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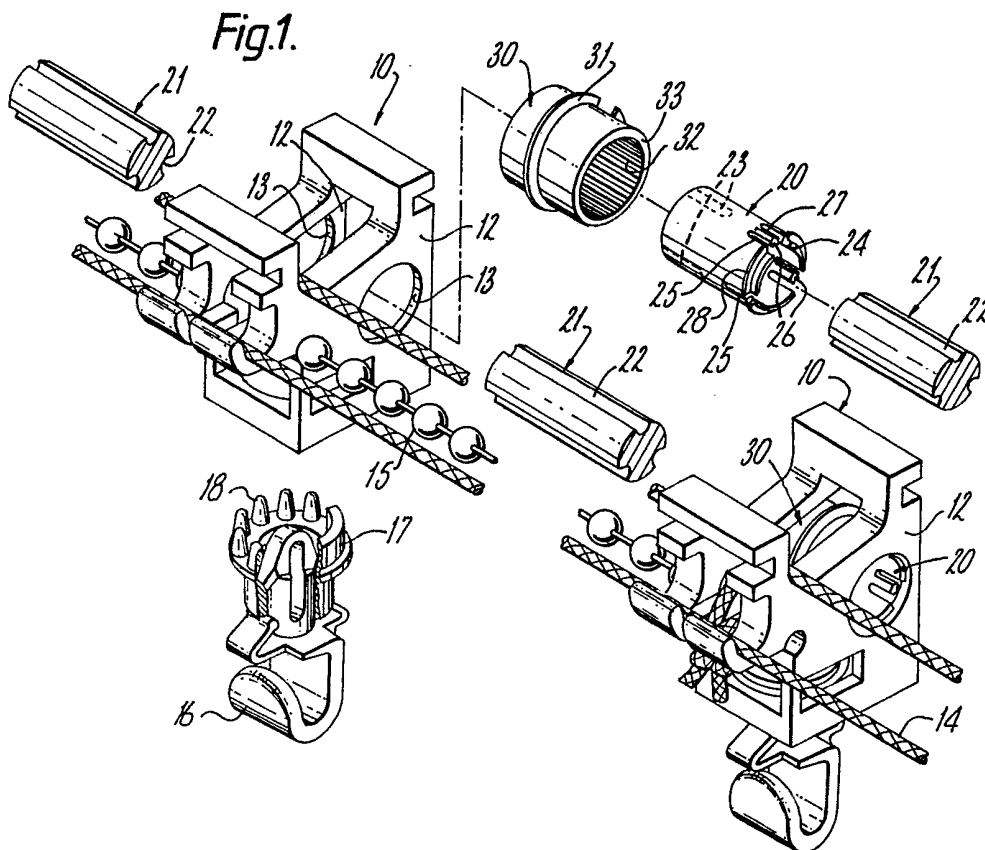
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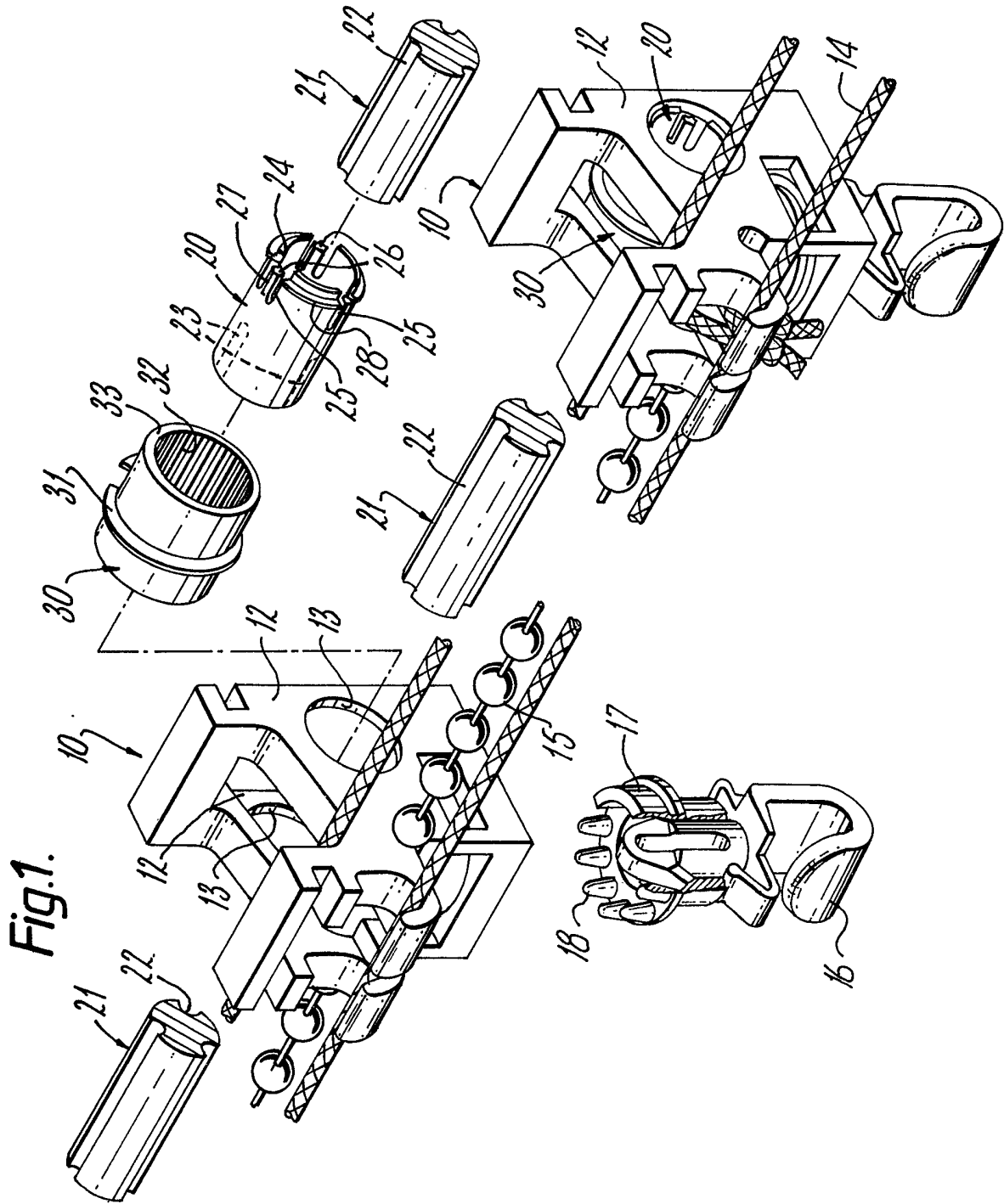
