No. 745,807. PATENTED DEC. 1, 1903.

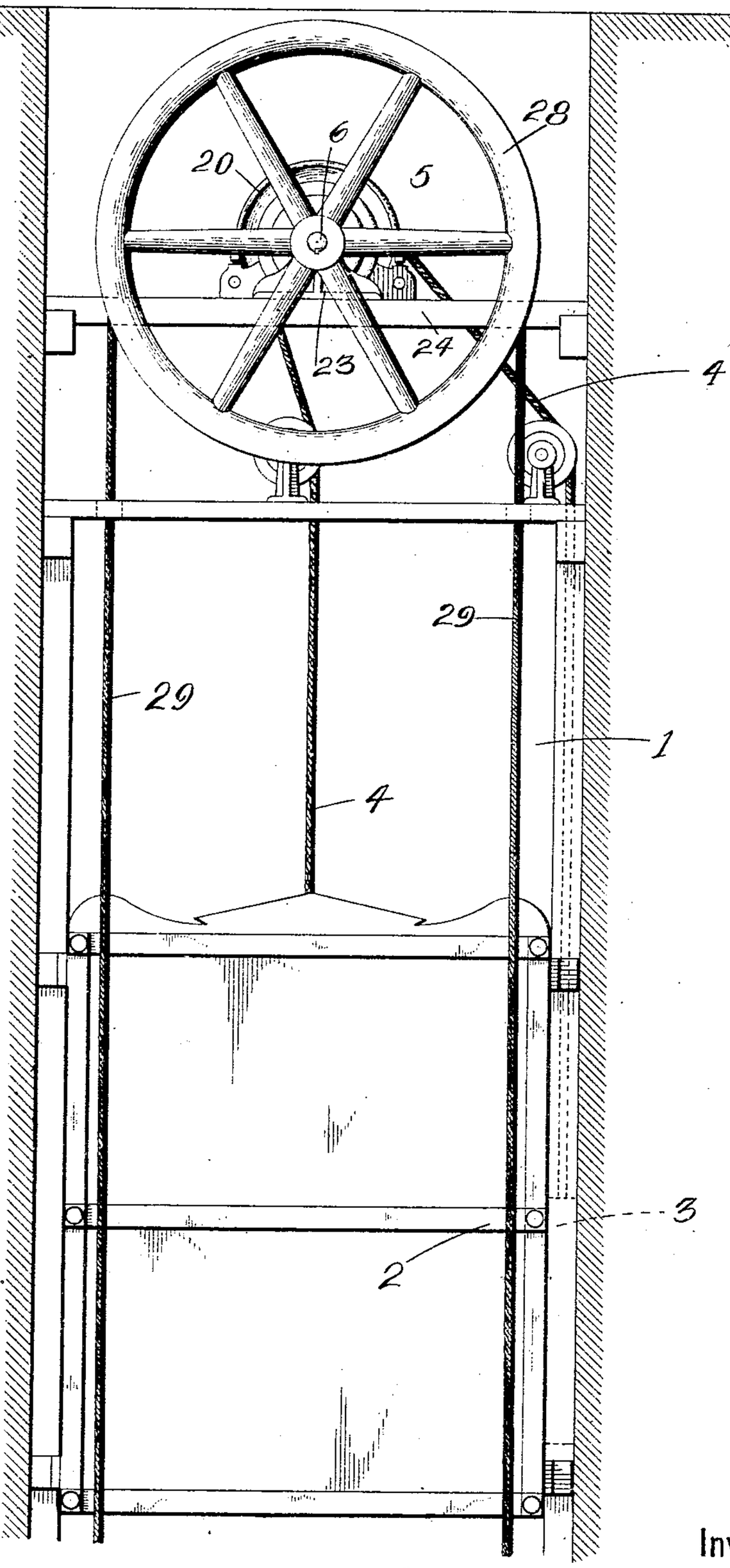
E. B. EVERINGHAM.

DUMB WAITER.

APPLICATION FILED OCT. 29, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

Charles Pankow.

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3 SHEETS—SHEET 2.

Fig. 2.

