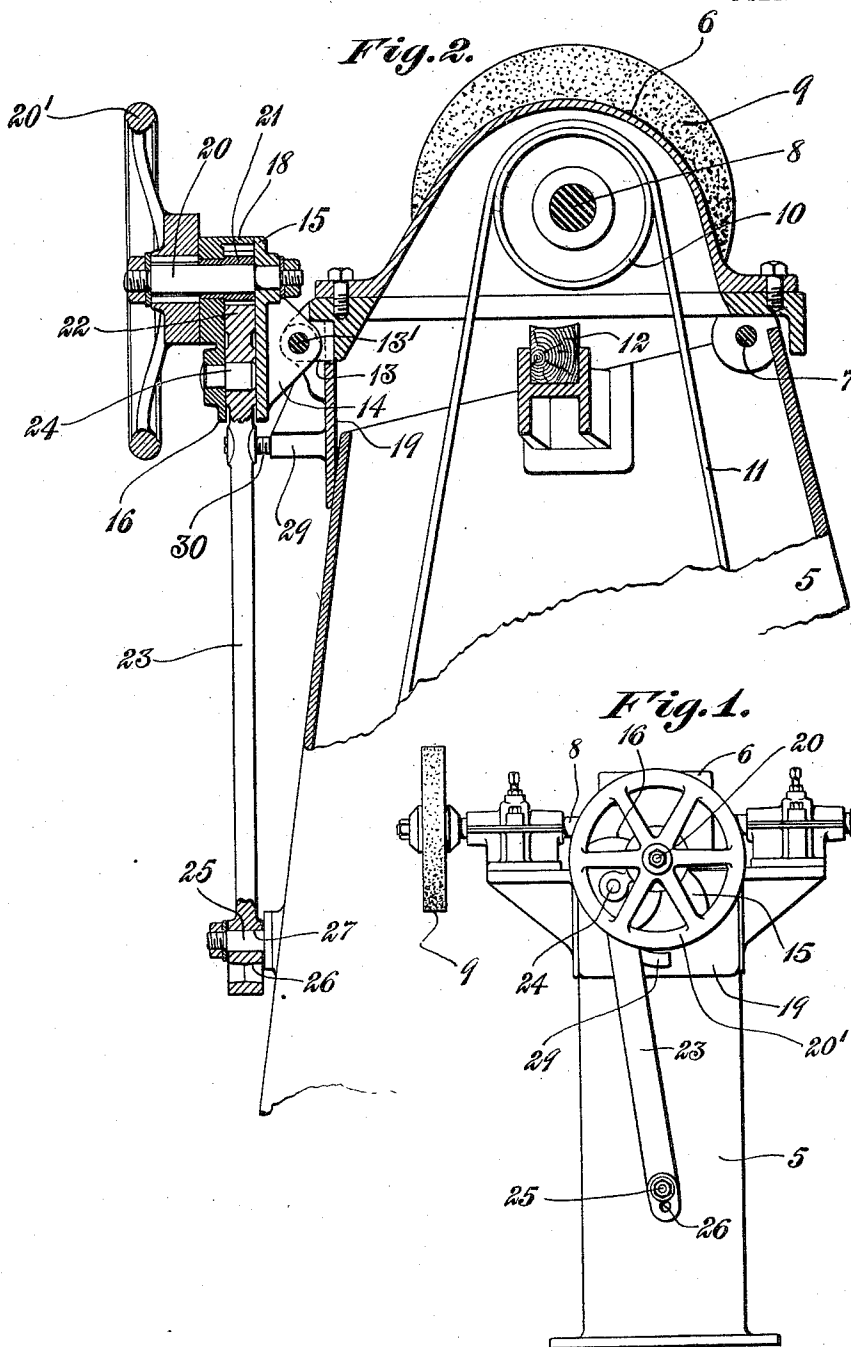


R. S. BROWN.
MECHANICAL MOVEMENT.
APPLICATION FILED JAN. 6, 1912.

1,049,289.

Patented Dec. 31, 1912.

2 SHEETS-SHEET 1.



Witnesses:

L. Markel
W. R. Rove

Inventor:
Robt. S. Brown
By his Attorneys,

Sutherland & Hudson

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2 SHEETS—SHEET 2.

Fig. 3.

