No. 795,758. PATENTED JULY 25, 1905.

C. E. BROOKS.

MECHANICAL MOVEMENT.

APPLICATION FILED JAN. 27, 1905.

2 SHEETS—SHEET 1.

Fig. 4.

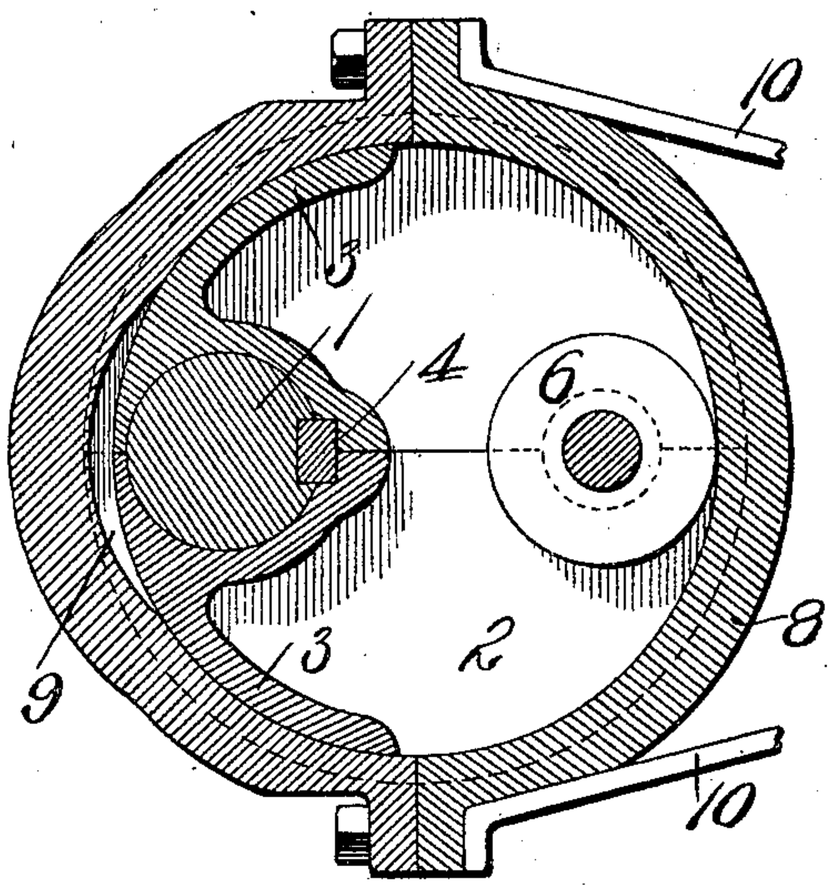



Fig. 3.

