OPIC
Office de la propriété intellectuelle du Canada

CIPO
Canadian Intellectual Property Office

(12) (19) (CA) **Demande-Application**

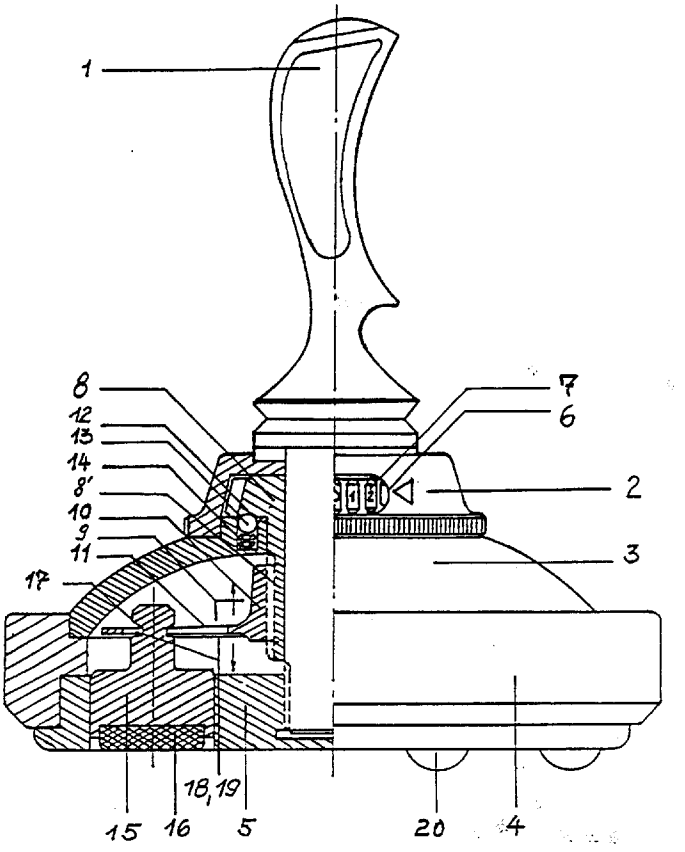
(21) (A1) **2,222,011**
(86) 1996/05/22
(87) 1996/11/28

(72) HERZ, Josef Paul, AT
(71) HERZ, Josef Paul, AT

(51) Int.Cl.[6] A63B 67/14
(30) 1995/05/22 (A 857/95) AT

(54) **PIERRE DE CURLING DEMONTRANT DES CARACTERISTIQUES DE GLISSEMENT A REGLAGE CONTINU**

(54) **CURLING STONE FOR CURLING WITH CONTINUOUSLY VARIABLE GLIDING CHARACTERISTICS**



(57) Amélioration d'une pierre de curling connue sous le numéro de brevet autrichien 354,921. Une coquille de support (2), présentant une ou plusieurs ouvertures (6) pour rendre le mécanisme de freinage accessible, est placée en appui entre le manche (1) et le boîtier (3), la coquille présentant dans sa surface supérieure un trou central. Selon un modèle préféré, la console (9) du mécanisme de freinage s'avère un support essentiellement élastique de section transversale étoilée et pourvu, de préférence, de trois à six bras (11) présentant des fentes radiales décroissantes (18, 19) servant à recevoir les supports de surface de frein (15).

(57) The present invention relates to an improvement of a curling stone known from Austrian patent No. 354,921 wherein a support shell (2) provided with one of more openings (6) for rendering the brake device accessible is supportively placed between the handle (1) and the housing (3), the support shell being provided in its upper surface with a central bore. In a preferred embodiment, the bracket (9) of the brake device is an inherently resilient support member of star-shaped cross-sectional configuration with preferably three to six arms (11), radially narrowing slots (18,19) being provided in the arms (11) for receiving the brake surface supports (15).

Attorney Docket 970241

ABSTRACT

Curling Stone for Curling with Continuously Variable Gliding Characteristics

The present invention relates to an improvement of a curling stone known from Austrian patent No. 354,921 wherein a support shell (2) provided with one of more openings (6) for rendering the brake device accessible is supportively placed between the handle (1) and the housing (3), the support shell being provided in its upper surface with a central bore. In a preferred embodiment, the bracket (9) of the brake device is an inherently resilient support member of star-shaped cross-sectional configuration with preferably three to six arms (11), radially narrowing slots (18,19) being provided in the arms (11) for receiving the brake surface supports (15).

