No. 865,292. PATENTED SEPT. 3, 1907.

J. BOUR.

MAIL CRANE.

APPLICATION FILED NOV. 23, 1906.

4 SHEETS—SHEET 1.

Fig. 1

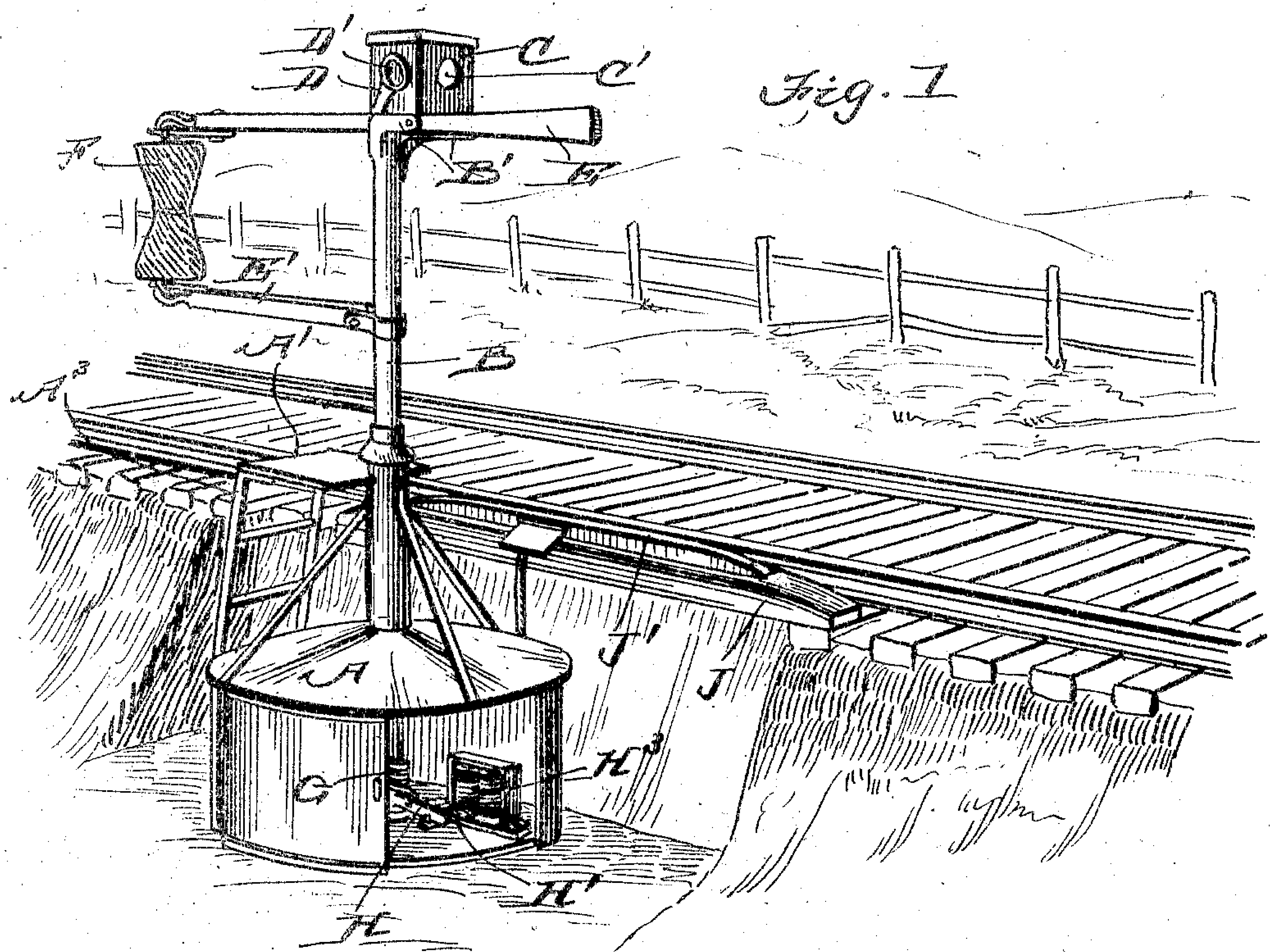
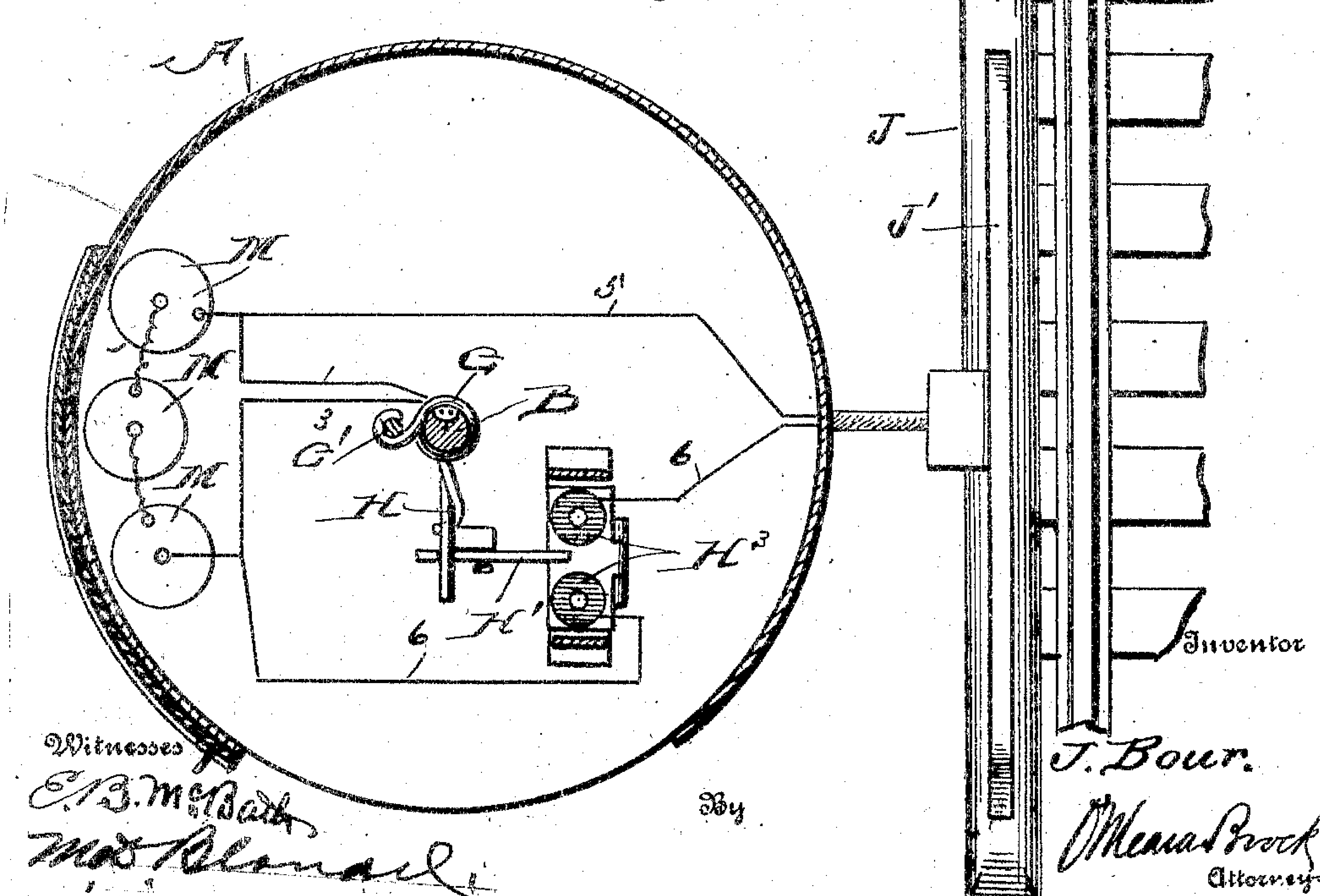