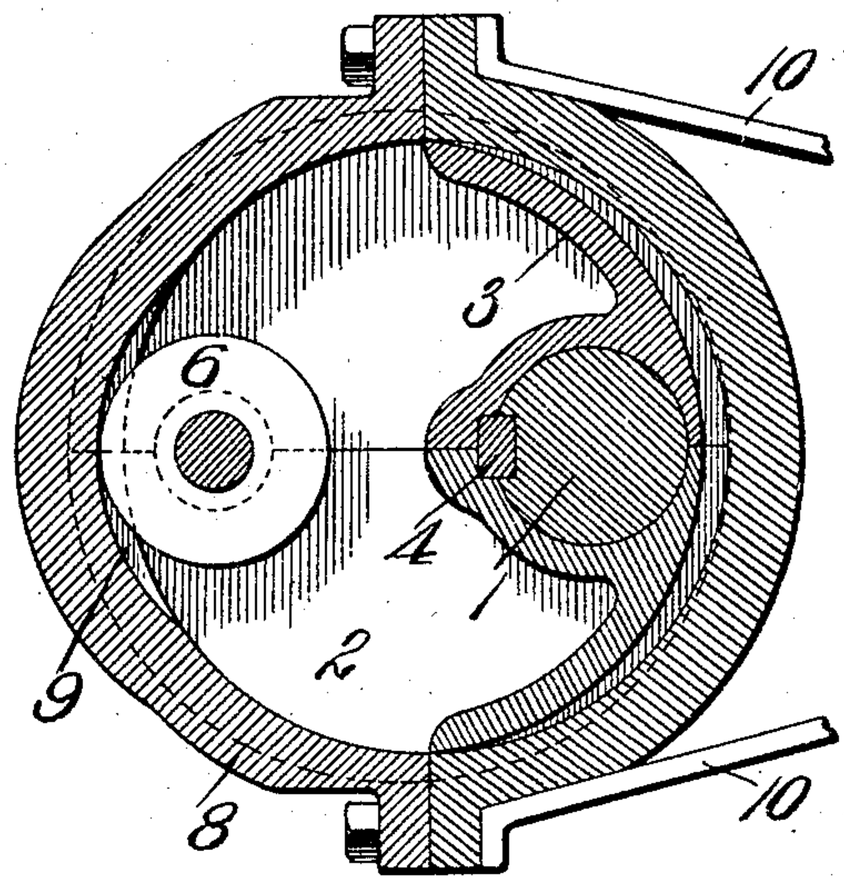



Fig. 1.

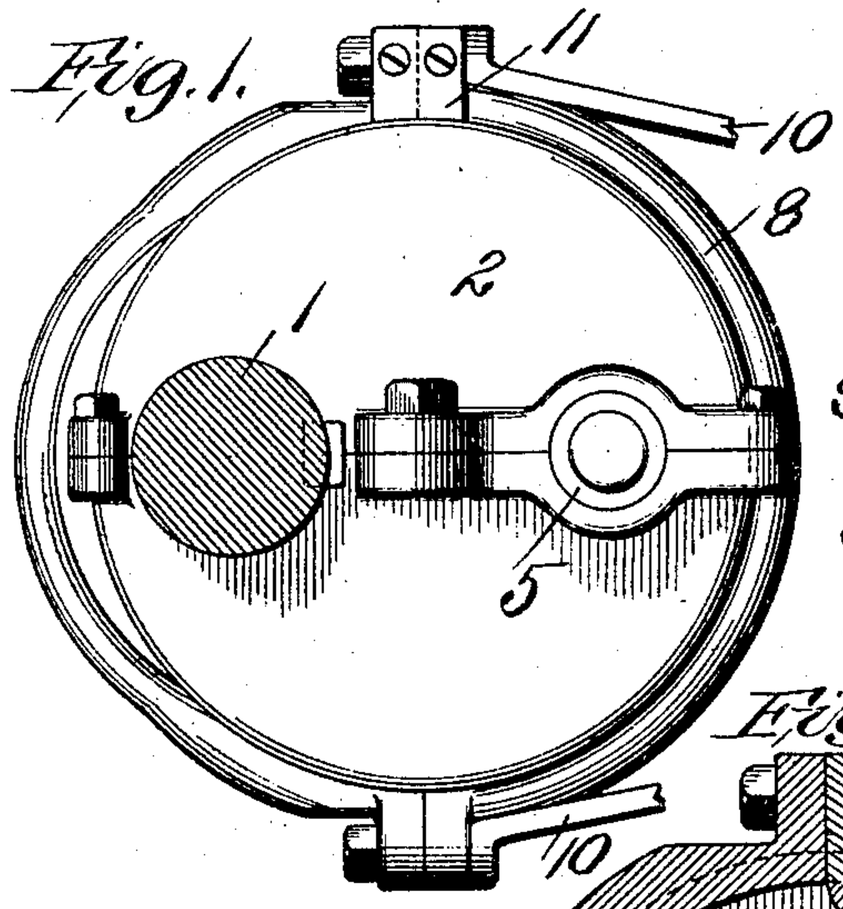



Fig. 2.

