

O. C. KREIS, JR.
POWER DRIVE FOR ADDING MACHINES.
APPLICATION FILED AUG. 6, 1906.

960,343.

Patented June 7, 1910.

3 SHEETS—SHEET 1.

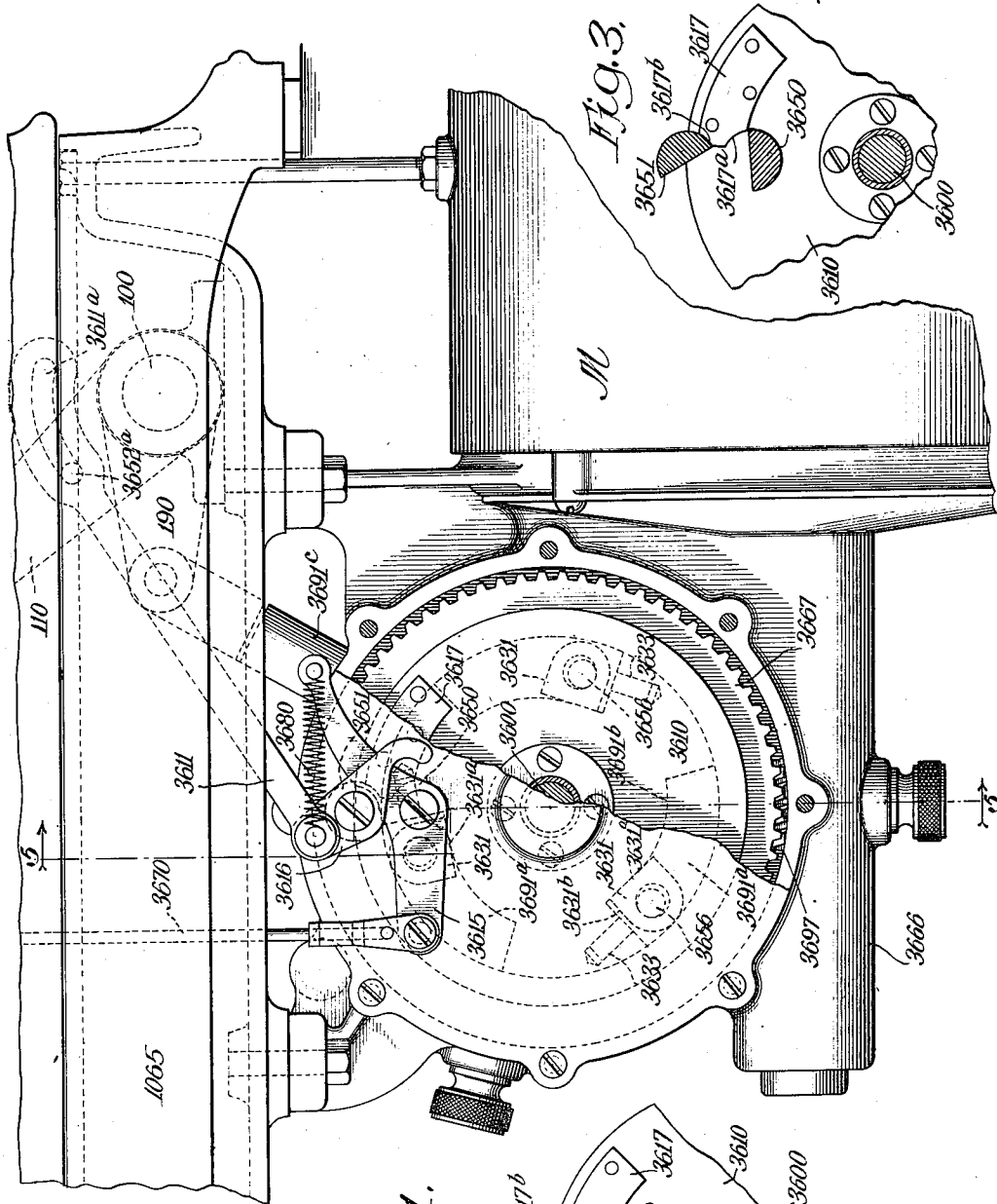


Fig. 1.

