

# Letters Patent.

Reference 1188

Country **GT. BRITAIN.**

Number 938,675.

Date 3rd September 1962.

Patentee **AUTOSET (PRODUCTION) LIMITED.**

*Discontinued as from Aug 69*

Invention **IMPROVEMENTS RELATING TO LOAD BEARING**

**BALLS SUCH AS BALL-CASTORS.**

Patent  
No. 938675



 Elizabeth the Second by the Grace of God of the United Kingdom of Great Britain and Northern Ireland and of Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith: To all to whom these presents shall come greeting:

WHEREAS Autoset (Production) Limited, a British Company, of 72-77 Stour Street, Birmingham 18.

(hereinafter referred to as the said applicants) have prayed that a patent may be granted unto them for the sole use and advantage of an invention for Improvements relating to load bearing balls such as ball-castors:

AND WHEREAS the said applicants (hereinafter together with their successors, and assigns, or any of them referred to as the patentees) have declared that there is no lawful ground of objection to the grant of a patent unto them:

AND WHEREAS the complete specification has particularly described the invention:

AND WHEREAS We, being willing to encourage all inventions which may be for the public good, are graciously pleased to condescend to their request:

KNOW YE, THEREFORE, that We, of our especial grace, certain knowledge, and mere motion do by these presents, for Us, our heirs and successors, give and grant unto the said patentees our especial licence, full power, sole privilege, and authority, that the said patentees by themselves, their agents, or licensees, and no others, may subject to the conditions and provisions prescribed by any statute or order for the time being in force at all times hereafter during the term of years herein mentioned, make, use, exercise and vend the said invention within our United Kingdom of Great Britain and Northern Ireland, and the Isle of Man, and that the said patentees shall have and enjoy the whole profit and advantage from time to time accruing by reason of the said invention during the term of sixteen years from the date hereunder written of these presents: AND to the end that the said patentees may have and enjoy the sole use and exercise and the full benefit of the said invention, We do by these presents for Us, our heirs and successors, strictly command all our subjects whatsoever within our United Kingdom of Great Britain and Northern Ireland, and the Isle of Man, that they do not at any time during the continuance of the said term either directly or indirectly make use of or put in practice the said invention, nor in anywise imitate the same, without the consent, licence or agreement of the said patentees in writing under their hands and seals, on pain of incurring such penalties as may be justly inflicted on such offenders for their contempt of this our Royal command, and of being answerable to the patentees according to law for their damages thereby occasioned:

PROVIDED ALWAYS that these letters patent shall be revocable on any of the grounds from time to time by law prescribed as grounds for revoking letters patent granted by Us, and the same may be revoked and made void accordingly:

PROVIDED ALSO that nothing herein contained shall prevent the granting of licences in such manner and for such considerations as they may by law be granted: AND lastly, We do by these presents for Us, our heirs and successors, grant unto the said patentees that these our letters patent shall be construed in the most beneficial sense for the advantage of the said patentees.

IN WITNESS whereof We have caused these our letters to be made patent as of the third day of September one thousand nine hundred and sixty-two and to be sealed.

*London Grand*

# PATENT SPECIFICATION

DRAWINGS ATTACHED

Inventor: CLAUDE MORTIMER TOWNSEND

938.675

Date of filing Complete Specification Sept. 3, 1962.

Application Date Nov. 24, 1961.

No. 42037/61.

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index at acceptance:—Classes 52(1), D(2:4); and 12(1), A4.

International Classification:—A47b (F06c).

## COMPLETE SPECIFICATION

### Improvements relating to Load Bearing Balls such as Ball-castors

We, AUTOSSET (PRODUCTION) LIMITED, a British Company, of 72-77, Stour Street, Birmingham, 18, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to load-bearing balls: to avoid confusion, these will hereinafter be called "ball-castors". The invention is concerned with ball-castors of the kind comprising a main or ground or other surface engaging ball which seats on a bed of smaller diameter or load transmitting balls which are free to circulate in an endless track provided in a housing having a mouth from which the main ball projects: Our prior Letters Patent No. 856745 describes and claims ball-castors of this kind.

It is customary to provide a seal or scraper about the main ball to prevent foreign matter gaining ingress to the track, and the object of this invention is to provide an improved scraper for this purpose.

In accordance with the said invention a ball castor of the kind referred to is provided with an annular scraper which contacts the main ball on a small circle disposed adjacent the mouth of the housing, said scraper being held in position by resilient means.

Preferably the scraper is urged into contact with the main ball by resilient means trapped between a shoulder of the housing and the periphery of the scraper, and sealing means may be provided to prevent foreign matter finding ingress to the housing around the outer periphery of the scraper.

Two embodiments of the invention are particularly described with reference to the accompanying drawings, wherein:—

Figure 1 is an underside plan of one ball castor;

Figure 2 is a part-sectional elevation thereof;

Figure 3 is a view similar to Figure 1 of a second ball castor and

Figure 4 is a view similar to Figure 2 but showing the second castor.