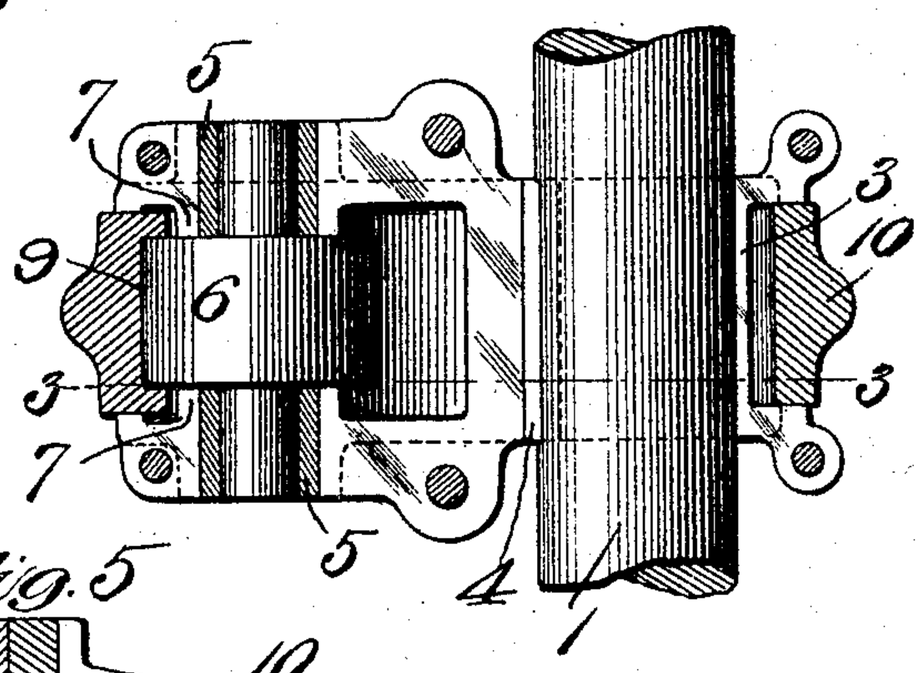
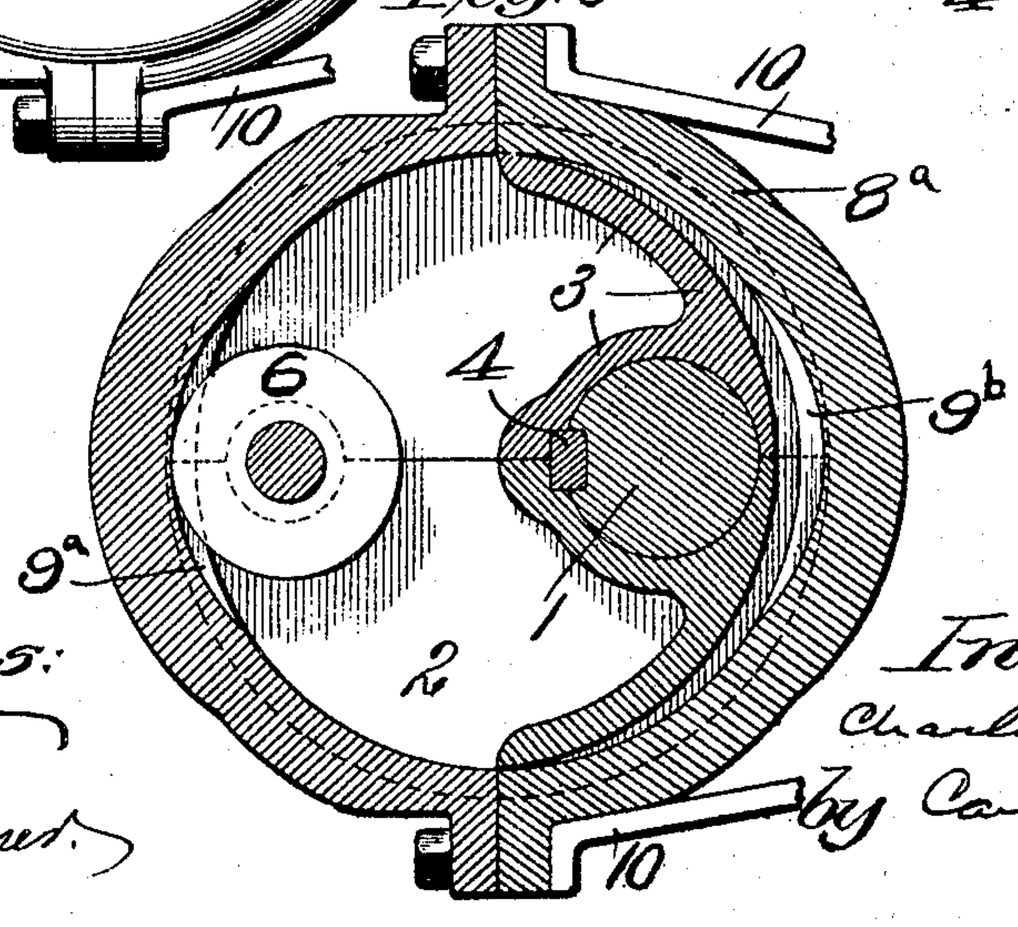