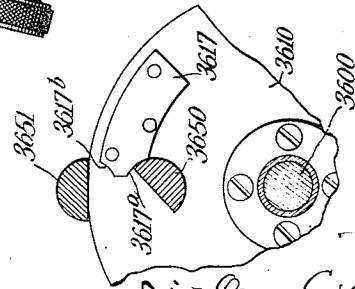


Fig. 2.

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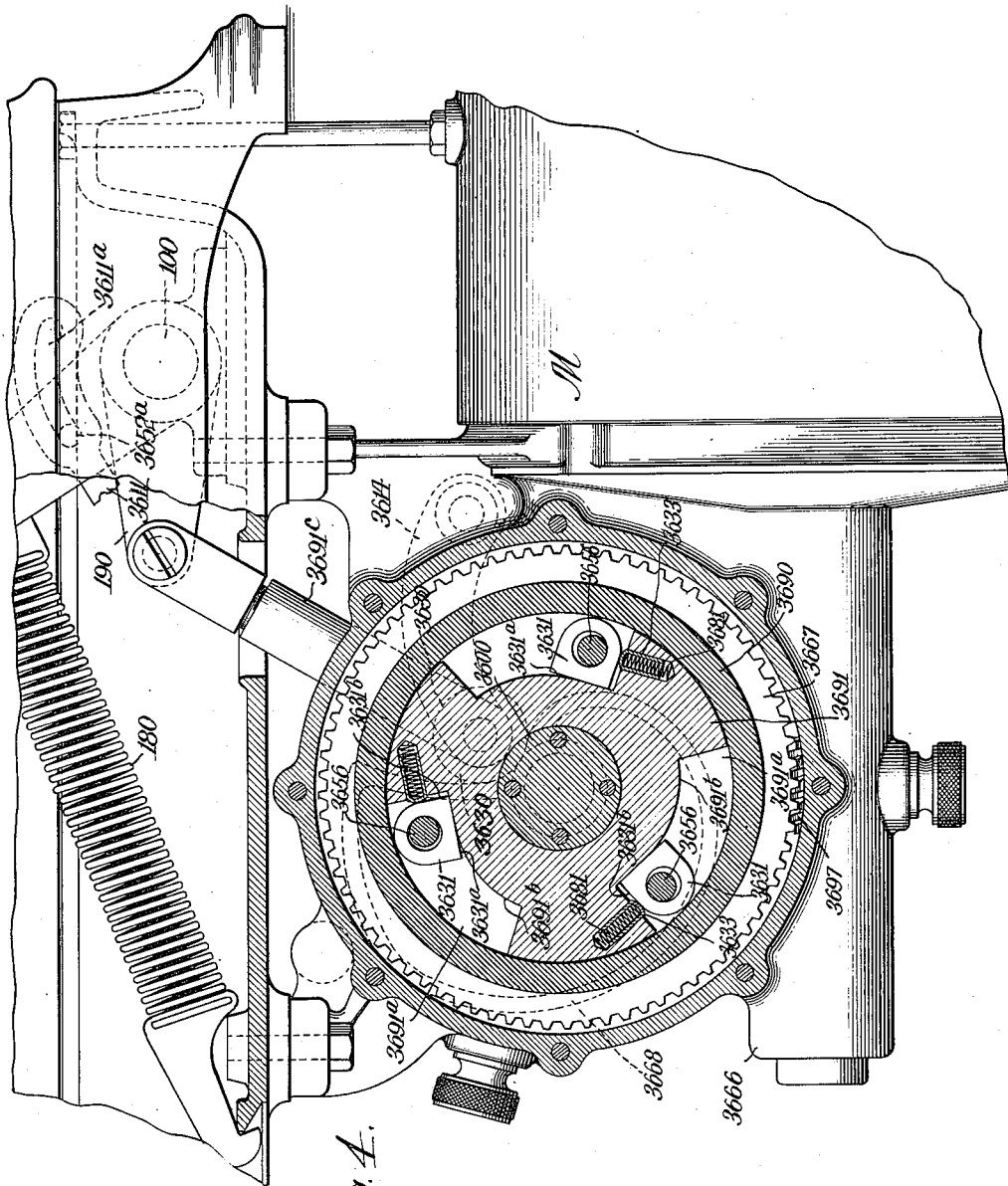


Fig. 4.

