

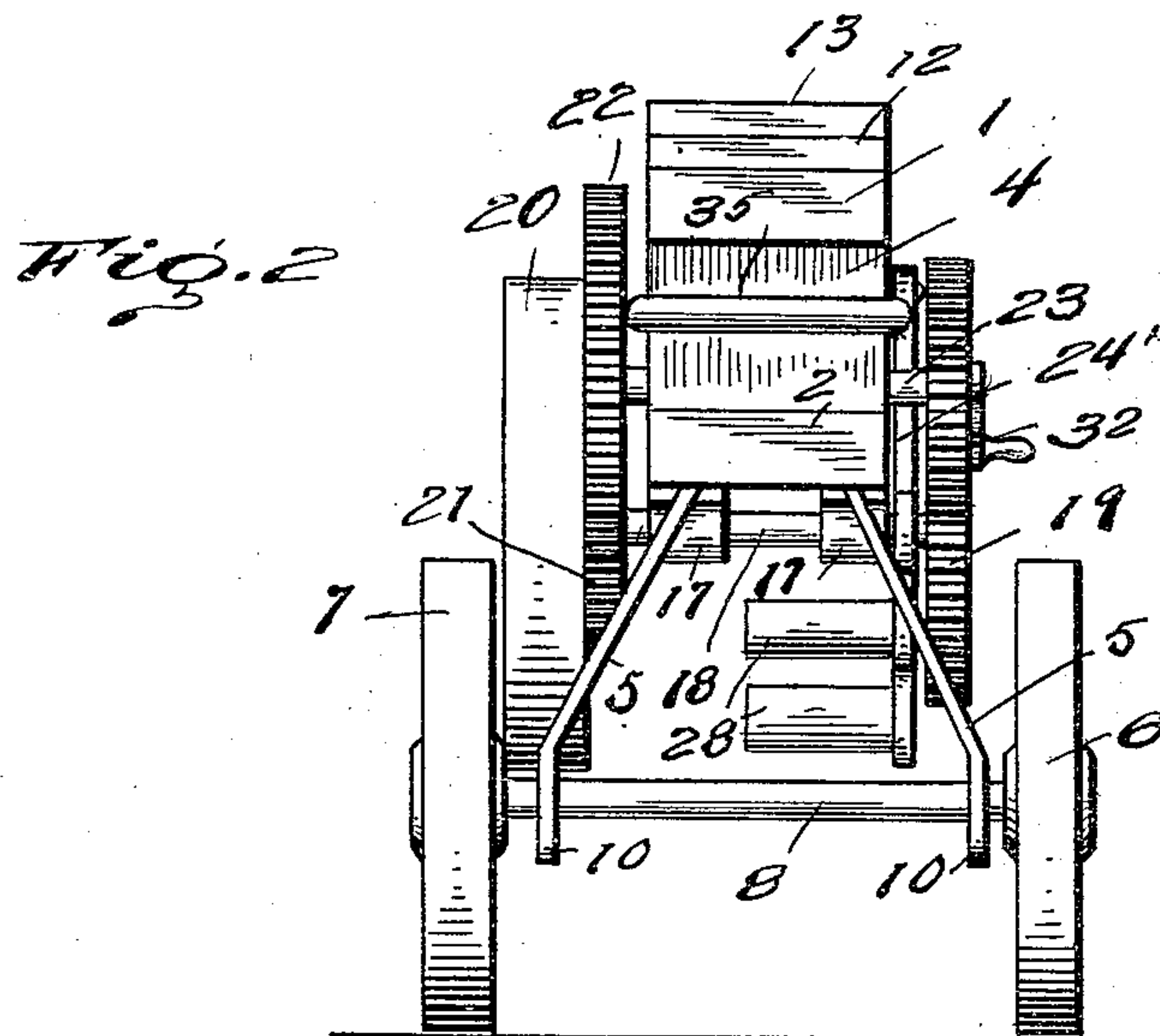