Attorney Docket 970241

Curling Stone for Curling with Continuously Variable Gliding Characteristics

The invention relates to a curling stone for curling, consisting of a handle, a housing for the support of gliding and braking elements, and a bottom glide plate covering the bottom side of the housing and optionally provided with gliding bumps, part of the gliding surface being formed by a brake device the braking surface of which is affixed to a support for sliding movement in an axial direction of the curling stone relative to the remaining gliding surface cover and moveable against spring bias in the housing to adjust the brake action, the brake device consisting of a plurality of independently moveable brake surface supports arranged concentrically and symmetrically around the axis of the curling stone on a common bracket which is axially adjustable to a limited extent relative to the curling stone, each support being provided with its own spring suspension.

Such a curling stone may be easily adjusted without further auxiliary means in accordance with temperature induced changes in the antifrictional properties of the ice as they occur in practice.

A curling stone of the kind mentioned above is known from Austrian patent No. 354,921. Even though that curling stone permits satisfactory adjustments to different gliding properties of ice, it has for several reasons been found to warrant improvement. Collisions with other curling stones may lead to unseating of the housing so that the hand wheel for adjusting the brake device is pressed against the lower flange at the end of the handle and is blocked, thus making further adjustments of the brake device impossible. Furthermore, in operation, such major components as handle, housing, and bottom glide plate with its steel ring may shift, since unlike in conventional

curling stones the handle is not threadedly connected to the housing and to the bottom glide plate. Moreover, the use of coil springs, notwithstanding the advantages yielded by them, has been found to be disadvantageous as the brake surface supports cannot be quickly replaced.

Therefore, it is an object of the present invention to provide an improvement in the known curling stone to avoid the mentioned disadvantages which, in particular, make any adjustments of the brake device difficult or impossible, and to provide for simplified handling, especially as regards the brake device.

In accordance with the invention, the object is accomplished by supportively arranging in the known curling stone, between the handle and the housing, a support shell preferably provided with one or more milled openings to render the brake device accessible, the support shell being in its upper surface provided with a central bore.

In another embodiment of the invention, the bracket of the brake device is an inherently resilient support of preferably star-shaped cross-section provided with a plurality arms (cantilevers), preferably three to six, with slots tapering in a radial direction for suspending the individual brake surface supports. In a further embodiment, the brake surface supports are provided with a stepped shaft provided with a preferably convex annular recess.

In contrast to the known use of coil springs, this embodiment of the brake device facilitates handling, in particular a quicker replacement of possibly worn brake surface supports. To this end, where brake surface supports are provided with stepped shafts, they are inserted into the slots at the widest portion thereof which is preferably shaped in the manner of a bore, and after snapping in their annular recess, they are pushed outwardly along the tapering slot into their final position. When in their idle or relieved state, the arms (cantilevers) may be slightly prestressed by about 3 mm in the direction of the bottom glide plate.

For setting the initial position of the brake surface supports, it is

proposed that the bracket is preferably provided with an internally threaded bush in which a threaded spindle disposed beneath the support bell may be threadedly received for positional adjustments. The threaded spindle is provided with an axial bore into which a shaft of the handle is penetrating, and the shaft of the handle is at it threaded free end screwed into the bottom glide plate the marginal portion of the upper surface of which abuts against a steel ring disposed between the housing and the bottom glide plate, whereby the bottom glide plate is affixed to the curling stone and by mounting the hand wheel below the support shell positioned between the handle and the upper surface of the housing, the bracket is secured against axial displacement in the housing.

The invention will hereafter be explained in detail with reference to the drawings.

Fig. 1 depicts a curling stone in accordance with the invention in half vertical section.

The curling stone in accordance with the invention consists of a handle 1, a support shell 2 supportively placed between the handle 1 and a housing 3, and of a bottom glide plate 5 connected to a steel ring 4. Instead of being of the convex configuration depicted in Fig. 1, the housing may also be conical. The support shell 2 is provided with one or more openings 6 which allow access to a hand wheel 7 preferably formed as a dial with numbered indicia thereon and being of smaller diameter than the support shell 2. Thus, no matter how tight it may be, the wheel may be freely rotated on the threaded shaft of the handle 1 for adjusting the brake device at any time. The hand wheel 7 constitutes the upper portion of a threaded spindle 8 which is adjustably connected by an external thread 8' to a bracket 9 of preferably star-shaped cross-section provided with an internally threaded bush 10. The bracket 9 is provided with a plurality of inherently resilient arms (cantilevers) 11, preferably three to six. At the bottom surface of the hand wheel 7 there are provided round recesses 12 into which a small ball 13 provided in the housing 3 and biased by a pressure spring 14 may drop in an indexing