Fig. 2.



Witnesses

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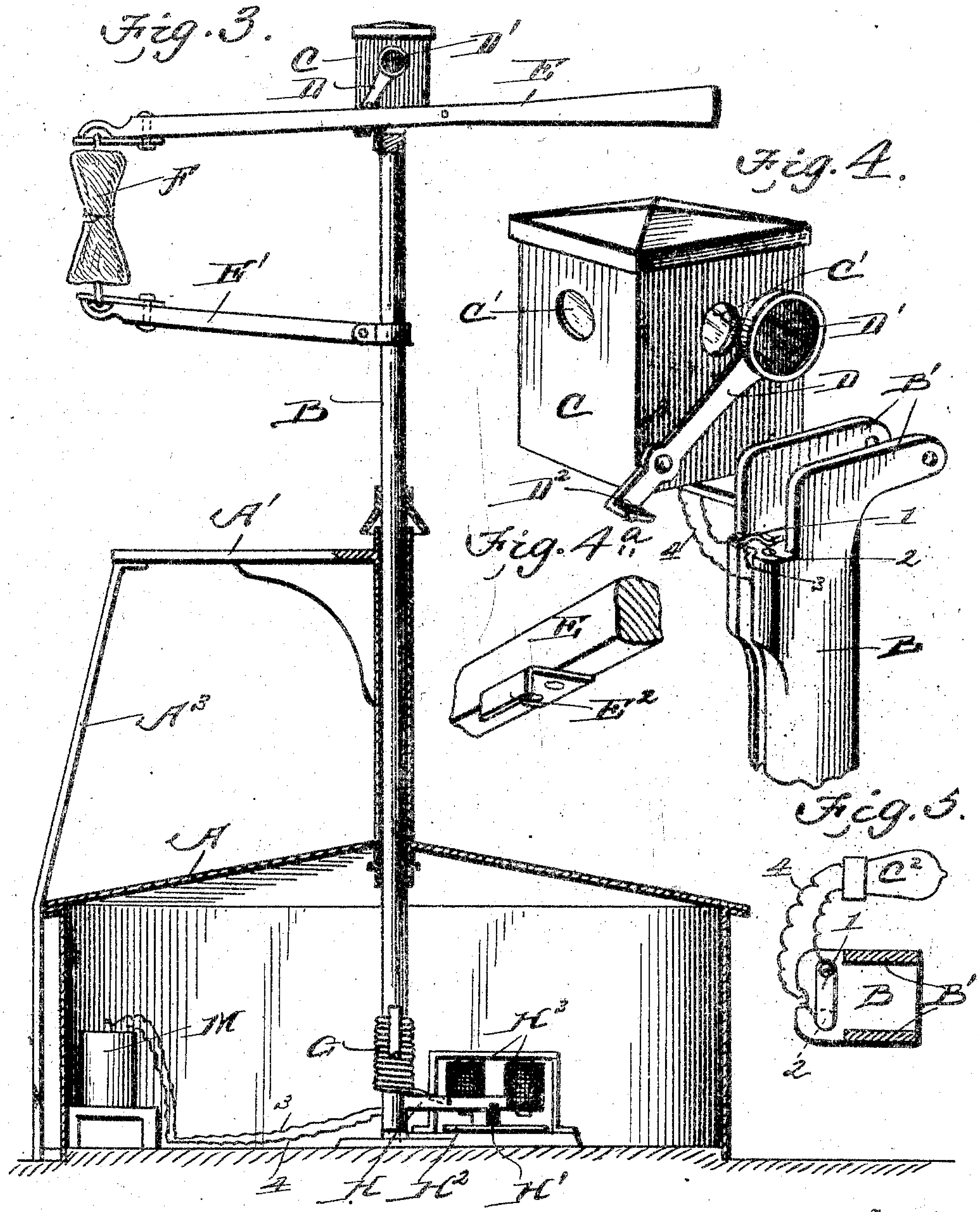
4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