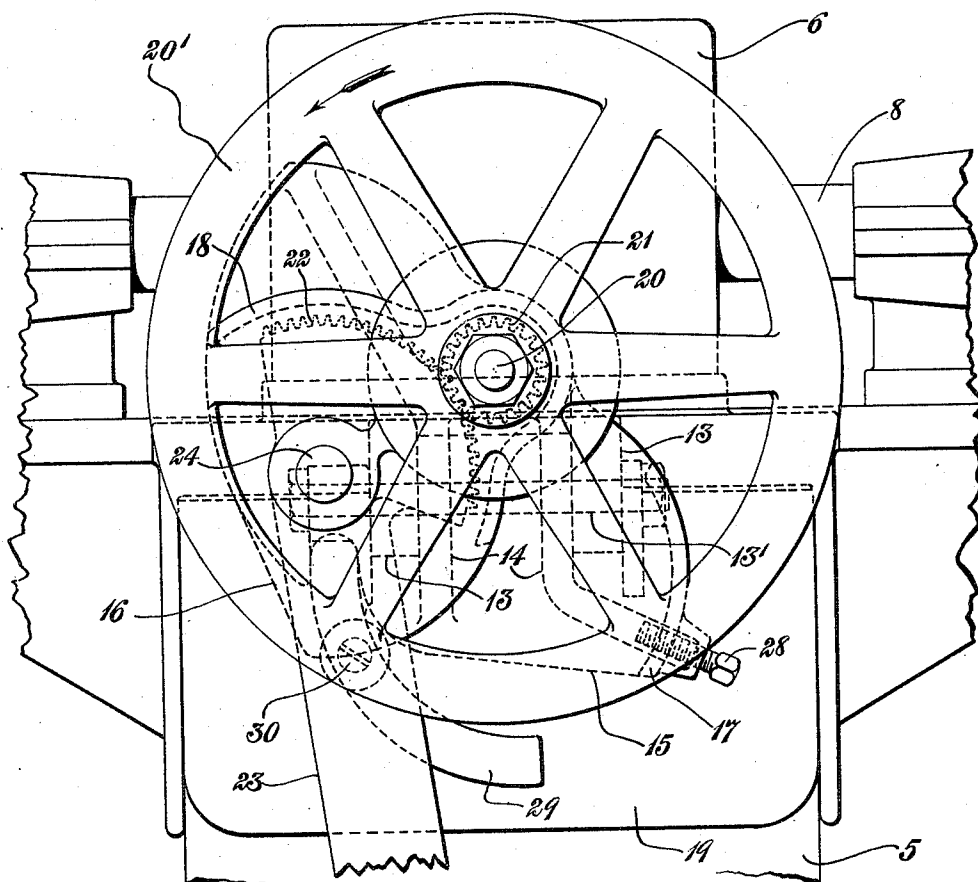
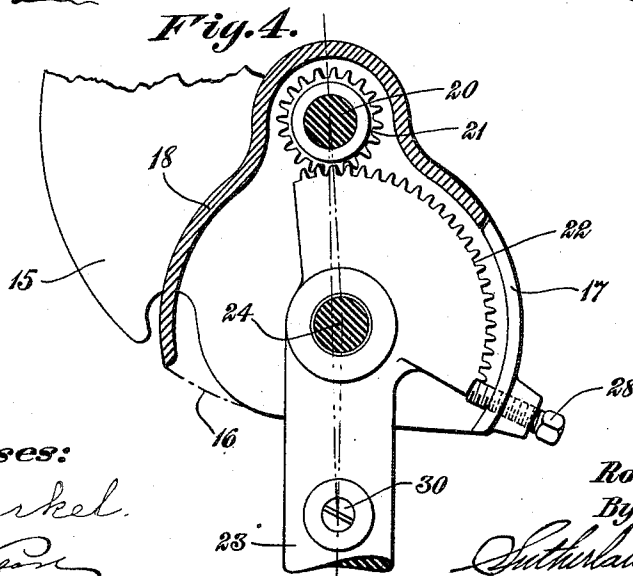


Fig. 4.



Witnesses:

L. L. Markel.
W. W. [unclear]

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UNITED STATES PATENT OFFICE.

ROBERT S. BROWN, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE NEW BRITAIN MACHINE COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

MECHANICAL MOVEMENT.

1,049,289.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed January 6, 1912. Serial No. 669,858.

To all whom it may concern:

Be it known that I, ROBERT S. BROWN, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to mechanical movements, and the same can be utilized with advantage in many and widely different connections, although it is of especial utility when incorporated in a grinding machine.

A machine of the nature indicated, involves in its make-up a tool-carrying member which may consist of a movably-mounted hood ordinarily but not essentially pivotally supported and the tool may take various forms; it may for instance consist of an abrading or equivalent wheel.

In Letters Patent No. 734,643 granted to P. A. Whitney on July 28, 1903 is shown a grinding machine comprising a hood.