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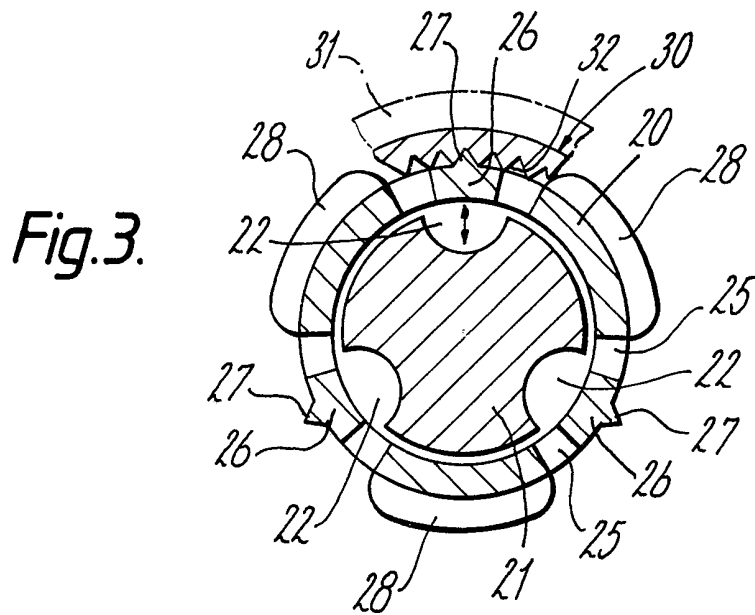
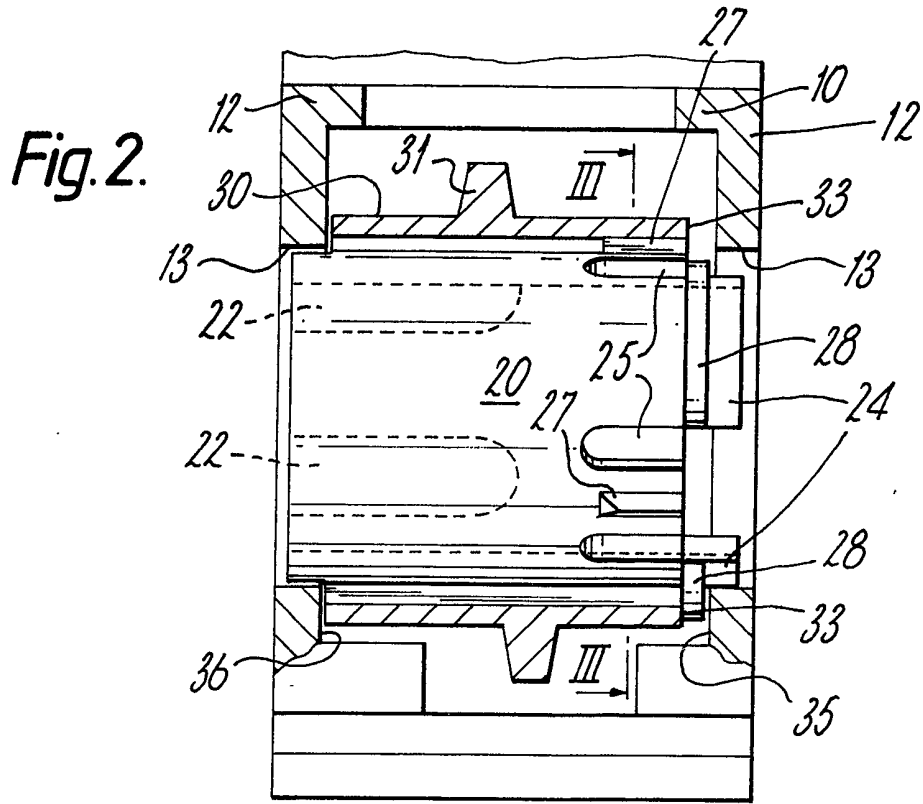
(54) **Clutch for a vertical louvre blind**