The castor shown in Figures 1 and 2 comprises a cup-like housing 10 provided with a fixed partition 11 which forms an inner wall of an endless track for circulating load-transmitting balls 12, the outer wall of this track being formed by the inside face 13 of the base of the cup and by one face 14 of a collar 15 which fits in the housing on the opposite side of the partition to the said base.

The main ball 16 is supported centrally in the housing and clear of the said collar and rests on a bed of the balls 12 forming part of the total number of balls 12 disposed in said track.

The collar is held in position against a shoulder in the housing by one or more circlips 17 engaged in a groove in the housing wall, and a guide member formed of a slightly resilient material such as a synthetic resin, for example nylon, or of hard rubber is located in the housing. The guide member is in two parts 18, 19 comprising inclined flanges extending in opposite directions which, respectively, abut the ball about small circles equi-distantly disposed about a great circle of the ball. The guide member parts are assembled in pressed metal cages 20, 21 and the said flanges are backed by spring rings 22.

The cages and hence the guide member, are located within a sleeve-like portion 23 of a scraper ring, generally indicated at 24. This has a flange 25 located outside the mouth of the housing, and a second flange extends outwardly from the end of said sleeve-like portion 23 and is backed up by an "O" ring

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26 of resilient material and this abutted by a washer 27 and is clamped in place by one or more further circlips 28 engaged in a groove in the housing adjacent the mouth thereof.

Figure 25 is chamfered to engage the main ball about a small circle thereof.

The arrangement is such that the scraper contacts the main ball, and if the latter picks up any foreign matter, this is scraped off during its rotation. The scraper can move during its scraping action, against the resilient guide member. The "O" ring, which is trapped between the one flange and the circlip in one direction, and the housing and the sleeve-like portion of the scraper in the other direction, prevents foreign matter gaining ingress between the scraper and the housing.

Turning now to Figures 3 and 4, this shows a ball-castor in which the collar is retained in the housing by means, not shown, and the scraper ring 30 is urged inwards of the housing and into contact with the ball by one or more Belleville spring washers 31 trapped between a first flange 32 on the scraper and a retaining washer 33 which abuts one or more circlips 34 adjacent the mouth of the housing. The retaining washer has a cranked section so that it has first and second flanges which are in parallel planes and joined by a short cylindrical portion, and a resilient "O" ring 35 is trapped between the said cylindrical portion and the cylindrical portion of the scraper in one direction, and between a flange of the retaining washer and

the adjacent spring washer in another direction.

Any movement of the ball in the housing, other than pure rotational movement is accompanied by like and equal movement of the scraper urged by the spring washers. Hence the retaining ring does not move in the housing and foreign matter cannot enter between the housing wall and the said washer. The "O" ring acts as a seal to prevent ingress of foreign matter between the scraper and the retaining washer.

#### WHAT WE CLAIM IS:—

1. A ball castor of the kind referred to, wherein an annular scraper contacts the main ball on a small circle disposed adjacent the mouth of the housing, said scraper held in position by resilient means.

2. A castor as claimed in Claim 1, wherein sealing means are provided to prevent ingress of foreign matter.

3. A castor as claimed in claim 1 or claim 2, wherein the main ball is guided by guide means contacting the main ball along small circles on both sides of a great circle of the ball.

4. A castor substantially as herein described with reference to Figures 1 and 2.

5. A castor substantially as herein described with reference to Figures 3 and 4.

For the Applicants,  
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FIG.1.

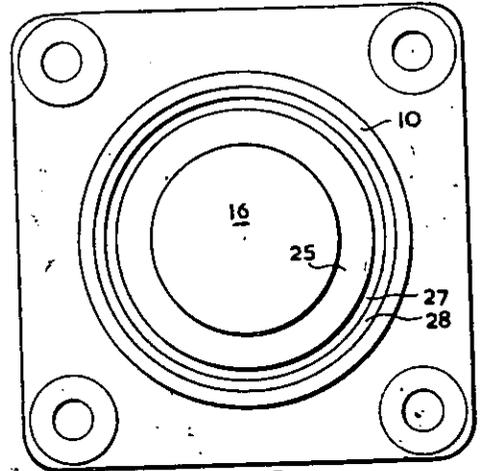


FIG.2.

