

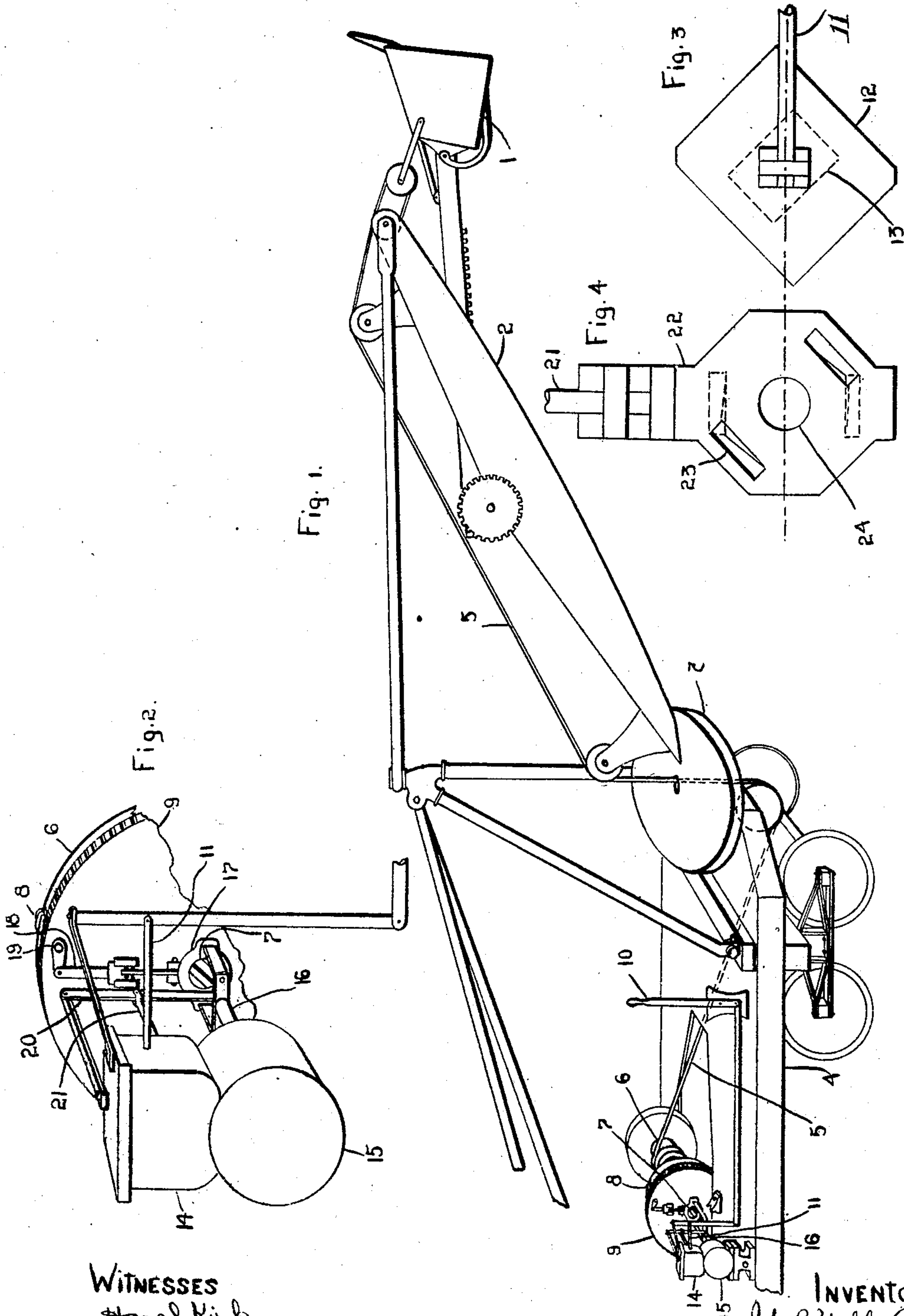
No. 842,734.

PATENTED JAN. 29, 1907.

J. B. WEBBER, JR.
EXCAVATOR CONTROL POWER MEANS.

APPLICATION FILED JULY 28, 1906.