(57) A clutch for a vertical louvre blind including an inner sleeve 20 mounted on a tilt rod 21 provided with longitudinally extending grooves 22. Keys 23 engage in the grooves 22 and the inner sleeve 20 is provided with three tongues 26 at the same circumferential location as the keys so that they can flex into the grooves 22. An outer sleeve 30 is provided with internal splines 32 engagable with a tooth 27 on each tongue.



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SPECIFICATION

A clutch for a vertical louvre blind

The present invention relates to a clutch for a vertical louvre blind.

5 Such blinds include a headrail, travellers which can be moved along the headrail and hooks rotatably mounted in each traveller from which the louvres of the blind are suspended. The purpose of the traveller is twofold. It allows the louvres to be
10 moved back, rather in the manner of a curtain, from an initial position in which the louvres all overlie a window. Secondly the traveller has in it a mechanism for rotating the louvres so that the angle can be altered. It is advantageous for all the louvres to be parallel to one another and it is a conventional arrangement for each traveller to have in it a rotatably worm which engages with a worm wheel forming part of, or connected to the louvre hook. The worms are rotated by a common tilt rod which
20 passes through all the travellers and is usually provided with longitudinal grooves which are engaged by keys of a rotatable sleeve which drives the worm usually through a clutch. Two forms of clutch have been proposed, one in which teeth are provided in radial walls, to provide a face clutch, and others in which a tooth or tooth engages radial splines on an outer sleeve. None of the present constructions are fully satisfactory as far as they are rather cumbersome and relevantly expensive to
30 manufacture.