Fig. 5

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MECHANICAL MOVEMENT.

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2 SHEETS—SHEET 2.

Fig. 6.

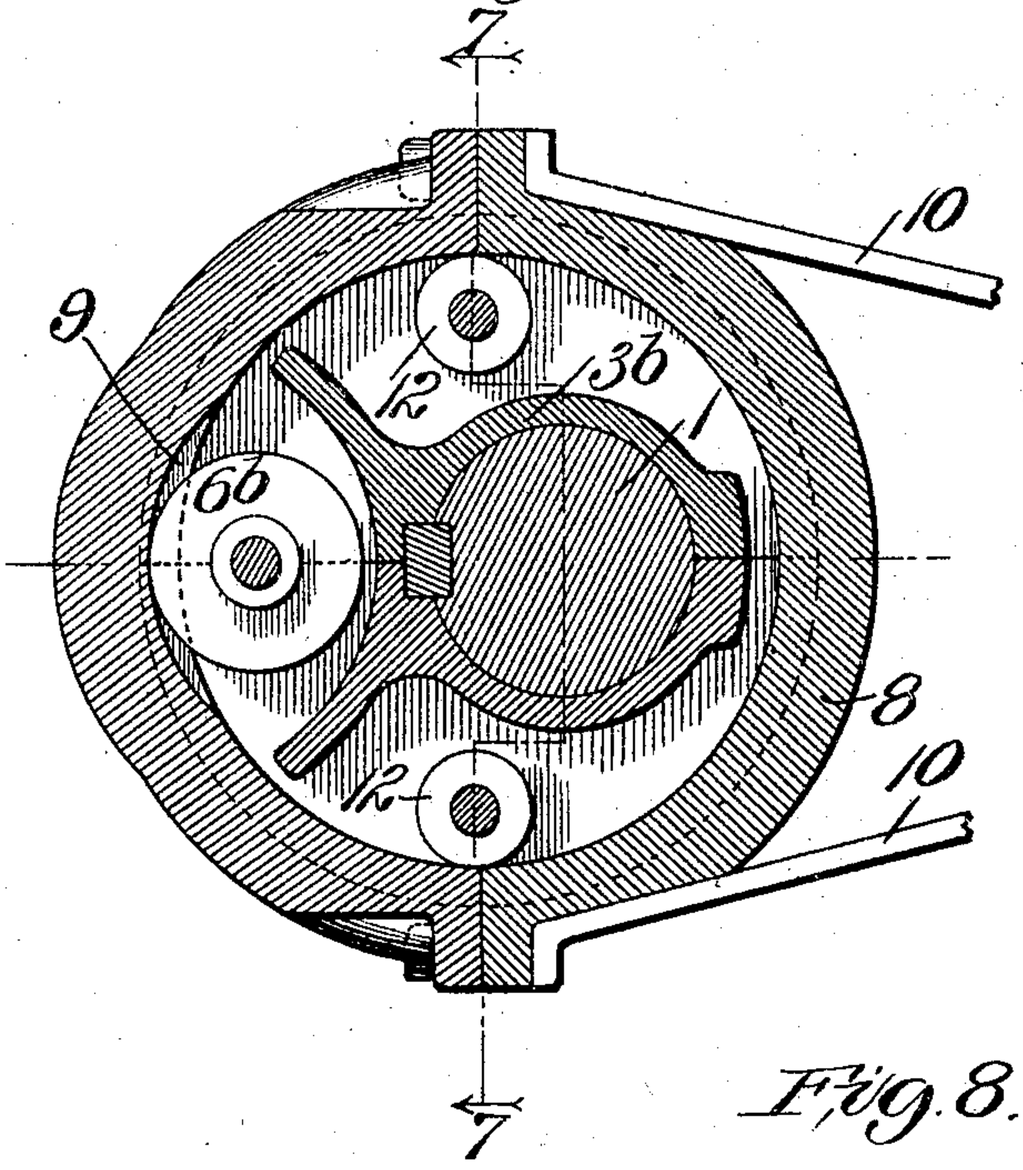



Fig. 7.

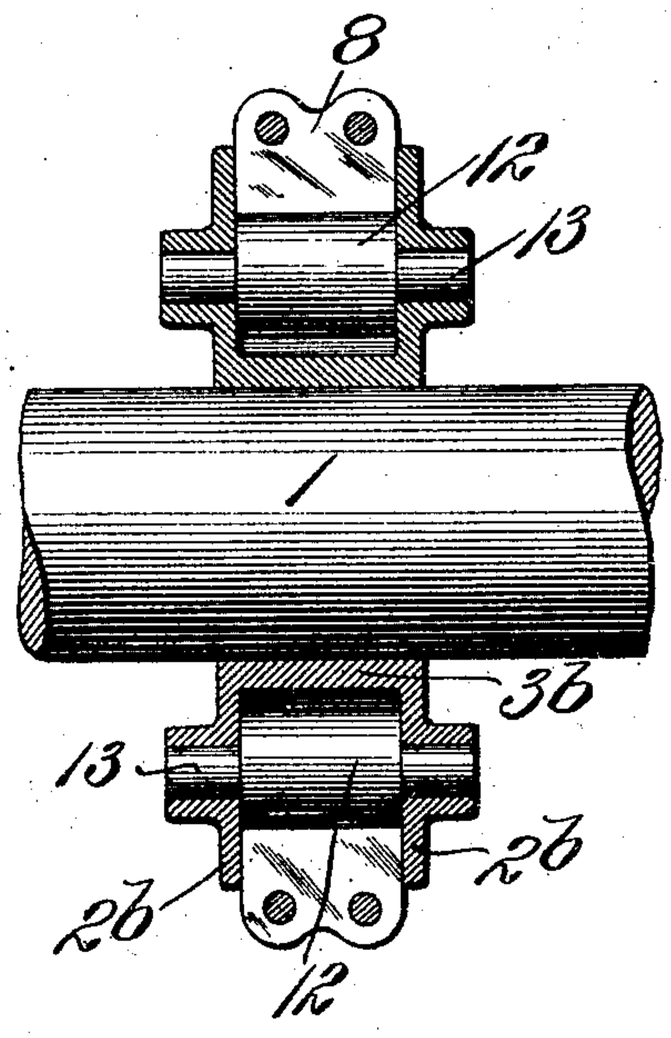



Fig. 8.