manner. Preferably, three to six brake surface supports 15 with brake linings 16 seated in their lower surfaces, are arranged in a partial circle on the inherently resilient arms. At their upper end, the brake lining supports 15 are provided with a concave annular recess 17 to compensate for axial displacements of the prestressed or resilient arms 11. The brake lining supports 15 are mounted on the arms 11 in radially narrowing slots 18, 19. The curling stone shown in Fig. 1 is additionally provided with glide bumps 20.

In Figs. 2 and 3, an embodiment of a brake device is shown by way of example which is provided with three arms or brake surface supports, Fig. 1 depicting the brake device in partial section, including the threaded spindle and Fig. 2 depicting a top elevation of the brake device without the threaded spindle. The reference characters correspond to those of Fig. 1.

To prevent manipulation by third parties, the hand wheel may additionally by provided with a lock by means of a pressure latch of any desired construction.

Organic and inorganic felt products of any kind and shape (even brushes) made of various kinds of plastic and rubber or of cork may be used as brake linings. Silicon rubber of low Shore hardness has proven to be excellent as a slow lining. By replacement of the bottom glide surface and, if necessary, of the bumps and the brake surface supports, the curling stone in accordance with the invention may be conventionally converted for use in ice-free seasons, as for instance, on asphalt surfaces.

Attorney Docket 970241

PATENT CLAIMS

1. Curling stone for curling, consisting of a handle, a housing for the support of gliding and braking elements, and a bottom glide plate covering the bottom side of the housing and optionally provided with gliding bumps, part of the gliding surface being formed by a brake device the braking surface of which is affixed to a support for sliding movement in an axial direction of the curling stone relative to the remaining gliding surface cover and moveable against spring bias into the housing to adjust the brake action, the brake device consisting of a plurality of independently moveable brake surface supports arranged concentrically and symmetrically around the axis of the curling stone on a common bracket which is axially adjustable to a limited extent relative to the curling stone, each support being provided with its own spring suspension, characterized by the fact that a support shell (2) with one or more openings (6) for rendering the brake device accessible is supportively placed between the handle (1) and the housing (3), the support shell (2) being on the upper surface provided with a central bore.

2. Curling stone according to claim 1, characterized by the fact that the bracket (9) consists of an inherently resilient support part of preferably star-shaped configuration with preferably three to six arms (11) provided with radially tapering slots (18, 19) for receiving the brake surface supports (15).

3. Curling stone according to one of the preceding claims, characterized by the fact that at their upper end the brake surface supports (15) are provided with a stepped shaft with a convex annular recess (17) to compensate for axial displacements of the prestressed or resilient arms (11).