It is the primary purpose of the present invention to provide effective means for operating a movably-mounted member such as a hood in the type of machine noted, whether the same be pivoted or not, to tighten or to loosen a driving belt or perform some equivalent function.

In the drawings accompanying and forming part of the present specification I have shown in detail one convenient form of embodiment of the invention which to enable those skilled in the art to practise the same will be fully set forth in the following description, while the novelty of the invention will be included in the claims succeeding said description. I may depart from said showing in several ways within the scope of the invention covered in said claims.

Referring to said drawings: Figure 1 is a front elevation of a grinding machine involving my invention. Fig. 2 is a vertical section of the upper portion of the machine. Fig. 3 is a front elevation of the upper part of the machine, and, Fig. 4 is a sectional detail hereinafter more particularly described.

Like characters refer to like parts throughout the several views which it will be perceived are on different scales.

The different parts of the machine may be supported by suitable framing such for

example as the hollow column 5 to which is connected the hood 6 by a pivot in the present case, denoted in a general way by 7. This hood supports a rotary shaft 8 equipped at its ends with abrading tools each denoted by 9 and which carries within the hood the driven member 10 which may as shown consist of a pulley fast to the shaft 8. Extending around the pulley is the driving belt 11 connected with a driver such as a pulley (not shown) mounted in said column 5 below the pulley 10. The hood 6 is adapted to occupy two positions and when it is up, the belt 11 will be thereby tightened, so that when the driving pulley is rotated, the pulley 10 through said belt 11 will be also rotated to thereby turn the shaft 8 and consequently the two abrading tools 9. By lowering the hood 6 the belt will be loosened to thus throw the said tools out of action and the extent of the downward movement of the said hood is such that the perimeter of the pulley 10 will engage the stationary brake 12 so as to instantly arrest the motion of the shaft 8 and therefore the two abrading tools.

The foregoing is a brief description of the apparatus shown in the patent to which allusion has already been made and with which my invention can be advantageously associated.

The hood 6 therefore constitutes a tool-carrier and the tool is adapted to be thrown into and out of action by the movement of said tool-carrier whether said movement be a swinging one or not. The hood 6 is shown provided at its forward side with lugs 13 pivoted to ears 14 on the rear of the plate 15 which with a companion plate 16 and certain flanges on said plates, constitutes a casing or guard for gears as will be hereinafter described forming part of the belt-tightening means. While this plate 15 is, therefore, capable of rocking movement with respect to the hood 6, it is laterally immovable for a reason that will hereinafter appear. Both plates 15 and 16 as shown are approximately of segmental form, although in the present case the plate 15 is of greater area or lateral extent than the cooperating plate 16 so as to thus present a side bearing for the plate 16 and also for a gear hereinafter described, movable therewith. The plate 15 is provided with a flange 17 extending partially along one edge thereof,

while the plate 16 has a flange 18 extending along one edge thereof for a greater extent. When the belt 11 is tight as will hereinafter appear, the inner end of the flange 18 will abut against the adjacent end of the flange 17 and thereby provide a case or boxing for the gears hereinafter described.

To the pivot 13' which connects the hood 6 and plate 15 is also pivoted a pendent swinging flange or guard member 19 which is adapted to close the opening between the hood 6 and the column 5 and the lip of which during the raising and lowering of the hood 6, rides against the front of the column 5, the pivotal mounting of said guard plate 19 freely permitting such action. As will hereinafter appear when the hood 6 is in its uppermost position, the said guard member 19 is forced solidly and substantially against the column 5.

The two plates 15 and 16 jointly support for rotation the shaft 20 which has fastened as by keying thereto between the plates 15 and 16, a primary gear member such as the pinion 21 in mesh with a secondary gear member 22 which may as shown consist of a segment rigid with the upper end of the link or rod 23 pivoted preferably in proximity to the segment 22 as by a pivot 24, to the front plate 16 from which it will be clear that said plate constitutes a link member for connecting the rod or link 23 and the gear 21, it being in the present instance pivotally connected to said parts. The lower end of the rod or link 23 is pivoted as by the pivot 25 to the column 5, the connection of said rod with said column being preferably adjustable so as to compensate for wear in the belt 11, and this condition can be secured by having the pivot 25 interchangeably fit the perforations 26 and 27 at or near the lower end of said rod 23, the pin 25 in the construction shown being in the upper perforation 27. I desire to call attention to the fact that the pitch line of said primary gear or pinion 21 is concentric with the axis of movement thereof. Fastened to the shaft 20 is a suitable operating member, therefor which preferably consists of a hand wheel 20'.