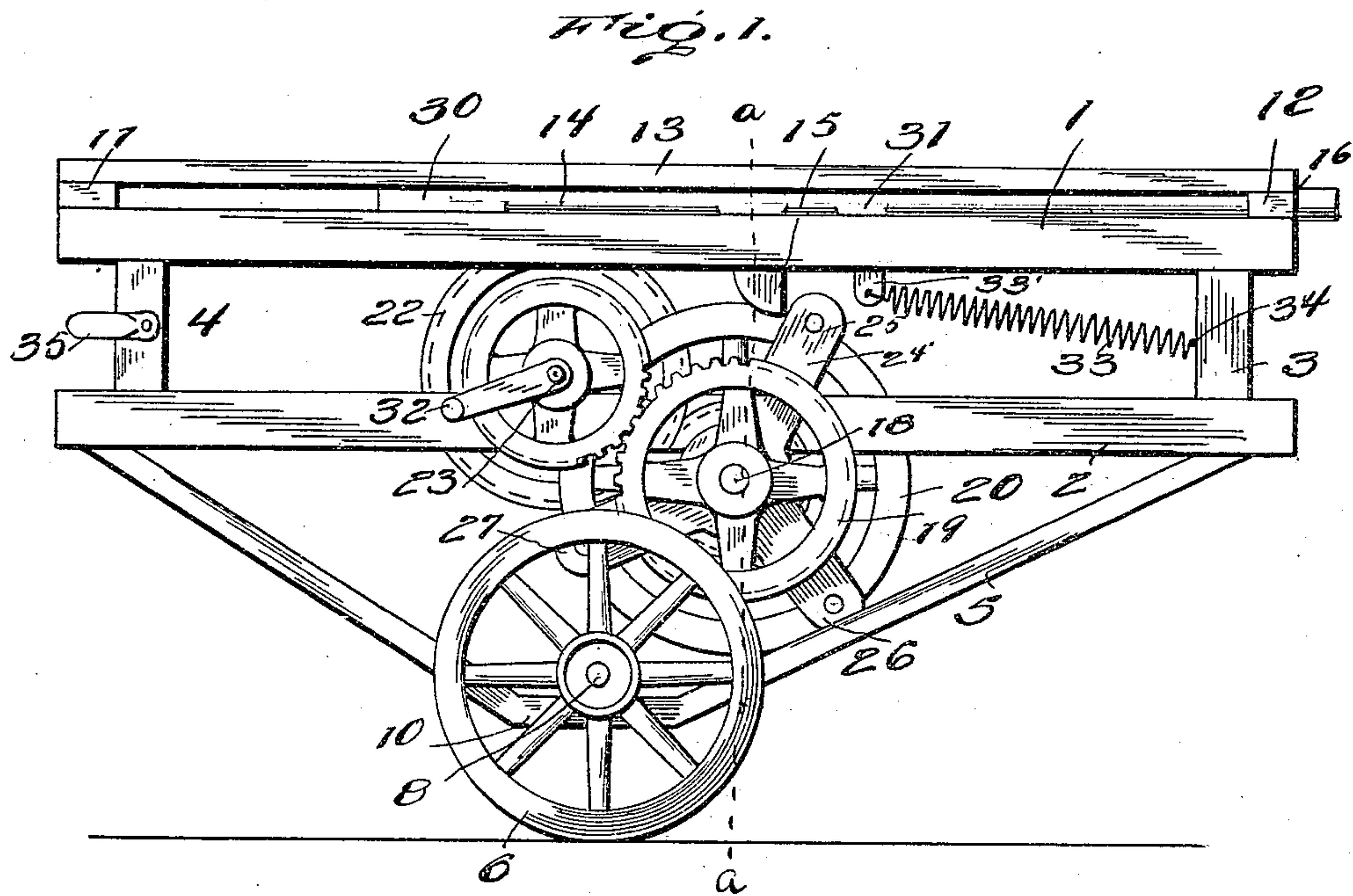
No. 841,625.