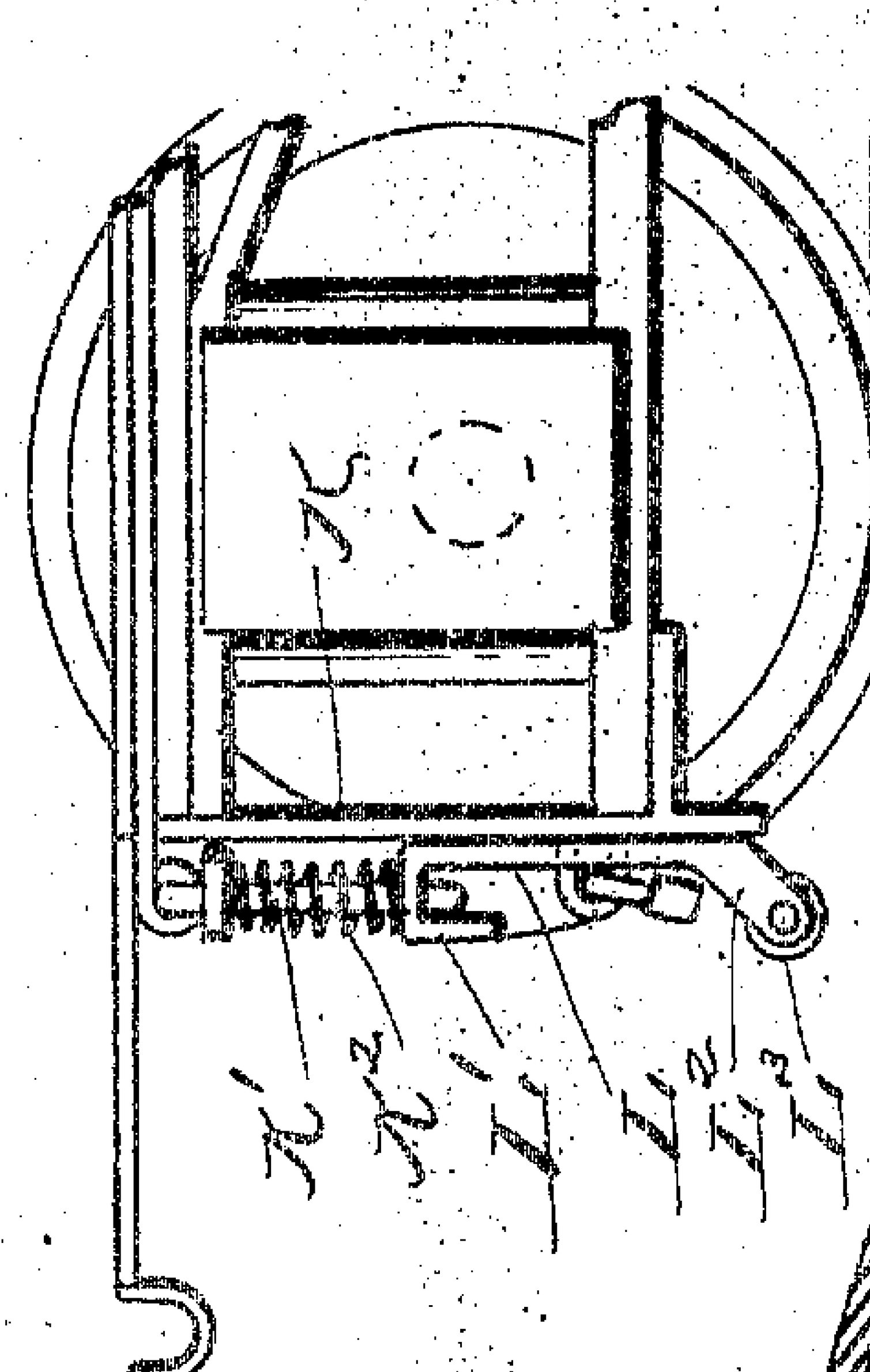

Fig. 6.

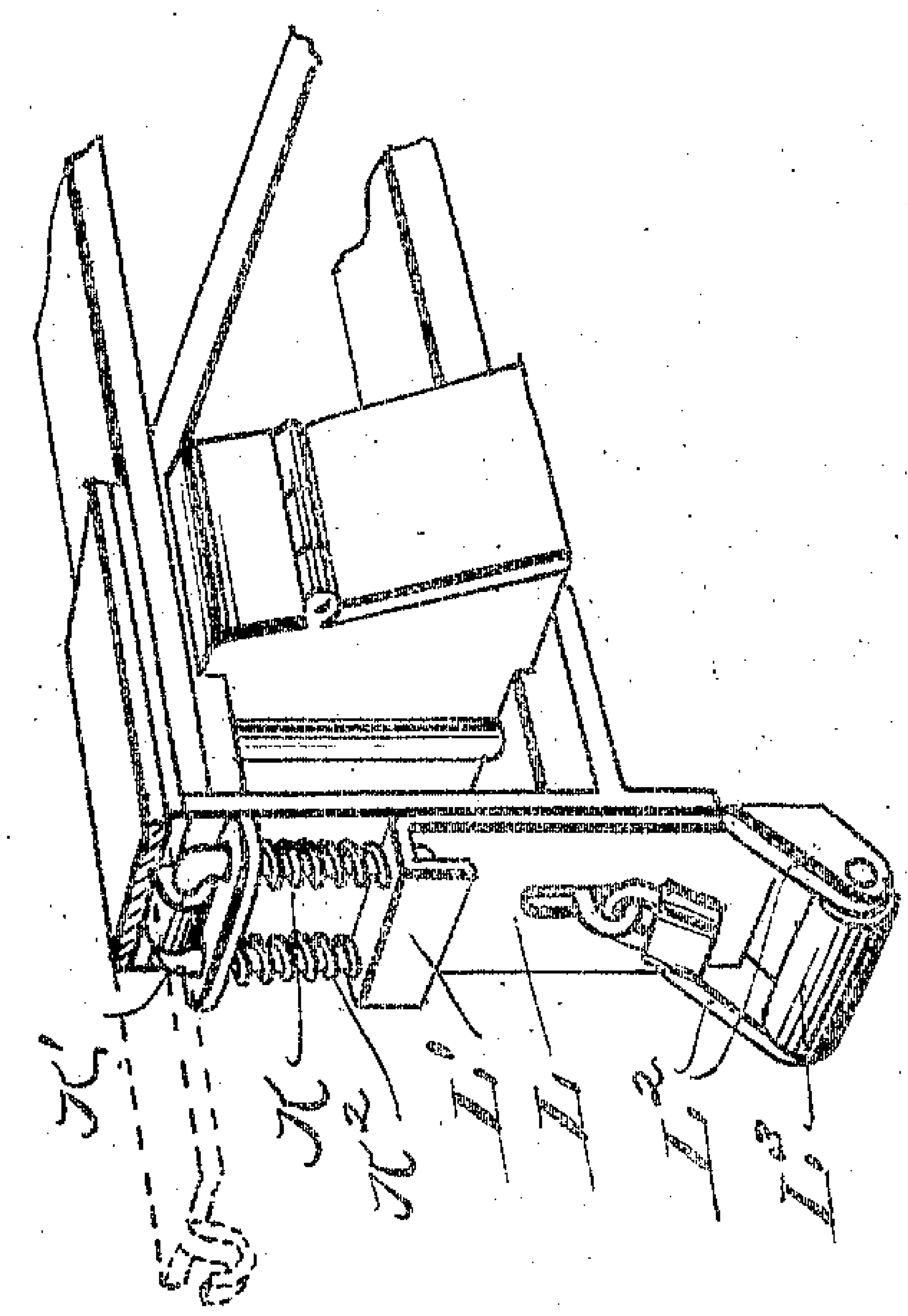

Fig. 8.

