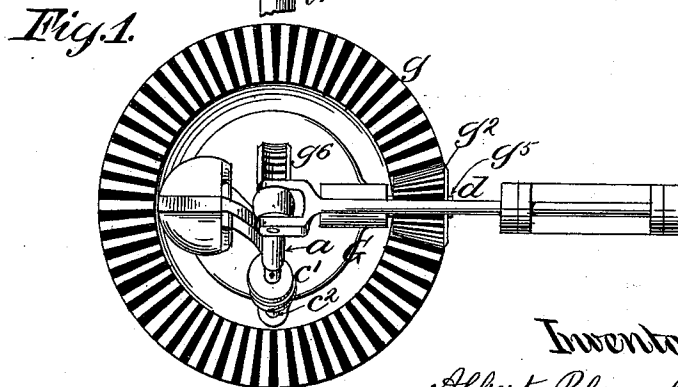
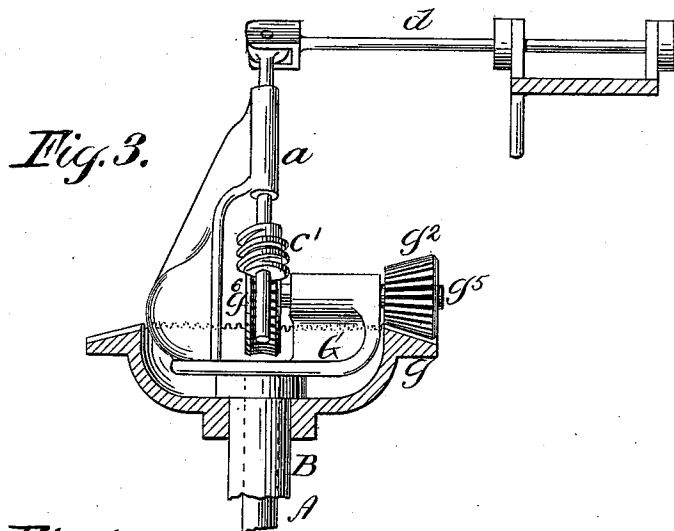
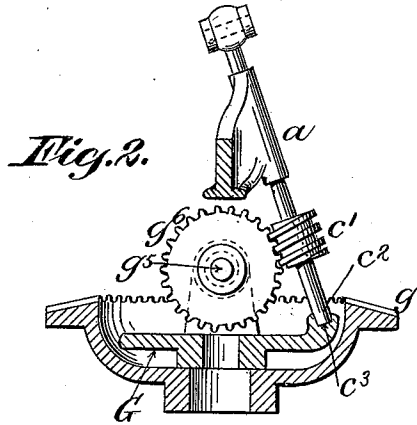


(No Model.)

A. BLAUVELT.
DIFFERENTIAL MECHANISM.

No. 548,349.

Patented Oct. 22, 1895.



Witnesses:
D. W. Gardner
G. J. Mink

Inventor:
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UNITED STATES PATENT OFFICE.

ALBERT BLAUVELT, OF NEW YORK, N. Y.

DIFFERENTIAL MECHANISM.

SPECIFICATION forming part of Letters Patent No. 548,349, dated October 22, 1895.

Application filed May 1, 1893. Serial No. 472,489. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BLAUVELT, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Differential Mechanism, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to mechanism for effecting a difference in the relative speed of rotation between two parts revolving together in the same direction around a common axis, as set forth in my concurrent application, filed June 6, 1890, Serial No. 354,455, of which the present application is a subdivision. In said prior application I show a stationary worm and a worm-gear with suitable auxiliary gearing interposed between two parts revolving in the same direction.

My present invention consists in the use of a worm held against movement upon its longitudinal axis, but gyrating with one part, together with a worm-gear and suitable auxiliary gearing interposed between said part and the other part revolving in the same direction, the construction being simpler and more compact than that retained in my original application, hereinbefore referred to, while effecting the same results.

In the accompanying drawings, I illustrate means for giving practical effect to my improvements, although I do not wish to confine myself to the identical form and construction of parts shown, since it is obvious that various modifications may be introduced without departing materially from the essential features of my invention.

Figure 1 is a plan of my differential mechanism; Fig. 2, a sectional elevation thereof; Fig. 3, a similar view taken at right angles to Fig. 2.

As shown in the accompanying drawings, the apparatus is arranged upon and between a vertical shaft A and a sleeve B, both the shaft and the sleeve rotating together in the same direction, but at slightly different speeds, this difference in speed being effected by my improved mechanism, as hereinafter set forth.

The mechanism is shown as applicable to centrifugal machines, in which a conveyer forces the material under treatment through

a draining-basket, and in other forms of machinery in which it is desired to have two objects rotate in the same direction around a common axis at different speeds as related to each other.

The shaft A and sleeve B are supported in position by suitable bearings or other well-known means according to the requirements of the particular use to which the mechanism is to be applied.

The rotation of the shaft A and the sleeve B is effected by any suitable mechanism, power being applied to either one or the other, as may be required, by pulley-gear or other well-known means. They are coupled together by the differential mechanism, and would rotate together in the same direction and at the same rate of speed were it not for the worm c' , which engages with the worm-gear g^6 . This worm c' is suspended upon a rod d , secured to a stationary support in such manner that while it cannot rotate upon its own axis it is free to adapt itself to the motion of the parts below.

The worm c' is steadied by a bracket a , projecting upward from the frame or cross-head G, attached to the upper end of the shaft A. The worm-gear g^6 is mounted upon the frame G, and is arranged centrally over or across the longitudinal axis of the shaft A and sleeve B, and the lower end c^2 of the worm c' rests in a step or bearing c^3 , formed in the head G, so that the worm c' , while it does not rotate upon its own longitudinal axis, remains in engagement with the gear g^6 and gyrates around the vertical axis of the apparatus.

The gear-pinion g^2 is attached to the end of the horizontal shaft g^5 , and the larger gear g is made cup-shaped and surrounds the frame or head G. The cup-shaped gear g is attached to the upper end of the sleeve B. The engagement of the worm c' with the worm-gear g^6 affords sufficient resistance to the rotation of the train of gearing, &c., with the shaft A or the sleeve B (according to which of the latter the power is applied) to compel the worm-gear g^6 to rotate upon its own axis, the worm c' acting through its engagement with the worm-wheel to effect the change in the relative rates of speed between the sleeve B and the shaft A.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In differential mechanism substantially

such as designated, the combination of a worm held against rotation upon its longitudinal axis and gyrating with one part of the mechanism, and an engaging worm wheel
5 and auxiliary gearing connected with a gear upon the other part of the mechanism substantially in the manner and for the purpose described.

2. In differential mechanism substantially
10 such as designated, the combination of the

cup gear g , pinion g^2 , frame G , shaft g^5 , worm gear g^6 , and the worm c' , suspended and held against rotation upon its longitudinal axis substantially in the manner and for the purpose described.

ALBERT BLAUVELT.

Witnesses:

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