PATENTED JAN. 15, 1907.

W. B. CHAPMAN.
MINING MACHINE.

APPLICATION FILED JUNE 27, 1905.

2 SHEETS—SHEET 1.



Inventor

W. B. Chapman

Witnesses

G. R. Thomas
E. M. Colford

By

Charles Chapman

Attorneys

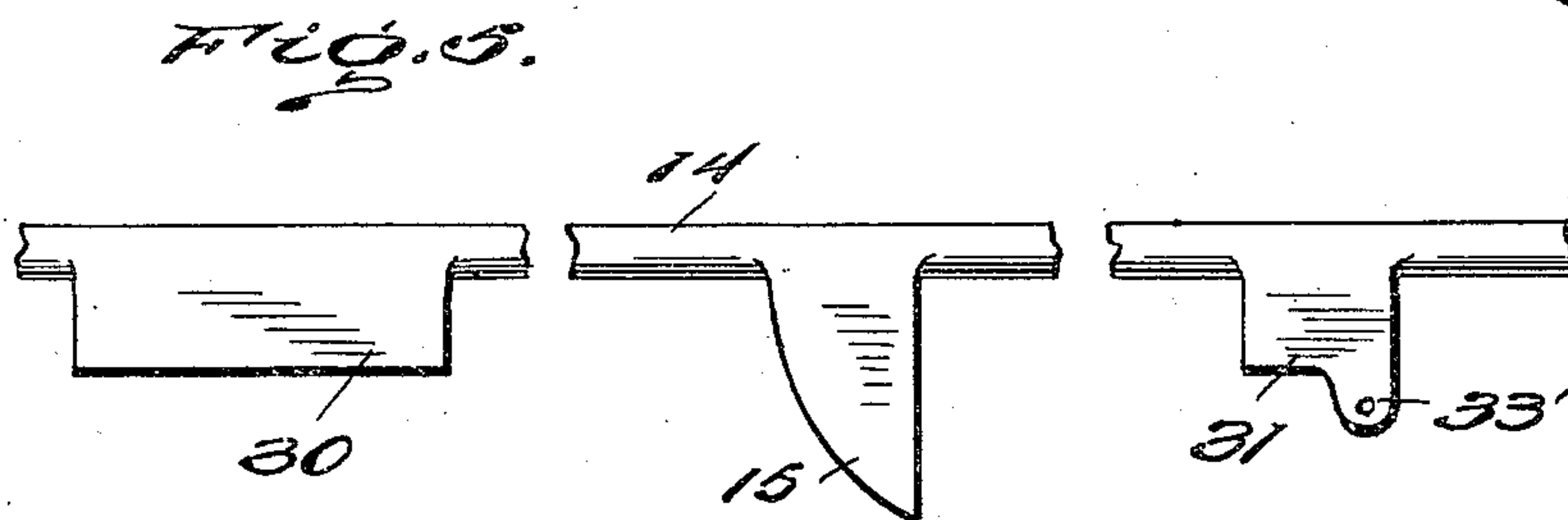
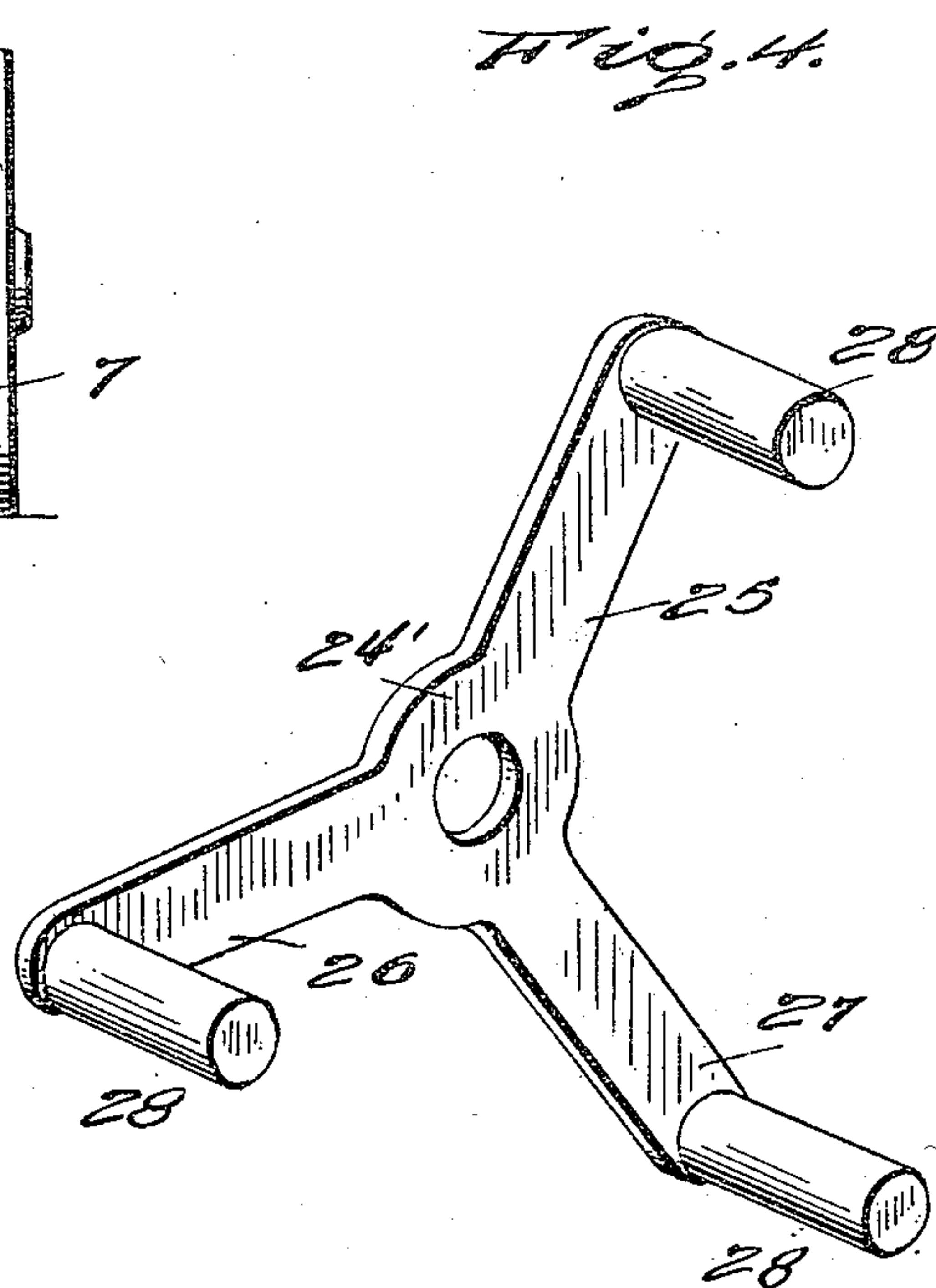
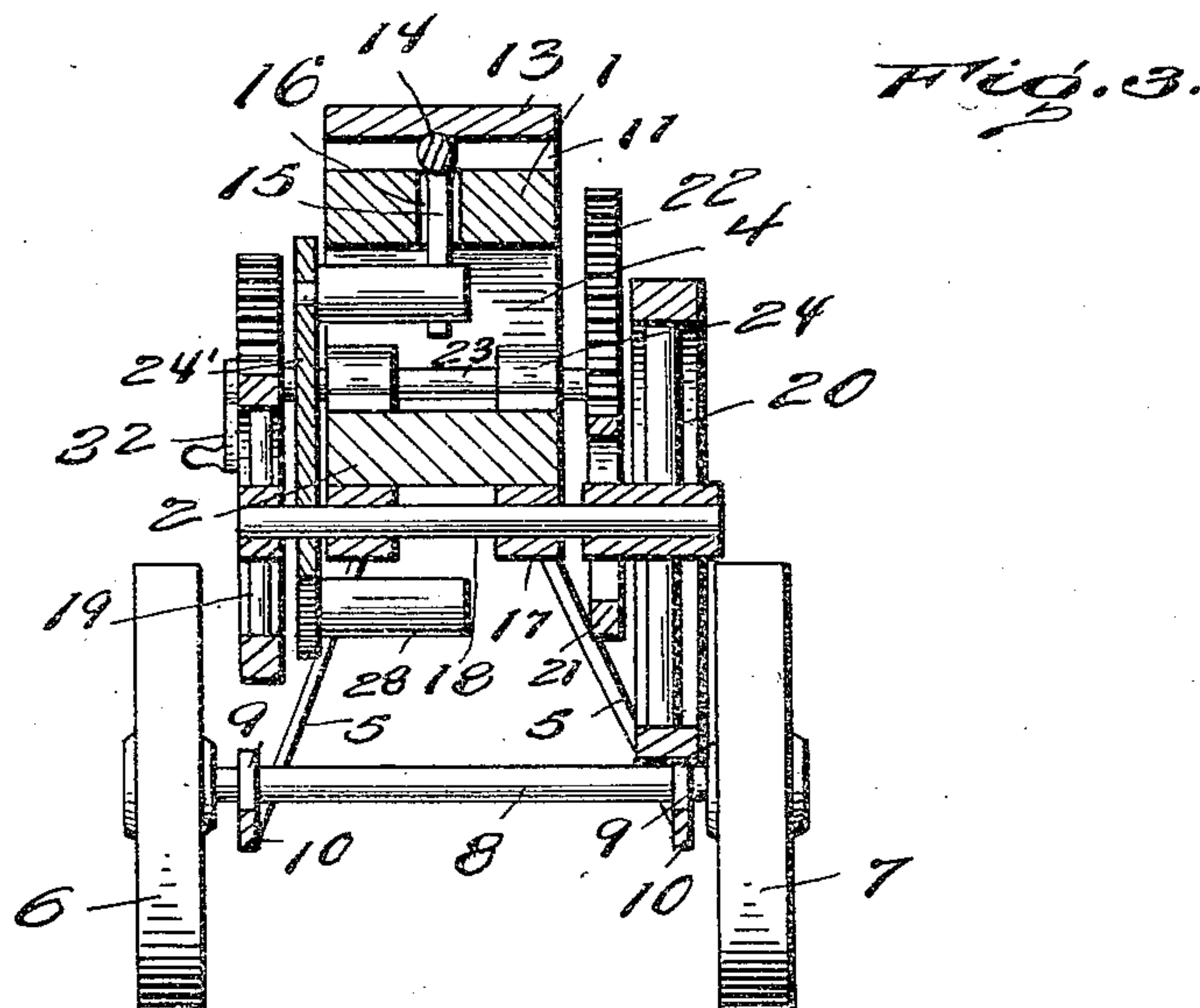
No. 841,625

