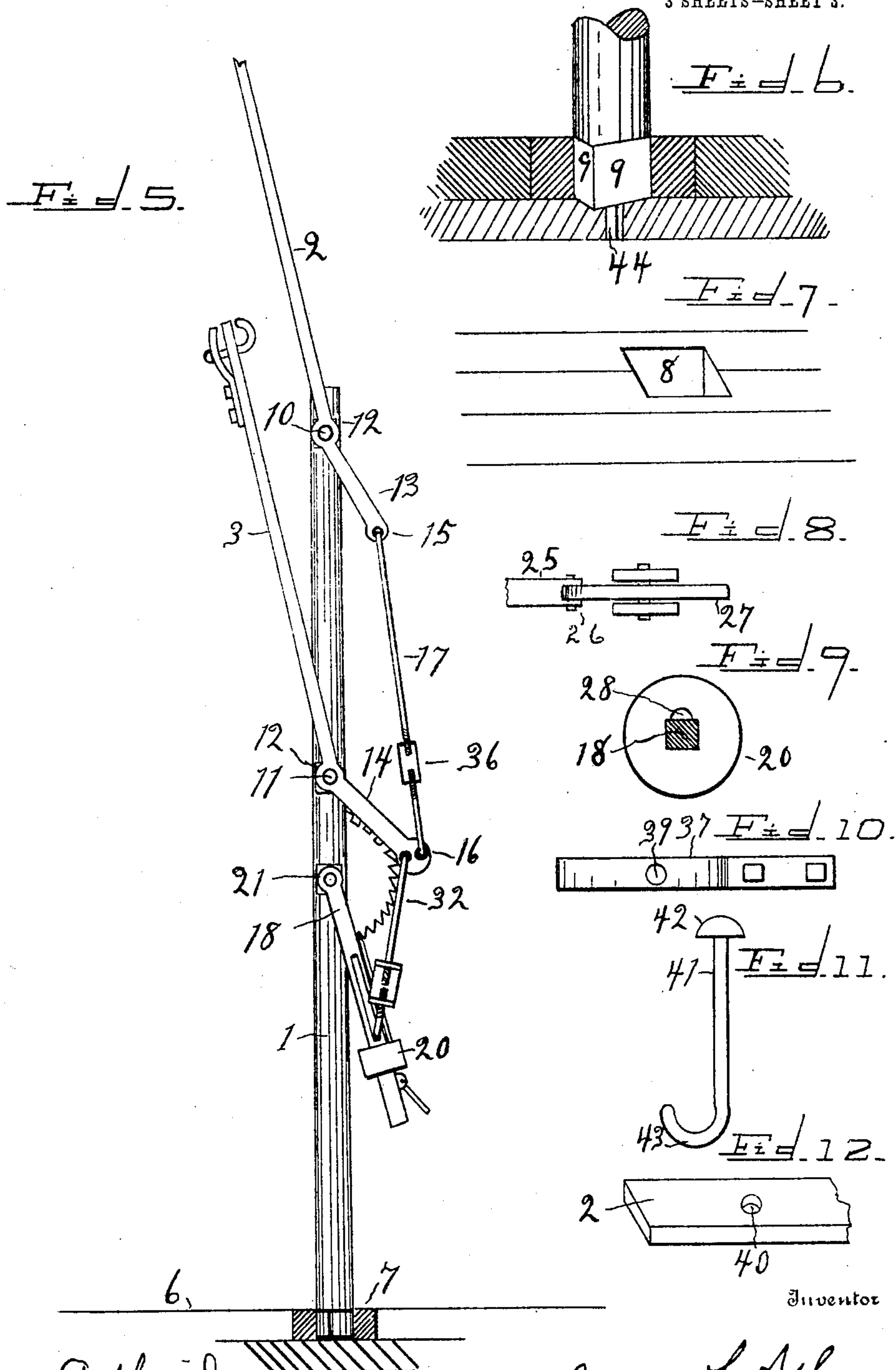
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3 SHEETS-SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES L. ATHEY, OF WOODBINE, IOWA.

MAIL-CRANE.

No. 810,600.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed October 26, 1905. Serial No. 284,509.

To all whom it may concern:

Be it known that I, JAMES L. ATHEY, a citizen of the United States, residing at Woodbine, in the county of Harrison and State of Iowa, have invented certain new and useful Improvements in Mail-Cranes, of which the following is a specification.

My invention relates to improvements in mail-cranes used for delivering mail-sacks to a car while the latter is in motion, as at stations where certain mail-trains make no stop.

The object of the invention is to provide a mail-crane which is more simple in construction than heretofore presented, but which shall be effective for the purposes designed.

Another object is to present a crane which is portable, so that the entire device may be removed from the platform.