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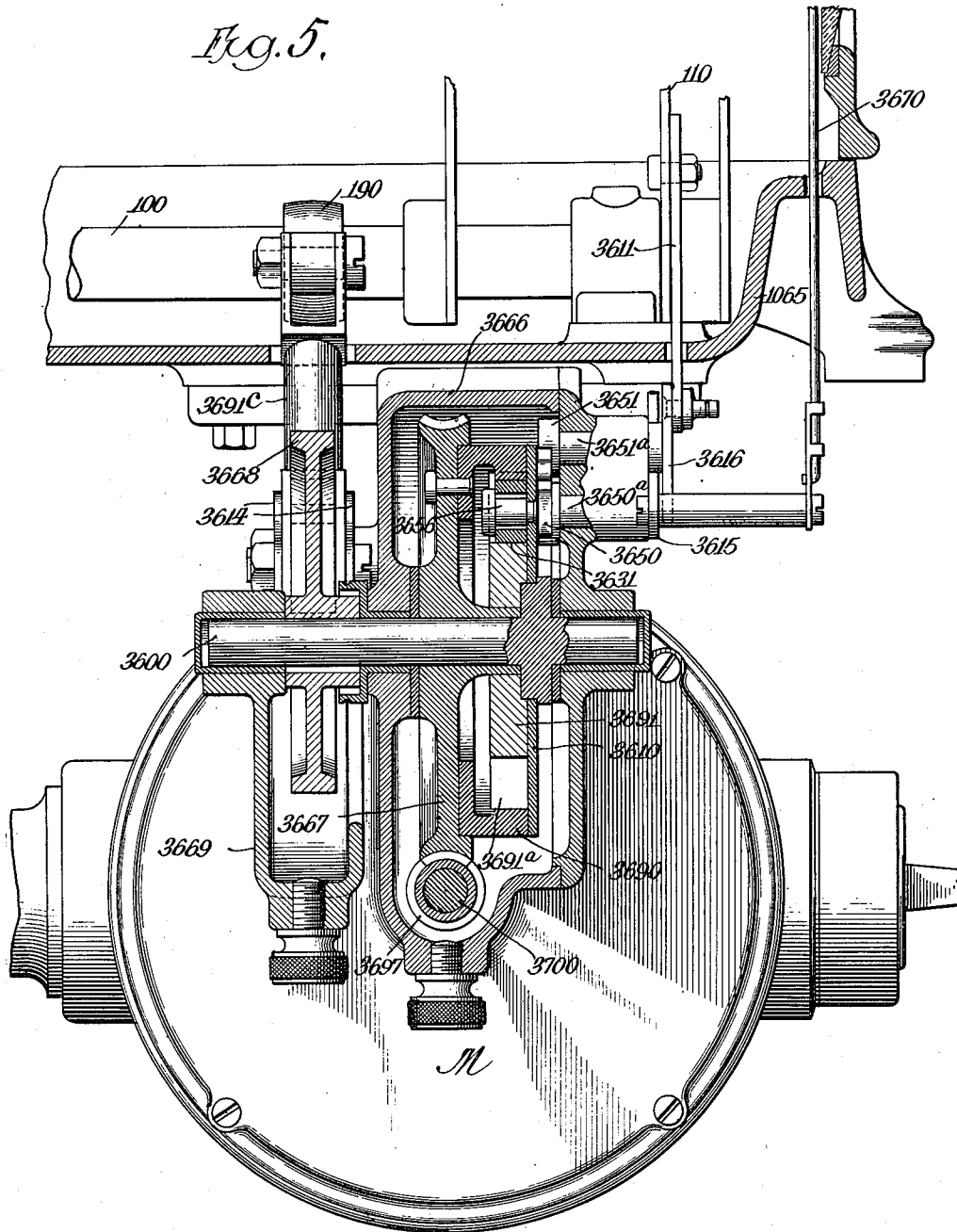
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3 SHEETS—SHEET 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

OSCAR C. KREIS, JR., OF DETROIT, MICHIGAN, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

POWER-DRIVE FOR ADDING-MACHINES.

960,343.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed August 6, 1906. Serial No. 329,388.

To all whom it may concern:

Be it known that I, OSCAR C. KREIS, JR., a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Power-Drives for Adding-Machines, of which the following is a specification.