It is now proposed according to the present invention, to provide a clutch for a vertical louvre blind, said clutch comprising a housing having opposite walls with aligned openings therein, an inner sleeve having end portions engageable in said
35 openings so as to be rotatable therein, at least one key on the inner surface of the inner sleeve having end portions engageable in said openings so as to be rotatable therein, at least one key on the inner surface of the inner sleeve engagable in a groove in
40 a tilt rod which passes through said sleeve, whereby the sleeve may be rotated thereby, at least one pair of slots each defining therebetween an axially extending tongue on said inner sleeve, an outer sleeve surrounding said inner sleeve and mounted
45 within said housing, a worm forming element on the outer surface of the outer sleeve, a plurality of splines on the inner surface of said outer sleeve and means on the outer surface of the tongue engageable with the splines to cause rotation of the
50 outer sleeve as the inner sleeve rotates, the or each tongue being at the same circumferential location on said inner sleeve as an associated key, whereby the tongues can flex resiliently radially inwardly into a groove of said tilt rod, to allow continued rotation
55 of said tilt rod, to allow continued rotation of said tilt rod and inner sleeve, if rotation of the outer sleeve is arrested.

60 With such a construction because the key or keys are mounted at the same circumferential location as the tongue or tongues, the latter can readily flex into the groove or grooves of the tilt rod and can thus provide plenty of space for flexial movement. This means that the inner sleeve can be constructed so

65 that it can be very thin indeed making the whole assembly compact.

In a preferred construction the pair or pairs of slots extend from one axial end of the sleeve, whereby the or each tongue is mounted in
70 cantilever fashion with respect to the remainder of the inner sleeve. Again this makes sure of a positive action with very light components.

Advantageously a radially outwardly extending annular, or part annular, abutment is formed on the
75 outer surface of the inner sleeve at a location spaced from one end, one side of the abutment engaging the inner surface of one of the opposite walls of the housing and one end of the outer sleeve engaging the other side of said abutment. In this way the position of the outer sleeve with the worm mounted
80 thereon, can be accurately controlled in a simple manner to provide a straight-forward bearing during the normal operation of the blind. Preferably the tongue or tongues extends to a point which is not axially beyond the location of the annular
85 abutment so they do not reach beyond the end of the outer sleeve which engages the abutment.

The or each tongue may be provided with a radially outwardly extending tooth to engage in the splines to give good positive gripping action
90 thereon.

In order that the present invention may more readily be understood, the following description is given, merely by way of example, reference being made to the accompanying drawings in which:—
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Figure 1 is perspective view showing one of the travellers of a vertical louvre blind exploded to illustrate the component parts proving one embodiment of clutch according to the invention, and an adjacent pair of travellers assembled;

Figure 2 is a partial cross section elevation through a traveller to illustrate the clutch; and

Figure 3 is a section taken along the line III—III of Figure 2.

Referring first to Figure 1 there are illustrated two travellers 10 which are mounted for sliding motion in a headrail (not shown). Each traveller 10 includes side walls 12 with aligned openings 13 therein. Movement of the right hand of the carriers as illustrated in the drawings is effected by a pull cord 14 and movement to the right of the other traveller is effected by a ball chain 15. Each traveller has associated therewith a louvre hook 16 associated with a worm wheel 17 having upstanding teeth 18.

The left hand traveller illustrated in Figure 1 is shown as having the clutch mechanism of the present invention in an exploded state. This clutch includes an inner sleeve 20 which is a sliding fit over a tilt rod 21 which is provided with three equi-
110 angularly spaced longitudinal grooves 22. The inner sleeve 20 has three equi-angularly spaced keys 23 fitting into the grooves whereby rotation of the tilt rod 21 will cause rotation of the sleeve 20.