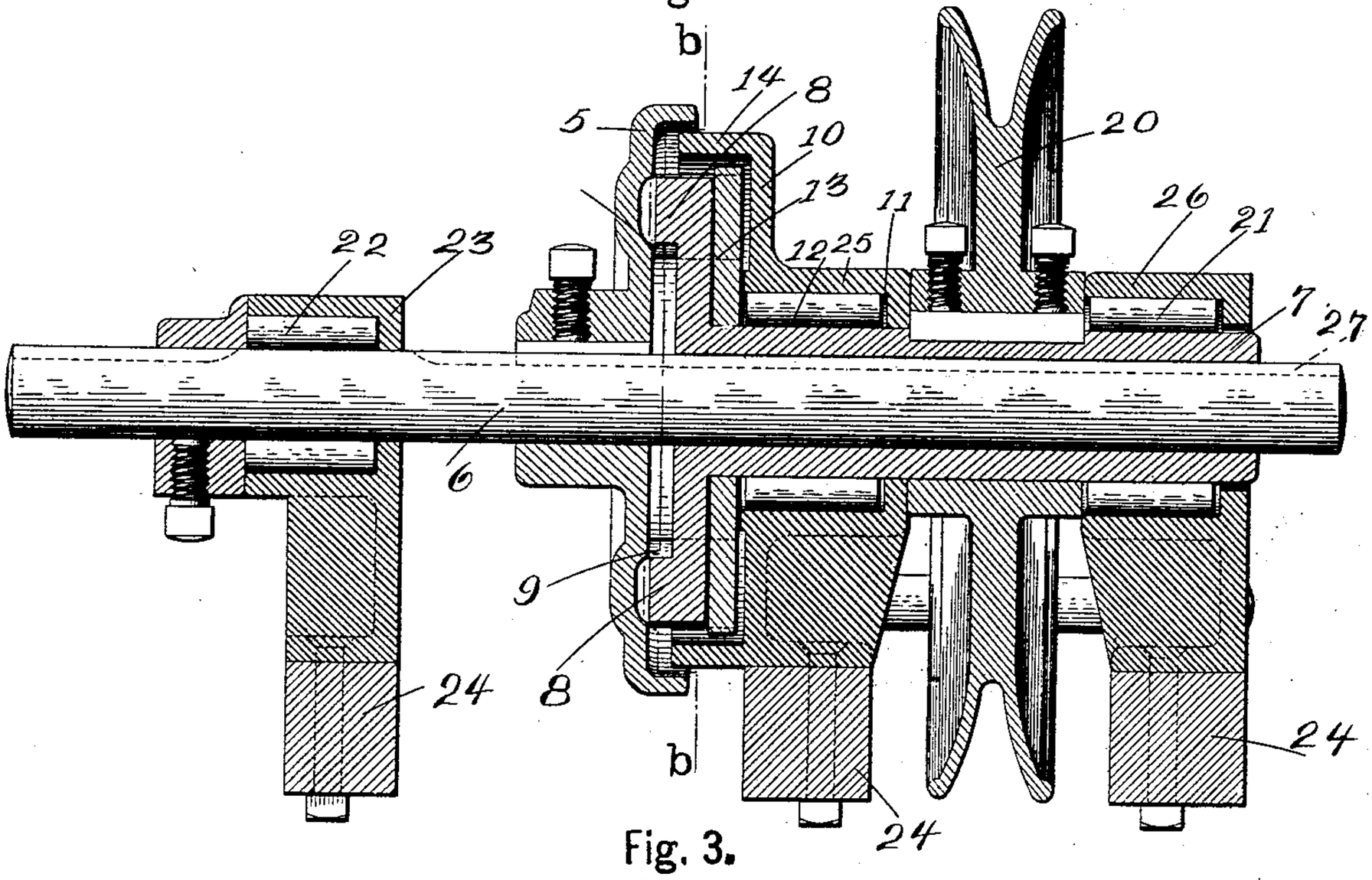