2 SHEETS—SHEET 1.



WITNESSES
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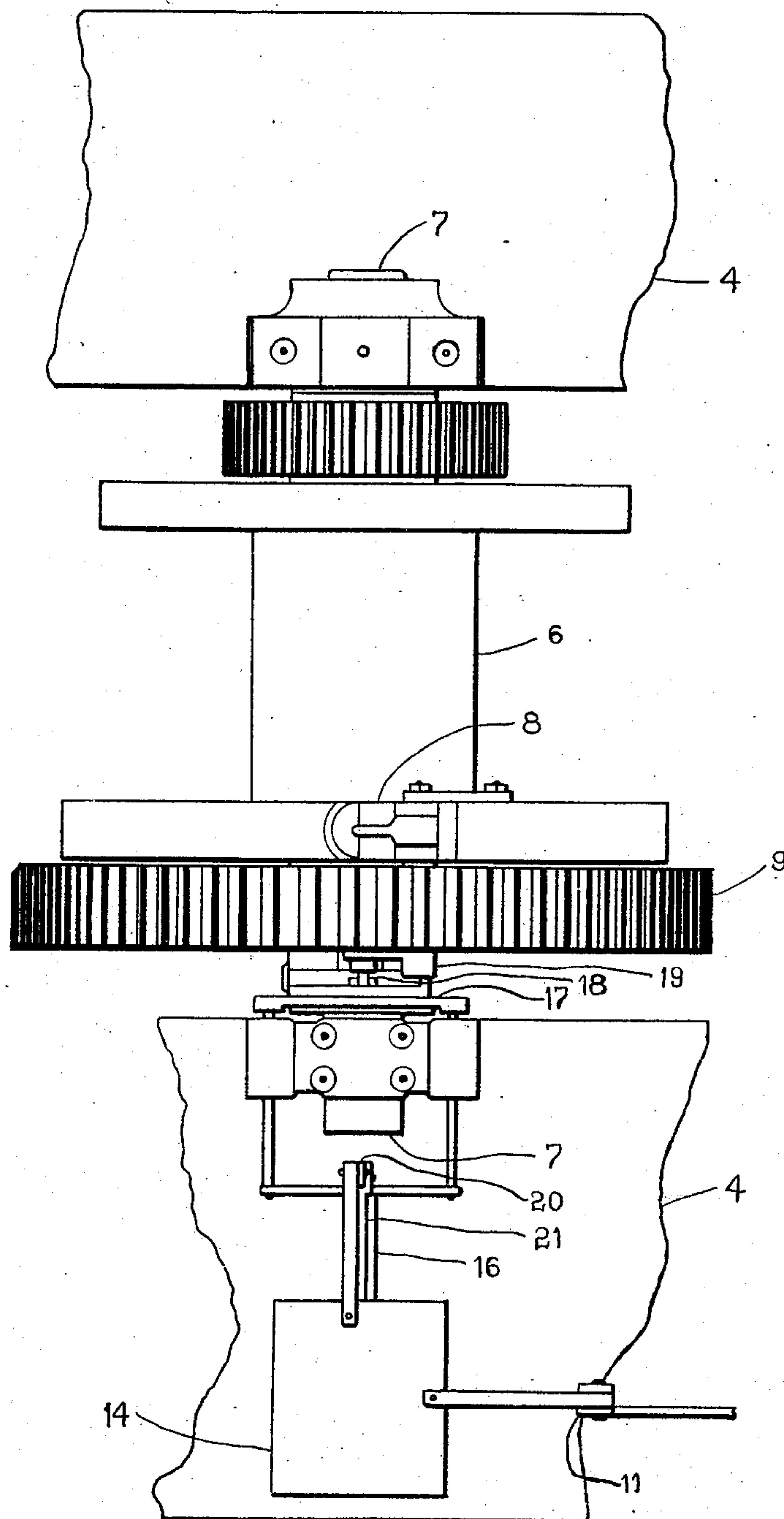
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Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN B. WEBBER, JR., OF TOLEDO, OHIO, ASSIGNOR TO THE VULCAN IRON WORKS COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

EXCAVATOR CONTROL POWER MEANS.

No. 842,734.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed July 28, 1906. Serial No. 328,150.

To all whom it may concern:

Be it known that I, JOHN B. WEBBER, JR., a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Excavator Control Power Means, of which the following is a specification.

This invention relates to control of a working member, and more particularly to convenient, easily-operable, and effective power connecting means therefor. This invention has utility when adapted to excavators, in which this connecting power means is sure in its operation, simple and compact in structure, comprising a minimum number of parts.

