CLAIMS

1. Ophthalmic apparatus (1) characterized in that it comprises:

- housing (2) defining at least a chamber (20), said housing comprising at least an observation opening (21) adapted to allow a patient to observe an internal volume of said at least a chamber along at least a corresponding optical path (O) of said ophthalmic apparatus;
- regulation means of the pupil diameter of at least an eye (100) of the patient comprising:
    - measuring means (3) adapted to measure the pupil diameter of at least an eye (100) of the patient, when the patient observes the internal volume of said at least a chamber (20);
    - visible illumination means adapted to emit a visible light radiation in the internal volume of said at least a chamber (20) and comprising at least a visible light source (L1) accommodated in said at least a chamber;
    - control means (5) operatively associated with said measuring means (3) and said visible illumination means (L1), said control means being adapted to receive measuring data (Dl) of the pupil diameter of at least an eye (100) of the patient from said measuring means (3) and to control operation of said visible illumination means (L1) depending on said measuring data (Dl),

      wherein said control means (5) are adapted to carry out a first regulation procedure (50A) of the pupil diameter of at least an eye (100) of the patient, said first regulation procedure comprising the following steps:

      a.l) deactivating or maintaining deactivated said visible light source (LI);

      a.2) acquiring said measuring data (Dl) in such a way to acquire a first measured value M_{DI}) of the pupil diameter;

      a.3) waiting for a predefined time interval;

      a.4) acquiring again said measuring data (Dl) in such a way to acquire a second measured value (M_{D2}) of the pupil diameter;

      a.5) comparing said first measured value (M_{D1}) of the pupil diameter with said second measured value (M_{D2}) of the pupil diameter;

      if the pupil diameter increases:

      a.6) comparing said second measured value (M_{D2}) of the pupil diameter with a first target value (T_{D1}) of the pupil diameter;

      a.7) if said second measured value (M_{D2}) of the pupil diameter does not exceed said first target value (T_{D1}) of the pupil diameter, repeat said first regulation procedure; and

a.8) if said second measured value (M_{D2}) of the pupil diameter exceeds said first target value (T_{D1}) of the pupil diameter, terminate said first regulation procedure.

2. Ophthalmic apparatus according to claim 1, characterised in that said measuring means (3) comprise:

- infrared illumination means adapted to emit an infrared light radiation in the internal volume of said at least a chamber (20) and comprising at least an infrared light source (L2) accommodated in said at least a chamber;
- acquisition means adapted to acquire images (I) of the pupil of at least an eye of the patient and comprising at least an acquisition unit (31) accommodated in said at least a chamber (20) and arranged along at least an optical path (O);
- processing means (32) adapted to receive said images (I) of the pupil of at least an eye (100) of the patient and to provide said measuring data (Dl).

3. Ophthalmic apparatus, according to one or more of the previous claims, characterised in that said housing (2) defines a single chamber (20).
4. Ophthalmic apparatus, according to one or more of the claims from 1 to 2, characterised in that said housing (2) defines a pair of chambers (20) distinct one from another.
5. Apparatus, according to claims 2 and 3, characterised in that said measuring means (3) comprise at least an infrared light source (L2) and an acquisition unit (31) accommodated in said single chamber (20).
6. Apparatus, according to claims 2 and 4, characterised in that said measuring means (3) comprise an infrared light source (L2) and an acquisition unit (31) accommodated in each of said chambers (20).
7. Ophthalmic apparatus, according to one or more of the previous claims, characterised in that said housing (2) comprises a single observation opening (21).
8. Ophthalmic apparatus, according to one or more of the claims from 1 to 6, characterised in that said housing (2) comprises a pair of observation openings (21) distinct one from another.
9. Ophthalmic apparatus, according to one or more of the previous claims, characterised in that said first regulation procedure further comprising the following steps:

   if the pupil diameter does not increase:

   a.9) comparing said second measured value (M_{D2}) of the pupil diameter with said first target value (T_{D1}) of the pupil diameter;

   a.10) if said second measured value (M_{D2}) of the pupil diameter does not exceed said first target value (T_{D1}) of the pupil diameter, terminate said first regulation procedure; a.11) if said

second measured value (M_{D2}) of the pupil diameter exceeds said first target value (T_{D1}) of the pupil diameter, terminate said first regulation procedure.

10. Ophthalmic apparatus, according to one or more of the previous claims, characterised in that said control means (5) are adapted to carry out a second regulation procedure (50B) of the pupil diameter of at least an eye (100) of the patient, said second regulation procedure comprising the following steps:

b.l) activating or maintaining activated said visible light source (LI) by commanding said visible light source (L1) to emit a visible light radiation with a reference value (IREF) of light intensity;

b.2) acquiring said measuring data (Dl) in such a way to acquire a third measured value M_{D3}) of the pupil diameter;

b.3) waiting for a predefined time interval;

b.4) acquiring again said measuring data (Dl) in such a way to acquire a fourth measured value (M_{D4}) of the pupil diameter;

b.5) comparing said third measured value (M_{D3}) of the pupil diameter with said fourth measured value (M_{D4}) of the pupil diameter;

if the pupil diameter decreases:

b.6) comparing said fourth measured value (M_{D4}) of the pupil diameter with a second target value (T_{D2}) of the pupil diameter;

b.7) if said fourth measured value (M_{D4}) of the pupil diameter exceeds said second target value (T_{D2}) of the pupil diameter, repeat said second regulation procedure maintaining unchanged said reference value (IREF) of light intensity;

b.8) if said fourth measured value (M_{D4}) of the pupil diameter is lower than or equal to said second target value (T_{D2}) of the pupil diameter, commanding said visible light source (L1) to emit a visible light radiation with a first new value (I1) of light intensity lower than said reference value (IREF) of light intensity and repeating said second regulation procedure using said first new value (I1) of light intensity as new reference value (IREF) of light intensity;

if the pupil diameter does not decrease:

b.9) commanding said visible light source (L1) to emit a visible light radiation with a second new value (I2) of light intensity higher than said reference value (IREF) of light intensity and repeating said second regulation procedure using second new value (I2) of light intensity as new reference value (IREF) of light intensity.

11. Ophthalmic apparatus, according to one or more of the previous claims, characterised in that it comprises examination means (200) of at least an eye (100) of the patient operatively

associated with said at least a chamber (20), said regulation means of the pupil diameter being capable of cooperating with said examination means (200) to carry out an examination procedure of at least an eye (100) of the patient.