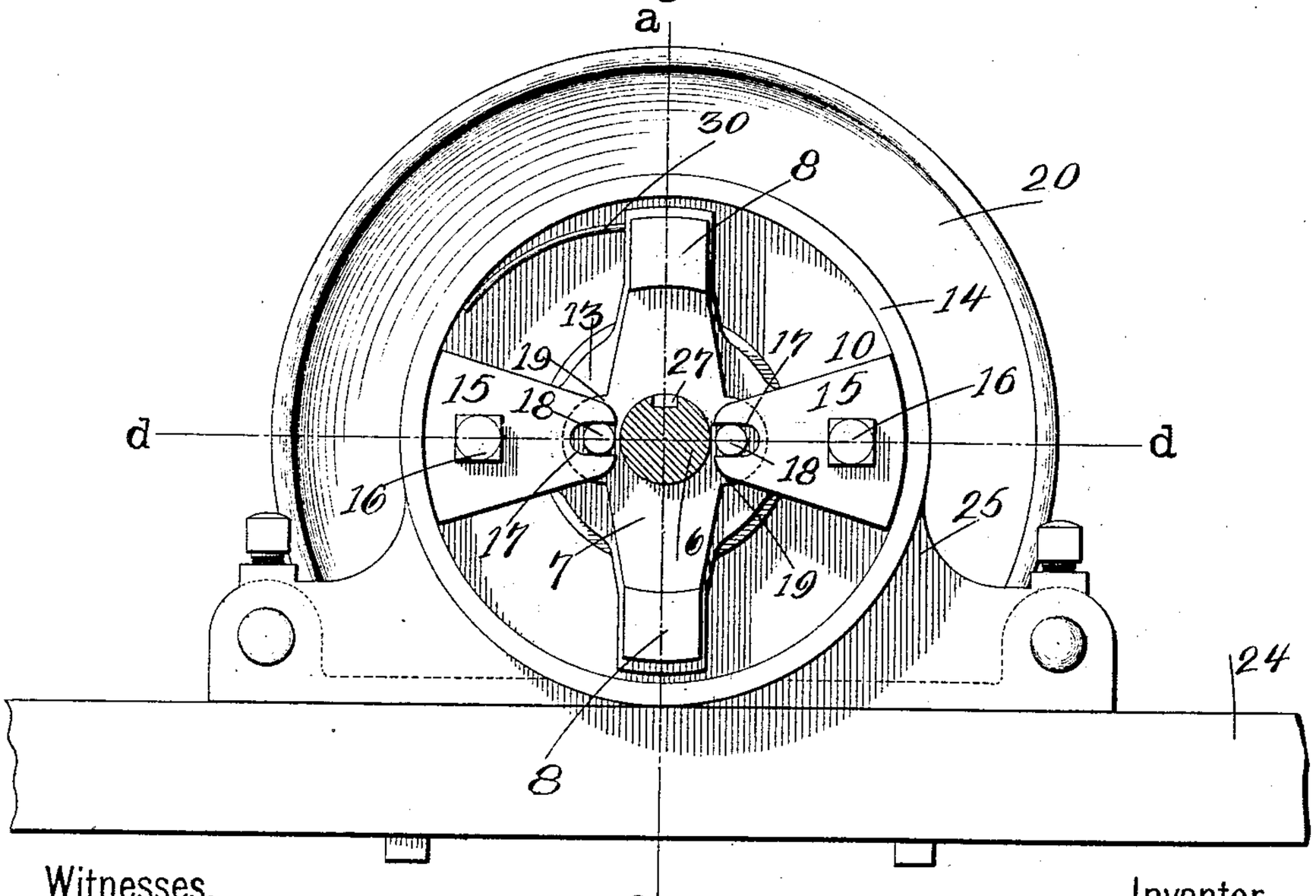