Another object is to provide means so that mail-bags of different lengths may be sustained thereon, as the lengths of these sacks are somewhat shortened when filled.

With these and other objects in view my invention presents novel construction and arrangement of parts, as described herein and as illustrated by the drawings, wherein—

Figure 1 represents a vertical elevation of the invention in a position before the arms have been loaded. Fig. 2 represents an enlarged view of some of the devices employed to illustrate parts of Fig. 1. Fig. 3 represents a top view of the lever, weight, and ratchet, the staff being in section. Fig. 4 represents a vertical elevation of the invention when the arms sustain the mail-bag in a position to be delivered to a moving car. Fig. 5 is intended to represent the position assumed by the parts immediately after delivering the sack, the parts in section showing staff-socket formed in platform. Fig. 6 is a detail showing axial faces of base of staff and corresponding opening in platform. Fig. 7 is a detail illustrating Fig. 6. Fig. 8 is a detail illustrating construction of the means for controlling engaging bar 25. Fig. 9 illustrates an end view of the weight 20, lever 18, and relative position of slot 28. Fig. 10 illustrates location of slot 39 of spring 37. Fig. 11 illustrates formation of pin 41. Fig. 12 shows location of slot 40, formed within the body of arms 2 and 3.

I provide a staff 1 of suitable height to furnish bearings for the sustaining-arms 2 and 3, so that these arms when in an extended position, as shown in Fig. 4, will present the mail-bag 5 at a proper altitude to be caught by the

passing car. The staff 1 is adapted to be removably positioned on a platform 6 within an opening 7, having angular walls 8 provided in the floor of the platform, and is provided upon its base with the axial faces 9, which correspond with the angular walls of the platform-opening to prevent lateral rotation or swinging movement of the staff after it has been placed in position. The body of the staff is cylindrical in form and is receding in size from the base upward in order to cause economy in weight and material.

I provide the sustaining-arms 2 and 3 and mount them pivotally upon the body of the staff at 10 and 11, the body of the staff at these contacting points being provided with the axial faces 12, built upon the body of the staff. These sustaining-arms are extended beyond their pivotal mountings to form levers 13 and 14, and I provide the eyes 15 and 16 upon the extremities, respectively, of levers 13 and 14 and mount therein the link 17.

I provide the lever 18, having the lengthwise slot 19 therein. This lever supports slidably thereon the weight-block 20 and is pivotally mounted upon the staff at 21. The body of the lever is substantially uniform in size throughout its length and is divided at one end to form the arms 22 and 23, these arms making contact with the axial faces 12 of the staff. I mount rigidly upon the staff the ratchet 24 between the arms 22 and 23. The ratchet is formed substantially as a half-circle, the teeth thereof being formed upon the periphery. The teeth 29 upon the upper half of the ratchet are formed with their side walls in radial planes with the ratchet, while teeth 30 of the lower half substantially are each formed with one wall in a radial plane, the other wall of each tooth being inclinedly formed, and I provide the engaging bar 25, slidably mounted upon lever 18. This bar is hingeably mounted at 26 and is provided with thumb-piece 27 and passes through slot 28, Fig. 9, of the weight-block 20 and extends to a contact position with teeth 29 and 30 of the ratchet and is adapted to have a lengthwise movement upon bar 18 to engage or disengage the ratchet-teeth under control of the operator. The weight-block 20, while slidable upon lever 18, is provided with a set-screw 31, so that an adjustment may be made and the weight-block be made to assume a chosen and fixed position at a greater or less distance from the free end of the lever upon which it is mounted.

I provide the link 32, which at one end has a pivotal mounting within the eye 33 of lever 14, its opposite end having a similar mounting within slot 19 of lever 18, and I provide the adjusting-blocks 35 and 36 upon links 32 and 17, respectively. I construct the curved arm 37 to operate as a spring, its base 38 being rigidly mounted upon the outer wall of arm 2 near the free end of said arm 2. The resilient portion of this arm has an outward curve, at the center of which is provided the opening 39, and I provide a similar opening 40 through arm 2 near its free end, and within these openings I revolvably mount the pin 41, having the head 42 and the curved shank 43. A similar construction is employed with reference to sustaining-arm 3, and the parts are represented by the numerals 37' and 41', the mounting of the parts being reversed as compared with the arm 2, these being holding means to sustain the mail-sack ready for delivery.

It will be understood from the description that the mail-crane is adapted to have a light construction, and this is one of the objects of the invention, since it is intended to be removed from the platform upon occasion when it would be obtrusive, and there is no reason why it may not be removed and replaced at each train-time. The angular opening 7 in the platform may have an outlet 44, so that sand may not obstruct the opening or ice form therein.