It will thus be clear that the toggle member 23 swings normally about a fixed axis.

In Fig. 3 the hood 6 is supposed to be down, the belt 11 at this time being lax and the shaft 8 at rest. To rotate the shaft it is necessary that the hood 6 be elevated sufficiently to tighten the belt, and this operation in the present instance, is effected through the primary agency of the hand wheel 20' by turning the same in the direction of the arrow applied thereto in Fig. 3. As said hand wheel is thus operated the shaft 20 and pinion 21 are correspondingly rotated so as to swing the rod or link 23 to the right in Fig. 1 and hence elevate the

hood 6, the action being that of a toggle. It will be evident that the belt can be quickly and readily tightened and that the operation attending the tightening of the belt is a very simple and easy one. To loosen the belt the hand wheel is turned in the direction opposite the arrow.

As intimated the action is a toggle one and to prevent the toggle member or link 23 crossing the dead center line too far, a stop is provided and this stop may be of any suitable character. It may as shown, consist of a screw 28 tapped through the flange 17 and adapted to engage the segment 22 just after the link 23 passes the dead-center line at which time the belt is perfectly tight.

The plate 19 is shown provided with a relatively stationary cam 29 operable by a suitable actuating device as the screw 30 tapped through the upper portion of the rod 23, the pin or screw 30 being on the low part of the cam 29 when the belt 11 is loose. When the belt-tightening mechanism is operated the link 23 is swung toward the dead center line and as it does so the actuating member, pin or screw 30 rides up the cam 29 and thereby presses the plate 19 firmly against the column 5, the maximum effect occurring when the belt 11 is tight.

I desire to call attention to the fact that the pinion 21 is of much less radius than the gear 22, by reason of which the motion of the toggle mechanism can be made relatively small, the rapidity of the motion depending upon the operating member for the pinion which as already described consists of the hand wheel 20', the latter for such purpose being of greater radius than said pinion or equivalent gear.

What I claim is:

1. The combination of a movably mounted member, and toggle mechanism for operating said movably mounted member comprising primary and secondary meshing gear members, the primary gear member being of less radius than the secondary gear member, being carried by said movably mounted member, and its pitch line being concentric with the axis of motion thereof.

2. The combination of a movably mounted member and toggle mechanism for operating said movably mounted member comprising meshing gears, one of which is carried by said movably mounted member and is of less radius than the other, and a manually operable actuating member for the gear carried by said movably mounted member and of greater radius than said gear which is carried by said movably mounted member.

3. The combination of a movably mounted gear having also a turning movement about an axis, a swinging member provided with a gear at one side of its axis of move-

ment, in mesh with said other gear, and a link connection between the axis of said first mentioned gear and the axis of said swinging member.

5 4. The combination of a gear, and a rotary shaft to which said gear is connected, a movable support for said gear, a link member having a pivot connection with said shaft, a swinging member provided with a gear in mesh with said other gear, and a pivot connecting said link member with said swinging member between the gear and the axis of motion of said swinging member.

10 5. The combination of a movably mounted member, a shaft supported by said movably mounted member, a pinion on said shaft, a swinging member movable about a fixed axis and provided with a segment in mesh with said pinion, and a link connection between said swinging member and shaft.

15 6. The combination of a movably mounted member, a plate pivoted to said movably mounted member, a second plate, a rotary shaft supported by the plates, a pinion fastened to the shaft, between the plates, and a rod pivoted to one of the plates and to a relatively fixed part, said rod having a geared member at one side of its pivot in mesh with said pinion.

20 7. The combination of a movably mounted member, a plate pivoted to said movably mounted member, a second plate, a rotary shaft supported by the plates, a pinion fastened to the shaft, between the plates, and

a rod pivoted to one of the plates and to a relatively fixed part, said rod having a geared member at one side of its pivot in mesh with said pinion, said two plates having flanges which extend toward each other and which engage when the plates are in normal positions to thereby incase said pinion and gear member.

8. The combination of a movably mounted member, toggle mechanism for operating said movably mounted member, comprising intergeared members, one of which is supported by said movably mounted member, a device movably connected with said movably mounted member, and means associated with the toggle mechanism, for operating said device on the movement of the toggle mechanism.

9. The combination of a movably mounted member, toggle mechanism for operating said movably mounted member, comprising intergeared members, one of which is supported by said movably mounted member, a device movably connected with said movably mounted member, and cam means operative with the toggle mechanism, for actuating said device on the movement of the toggle mechanism.

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

ROBERT S. BROWN.

Witnesses:

H. H. PEASE,
J. S. COFFIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."