The object of the present invention is to improve the clutch connections in a power drive for adding machines and the like so as to obviate wear of a character to impair the operations of the clutch, and at the same time to so compensate for wear that the clutch will continue to operate perfectly.

With these and incidental objects in view the invention consists in certain novel features of construction and combinations of parts the essential elements whereof are recited in the appended claims and a preferred form of embodiment of which is described in detail hereinafter and illustrated in the accompanying drawings forming part of this specification.

Of said drawings Figure 1 represents in right side elevation a portion of the base of an adding machine with the present improvement applied thereto, of a gear casing broken away; Figs. 2 and 3 are details of certain detent devices showing different relative positions of the same; Fig. 4 is a view somewhat similar to Fig. 1 but with the base of the adding machine broken away and the clutch mechanism in section from front to rear; and Fig. 5 is a vertical cross section taken on the line 5-5 of Fig. 1 looking in the direction of the arrow crossing said line.

The invention is illustrated in the present instance as applied to an adding machine of the well-known Burroughs type but is not so limited in its application and may be as advantageously employed in other connections.

In the drawings the reference numeral 1065 designates the usual base casting of a Burroughs machine in suitable bearings on which is journaled a rock-shaft 100 for driving the working parts of the machine in a well-known manner, this shaft being turned in one direction by springs 180 connecting crank arms 110 upon it with said base casting. Power is applied to rock the shaft in opposition to these springs through the medium of a crank arm 190 secured to the

shaft, a pitman 3691^c jointed to said crank arm and a rotating cam 3668 acting against a roller 3630 carried at the lower end of said pitman, the latter being coupled to a radius link 3614 pivoted to a casing 3669 which partially incloses said cam. The latter is secured to a shaft 3600 journaled in suitable bearings in said casing and a companion casing 3666, the latter having bearings for an armature shaft 3700 of an electric motor M whose casing is secured to a flange of the casing 3666, the latter being bolted to the base casting 1065. The said armature shaft carries a worm 3697 in mesh with a worm-wheel 3667 loose upon the shaft 3600 and said wheel has secured to one side within the casing 3666 a hardened clutch ring 3690 (Fig. 5). A clutch disk 3691 is secured within said ring to a flange of the shaft 3600 and is formed with a number of tapering recesses 3691^a in its periphery (Fig. 5) with curving base walls 3691^b. Within each of these recesses is contained a strut 3631 semi-circular as to its outer half for contact with the interior of the ring 3690 and rectangular as to its inner half so as to present a straight side 3631^a to the curved base wall of the recess as well as a straight side 3631^b to the end wall of said recess at the deep part thereof. This end wall of the recess is bored to receive a spiral spring 3681 inclosed by a suitable housing 3633 thrust by the spring against the strut to enforce driving engagement between the same and the ring 3690 and the curved base wall of the recess.

The above described character of strut for effecting driving engagement between the clutch members prevents wearing of a cross groove or depression in the base of the recess in the driven member as results when a roller is employed as a connecting medium. It will be seen that the extended flat or straight side of the strut lying in engagement with the base wall of the recess precludes the possibility of any such cross groove or depression being worn in such wall. The curving formation of the latter provides for a slight rocking movement of the strut when thrown into engagement with the driving ring 3690 and it will be obvious that wear of the parts will not in the least impair the clutching action, such wear being effectually compensated for by slight further rocking of the strut. When the

clutch is opened by the action of restraining the strut the latter rights itself by contact with the end wall of the recess.