PATENTED JAN. 15, 1907.

W. B. CHAPMAN.
MINING MACHINE.

APPLICATION FILED JUNE 27, 1905.

2 SHEETS—SHEET 2.



Witnesses

G. R. Thomas
E. M. Delford

Inventor

W. B. Chapman.

By

Charles Chandler

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM B. CHAPMAN, OF WILBURTON, INDIAN TERRITORY.

MINING-MACHINE.

No. 841,625.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed June 27, 1905. Serial No. 267,226.

To all whom it may concern:

Be it known that I, WILLIAM B. CHAPMAN, a citizen of the United States, residing at Wilburton, in the Choctaw Nation, Indian Territory, have invented certain new and useful Improvements in Mining-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to mining-machines.

One object of the invention is to provide a machine for mining coal or the like through the instrumentality of a spring-actuated plunger operated without the use of steam, air, or electricity.

Another object of the invention resides in the provision of a wheeled frame of such character that its excavating elements may be controlled without steam, air, or electricity.

A still further object of the invention is to provide a mechanism of such character that it may be readily moved from one place to another and wherein excavating can be done by hand through the manipulation of a single lever or handle.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the accompanying drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a rear elevation of the invention. Fig. 3 is a transverse sectional view on the line *a a* of Fig. 1. Fig. 4 is a detail perspective view of the spider, including its rollers or wheels. Fig. 5 is a detail elevation of the piston or flange.

Referring now more particularly to the accompanying drawings, the reference characters 1 and 2 designate the top and bottom of a framework employed for the support of my improved mechanism. Arranged between the top and bottom members 1 and 2 at the forward and rear end thereof is a transverse connecting block or member 3 and 4, which may be secured thereto in any suitable manner.

Secured to the under face of the sill or

member 2 is a pair of truss-bars 5, each of which is directed outwardly from each other upon the sides of the member 2 and therebeneath to provide a broad bearing-surface for the wheels 6 and 7, mounted upon the axle 8, arranged in the bearings 9 at the straight portions 10 of the truss-bars, as clearly shown in the drawings.

Mounted upon and above the upper member 1 of the frame and spaced therefrom by means of blocks 11 and 12 is a strip 13, between which and the frame-piece 1 is a slidable piston or plunger 14, having a depending flange 15, designed to move in a slot 16, arranged longitudinally of the member 1 for a purpose presently explained, it being seen that the forward block 12, arranged between the members 1 and 13, is provided with a passage 16 to permit of sliding movement of the plunger or piston 14 therethrough.

Secured to the under face of the sill or frame member 2 is a pair of bearing-blocks 17, in which is journaled a shaft 18, having a gear-wheel 19 secured upon one of its ends and a balance-wheel 20 secured upon its opposite end, the said shaft 18 extending upon opposite sides of the beam or sill 2, resulting in the balance-wheel 20 being disposed upon one side and the gear-wheel 19 upon the other side of the member 2. The balance-wheel 20 is provided with an integral pinion 21 upon its inner face, which is designed to mesh with a gear-wheel 22, secured upon one end of a transverse shaft 23, mounted in suitable bearing-blocks 24 upon the upper face of the beam or sill 2, the opposite end of the said shaft 23 being provided with a gear-wheel designed for mesh with the gear-wheel 19 upon the shaft 18.

