

No. 840,807.

PATENTED JAN. 8, 1907.

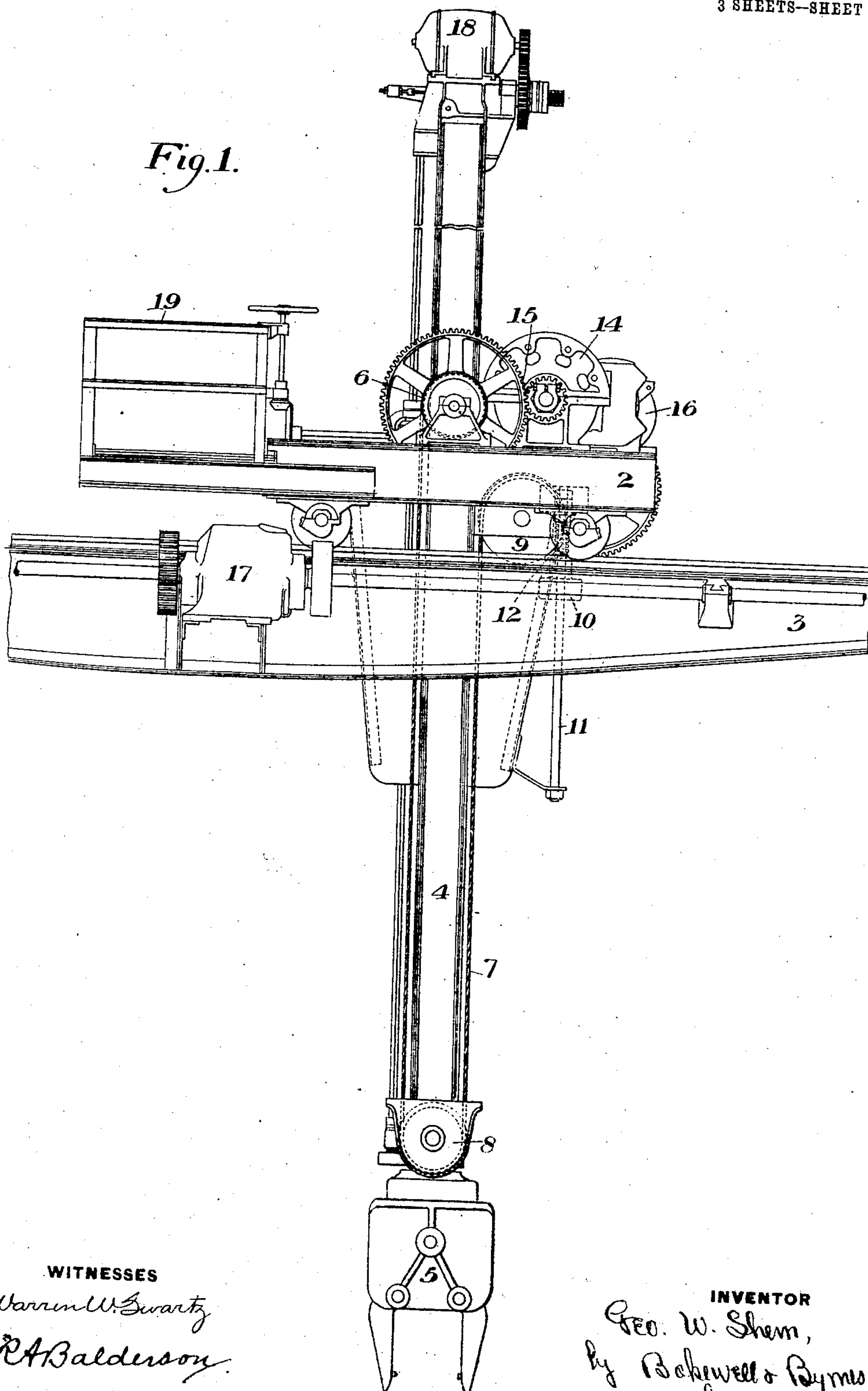
G. W. SHEM.

