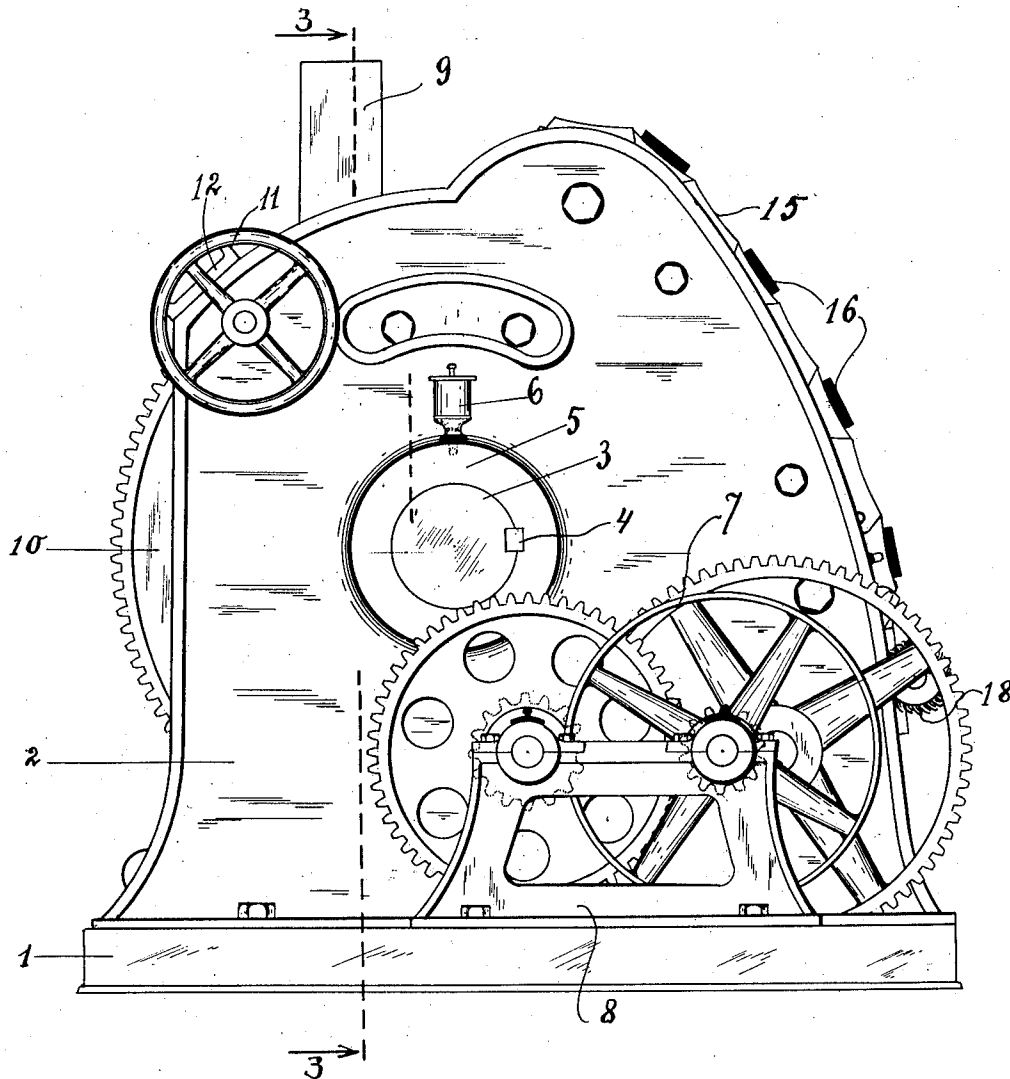


1,345,208.

W. MAJEWSKI.
ROTARY COMPRESSION MACHINE.
APPLICATION FILED OCT. 22, 1919.

Patented June 29, 1920.
4 SHEETS—SHEET 1.

Fig. 1.



INVENTOR.
W. Majewski
BY
Frank L. Hermann
ATTORNEYS.