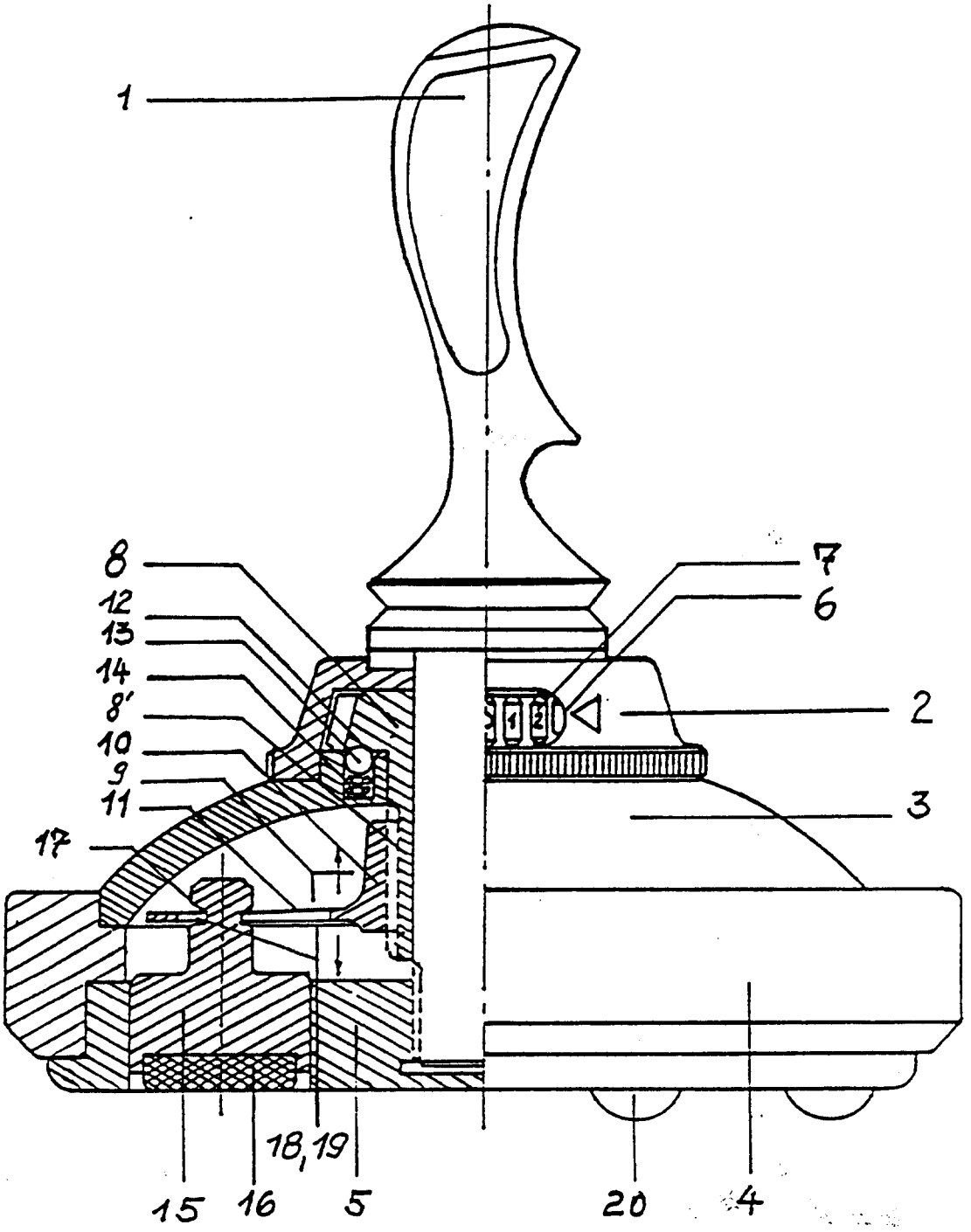
4. Curling stone according to one of the preceding claims, characterized

by the fact that the bracket (9) is provided with a central internally threaded bush (10) into which a threaded spindle (8) provided below the support shell (2) may be screwed for adjusting the position of the bracket (9), the threaded spindle being provided with a continuous bore into which a shaft of the handle (1) is penetrating, and that the threaded free end of the handle shaft is threaded into the bottom slide plate which at its upper surface marginal area abuts against a steel ring (4) between the housing (3) and the bottom slide plate (5), whereby the bottom slide plate (5) is secured to the curling stone and by mounting the hand wheel (7) under the support shell (2) arranged between the handle (1) and the upper surface of the housing (3) the bracket (9) is secured against axial movement within the housing (3).

5. Curling stone according to one of the preceding claims, characterized by the fact that the handwheel (7) which is preferable structures as a numerically marked selector disk is at its lower surface provided with round notches (12) into which drops a spring biased small ball (13,14) provided in the housing (3), in an indexing manner.