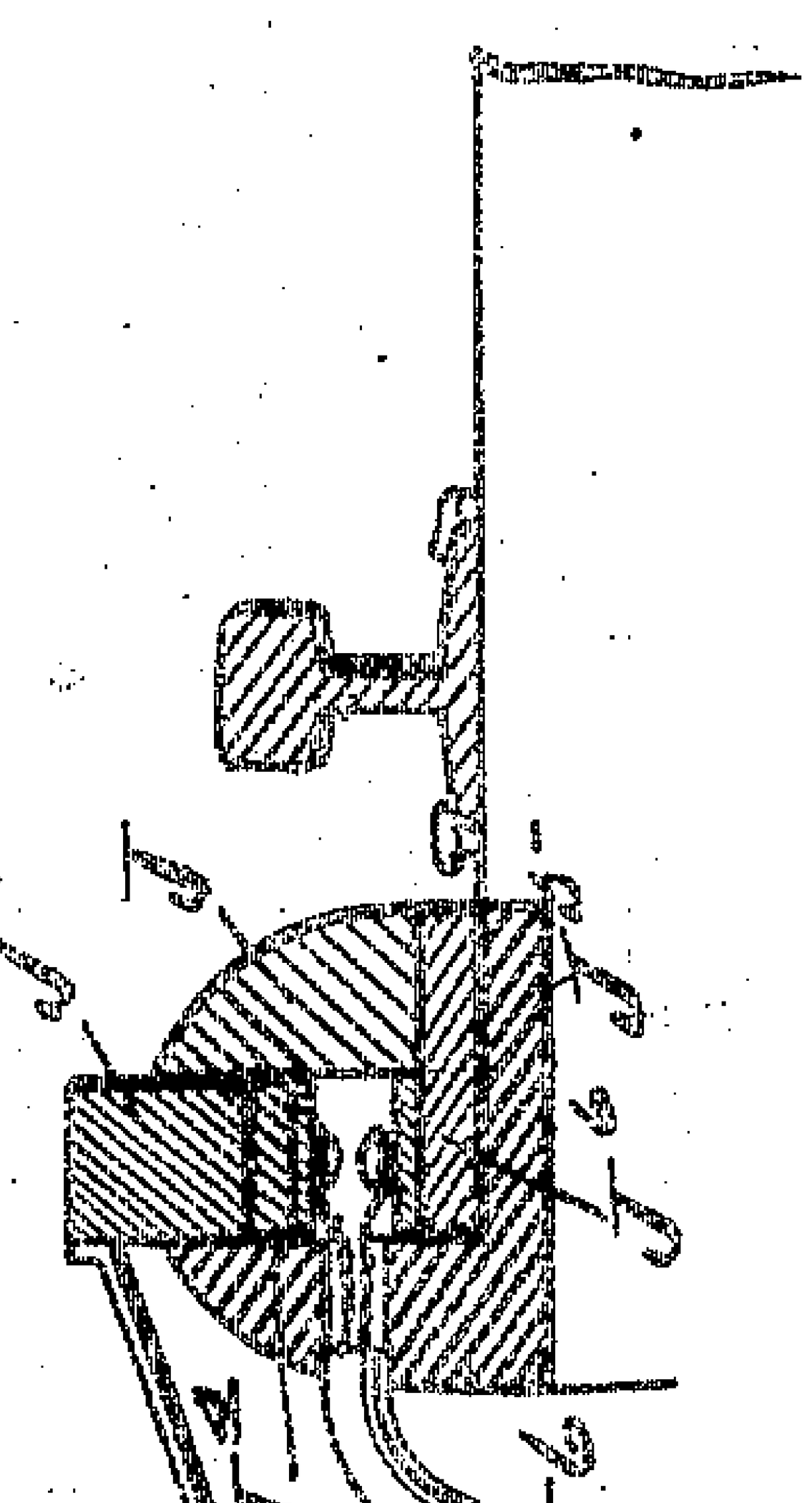

Fig. 7

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4 SHEETS—SHEET 4.