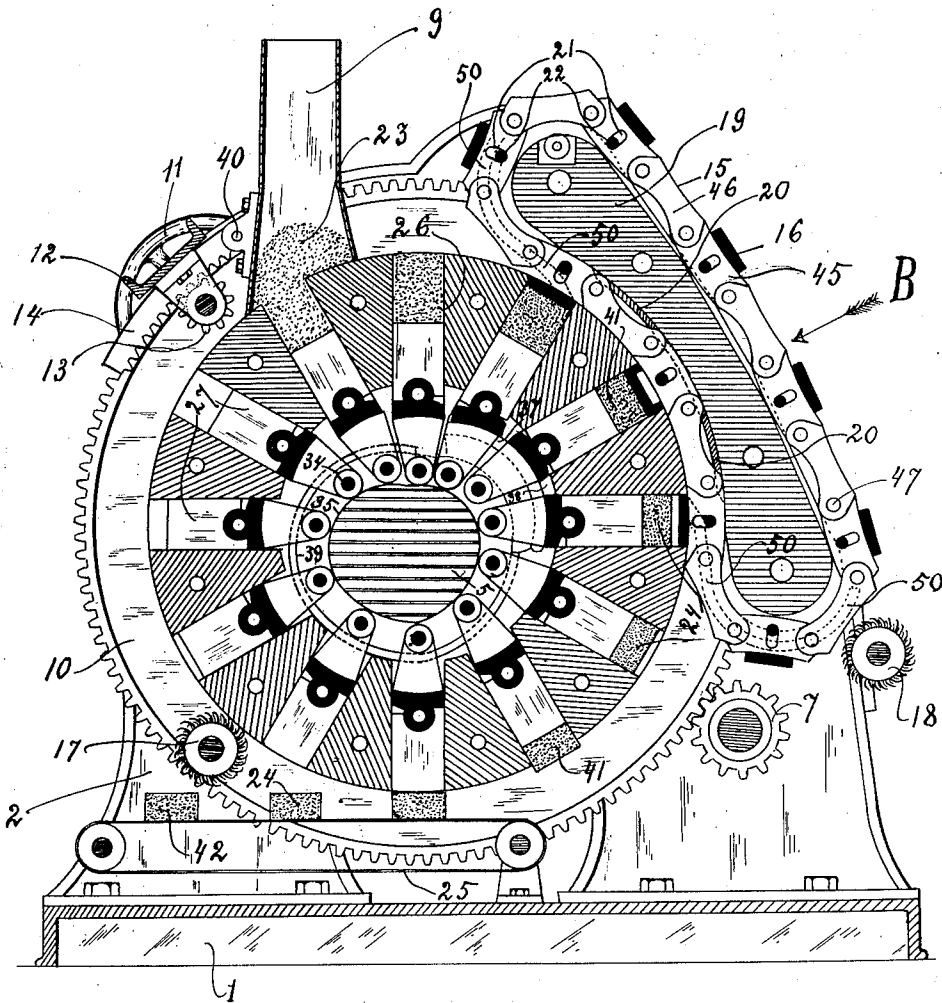
W. MAJEWSKI.
 ROTARY COMPRESSION MACHINE.
 APPLICATION FILED OCT. 22, 1919.

1,345,208.

Patented June 29, 1920.

4 SHEETS—SHEET 2.

Fig. 2.