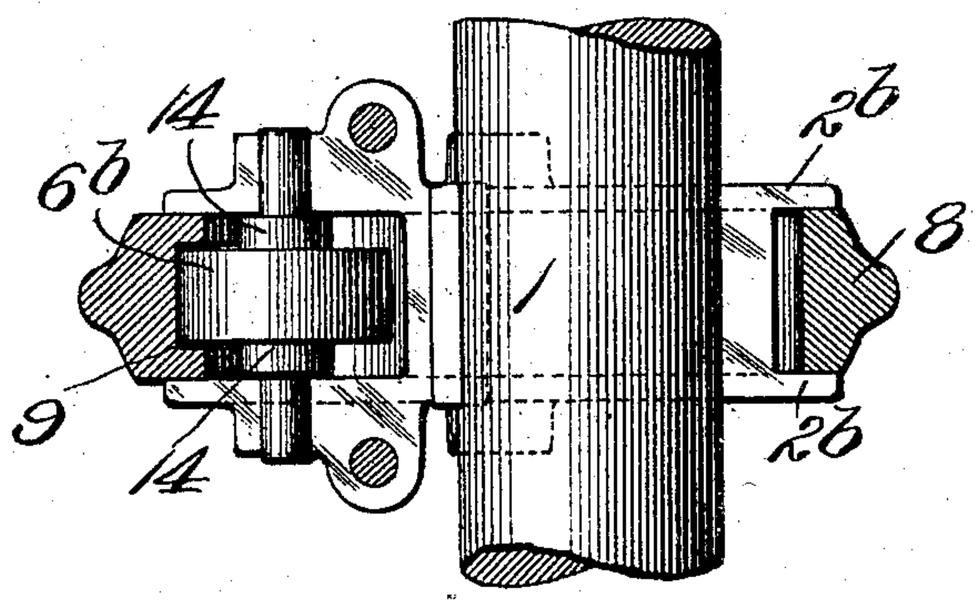
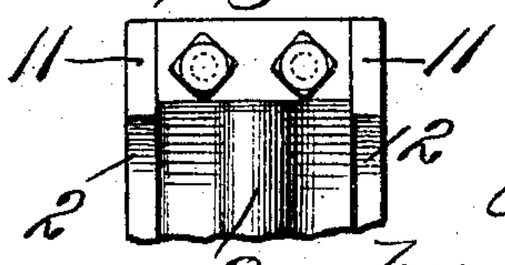



Fig. 9.

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# UNITED STATES PATENT OFFICE.

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## MECHANICAL MOVEMENT.

No. 795,758. Specification of Letters Patent. Patented July 25, 1905.

Application filed January 27, 1905. Serial No. 242,827.

*To all whom it may concern:*

Be it known that I, CHARLES E. BROOKS, a citizen of the United States, and a resident of the city of St. Louis, State of Missouri, have invented a new and useful Improvement in Mechanical Movements, of which the following is a specification.

My invention relates to mechanical movements, and has for its principal objects to transmit an intermittent movement from a continuously-rotating shaft, to transmit from a continuously-rotating shaft a reciprocatory or oscillatory movement having a period of rest, to provide an eccentric transmission having an idle point in its cycle of operations, to provide an eccentric having a discontinuous bearing-surface and an eccentric-strap coöperating therewith having one or more recesses, and other objects hereinafter more fully appearing.

My invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a side view of the eccentric and strap. Fig. 2 is a sectional view taken on the parting-line of the eccentric. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a sectional view similar to Fig. 3, showing the position of the parts after a half-revolution. Fig. 5 is a sectional view similar to Fig. 4, showing an eccentric-strap having two recesses, this construction giving the part actuated two periods of rest during every cycle of operations. Fig. 6 is a sectional view similar to Fig. 4, showing a modified form of eccentric. Fig. 7 is a sectional view on the line 7 7 of Fig. 6, and Fig. 8 is a sectional view taken on the parting-line of the eccentric in Fig. 6. Fig. 9 is a fragmentary elevational view of the upper part of the eccentric and strap, showing the bearing-blocks.

In many machines it is desirable to transmit from a continuously-rotating shaft to a reciprocatory or oscillatory part an intermittent movement—a movement interrupted by a period of rest at one or more points in the path of the part. The invention herein disclosed is designed to meet such requirements.