Mounted upon the shaft 18, adjacent one side of the sill or beam 2, is a spider 24', having three legs 25, 26, and 27, each of which has its extremity provided with a laterally-extending roller 28 upon its inner face of such width as to project between the beams or sills 1 and 2 and engage successively the flange 15 of the piston or plunger 14 to force the latter backward when the rollers engage the flange, as will be presently explained. It will be observed that the piston or plunger has portions 30 and 31 depending therefrom for engagement in the longitudinal slot of the beam 1 to prevent lateral displacement thereof with respect to its guide.

Fixedly mounted upon one end of the shaft 23 is a crank handle or lever 32, by

which the said shaft and its gear-wheels are rotated. Upon rotation of this shaft and its wheels toward the right it is obvious that the gear-wheel 19, the balance-wheel 20, and the pinion 21 will be rotated in the opposite direction, causing the rollers of the spider to be brought successively into contact with the flange 15 of the plunger or piston 14, causing the latter to be thrown backwardly within its guide against the action of the helical or other spring 33, which is secured at one of its ends to a lug 33', formed on the depending portion 31 of the piston or plunger, with its opposite end connected to a hook or the like 34, secured to the rear face of the forward block 3 and intermediate the adjacent faces of the upper and lower beams or sills 1 and 2. It will thus be seen that the plunger or piston 14 receives its stroke as a result of said helical spring 33, for when the roller of one leg of the spider has moved the piston or plunger back a certain distance the spring creates a pull upon the piston or plunger 14, causing a rapid movement or stroke of the latter forwardly, thereby causing a drill or other implement (not shown) which may be secured to the free end of the plunger or piston to pierce the walls of the mine. Of course as soon as one of the rollers of the leg of the spider leaves the flange of the plunger or piston the spring has no more than caused a rapid forward movement of the piston before another roller of the following leg of the spider will again engage the flange 15 and force the plunger or piston backwardly for another stroke.

From the foregoing it will be seen that I provide an exceedingly simple and comparatively inexpensive machine for mining purposes and that by reason of the divergency of the truss-bars with respect to each other a broad surface is provided to prevent accidental lateral displacement of the machine. It will be seen also that the width of the forward and rearward ends of the machine will permit the same to enter narrow ways or the like in the wall of the mine. Another feature to be appreciated is that the machine may be tilted vertically upon its axle by the operators for the purpose of drilling or digging at different heights in the wall of the mine, the machine being withdrawn from the work before being raised and lowered vertically at its forward end by means of the hand-piece 35, secured to the rear block 4.

What is claimed is—

1. In a mining-machine, the combination, with a vertically-tiltable frame, of a strip secured to the upper face of the frame in spaced parallel relation therewith; an endwise-movable plunger mounted in the space between said strip and frame; a retractile spring con-

nected at opposite ends to said plunger and frame; means adapted to engage the plunger at successive intervals to force the same rearwardly within said space, against the action of said spring; and means for operating said forcing means.

2. In a mining-machine, in combination, with a vertically-tiltable frame, a strip secured to the upper face of the frame in spaced parallel relation therewith; an endwise-movable plunger disposed in the space between said strip and frame; a retractile spring secured at one end to the forward end of the frame, and at its other end to said plunger; a shaft transversely mounted in said frame; a spider carried by said shaft and including a series of arms provided with laterally-extending rollers; a depending flange secured to said plunger intermediate the ends thereof, in the path of said rollers; and means for rotating said shaft, to cause said rollers to successively engage said flange, for forcing said plunger rearwardly within said space, against the action of said opening.

3. In a mining-machine, the combination, with a vertically-tiltable frame, of a strip spaced above the upper face of and disposed in parallel relation therewith, a plunger mounted in the space between the said strip and frame, and movable endwise therein, said plunger projecting beyond the forward end of the machine; a depending flange secured to said plunger intermediate the ends thereof; a retractile spring secured at one end to the forward end of the frame, and at the other end to said plunger; means for engaging said flange to force the plunger rearwardly within said space against the action of said spring; and means for operating said forcing means.

4. In a mining-machine, in combination with an axle and traction-wheels mounted upon opposite ends thereof, a vertically-tiltable frame pivoted upon said axle; a strip secured to the upper face of the frame in spaced parallel relation therewith; an endwise-movable plunger mounted in the space between the said strip and frame; a retractile spring connected at opposite ends to said plunger and frame; means adapted to engage the plunger at successive intervals, to force the same rearwardly within said space, against the action of said spring; and means for operating said forcing means.

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

WILLIAM B. ^{his} CHAPMAN.
mark

Witnesses:

L. C. EDMISTON,
J. POE.