TAKE-UP DEVICE FOR CRANE LIFTS OR HOISTS.

APPLICATION FILED JAN. 19, 1903.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

Warren W. Swartz

R. A. Balderson

INVENTOR

Geo. W. Shem,
by Bohewell & Byrnes,
his Attorneys

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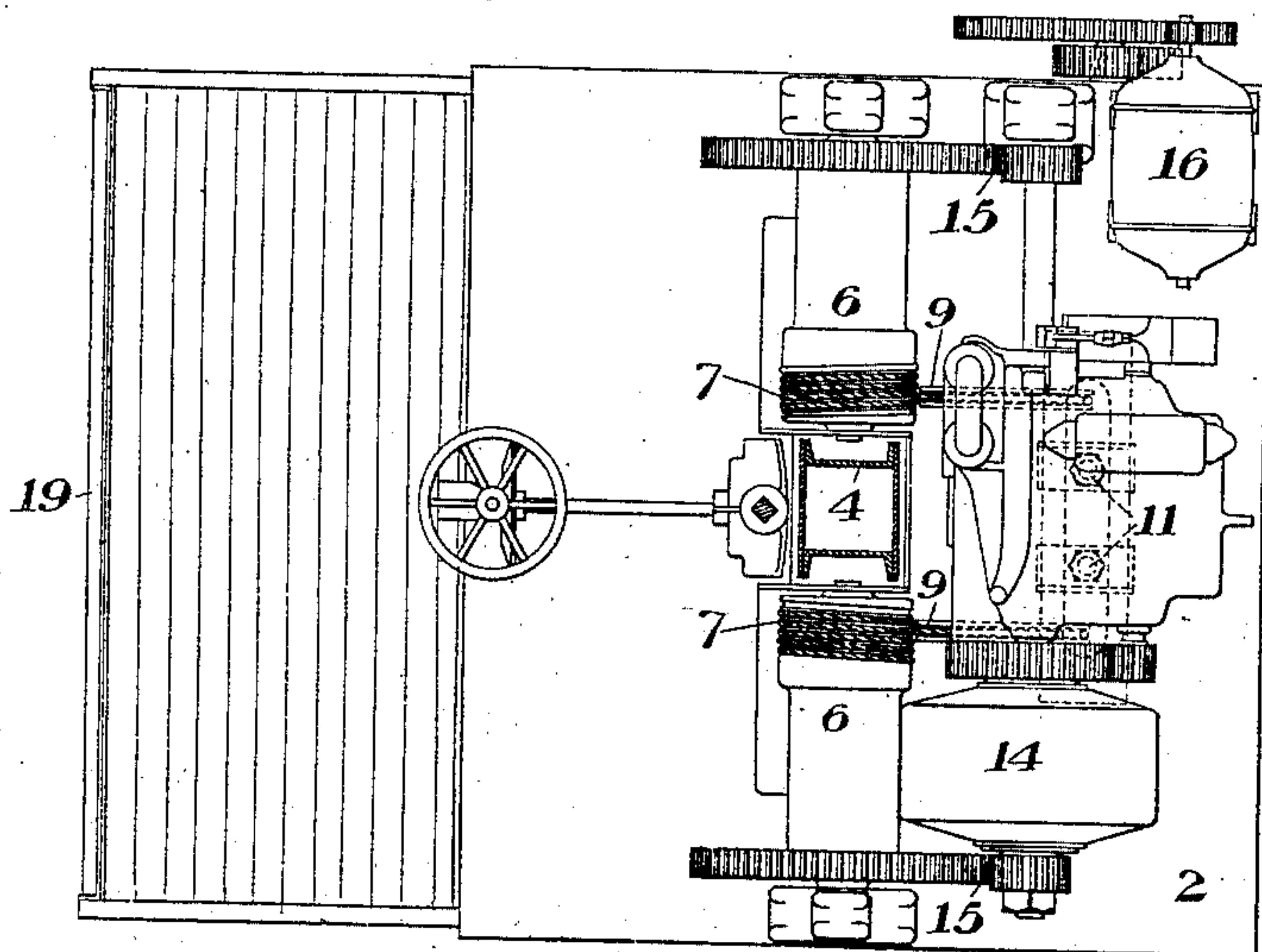
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3 SHEETS—SHEET 2.