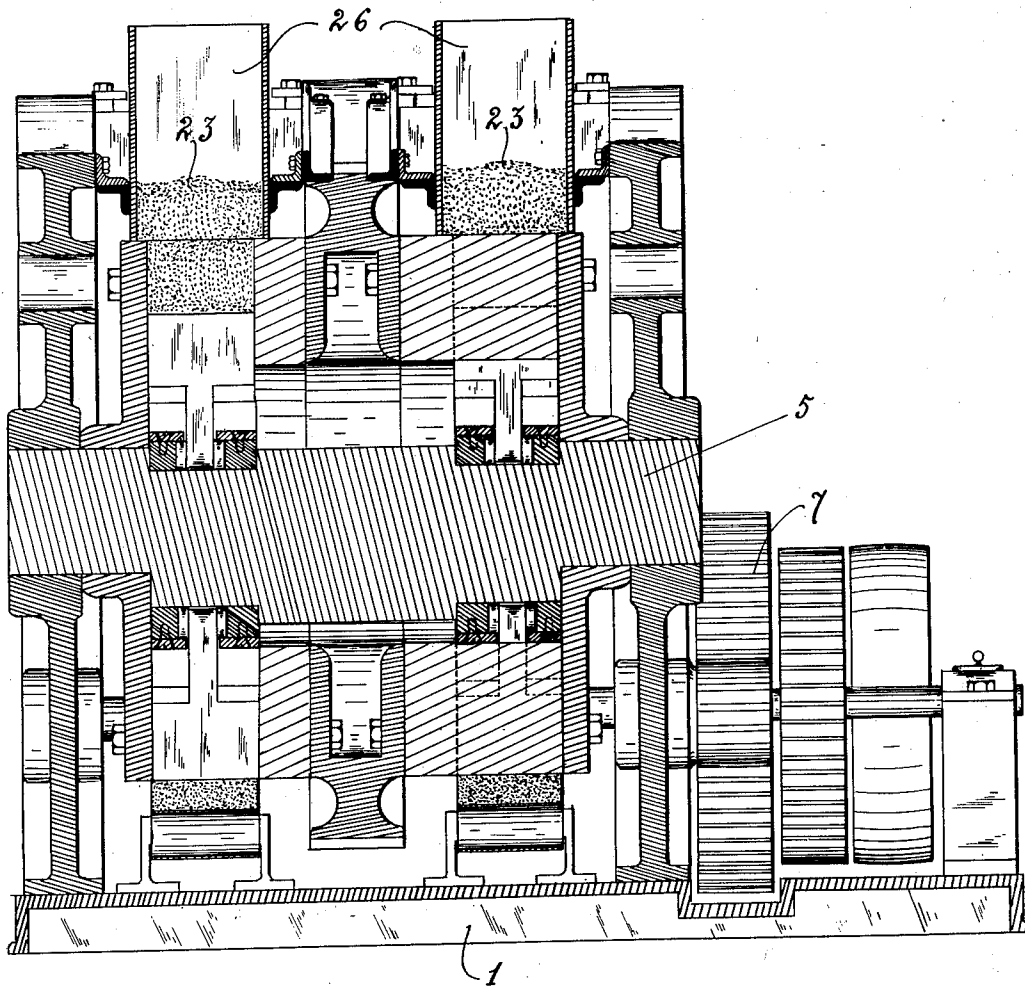
INVENTOR.
W. Majewski
 BY
Frank Ledermann
 ATTORNEYS.

W. MAJEWSKI.
ROTARY COMPRESSION MACHINE.
APPLICATION FILED OCT. 22, 1919.

1,345,208.

Patented June 29, 1920.
4 SHEETS—SHEET 3.

Fig. 3.



INVENTOR.
W. Majewski
BY *Frank Ledermann*
ATTORNEYS.

W. MAJEWSKI.
 ROTARY COMPRESSION MACHINE.
 APPLICATION FILED OCT. 22, 1919.

1,345,208.

Patented June 29, 1920.

4 SHEETS—SHEET 4.

Fig. 4.

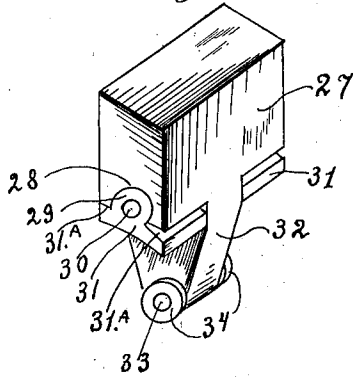


Fig. 7.

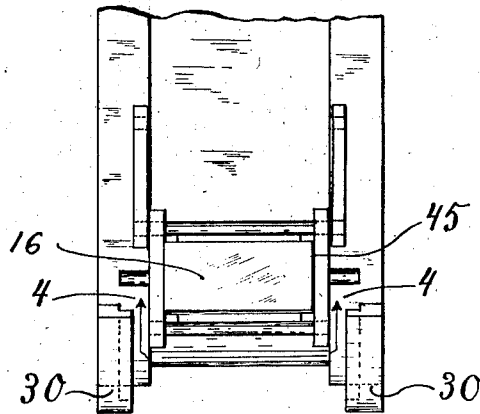


Fig. 5.