Referring to the drawings as illustrative of an embodiment of the invention, Figure 1 is a perspective view, diagrammatic, with parts broken away, of an excavator or steam-shovel, showing the connections from the driving mechanism to the working member. Fig. 2 is a perspective view, on an enlarged scale, of the power connection means, parts being broken away. Fig. 3 is a plan view of the opening or control valve. Fig. 4 is a plan view of the closing or automatic cut-off valve; and Fig. 5 is a plan view of the drum, drive-wheel, connecting-strap clutch, and power connection means.

The working or digging member 1 is carried by the boom 2, which rests on the turntable 3. The turn-table 3 is mounted on the car 4. Flexible connecting means 5 extends from the working member or shovel 1 to the drum 6 on the shaft 7. The support for shaft 7 on the car 4 is partly broken away to permit of more clear showing of other features.

The clutch 8 serves as a connecting and disconnecting means between the drum 6 and the driving mechanism 9. This drive-wheel 9 is also mounted on the shaft 7. The clutch 8 is controlled by power means operable axially of the shaft 7.

The hand-lever 10 is connected by linkage to reciprocate the control element 11. The element or valve-stem 11 engages the slide-valve 12, which has its under side recessed, as shown by broken lines 13. The slide-valve 12 operates in the valve-chest 14 to control the admission of motive fluid to the cylinder 15, which motive fluid actuates a piston to reciprocate piston-rod 16 in axial line with the shaft

7. The piston-rod 16 by means of a cross-head and rods engages the loose ring 17, mounted on the shaft 7, whereby reciprocations of the rod 16 may be communicated, through ring or collar 17 and linkage 18, to rock the cranked shaft 19, carried by the wheel 9. In this instance the cranked shaft 19 serves to tighten or loosen the strap of the clutch 8, and thereby connects or disconnects the wheel 9 with the drum 6.

Pivoted near the cross-head on the piston-rod 16 is the link 20, which has connected to it at an intermediate point the valve-rod 21, which actuates the slide-valve 22, having the diagonally-cut ports 23 and the central exhaust-port 24.

In operation the driving member 9 may be run and the working member 1 be disconnected therefrom or connected thereto. The power means is so delicate in its operation that the clutch may be partially set, thereby permitting of slight sliding between the clutch and drum and a resulting reduced speed of member 1. The control hand-lever 10 has no positive mechanical connection with the clutch 8. The easy movement of the lever 10 serves to so move the valve 12 over the top of valve 22 as to permit motive fluid to pass through ports 23 and move the piston-rod 16 longitudinally of shaft 7. As the motive fluid is thus actuating clutch 8 through link 20 valve 22 is being automatically moved to close the ports 23. Accordingly the movement of the cut-off or automatic closing valve 22 is proportional to the movement of the control or opening valve 12, the movements of which latter valve may be accurately determined by the hand-lever. The valve 22 is an automatic device to cut off the power. The automatic action is such that through power means the operator may by a single movement actuate the clutch either to engaging or releasing position. Any movement by the operator applies power. The power is always automatically cut off upon the release or engagement being effected. By placing cylinder 15 in line with shaft 7 a compact arrangement is possible with few parts. To permit placing the hand-lever 10 in position with the other levers with a minimum of connections, the power-admitting member or valve 12 is designed to be actuated at an angle to the power-cutting-off

member or valve 22 and cylinder 15. The D or recessed portion 13 of the valve 12 serves to place in communication with the exhaust-

5 The idea of the invention herein disclosed is not to be limited by the drawings and description to any greater extent than the ordinary meaning of the terms of the claims demand. In other words, the elements set
10 forth in the claims are to be interpreted broadly, giving me the advantage of equivalents in the protection of my idea.

What is claimed, and it is desired to secure by Letters Patent, is—

15 1. An excavator having a digging member, driving mechanism and manually-controlled power means to connect or disconnect the member and mechanism.

20 2. An excavator having a digging member, driving mechanism and power means to control the connection between the member and mechanism, said means comprising an automatic device to cut off the power.

25 3. An excavator having a working member, driving mechanism and manually-con-

trolled fluid means affecting the connection between the member and mechanism.

4. An excavator having a working member, driving mechanism and automatic cut-off power means affecting the connection be- 30
tween the member and mechanism.

5. An excavator having a shaft, driving and driven elements on said shaft and power means operable axially of the shaft controlling the connection between the elements. 35

6. An excavator having a shaft, driving and driven elements on said shaft, power means axially of the shaft to connect and disconnect the elements and a control element operable at an angle to the shaft. 40

7. An excavator having a working member and a mechanically-independent element for controlling the member.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN B. WEBBER, JR.

Witnesses:

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GEO. E. KIRK.