Fig. 2.



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R. A. Balderson

INVENTOR

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by Bakewell & Byrnes
his Attorneys

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3 SHEETS—SHEET 3.

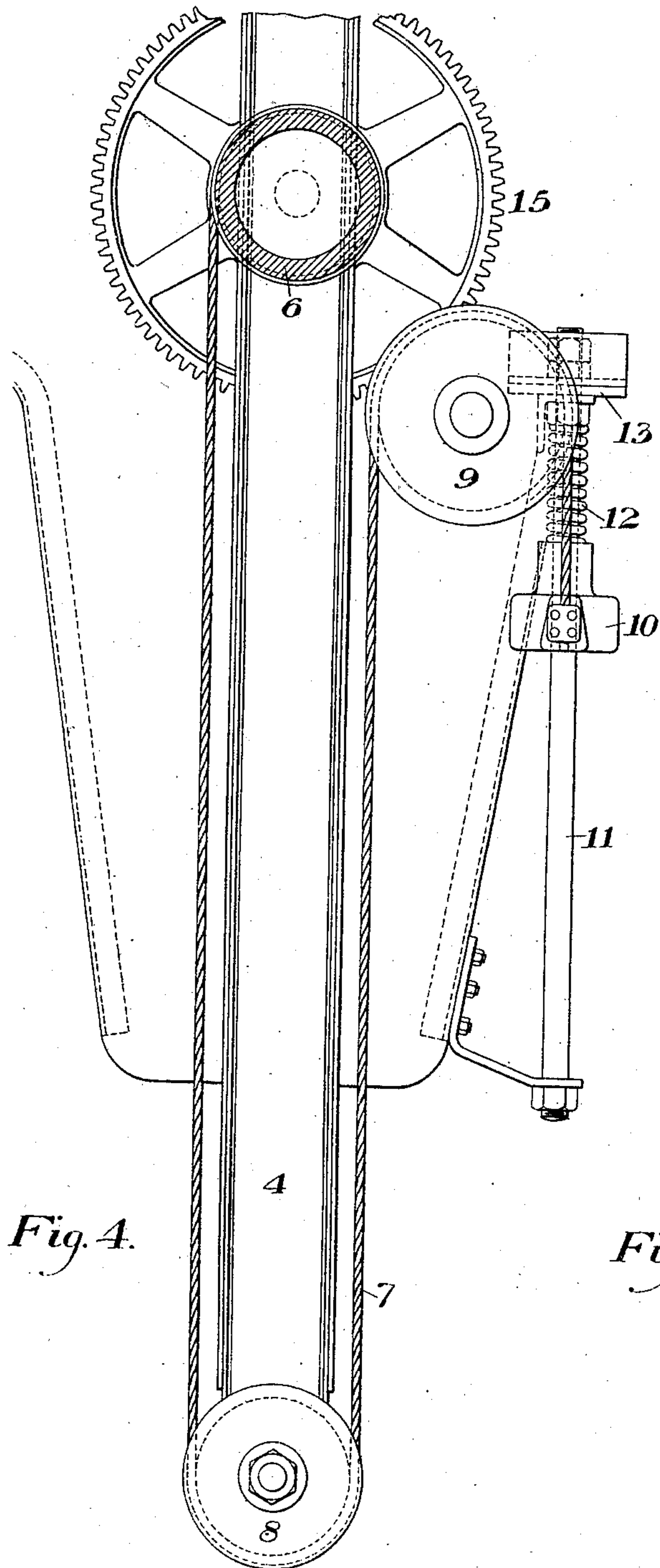


Fig. 4.