While the mechanical movement hereinafter described is applicable to a large number of machines, its application to brick-machines and bag-making machines is contemplated.

The preferred form of my invention is shown in Figs. 1 to 4 of the accompanying drawings.

Upon the continuously-rotating shaft 1 an eccentric having a discontinuous bearing-surface is mounted. Said eccentric consists of parallel disks 2, connected at one side by a web 3, integral with them and having an angular extent of a little less than one hundred and eighty degrees. The web 3 is provided with a substantially semicylindrical bearing-surface concentric with the disks. The eccentric is divided into two parts to simplify the assembling of the parts, the parting-line being the diametral line bisecting the web 3 and its cylindrical bearing-surface. The seat for the shaft 1 and a key 4 is formed in the web 3, one-half being in each part of the eccentric. Diametrically opposite the shaft 1 the eccentric is provided with bearings 5 for the journals of a roller 6, one-half of each bearing being in each part of the eccentric. The roller is narrower than the web 3, and hence collars 7, integral with the disks 2, extend inwardly, forming continuations of the bearings 5 and serving to prevent lateral movement of the roller 6. The roller is so located that the outermost line of its surface will lie in a continuation of the bearing-surface of the web 3. Thus the assembled eccentric has a discontinuous bearing-surface comprising the bearing-surface of the web 3, which has an angular extent slightly less than one hundred and eighty degrees, and the portion of the surface of the roller 6 lying in the same cylindrical surface. The disks 2 have a diameter larger than the diameter of the bearing-surface.

Surrounding the eccentric is an eccentric-strap 8, made in two parts. It is provided with an internal cylindrical bearing-surface fitting the bearing-surface of the eccentric. The strap rests between the disks 2 of the eccentric and is held by them against lateral movement. At one point the eccentric-strap is provided with a recess 9. This recess is not so wide as the strap, but is just wide enough to receive the roller 6. Its bearing-surface conforms to the path of the line of contact of the bearing-surface of the roller. The members 10 of a skeleton pitman are secured to the eccentric-strap and extend to the mechanism to be actuated.

In Fig. 3 the strap is in its extreme right position. The strap will be moved toward the left upon rotation of the shaft, just as in an ordinary eccentric and strap, until the roller 6 enters the recess 9. From this time until the roller emerges from the recess the strap will cease to move toward the left because the wall of the recess conforms to the path of the bearing-line of the roller with respect to the strap, and hence it is not necessary to move the strap out of its path. After the roller emerges from the recess the mechanism again behaves as an ordinary eccentric. Although the eccentric does not throw the eccentric-strap during the time the roller is in the recess, the roller is continuously in contact with the bearing-wall of the recess. Thus any possible movement of the strap to the right is prevented. Such movement might occur if the recess were made so deep that the rollers would not engage the bottom thereof. The construction shown is preferred, although the device would be operative with a recess such as that last mentioned, because it provides a most satisfactory means for holding the part actuated during its period of rest. If the part actuated is so constructed as to resist the movement produced by the eccentric during the portion of its throw on the side of the recess, then there will be no tendency to move farther to the left. The engagement of the roller with the bottom or bearing-surface of the recess will prevent movement to the right.

During the time the roller 6 is in the recess 9 the web 3 has a slight movement of translation as well as rotation with respect to the eccentric, as indicated in Fig. 4. It is to permit this movement that it is necessary to give the web and its bearing-surface an angular extent less than one hundred and eighty degrees. The latter is so proportioned that when the roller is in the deepest part of the recess the ends of the bearing-surface of the web 3 will lie in the vertical diametral line of the eccentric-strap. A slight vertical movement of the eccentric-strap could occur during this time, as the cord connecting the ends of the bearing-surface of the web 3 is obviously shorter than the diameter of the bearing-surface of the eccentric-strap. To prevent such motion, bearing-blocks 11 are secured to the sides of the eccentric-strap in position to bear upon the edges of the disks 2 of the eccentric.