Fig. 3.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

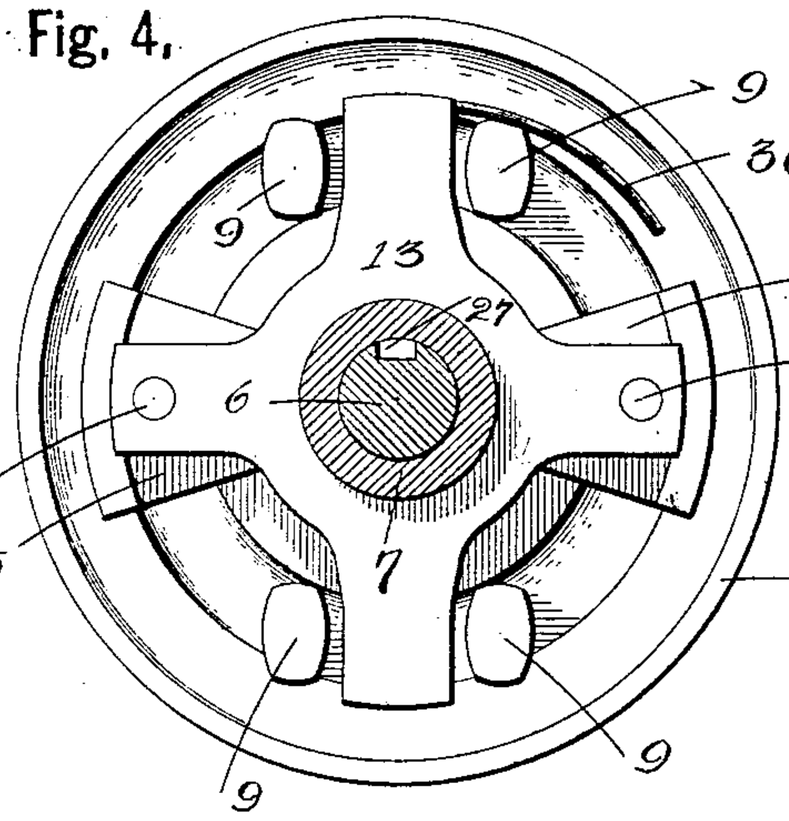


Fig. 7.

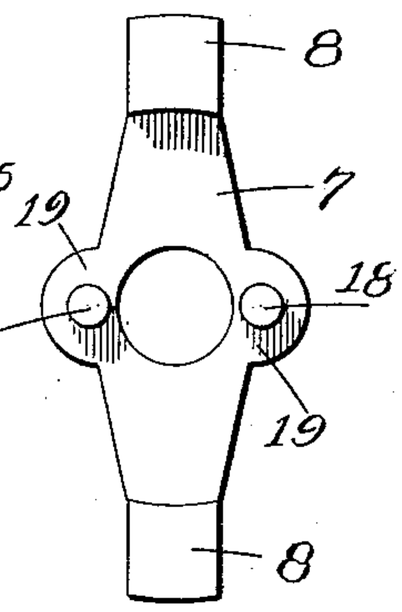


Fig. 5.

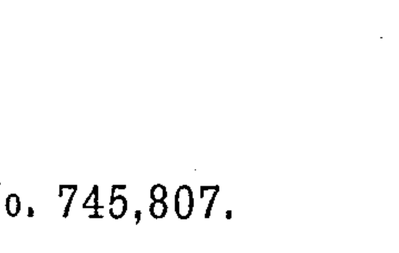


Fig. 6.