The levers 13 and 14 are formed out of longitudinal alinement with the sustaining-arms of which they are extensions and are each curved upwardly from said alinement, so that the weight 20 may cause the sustaining-arms to assume a vertical position substantially as soon as the mail-sack has been delivered to the car. It will be noted that the sustaining-arms are at all times under complete control of the operator. By actuating thumb-lever 27 the engaging bar 25 becomes free from contact with the ratchet, and lever 18 may then be raised, which causes the sustaining-arms 2 and 3 to be lowered. The operator then without use of steps or ladder may place the rings of the mail-sack between the curved portions of the pins and the arms, and it will be noted that the maintenance of the sustaining-arms in their lowered position is made certain while the operator is adjusting the sack upon the arms, because the engaging bar 25 at this time is in contact with the upper series of ratchet-teeth 29, which effectually lock the arms in their lowered position during this adjustment. After the sack is in position the operator causes the withdrawal of the engaging lever 25 from the upper series of teeth 29 and lowers lever 20 sufficiently far to cause arms 2 and 3 to assume a horizontal position, as shown by Fig. 4. It will be noted that at this time the inclinedly-formed series of teeth 30, in

combination with engaging bar 25 and links 17 and 32, cooperate to sustain the arms 2 and 3 in a horizontal position, and this is a desired result, since the mail-sack must be maintained in a properly-elevated and fixed position, ready for the delivery of the sack. The weight-block 20 is adjusted so that its weight is greater (plus links 17 32 and the lever on which it is hung) than the combined weight of arms 2 and 3, but not equal to the combined weight of arms 2 and 3 and a mail-sack. As soon as the mail-sack has been removed from the arms by the passing car the arms at once are raised on account of gravity of the weight-block to the position shown by Fig. 5, the inclined teeth 30 permitting this action, and this is a desired result, as is obvious. Since the pins 41 and 41' are mounted as a swivel, they may be rotated readily in either direction within their bearings, and the rings of the mail-sack become readily disengaged from the pins by impetus of the moving car when the latter is passing in either direction.

The springs 37 and 37' are formed with long curved ribs and admit of contraction and expansion sufficient to accommodate varying lengths of mail-sacks. The adjusting-block 36 also provides for a ready widening or lessening of the distance apart of the sustaining-arms 2 and 3, which controls the matter of accommodation of sacks of different lengths.

The radial position of lever 18 upon the ratchet may be readily controlled by the adjusting-block 35. The function performed by link 32 is the control of lever 14 and indirectly the arms 2 and 3. It may be desired to change the position radially of lever 18, so that it may cause a greater or a less sweep of arms 2 and 3, and the adjusting-block 35 is useful to permit this change, and by shortening link 32 lever 18 may cause a higher sweep of said arms.

By means of the axial faces 12 and 12' movement of the several arms and levers are preserved in true alinement. I have given full details of construction for convenience, but do not limit myself to such exactness of construction. Various details may be modified or changed, as is evident, without departing from the scope of the invention, the latter being determined by its claims.

What I claim as my invention is—

1. A mail-crane, in combination; comprising a substantially vertically disposed staff; arms pivotally mounted upon said staff; each of said pivotally-mounted arms being extended longitudinally to form a lever thereon; a link connecting said levers; mechanism attached to said link; and means to control said mechanism.

2. A mail-crane, in combination; comprising a substantially vertically disposed staff; arms pivotally mounted upon said staff; each

of said pivotally-mounted arms being extended lengthwise to form a lever thereon; a first link; a second link; said first link forming a pivotal connection between said levers; said second link attached to said first link; mechanism attached to said second link; and means to control said mechanism.

3. A mail-crane, in combination; comprising a substantially vertically disposed supporting-staff; a first sustaining-arm; a second sustaining-arm; a first lever; a second lever; a third lever; a first link; a second link; each of said first and second sustaining-arms being pivotally mounted upon said substantially vertically disposed supporting-staff; said first sustaining-arm being extended beyond its pivotal mounting in a direction substantially lengthwise with said sustaining-arm, to form said first lever; said second sustaining-arm being extended beyond its pivotal mounting in a direction substantially lengthwise to form said second lever; said first link being pivotally mounted upon and forming a connection between said first and second le-

vers; said third lever being mounted upon said supporting-staff; said second link being pivotally mounted upon and forming a connection between said first link and said third lever; mechanism attached to said third lever and means to control said mechanism.

4. A mail-crane, in combination; a suitable supporting-staff; a ratchet-controlled weighted lever pivotally mounted upon said supporting-staff; an upper and a lower supporting-arm pivotally mounted upon said supporting-staff; mail-sack-engaging means attached to said upper and lower supporting-arms; and a link connection between said upper and lower supporting-arm; and said ratchet-controlled weighted lever, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES L. ATHEY.

Witnesses:

O. L. MICKEL,
H. P. HUSBAND.