If it is desired to stop the movement of the part actuated more than once during the rotation of the shaft, it is only necessary to provide an eccentric-strap having as many recesses as there are to be periods of rest. In Fig. 5 an eccentric-strap $8^a$ is shown having a recess $9^a$, like the recess 9 in the strap 8, (shown in Figs. 3 and 4,) and a recess $9^b$, diametrically opposite the first-mentioned recess. Such an arrangement will cause a period of rest at each extremity of the path of the part actuated. The same object could obviously be accomplished by the use of two or more rollers 6 instead of using a plurality of recesses.

If the period of rest is to occur at other points in the path of the part actuated, the recesses will be located in different angular positions. The duration of the period of rest will be determined by the angular extent of the recess. It may also be noted that this construction may be used to secure a reduction of speed instead of a stop if the recess be made shallower.

A modified form of eccentric is shown in Figs. 6 to 8. The eccentric-strap used with this form is the same as that shown in Figs. 1 to 4.

The modified eccentric consists of disks $2^b$, connected by a web $3^b$ and secured to the shaft 1. The web in this case provides seats for the shaft and key 4, but has only a very limited bearing-surface. The bearing-surface of the eccentric is made up of the bearing-surface of the web $3^b$ and the outermost lines of rollers 12 12 and a roller $6^b$. The rollers 12 12 are as long as the bearing-surface of the eccentric-strap is wide and are journaled on pins 13, secured in the disks $2^b$. Hence they cannot enter the recess 9, but will span it. On the other hand, the roller $6^b$ is narrow enough to enter the recess. The roller $6^b$ differs from the roller 6 of the preferred form of the eccentric only in having spacing-sections 14 of larger diameter than the journals to properly space the roller and prevent lateral movement thereof. The operation of this eccentric is obviously the same as that of the preferred form of eccentric.

Obviously my device is capable of considerable modification within the scope of my invention, and therefore I do not wish to be limited to the specific construction shown and described. It is obvious that the discontinuous bearing-surface could be given the eccentric-strap instead of the eccentric and the roller put upon the eccentric-strap. This would amount only to a reversal of the arrangement shown.

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

1. A mechanical movement comprising an eccentric and an eccentric-strap having a recess forming an idle point.

2. A mechanical movement comprising an eccentric having a discontinuous circular bearing-surface, and an eccentric-strap having a recess forming an idle point.

3. A mechanical movement comprising an eccentric having a discontinuous circular bearing-surface and an eccentric-strap having a recess arranged to receive a part of said eccentric.

4. A mechanical movement comprising an eccentric having a discontinuous circular bear-

ing-surface and an eccentric-strap having a recess provided with a bearing-wall conforming to the path of a part of the bearing-surface of said eccentric with respect to said strap.

5. A mechanical movement comprising an eccentric having a discontinuous circular bearing-surface, one portion of said bearing-surface having a smaller angular extent than the remainder thereof, and an eccentric-strap having a recess the angular extent of which is greater than the angular extent of said smaller portion of the bearing-surface of said eccentric.

6. A mechanical movement comprising an eccentric having a discontinuous bearing-surface, one portion of said bearing-surface being narrower than the remainder thereof, and an eccentric-strap having a recess the width of which is less than the width of the strap.

7. A mechanical movement comprising an eccentric having a substantially semicylindrical bearing-surface and a roller a portion of the periphery of which lies in a continuation of said semicylindrical bearing-surface and forms a part of the bearing-surface of the eccentric, and an eccentric-strap having a recess arranged to receive said roller.

8. A mechanical movement comprising a shaft, a member eccentrically mounted on said shaft, and a member surrounding said first-mentioned member and bearing upon the periphery thereof, one of said members having a discontinuous bearing-surface comprising segments of a surface of revolution, and the other of said members having a bearing-surface comprising a surface of revolution interrupted by a surface shaped to form an idle point.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of January, 1905, at St. Louis, Missouri.

CHAS. E. BROOKS.

Witnesses:

FRED F. REISNER,

J. B. MEGOWN.