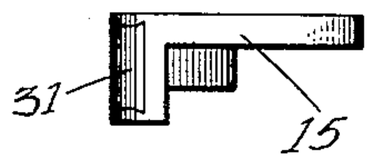
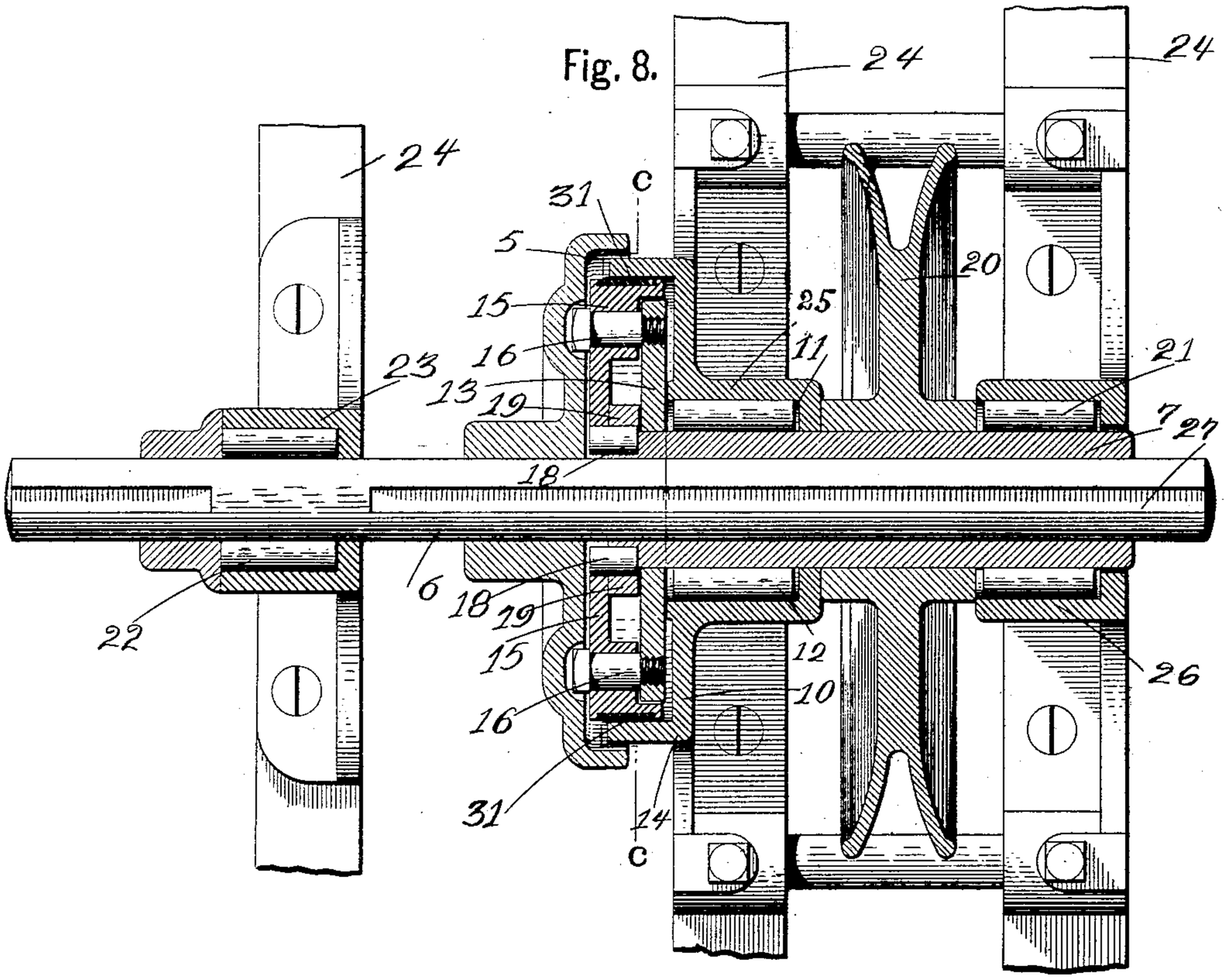


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDWARD B. EVERINGHAM, OF WARSAW, NEW YORK, ASSIGNOR TO WARSAW ELEVATOR COMPANY, OF WARSAW, NEW YORK.

DUMB-WAITER.

SPECIFICATION forming part of Letters Patent No. 745,807, dated December 1, 1903.

Application filed October 29, 1902. Serial No. 129,234. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. EVERINGHAM, a citizen of the United States, residing at Warsaw, in the county of Wyoming and State of New York, have invented certain new and useful Improvements in Dumb-Waiters, of which the following is a specification.

This invention relates to an improved dumb-waiter which is arranged so that it is automatically self-sustaining with either the car or the counterweight the heavier, a clutch device being arranged so that it will operate in either direction and will be moved into clutching position to stop the car by an independent reverse movement of either the car or the counterweight, according to which is the heavier, the moment the hand-wheel ceases to rotate.