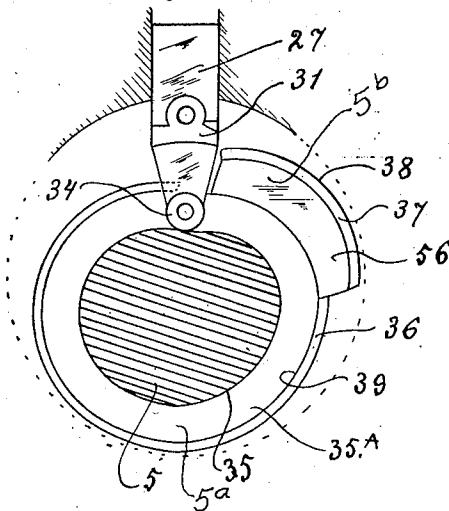


Fig. 8.

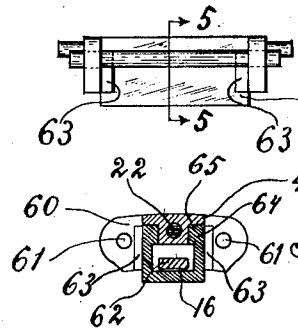


Fig. 9.

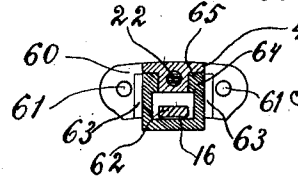


Fig. 10.

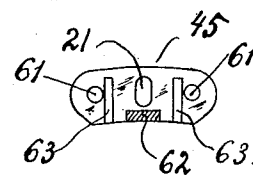


Fig. 11.

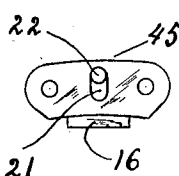
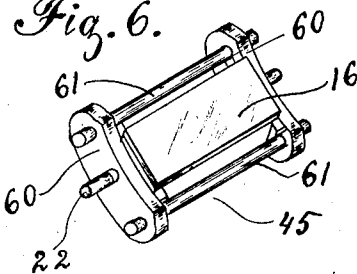


Fig. 6.



INVENTOR.
 W. Majewski
 BY
 Frank Ledermann
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

WLADYSLAW MAJEWSKI, OF NEW YORK, N. Y.

ROTARY COMPRESSION-MACHINE.

1,345,208.

Specification of Letters Patent. Patented June 29, 1920.

Application filed October 22, 1919. Serial No. 332,392.

To all whom it may concern:

Be it known that I, WLADYSLAW MAJEWSKI, citizen of Poland, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rotary Compression-Machines, of which the following is a specification.

This invention relates to machines for the compression of plastic materials into bricks, briquets, and the like, of the type comprising a rotary drum having chambers radially spaced apart into which charges of plastic material are successively introduced, radially reciprocated plungers in said chambers actuated by a central cam or cams, and an abutment between which and the said plungers the charges are compressed, said compressed charges being ultimately expelled onto a traveling belt or conveyor.

The object of this invention is to effect improvements in this type of machine, which will become apparent in the description below when taken together with the accompanying drawings, in which characters of reference refer to like-named parts in the drawings.

Referring briefly to the drawings, Figure 1 represents a front elevational view of my machine.

Fig. 2 is a vertical sectional view transverse to the axis of the machine.

Fig. 3 is a sectional view taken substantially on the lines 3—3 of Fig. 1.

Fig. 4 is a perspective view of the plunger of my device, showing my improved rocker and roller construction.

Fig. 5 is a diagrammatic view of the main cam and a plunger.

Fig. 6 is a perspective view of a chain plate member.

Fig. 7 is a view as seen when looking in the direction of the arrow B, Fig. 2.

Fig. 8 is a cross-sectional view of the same, taken on the line 4—4 of Fig. 7.

Fig. 9 is a cross-sectional view on the line 5—5 of Fig. 8.

Fig. 10 is an interior elevational view of one of the end members 60 of the chain plate.

Fig. 11 is an exterior elevational view of the member 45.

Referring now in detail to the drawings, the numeral 1 represents the base of my machine, upon which is mounted the frame 2

thereof. A shaft 3 is mounted in said frame and carries a cam 5, later to be described, keyed thereon at 4. An oiler for said shaft is shown at 6, and a series of power gears is indicated generally at 7, the same being employed to rotate the machinery. These gears are shown mounted upon a sub-frame 8 on the main base 1; of course any suitable driving mechanism may be substituted for that shown without altering the spirit of my invention.