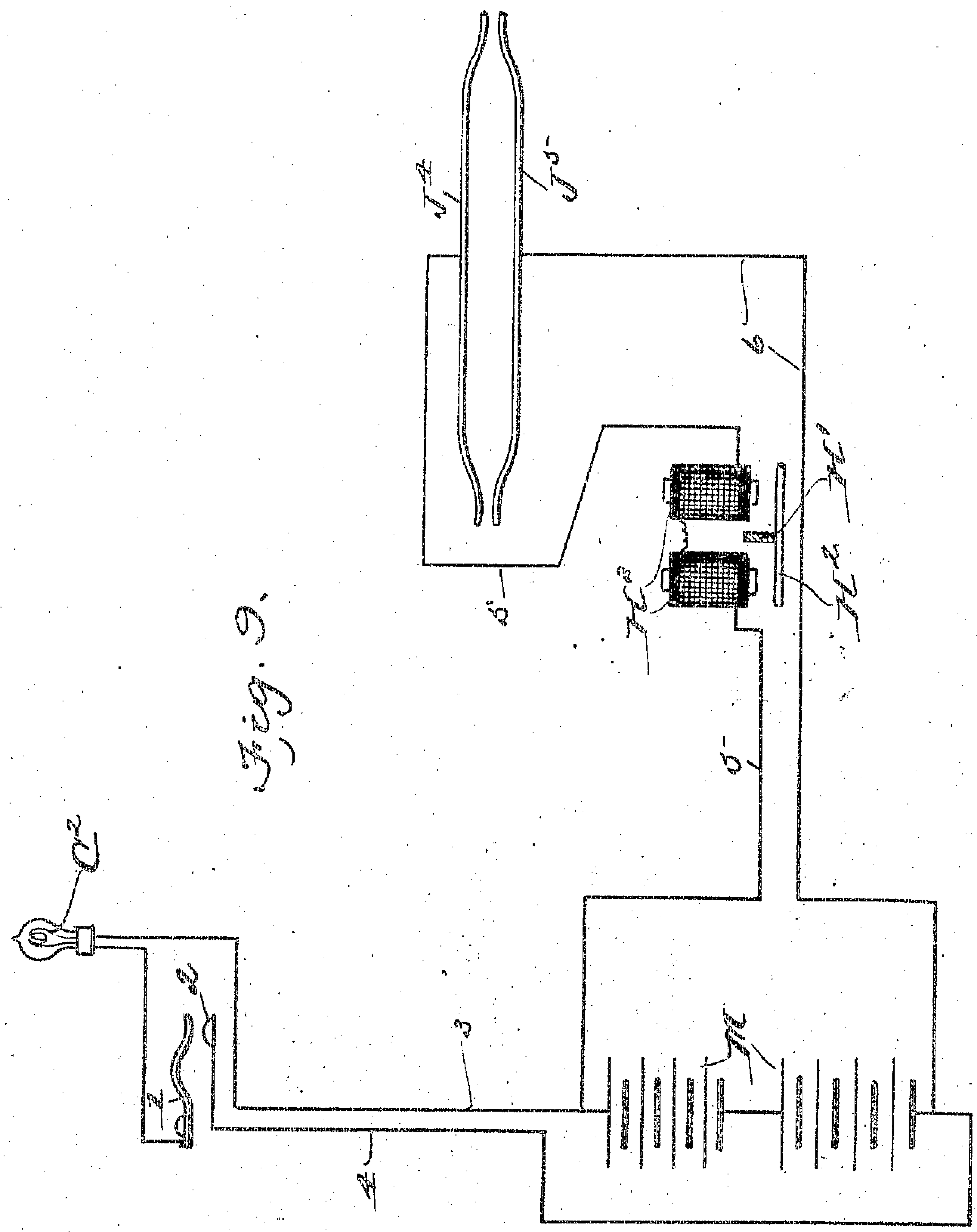

Fig. 9.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN BOUR, OF SEDALIA, MISSOURI.

MAIL-CRANE.

No. 865,992. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed November 23, 1906. Serial No. 344,714.

To all whom it may concern:

Be it known that I, JOHN BOUR, a citizen of the United States, residing at Sedalia, in the county of Pettis and State of Missouri, have invented a new and useful Improvement in Mail-Cranes, of which the following is a specification.

This invention relates to a mail crane for receiving mail bags to be collected from the crane by a catcher carried by the mail crane, the catching device being the one now in ordinary use or adapted to seize and deliver to the car a suspended bag.

The object of this invention is a mail crane which will hold the bag with the arms of the crane normally in a position parallel to the track, displaying at the same time by night a white light thus indicating to all trains that the device is in what will be termed a safety position.

Another object of the invention is a device of this kind in which the arms carrying the mail bag will be automatically thrown into a position at right angles to the track upon the approaching of the mail car, this swinging of the arm being operated automatically by means partly carried by the train and partly by the device itself.

A still further object of the invention is to display a red light as soon as the arms are thrown into the last mentioned position which light will continue to be displayed in case the catcher should fail to remove the bag until another mail train has picked it off, thus warning all trains following the first one, that an uncollected mail bag is hanging from the crane adjacent to the track.