One of the features of the invention has reference to the novel arrangement of a shell, so that the hand-rope wheel can be secured to any size car.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a section through a shaft, showing a dumb-waiter and my improved elevator mechanism. Fig. 2 is a central vertical section on line *a a*, Fig. 3, through my improved mechanism, the hand-rope wheel being omitted. Fig. 3 is a vertical section on line *b b*, Fig. 2. Fig. 4 is a vertical section on line *c c*, Fig. 8, the outer bearing being omitted. Fig. 5 is a detached side elevation of one of the clutch-dogs. Fig. 6 is a plan view of the clutch-dog shown in Fig. 5. Fig. 7 is an enlarged detached front end view of the sleeve. Fig. 8 is a horizontal section on line *d d*, Fig. 3.

The clutch mechanism in this invention is arranged so that it is inoperative so long as the car is elevated or lowered by the hand-rope and is brought automatically into action by the independent movement of either the counterbalance-weight or the car to stop the car and hold it in stationary position. This provides an automatic clutch-lock, which serves to prevent the car from either ascending or descending when the hand-rope is relieved.

1 represents the dumb-waiter or elevator shaft; 2, the car; 3, the counterweight, and 4, the rope or cable connecting the car to the counterweight.

In the preferred type of clutch device a shell 5 is keyed or otherwise secured to a shaft 6 and drives a sleeve 7 on said shaft by means of lugs, which engage with each other. In the preferred construction two of these lugs (numbered 8) extend from the sleeve 7 and fit between lugs 9, extending from the shell 5.

10 is a ring which fits loosely on the sleeve 7 and has a seat 11 bored out to receive the steel bearing-rollers 12.

A spider 13 is fitted loosely on the sleeve 7, with its arms, preferably four in number, extending within the flange 14 of the ring 10. Two of the arms are made to correspond to the lugs 8 on the sleeve 7 and to engage between the lugs 9 on the shell. To the other two arms segmental cams 15 are pivoted by screws or bolts 16. Each of these cams is provided with a slot 17, which engages with a pin 18, extending from ears 19, projecting from one end of the sleeve 7.

The load-carrying sheave 20 is keyed or otherwise fastened to the tubular sleeve 7 between the roller-bearings 12 and 21. The front end of the sleeve 7 is bored to fit the shaft 6, which is long enough to extend through the entire mechanism and is supported at one end by a roller-bearing 22, which is mounted in a box 23, supported on one of the horizontal frame-pieces 24, extending across the upper portion of the shaft 1. The bearings 12 and 21 are also mounted in boxes 25 and 26, supported on the frame-pieces 24.

The shaft 6 is provided with a keyway or longitudinal groove 27, which extends nearly throughout its length, so that the shell may be keyed at any point in its length and so that a wheel 28, on which the hand-rope 29, controlling the car, is supported, may be moved to permit the use of cars of different sizes without any change in the mechanism.

The operation is as follows: The hand-wheel 28 and shell 5 being fast to the shaft 6 and the lugs 8, projecting from the sleeve, being engaged in position between the lugs 9 on the shell, the spider-arms carry the cams 15, with their curved clutching-faces, out of

frictional engagement with the inner surface of the flange 14 of the ring 10 during the elevating and lowering of the car by the hand-rope. When the hand-wheel stops, either the car or the counterweight, according to which is the heavier of the two, descends by gravity and turns the sheave 20 and the sleeve 7 and moves the cam 15 sufficiently to frictionally engage the inner surface of the flange 14 of the ring 10, and thereby automatically locks both the car and the counterbalance-weight against movement. The spring 30 gives friction enough to the spider 13 to hold it back when the sleeve moves to operate the cams 15.

The curved gripping-face of the segmental cams may be provided with a dovetail seat in which a friction-block 31, of paper, fiber, or other suitable material, may be filled.

The chief advantages of this improvement reside in the manner in which the car is automatically locked by friction or self-sustained the moment the hand-wheel ceases to move, by the independent descending movement of the car or counterbalance-weight, the adjustability of the hand-wheel to permit the use of different sizes of cars with the same mechanism, and the general simplicity and small number of parts employed.