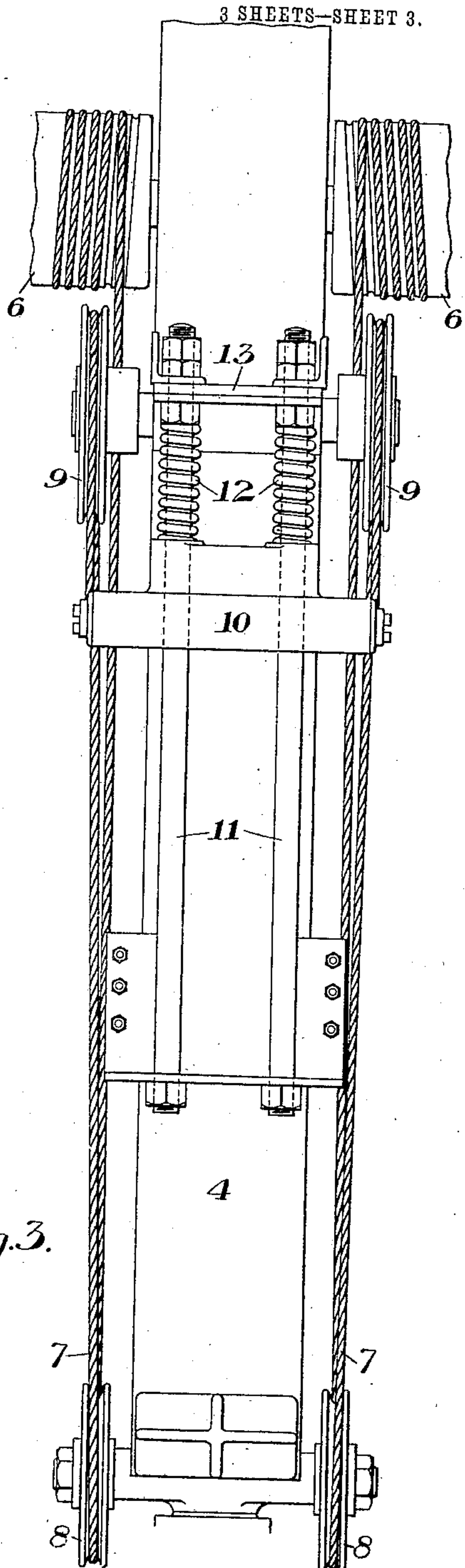


Fig. 3.

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Warren U. Swartz.
R. A. Balderson.

INVENTOR

Geo. W. Shem,
by Bakewell & Byrnes,
his Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. SHEM, OF ALLIANCE, OHIO, ASSIGNOR TO THE ALLIANCE MACHINE COMPANY, OF ALLIANCE, OHIO, A CORPORATION OF OHIO.

TAKE-UP DEVICE FOR CRANE LIFTS OR HOISTS.

No. 840,807.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed January 19, 1906. Serial No. 296,777.

To all whom it may concern:

Be it known that I, GEORGE W. SHEM, of Alliance, Stark county, Ohio, have invented a new and useful Take-Up Device for Crane Lifts or Hoists, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation showing my invention applied to a soaking-pit crane. Fig. 2 is a plan view of the same. Fig. 3 is a front elevation of the take-up device on a larger scale, the drums being partially broken away; and Fig. 4 is a sectional elevation of the same.

The object of my invention is to provide means of simple and effective character for automatically taking up the slack in the operating ropes or cables of the lifting-bar of a crane when such bar is lowered. Thus in the operation of a soaking-pit crane such as I have illustrated in the drawings the lifting-bar is usually lowered until it strikes the object to be lifted; but the operator does not stop the motor in time to check the revolution of the rope or cable actuating drums, which consequently continue to revolve in the lowering direction, thereby allowing the ropes or cables to uncoil, so that in starting to hoist these ropes or cables tend to get crossed and cut themselves. In accordance with my invention I connect the dead ends of these ropes or cables to a counterweight device, which is so arranged that it operates automatically to take up the slack as the lifting-bar is lowered.