With these objects in view, the invention consists of the novel features of construction hereinafter fully described pointed out in the claims and shown in the accompanying drawings, in which,

Figure 1 is a perspective view of the device, the parts being arranged in safety position with a mail bag suspended. Fig. 2 is a plan view of a portion of the track and adjacent parts showing a horizontal section through a housing and certain electrical apparatus arranged therein and which is shown partly in section, partly in plan and partly in diagram. Fig. 3 is a vertical section through a housing showing in elevation the crane. Fig. 4 is a detail perspective view of the upper end of the crane post, arms being omitted and showing a signal device. Fig. 4ª is a detail view of a portion of the upper arm. Fig. 5 is a detail view partly in section showing the connections of an incandescent lamp carried by the signal box. Fig. 6 is a sectional view through a casing carrying contact plates adjacent a track rail. Fig. 7 is a section on the line 7—7 of Fig. 6. Fig. 8 is an enlarged detail view showing a perspective, a roller carried by a truck and adapted to bring the contact plates together. Fig. 9 is a diagrammatic view of the electrical circuits.

In these drawings A represents a suitable housing in which is centrally mounted a post B which extends through the top of the housing and a considerable distance above the same, and A′ represents a platform arranged at one side of the post which is approached by a series of steps A².

At the upper end of the post B and mounted upon a suitable bracket to one side of the post is a lantern or box C provided with light openings C′ and in which is arranged an incandescent lamp C². An arm D is pivoted upon the side of the lantern C adjacent the post B and this arm carries at one end a disk D′ preferably of red glass or any other transparent panel of that color. The opposite end of the arm is angled as shown at D². The upper end of the post B is provided with upwardly extending parallel ears B′ between which is pivotally mounted an arm E which will be termed the upper arm of the crane. Upon the upper end of the post is arranged a spring contact plate 1, and a contact point 2, and the arm E when free clears the contact plate 1, as the pivotal point is upon the opposite side of the post and nearest to the heaviest end of the arm. When however, the arm E is drawn downwardly into the position shown in the drawings, it bears upon the contact plate 1 and forces the same into engagement with the contact point 2, the reason for which will appear when the electrical circuits are traced. At a point adjacent its upper end an arm E′ is pivotally connected to the post B and forms the lower arm. When the device is in use a mail bag F is supported in the usual manner by connecting it at its opposite ends to the arms E and E′, the bag serving to hold the arms in the position shown as will be well understood, this feature being common in the majority of mail cranes now in use.

Within the housing A a spring is coiled about the lower end of the post B and connected at one end to a small pin G′ parallel to the post B while the other end of the spring bears upon a lever H carried by the post. This lever is adapted to be engaged and held in position by the hooked end of a pivoted lever H′ the opposite end of which projects above an armature H² and the movement of which is controlled by electro-magnets H³.

Adjacent the track rail is arranged a suitable casing J in which is held a vertical movable rail J′, held in an elevated position by springs J³, which carries on its under surface a contact plate J⁴. The spring contact plate J⁵ and the springs J³ are carried by a wooden base J⁶ which is slidably arranged in the casing J. To clean out the casing, clean or repair the contact spring J⁵, it is only necessary to draw out the base J⁶ to gain ac-

cess to the parts. While almost any form of contact could be installed at this point I have shown the lower contact J^5 as being formed of a flat spring secured intermediate its ends to the base J^6, the plates J^4 and J^5 being separated when the rail J' is in its normal position, as in the drawings, and in contact when the rail is depressed.

To depress the rail I place upon the engine or one of the car trucks a frame K which carries a U-shaped member K′ which in turn carries upon its side members coiled springs K^2. A plate L has at the top a flanged portion L′ sliding on the side members of the bail K′ and carrying at its lower end downwardly and forwardly projecting lugs L^2 between which are journaled a roller L^3 which engages the rail J′. A plate L is permitted a slight upward movement, the flange L′ sliding upon the bail K′ but at the same time exerts a sufficient pressure upon the rail J′ to bring the contact plates J^4 and J^5 into engagement with each other. In order that the red light may be shown I provide the arm E with an angled plate E^2 which engages the angled end D^2 of the arm D.

The electric circuits are as follows:—Batteries M are placed in the casing A and a wire 3 leads to the incandescent lamp C^2 and to the contact plate 1. A wire 4 leads from the batteries to the contact point 2. It will be obvious that whenever the arm E is drawn into the horizontal position for the purpose of attaching a mail bag thereto and thereby depresses the contact plate 1 bringing it into engagement with the contact point 2, that the lamps C^2 will be thrown into circuit with the batteries M. A wire 5, also leads from the batteries through the electromagnets H^3 to the contact plate J^4 and a wire 6 leads from the batteries to the plate J^5.