I claim as my invention—

1. In a device of the class described, a shaft, a car adapted to travel in the shaft, a counterbalance-weight for said car, and friction mechanism automatically operated by an independent movement of the car or counterbalance-weight for locking said car against movement and comprising in part, a flanged ring, a spider surrounded by the flange of the ring and cams pivoted to the spider and adapted to frictionally engage the flange of the ring, substantially as set forth.

2. In a device of the class described, an elevator-shaft, a car adapted to travel in the shaft, a counterbalance-weight for said car, operating mechanism for raising or lowering the car, and friction mechanism automatically operated by an independent movement of the car for locking said car against movement, comprising a horizontal shaft, a shell rigid on said shaft, a sleeve loose on said shaft, a flanged ring loose on the sleeve, a spider loose on the sleeve with its arms extending within the flange of the ring, and pivotal segmental cams pivoted to the spider-arms and adapted to frictionally engage the flange of the ring, substantially as set forth.

3. In combination, a car, a counterweight for said car, means for moving said car and means for frictionally locking said car, including a shaft, a shell fast on the shaft, a sleeve loose on the shaft and controlled by the shell, friction mechanism operated by the sleeve, a sheave mounted on the sleeve and a cable connecting the car to the counterweight and passing over the sheave, substantially as set forth.

4. In combination, a rotatable shaft, an elevator-shaft, a car, a counterweight, a sleeve loose on said shaft having two oppositely-extending lugs, a shell fastened to the shaft and having lugs between which the lugs of the sleeve engage, friction mechanism operated by the sleeve, a sheave mounted on the sleeve and a cable connecting the car to the counterweight and passing over the sheave, substantially as set forth.

5. In combination, a rotatable shaft, an elevator-shaft, a car, a counterweight, a sleeve loose on said shaft having a plurality of lugs, a shell fastened to the shaft and having lugs with which the lugs of the sleeve engage, friction mechanism operated by the sleeve, a sheave mounted on the sleeve and a cable connecting the car to the counterweight and passing over the sheave, substantially as set forth.

6. In a machine of the class described, an elevator-shaft, a car in said shaft, a counterweight, a rope or cable connecting the counterweight to the car, a horizontal shaft crossing the upper portion of the elevator-shaft, a shell fast on the shaft and having lugs, a sleeve loose on the shaft and having lugs engaging with the lugs of the shell, a spider loose on the sleeve, a ring having a flange surrounding the spider, segmental slotted cams pivoted to the spider and adapted to frictionally engage the flange of the ring, and pins extending from the sleeve and engaging in the slots in the cams.

7. In a machine of the class described, an elevator-shaft, a car in said shaft, a counterweight, a rope or cable connecting the counterweight to the car, a horizontal shaft in the upper portion of the elevator-shaft, a hand-wheel on said shaft, a hand-rope engaging said hand-wheel, a shell fast on the horizontal shaft, a sleeve loose on said shaft, a spider, a friction-ring, segmental cams pivoted to the spider and operated from the sleeve, and a sheave mounted on the sleeve over which the rope or cable connecting the car to the counterweight passes, substantially as set forth.

8. In a machine of the class described, an elevator-shaft, a car in said shaft, a counterweight, a rope or cable connecting the counterweight to the car, a shaft in the upper portion of the elevator-shaft, a shell fast on the shaft and having lugs, a sleeve loose on the shaft and having lugs engaging with the lugs of the shell, a spider loose on the sleeve, a ring having a flange surrounding the spider and segmental slotted cams pivoted to the spider, said cams each having a curved paper friction-block adapted to frictionally engage the flange of the ring, substantially as set forth.

9. In a device of the class described, an elevator-shaft, a car adapted to travel in said shaft, a counterbalance-weight for said car, a connection between said car and said counterbalance-weight, a supporting-shaft, a hand-wheel on said shaft, a rope for operating said hand-wheel, and friction mechanism on said

shaft automatically operated by an independent movement of the car or counterbalance to stop the car and including a sheave over which the connection between the car and counterbalance passes, a sleeve loose on the shaft on which the sheave is supported, and a shell fast on the shaft and having frictional connection with the sleeve, substantially as set forth.

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Witnesses:
GEO. L. LONG,
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