A hopper leading from the plastic material about to be pressed into bricks is indicated at 9, and the large drum containing the compression chambers is shown at 10. It is at times desirable to vary the quantity of plastic material to be allowed to enter the said chambers, and for this purpose I have provided a mechanism for moving said hopper along the periphery of said drum, since the quantity of material which will enter the chambers will be proportional to the position of said hopper; that is, for instance, more material will enter the chambers when the hopper is at the left, and proportionately less will enter when the hopper is at the right. This mechanism constitutes a hand wheel 11 rotatably mounted in the frame 2 and having a gear 13 engaging a toothed sector 14 slidable along the frame 2, and a shoe-like member 12 rigid to said frame having surface contact with the smooth periphery of said sector. It is apparent in Fig. 2 that by motion of the wheel 11, the hopper 9 may be moved at will to the right or left; said hopper is pivotally attached to said sector at 40.

The drum 10 is provided with a plurality of radial compression chambers 26. The core of said drum 2 is hollow to permit the use of the cam 5 therein. Said cam comprises a double friction surface, the one being indicated at 36, being an exterior cam surface, and the other indicated at 39 being an interior cam surface. The latter constitutes the inner surface of a metal band 36 upon the extension 5^a of the cam 5. Said band is broken as indicated through a part of its periphery, for reasons which will presently become obvious, and is continued on the extension 5^b of the part 5^a, at 37, the outer surface 38 thereof constituting an exterior cam surface.

A plunger 27 is slidably mounted in each of said chambers 26, and is constructed as

shown in Fig. 4. It comprises a main or compression member indicated at 27, and is carved out at its bottom on either side to provide a semi-cylindrical bearing 28 for the reception of a similar drum or shaft 29. A member 31 having a curved upper surface, is rigid to said shaft 29. A hole 30 is provided through said shaft member 29, through which a pin passes from the body of the plunger 27 so as to prevent removal of said shaft member. As seen in Fig. 4, a midrib in the form of a tapered neck 32 extends from the body of the plunger 27, and is provided at the bottom with rollers 34 on a shaft 33. The aforementioned semi-cylindrical groove 28, and the corresponding shaft 29, and the member 31 rigid to said shaft, are provided on each side of said extension 32; this construction is apparent in Fig. 4.

The operation of the machine is as follows: The cam 5 is stationary, and the drum 2 is rotated by the gear 7 (Fig. 2). Thus the chambers 26 pass successively under the mouth of the hopper 9, where they receive plastic material. After taking in this material, the chamber continues until a plate 16 of the chain 15, which just covers the top of said chamber, is in position to cover this chamber. By a construction which will presently be described, this plate 16 is made to ride upon a cam 20 which advances the plate inwardly toward the plunger. At the same time the rollers 34 of the plunger, and consequently the plunger itself, are raised by the cam surface 35. Just before the plate 16 covers the chamber, the member 31 of the plunger is caught by the surface 38 of the band 37, and raised thereby, the plate 16 at the same time moving toward the plunger. Thus the plastic material is being compressed from both sides. It is apparent that there is no frictional sliding contact between the member 31 and the plunger body 27, as there is only rolling friction between these parts owing to the shaft 29 and the curved surface 31^a rolling respectively in the groove 28 and on the bottom of the body 27. The member 31 slides over the surface 38. Since the latter is the only part, therefore, of the plunger which is subject to serious wear, it may at will be removed and replaced by a new member 31 should it at any time be sufficiently worn, and thereby it is obvious that the life of the plunger 27 is unimpaired by continuous operation of the machine.

After the brick has been compressed, the chamber moves on, and the rollers 34 are again caught by the surface 39, the member 31 having passed off from the surface 38. The rollers 34 thereupon engage the surface 39, the latter preventing the rollers and plungers from falling from the chambers. The bricks 41 then fall out of the chambers and upon the belt 42, which carries them out

to a proper point. Thereupon the plungers are drawn in toward the center by action of the surface 39 on the rollers 34.

As apparent in Fig. 2, the chain 15 comprises a number of links 45 and 46 attached alternately, the latter being mere link members and the former carrying the compression plates 16. These members contain lateral slots 21, in which slide pins 22 which are rigid to the plates 16. Thus are these plates guided in these slots by these pins when they are raised by the cam 20, and when they are lowered by disengagement from said cam.