Extending from one axial end 24 of the inner sleeve are three equi-angularly spaced pairs of axially extending slots defining therebetween 3 tongues 26 each of which is provided with a radially outwardly extending tooth 27. The outer surface of the sleeve is provided, at a location spaced a short

distance from the end 24, with three part annual abutments 28. The length of the tongue 26 is such as not to extend beyond the abutment 28.

Surrounding the inner sleeve 20 is an outer sleeve 30 provided on its outer surface with a worm 31 and on its inner surface with longitudinally extending splines 32.

In the assembled condition the end 33 of the outer sleeve 30 abuts the abutment 28.

As can be seen in particular from Figure 2, the whole clutch assembly can be pushed into the housing (by splaying of the side walls 12 thereof) so that the ends of the inner sleeve engaged in the openings 13 and the side walls 12 of the housing. At this time the outer surface of the abutment 28 engages against the inner surface 35 of one side wall 13. The length of the outer sleeve 30 is such that the other side of the outer sleeve engages against the inner surface of the other side wall 12. In this way the inner and outer sleeves are both retained axially within the housing and are free to rotate.

It will be noted from Figure 1 that the circumferential position of the keys 23 is the same as the circumferential position of the tongues 26, so that the tongues are located immediately above the grooves 22 in the tilt rod 21 as can be seen in Figure 3. The teeth 27 on the tongues 26 engage in the spline 32 on the inner surface of the outer sleeve 30 so that the inner sleeves will rotate together. Should the outer sleeve be arrested for any reason, then the tongue 26 can flex inwardly and allow slippage of the teeth 26 with respect to the splines 27. The positioning of the tongues over the grooves 22 quickly facilitates this operation.

It will be appreciated that all the parts can be simply moulded and the two parts of the clutch proper namely the inner and outer sleeves can readily inserted one within the other and the thus formed assembly inserted in the housing 12.

CLAIMS

1. A clutch for a vertical louvre blind, said clutch comprising a housing having opposite walls with aligned openings therein, an inner sleeve having end portions engageable in said openings so as to be rotatable therein, at least one key on the inner surface of the inner sleeve engageable in a groove

in a tilt rod which passes through said sleeve, whereby the sleeve may be rotated thereby, at least one pair of slots each defining therebetween an axially extending tongue on said inner sleeve, an outer sleeve surrounding said inner sleeve and mounted within said housing, a worm forming element on the outer surface of the outer sleeve, a plurality of splines on the inner surface of said outer sleeve and means on the outer surface of the tongue engageable with the splines to cause rotation of the outer sleeve as the inner sleeve rotates, the or each tongue being at the same circumferential location on said inner sleeve as an associated key, whereby the tongues can flex resiliently radially inwardly into a groove of said tilt rod, to allow continued rotation of said tilt rod and inner sleeve, if rotation of the outer sleeve is arrested.

2. A clutch according to claim 1, where said pair or pairs of slots extend from one axial end of the sleeve, whereby the or each tongue is mounted in cantilever fashion with respect to the remainder of the inner sleeve.

3. A clutch according to claim 1 or 2, wherein a radially outwardly extending annular, or part annular, abutment is formed on the outer surface of the inner sleeve at a location spaced from one end, one side of said abutment engaging the inner surface of one of said opposite walls of the housing and one end of the outer sleeve engaging the other side of said abutment.

4. A clutch according to claim 3 when dependent on claim 2, wherein said tongue or tongues extend to a point not axially beyond said location of the annular abutment and thus not beyond said one end of the outer sleeve.

5. A clutch according to claim 3 or 4, wherein the outer sleeve is of such an axial length for the other end of the outer sleeve to engage the inner surface of the opposite side wall.

6. A clutch according to any preceding claim, wherein the or each tongue is provided with a radially outwardly extending tooth to engage said splines.

7. A clutch for a vertical louvred blind, said clutch being substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.