A circular disk 3610 is loosely mounted upon a flange of the shaft 3600 and carries laterally projecting studs 3656, one for each strut and extending through enlarged apertures thereof as shown in Fig. 5. This disk has an elongated stop plate 3617 secured to its outer side and formed with curved end edges 3617^a and 3617^b adapted to contact respectively with the curved sides of semi-circular detents 3650 and 3651. The latter are formed as portions of the flanged heads of stub shafts 3650^a and 3651^a journaled in suitable bearings of the casing 3666. One of the detents 3650 is manually controlled at the will of the operator of the adding machine and the other is automatically controlled through connection with the working parts of the adding machine. Both act to prevent rotation of the disk 3610 and hence to restrain the springs 3681 in their efforts to thrust the struts into driving engagement with the clutch members. The stub shaft 3650^a carries a crank arm 3615 to which is coupled a rod 3670 designed to be drawn upward by the operator when the clutch is to be closed and the machine operated. A spiral spring 3680 secured to an extension of said crank arm 3615 on the opposite side of its point of connection with the stub shaft exerts itself to hold the detent in the path of the stop plate 3617. This spring is connected with a crank arm 3616 on the other stub shaft 3651^a so that it also tends to interpose the detent 3651 in the path of said stop plate. However, this latter detent is normally held out of such path through the medium of a link 3611 coupled at one end to said crank arm 3616 and slotted at its opposite end as shown at 3611^a to engage a pin 3652^a on the crank arm 100 of the adding machine. This pin or stud by acting against the forward end of the slot holds the detent 3651 in the normal position illustrated in Fig. 2. Upon the elevation of the starting rod 3670 the detent 3650 is disengaged from the stop plate 3617 and the clutch instantly closes and power is applied to drive the adding machine. The resultant rocking of the shaft 100 against the stress of its springs 180 carries the stud 3652^a on the crank arm of such shaft toward the rear end of the slot 3611^a in the link 3611 so that the latter may move rearwardly under the stress of the spring 3680. This results in interposing the detent 3651 in the path of the stop plate 3617 as illustrated in Fig. 3, so that not until the adding machine has completed its cycle of operation can the driving motor be again operatively connected therewith.

It will be seen that the construction above described is well calculated to fulfil the ob-

ject primarily stated but at the same time it is to be understood that the invention is not limited to this particular construction which is susceptible of modification within the scope of the invention.

What is claimed is:

1. In a power drive of the character described, the combination of a continuously rotating driving member, a peripherally recessed driven member, a spring-pressed strut in the recess thereof having a rounded side to engage the driving member and a straight side engaging the base wall of the recess of the driven member, and means for normally restraining the strut against the spring pressure.

2. In a power drive of the character described, the combination of a continuously rotating driving member, a driven member taperingly recessed in its periphery with a curved base wall for the recess, a spring-pressed strut occupying the latter having a straight side to engage the base wall thereof and a rounded side to engage the driving member, and means for normally restraining the strut against spring pressure.

3. In a power drive of the character described, the combination of a continuously rotating driving member, a driven member taperingly recessed in its periphery with a curved base wall for the recess, and a straight end-wall at the deep part thereof, a spring-pressed strut occupying the recess having two straight sides confronting the said straight and curved walls respectively of the recess and a curved side to engage the driving member, and means for normally restraining the strut against spring pressure.

4. In a power drive of the character described, the combination of a continuously rotating driving member, a peripherally recessed driven member, a spring-pressed strut in the recess thereof having a rounded side to engage the driving member and a straight side engaging the base wall of the recess of the driven member, a rotary controlling member loosely mounted on the driven member and engaging the said strut, and a detent for normally restraining the said controlling member.

5. In a power drive of the character described, the combination of a continuously rotating driving member, a driven member taperingly recessed in its periphery with a curved base wall for the recess, a spring-pressed strut occupying the latter having a straight side to engage the base wall thereof and a rounded side to engage the driving member, a rotary controlling member loosely mounted on the driven member and engaging the said strut, and a detent for normally restraining the said controlling member.

6. In a power drive of the character described, the combination of a continuously

rotating driving member, a driven member taperingly recessed in its periphery with a curved base wall for the recess and a straight end-wall at the deep part thereof, a spring-pressed strut occupying the recess having two straight sides confronting the said straight and curved walls respectively of the recess and a curved side to engage the driving member, a rotary controlling member loosely mounted on the driven member and engaging the said strut, and a detent for normally restraining the said controlling member.

7. In a power drive of the character described, the combination of a continuously rotating driving member of annular form, a driven member or disk embraced thereby

and formed in its periphery with tapering recesses having curved base walls, struts occupying said recesses respectively and having curved sides to engage the annular driving member and straight sides engaging the curved base walls of the recesses, springs thrusting said struts from the deep ends of the recesses, a controlling disk loosely mounted on the driven disk and having pins or studs occupying the interiors of the struts, and a detent for normally preventing rotation of the said controlling disk.

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