The details of construction of one of the plate-member links will now be described. Two oppositely disposed end members, which are slightly curved, are tied together first by tie rods 61, which also act as pins for pivoting each member of its neighboring link member in the chain 15. A flat panel 62, in the lower central part of the member 45, Figs. 9, 10, also connects the opposite members 60. Guide members, comprising ridges of material 63, are secured as shown to the interior of each of the members 60, for the purpose which will presently become apparent. The compression plate 16 comprises the lower part of a member 64, of substantially U-shaped cross-section, which bridges the distance between opposite members 60 and is guided by the guides 63 to prevent its falling therefrom and also to limit it to vertical motion (that is, vertical motion as shown in the Figs. 8-11, inc.) A top member 65 fits upon the arms of the U of the member 64 so as to close the U. This member holds the pin 22, and it is securely attached to said U member. Now it is apparent that the plate compression member 16 may be moved vertically between the opposite end members 60. This motion is caused by the cam 20, which forces the member 16 toward the plastic material in the chamber 26 (Fig. 2) and the reverse motion is caused by the hook-like band members 50, which engage the ends of the pin 22 after the member 45 has left said cam, the said member 50 also behaving as a cam in forcing the member 16 in the reverse direction. Brushes 17 and 18 are suitably located to brush clean the plungers 27 and the plates 16, respectively, and are suitably geared to the mechanism to be driven thereby.

Having thus described my invention, what I claim and desire to secure by Letters Patent is as follows:

1. In a device of the class described, a drum having radial compression chambers and reciprocating plungers therein, an inner cam, an outer cam, plungers having means engaging said cams, a chain mounted to be moved in unison with said drum, said chain having links having compression plate members adapted to successively pass

over the open ends of said chambers, said plate members being adapted to move vertically of said links, said chain mounted movably upon a bearing, said bearing having a cam thereon for moving said plate members toward said chambers when the former are about to cover the ends of the latter.

2. In a device of the class described, a drum having radial compression chambers, and reciprocating plungers therein, an inner cam, an outer cam, plungers having means engaging said cams, a chain mounted to be moved in unison with said drum and composed of links having compression plate members adapted to successively cover the open ends of said chambers, said plate members being adapted to move reciprocally and vertically of said links, said chain mounted upon a bearing, said bearing having a cam thereon for moving said plate members toward said chambers when the former are about to cover the ends of the latter, and additional cam means for moving said plate members back after the same leave the ends of said chambers.

3. In a device of the class described, a drum having radial chambers and reciprocating plungers therein, an inner cam, an outer cam, said plungers having means engaging said cams, a chain mounted to be moved in unison with said drum and composed of links having compression plate members adapted to successively cover the open ends of said chambers, said plate members adapted to move reciprocally vertically of said links, a bearing, said chain mounted on said bearing, cams thereon for imparting reciprocal vertical motion to said plate members respective of said links and adjustable feed means for said chamber comprising a hopper having an inclined outlet having peripheral contact with said drum, and means for moving said hopper along the periphery of said drum so as to vary the amount of material passing from said hopper to said drum.

4. In a device of the class described, a drum having radial chambers and reciprocating plungers therein, cams, said plungers having means engaging said cams, said cams comprising a central cam having a flange extending therefrom, said flange having a band extending along part of the periphery thereof, that part of said periphery along which said band does not extend having an extension thereon the end thereof being curved and having an inwardly extending band upon its edge.

5. In a device of the class described, a drum having radial chambers and reciprocating plungers therein, cams, said plungers engaging said cams, a chain mounted to move in unison with the periphery of said drum, said chain having links having compression plates thereon, and comprising curved side members, rods and a panel connecting said side members, a substantially U-shaped member and a cover therefor surrounding said panel and adapted to move vertically reciprocally, guide members for said U-shaped member on the interior of said side members, a pin passing through the cover for said U-shaped member, vertical slots in said side members adapted to receive the ends of said pin, and rods for pivoting each of said link members to its neighbors.

6. In a device of the class described, a drum having radial compression chambers and reciprocating plungers therein, said plungers comprising a body portion, a tapered neck portion depending therefrom, a pin through the end of said neck portion, rollers mounted on the ends of said pins, a semi-cylindrical groove in the underside of said body portion, a shaft engaging said groove and rigid to a friction-surfaced member, the said member having a concavely curved under surface and a convexedly curved upper surface.

In testimony whereof I affix my signature.

WLADYSLAW MAJEWSKI.