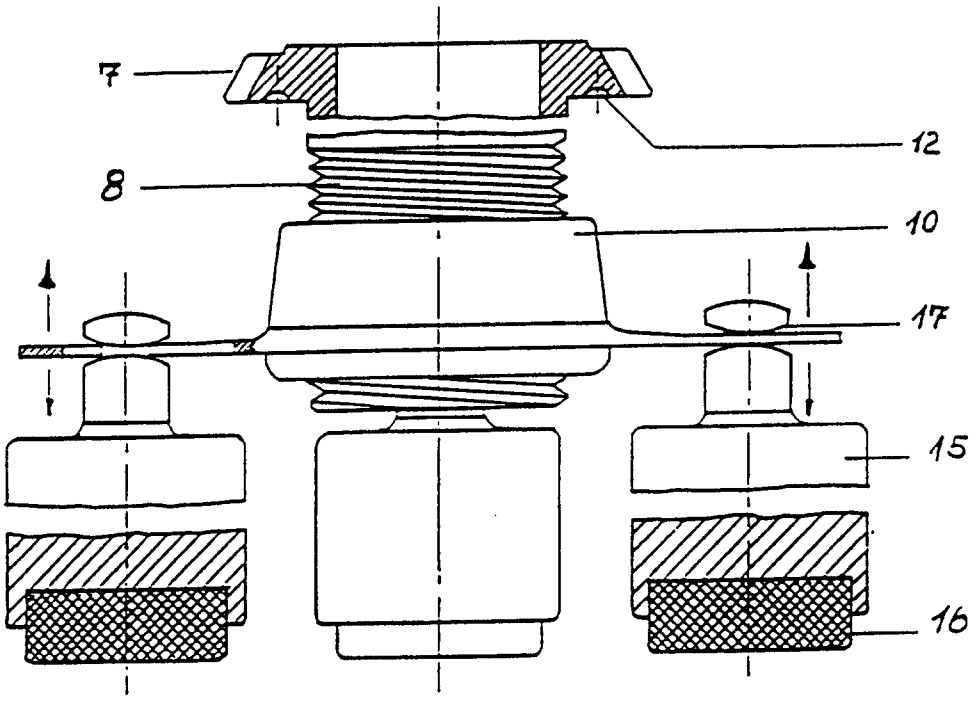
Fetherstonhaugh & Co.,
Ottawa, Canada
Patent Agents