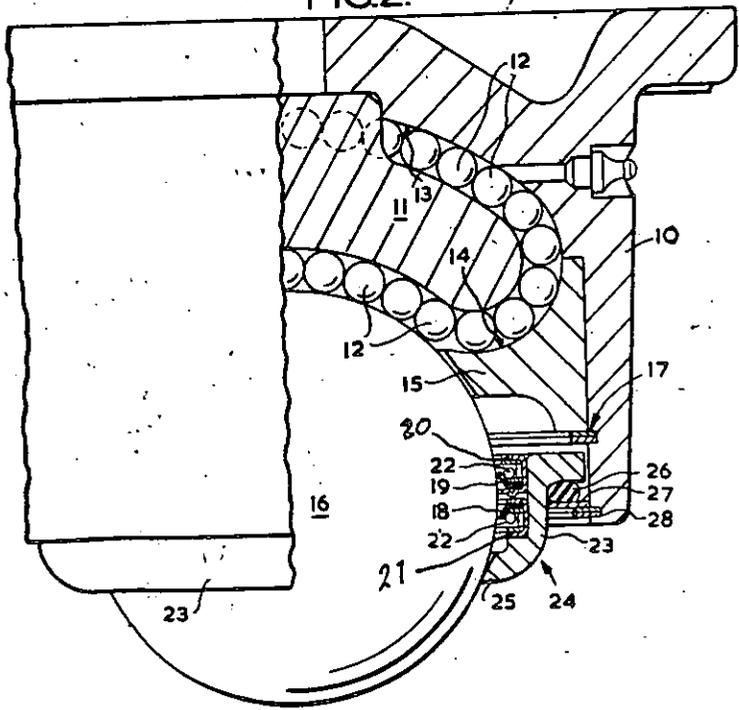


FIG.3.

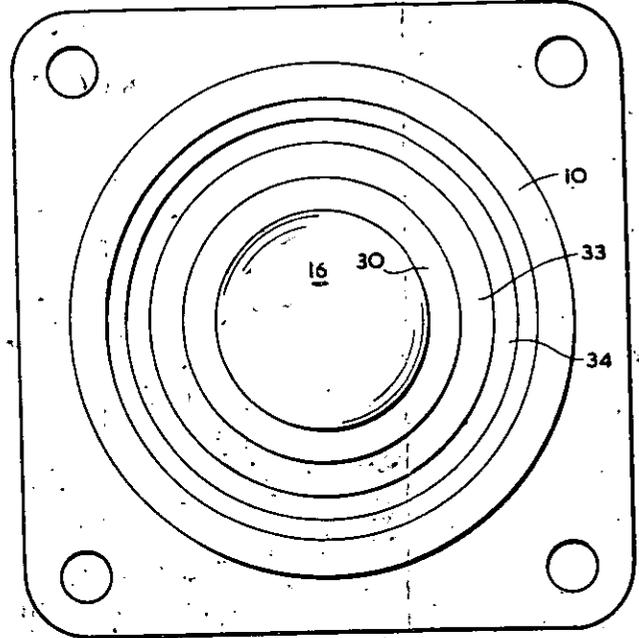
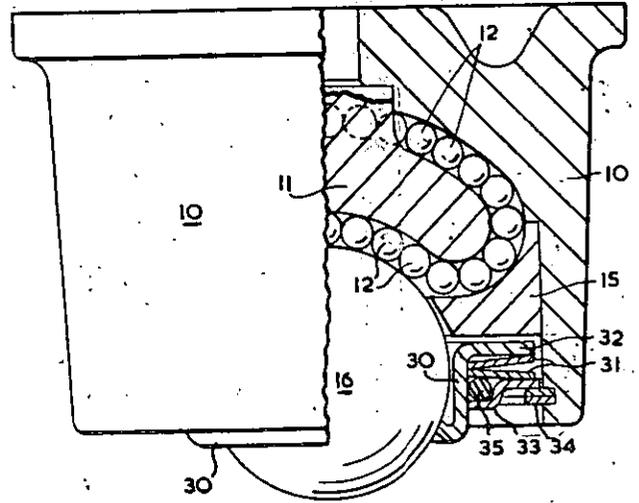


FIG.4.



The printed specification attached to this document is in the form of the specification at the date of sealing of the patent.

**PATENT No.** 938675

Autoset (Production) Limited

Date of Patent 3 September 1962

Date of Sealing **22 JANUARY 1964**

{see Sections 33, 37 and 40 of the Patents Act, 1949.}

Note.—The continuance of this Patent is conditional on the payment (by way of Patents Form No. 24) of the prescribed fees, which, under The Patents Rules, 1958, are :—

		£	s.	d.	
Before the expiration of the 4th year from the date of the Patent ( <i>not from the date of sealing</i> ) and in respect of the 5th year		5	0	0	One half only of these fees is payable if, and so long as, this Patent is endorsed "Licences of Right"—see Section 35 of the Act.
"	5th .. .. .	6	0	0	
"	6th .. .. .	8	0	0	
"	7th .. .. .	10	0	0	
"	8th .. .. .	12	0	0	
"	9th .. .. .	14	0	0	
"	10th .. .. .	16	0	0	
"	11th .. .. .	17	0	0	
"	12th .. .. .	18	0	0	
"	13th .. .. .	19	0	0	
"	14th .. .. .	20	0	0	
"	15th .. .. .	20	0	0	
"	of the term of the patent remainder	20	0	0	

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**A(Co.)**