The operation of the device is as follows:—The lever H is swung around until it engages the hook end of the lever H′ thus swinging the post B and winding the spring G. This will throw the arms E and E′ in a position parallel to the track when the mail bag has been attached thereto. As soon as the arm E is drawn downward for the purpose of hanging the mail bag thereon the circuit will be completed between the batteries M and the lamp C^2 and the plate E^2 by engaging the angled end D^2 of the arm D will throw the red disk D′ into alinement with one of the light openings C′. The device will remain in this position until a roller L^3 carried by a mail train depresses the adjacent rail J′ and thereby completes a circuit from the batteries through the wire 5 and magnets H^3, contact plates J^4 and J^5 and wire 6. As this energizes the magnets H^3 the armature H^2 will be lifted thus lifting the end of the lever H′ which is engaged by the armature and depressing the hook end thereby releasing the lever H, and as soon as said lever is released the spring G will swing the post one-fourth of a revolution or back into the position occupied by it before the lever had first been moved thus bringing the mail bag into position to be grabbed from the mail car and also displaying the red danger light. As soon as the bag F is caught by the car the arm E will swing into a vertical position and the arm E′ will drop also to a vertical position, as is common in such arms. This movement of the arm E will break the circuit between the lamp C^2 and the batteries and will also permit the arm D to drop to its normal position clearing the light opening C′. If desired, an ordinary lamp may be employed in the lantern boxes C so that a white light will show at all times through the night excepting when the arms are swung at right angles to the track and carrying an undelivered mail sack. But should the mail car fail to catch the sack from the arms they will remain in the position in Fig. 3 and the red light will be displayed thus warning the engineer of any following mail train and also the mail clerks that they are approaching a mail sack which had been left by the preceding train.

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

1. A device of the kind described, comprising a rotatable post, pivoted arms carried by said post, means for rotating the post to throw the arms at right angles to a track, and an incandescent lamp, the lamp circuit being completed when the arms are parallel to each other.

2. A device of the kind described comprising a rotatable post, upper and lower arms connected thereto for supporting a mail sack, means for locking the post against rotation, means for automatically releasing the post and giving the same a one-fourth revolution at a predetermined time, a signal lamp adjacent the upper arm, and means for lighting said lamp when the arm is in an operative position.

3. A device of the kind described comprising a post, pivoted arms carried by the post for supporting a mail bag, a signal lamp carried by the post, a swinging arm bearing a transparent tinted panel, said arm being angled, and an angled plate carried by the arm to engage the angled end of the swinging arm and throw the panel into alinement with the lamp.

4. A device of the kind described comprising a rotatable post, arms carried thereby, a spring adapted to rotate the post in one direction, a lever carried by the post for rotating the same in the opposite direction, locking mechanism adapted to be engaged by said lever, releasing means included in an electric circuit normally open and means carried by a mail train for completing said circuit.

5. A device of the kind described comprising a rotatable post, a signal lamp supported by the post, batteries in circuit with said lamp, the circuit being broken at the top of the post, an arm for holding a mail sack pivotally carried by the post, the said circuit being closed when the arm is thrown into a horizontal position and means for automatically rotating the post and throwing the said arm into a position at right angles with respect to a track upon the approach of the mail train.

6. A device of the kind described comprising a rotatable post, a signal light carried thereby, a mail sack holding arm pivotally carried by the post, an electric circuit including the signal light, said circuit being automatically closed when the arm is thrown into operative position and broken when the arm falls into inoperative position, an arm carrying a disk forming a danger signal adapted to register with the signal light the last mentioned arm being engaged and brought into upright position by the first mentioned arm, and means for automatically throwing the first mentioned arm at right angles to a track and bringing the danger signal into view of an approaching train at a predetermined time.

7. A device of the kind described comprising a rotatable post, sack holding arms carried thereby, a lever connected to the post, a spring encircling the post and having one end bearing upon said lever, a lever provided with a hook end adapted to engage the first mentioned lever, an armature adapted to trip the last mentioned lever and release the lever carried by the post, electro-magnets for attracting the armature, an electric circuit including said magnets, said circuit being broken at a point adjacent a railway track, contact points arranged adjacent said track, and means carried by a moving train for bringing said contact points together thereby closing the circuit.

8. A device of the kind described comprising a rotatable post, pivoted arms carried thereby, a signal light carried thereby, a spring adapted to be wound by rotation of

the post in one direction and to rotate the post upon unwinding, a lever carried by the post, a pivoted lever adapted to engage the one first mentioned and lock the post against rotation by the spring, electrically operated means for tripping said last mentioned lever, a transparent danger signal, said signal being engaged by one of the arms when thrown in the operative position bringing the danger signal into alinement with the signal light and holding it there, an electrical circuit including the signal light, said circuit being completed when the arm last mentioned is in operative position, an electrical circuit including the lever tripping means and broken adjacent a track, and means arranged in part adjacent the track and in part carried by a train for completing the last mentioned circuit.

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