Fig. 1



Patent Agents
Fetherstonhaugh & Co

Fig. 2



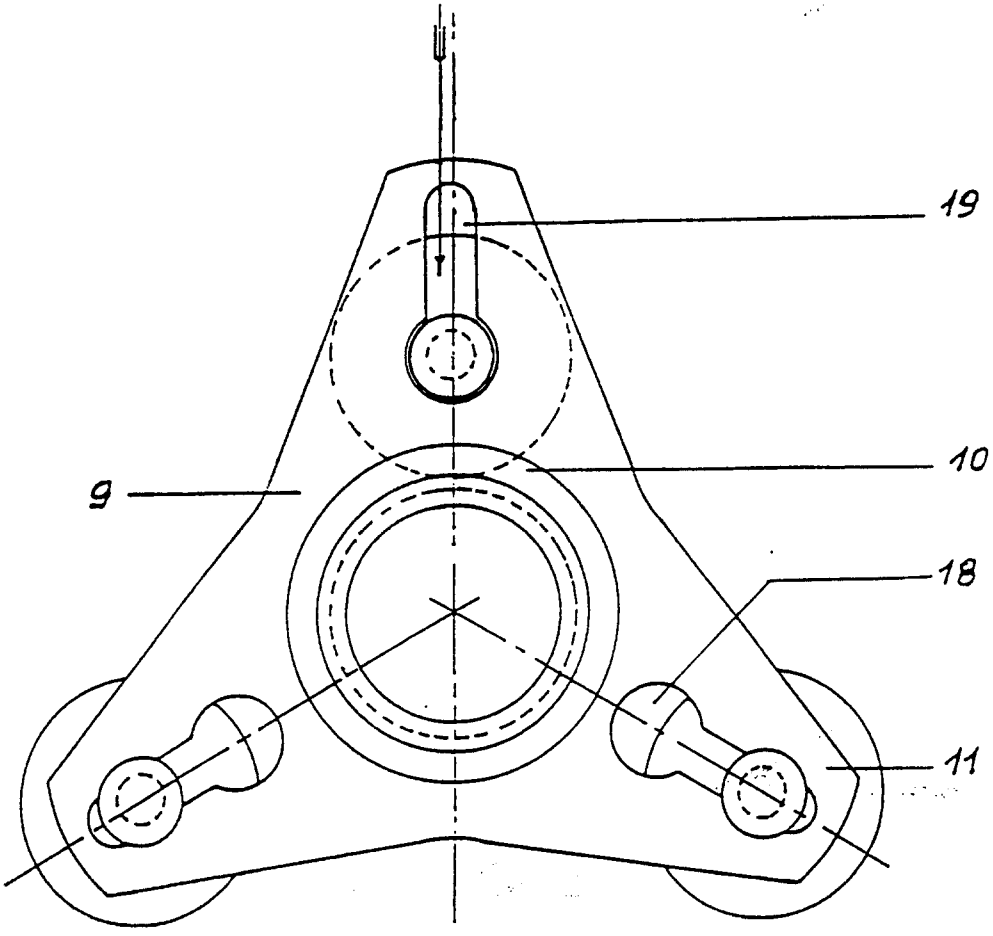
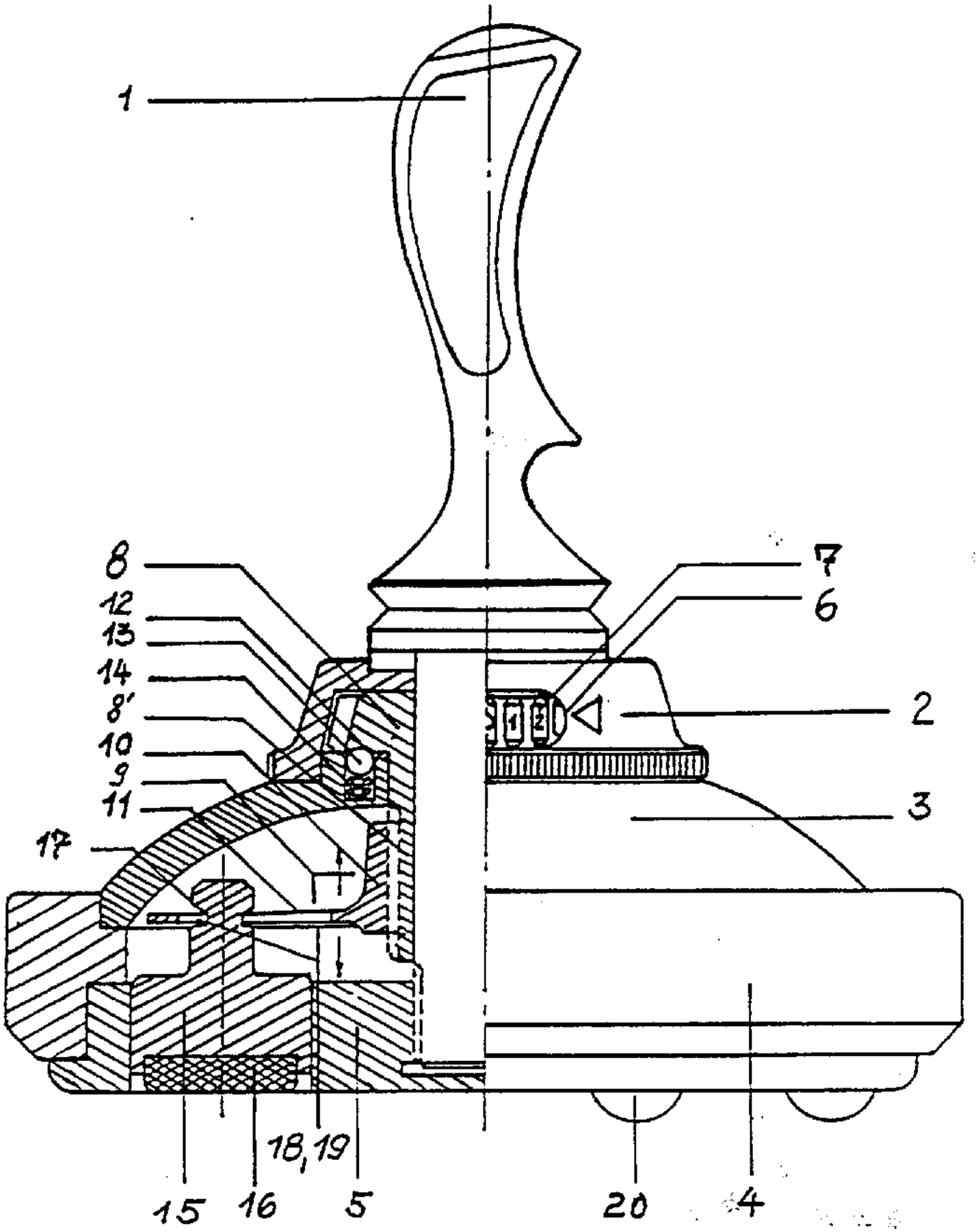


Fig.3

Patent Agents

Fe[illegible] & Co.


1
8
12
13
14
8'
10
9
11
17
7
6
2
3
18,19
15
16
5
20
4