My invention also consists in the novel construction and combination of parts, all substantially as hereinafter shown, and pointed out in the appended claims.

Referring to the accompanying drawings, 2 designates a crane-carriage, which is mounted in the usual manner on the bridge or support 3.

4 is the lifting-bar, to the lower end of which are attached the usual gripping-tongs 5. This bar is raised and lowered by means of the two drums 6 on the carriage 2, the wire ropes or cables 7, which are connected to said drums, and the sheaves 8, which are attached to the lower end portion of the lifting-bar and around which the ropes or cables 7 are passed. The dead-end portions of the ropes or cables 7 are passed upwardly over the sheaves or

pulleys 9 on the crane-carriage 2 and are then attached to a counterweight 10, which is arranged to slide vertically on guide-bars 11, which are secured to and depend from the car or trolley 2.

12 designates buffer-springs, which are interposed between the counterweight 10 and a fixed stop-bar 13 at the upper ends of the guide-bars 11.

The drums 6 are operated by the motor 14 through the gears 15.

16 designates the usual motor for operating the carriage or trolley 2.

17 is the usual motor for moving the bridge 3, and 18 is the usual motor for operating the tongs.

19 is the operator's platform.

In the operation of the device as the lifting-bar 4 is lowered and comes in contact with the top of the ingot or other article to be lifted the drums 6 keep on revolving in the lowering direction until the operator stops them, and the counterweight 10 slides downwardly on the guides 11 and takes up the slack of the ropes or cables 7 as fast as it forms. In starting to raise the lifting-bar 4 the counterweight 10 moves upwardly on the guides against the buffer-springs 12, and these in turn press against the stop-bar 13, thereby forming positive dead ends to the ropes.

While I have shown my invention as applied to a traveling crane of a particular kind, it is obvious that it is equally applicable to stationary cranes and to cranes and hoists of various types. Various changes may also be made in the details of construction and arrangement without departing from the spirit and scope of my invention, since

What I claim is—

1. In a crane or hoist, the combination with a lifting-bar, and ropes or cables for actuating the same, of a slack-take-up device connected to the dead ends of the ropes or cables and arranged to move independently of the lifting-bar; substantially as described.

2. In a crane or hoist, having a lifting-bar, and actuating ropes or cables therefor, a vertically-movable counterweight to which the free ends of the ropes or cables are connected and arranged to move independently of the lifting-bar; substantially as described.

3. In a crane or hoist, the combination

with a vertically-movable lifting-bar, ropes or cables for operating the same, and winding-drums for the ropes or cables, of a vertically-movable counterweight to which the free ends of the ropes or cables are connected and arranged to move independently of the lifting-bar, and a yielding stop or buffer for the counterweight; substantially as described.

4. In a crane or hoist, the combination of a vertically-movable lifting-bar, having a sheave or pulley at its lower end portion, an actuating-drum, a rope or cable attached to said drum and passing around the sheave or pulley, a vertically-sliding counterweight to which the free end of the rope or cable is connected, and an intermediate bearing for the rope or cable; substantially as described.

5. A take-up device for crane ropes or cables, consisting of a counterweight to which the free ends of the ropes or cables are

connected and which is arranged to move independently of the part to which the opposite or lifting ends of the ropes or cables are connected, and a buffer forming a stop for the upward movement of the counterweight; substantially as described.

6. In a crane or hoist, a vertically-movable lifting member, an actuating rope or cable for the lifting member and connected thereto at an intermediate point in the length of the rope or cable, and a slack-take-up device connected to the free end of the rope or cable; substantially as described.

In testimony whereof I have hereunto set my hand.

GEORGE W. SHEM.

Witnesses:

AVA R. HUDD,
J. J. BROWN.