CLAIMS:

1. A permanent-magnetic synchronization motor comprising a rotor (6) and a stator (12), wherein

said rotor (6) has a plurality of permanent magnets (1), a plurality of cores (2) composed of a magnetic material, and a holding part which holds said plurality of permanent magnets (1) and said plurality of cores (2), and is composed of a metal non-magnetic material;

said holding part has a first flat plate part (4a), which is a flat plate vertical to a rotation axis of said rotor (6), and a plurality of supporting parts installed on said first flat plate part (4a) and disposed in a circumferential direction of said rotor (6):

said plurality of cores (2) is each arranged at a position between said plurality of supporting parts disposed in the circumferential direction;

each of said plurality of cores (2) has a locking part which latches together to at least one of said plurality of supporting parts; and

said plurality of permanent magnets (1) is each arranged at a position between said plurality of cores (2) arranged in the circumferential direction.

2. The permanent-magnetic synchronization motor according to claim 1, wherein each of said plurality of supporting parts has a first supporting part installed at said stator (12) side relative to an adjacent permanent magnet (1), and a second supporting part installed at the opposite side of said stator (12) relative to said adjacent permanent magnet (1).

3. The permanent-magnetic synchronization motor according to claim 2, wherein each of the locking part of said plurality of cores (2) has a first locking part which latches together to an adjacent first supporting part, and a second locking part which latches together to adjacent first supporting part.

4. The permanent-magnetic synchronization motor according to claim 3, wherein

said first locking part protrudes in said circumferential direction at the stator (12) side than the adjacent first supporting part, and

said second locking part protrudes in said circumferential direction at the opposite side of said stator (12) than the adjacent second supporting part.

5. The permanent-magnetic synchronization motor according to any one of claims 1 to 4, wherein each of said plurality of cores (2) adheres closely to the adjacent two supporting parts.

6. The permanent-magnetic synchronization motor according to any one of claims 1 to 5, wherein each of said plurality of permanent magnets (1) forms a space between the adjacent cores (2).

7. The permanent-magnetic synchronization motor according to any one of claims 1 to 6, wherein said metal is steel.

8. The permanent-magnetic synchronization motor according to claim 2, wherein said holding part further has the second flat plate part (4b), which is a flat plate facing to the first flat part (4a) via said plurality of permanent magnets (1) and said plurality of cores (2), and is connected to at least one of the first supporting part and the second supporting part in said plurality of supporting parts.

9. The permanent-magnetic synchronization motor according to claim 8, wherein said second flat plate part (4b) has a through hole, and

a tip part of at least one of the first supporting part and the second supporting part in said plurality of supporting parts penetrates through said through hole.

10. The permanent-magnetic synchronization motor according to claim 9, wherein, as for predetermined direction vertical to said rotation axis, dimension of a part protruded from said second flat plate part (4b) among said tip parts is larger than dimension of the opening of said through hole.

**CLAIMS:**

1. A permanent-magnetic synchronization motor comprising a rotor (6) and a stator (12), wherein

said rotor (6) has a plurality of permanent magnets (1), a plurality of cores (2) composed of a magnetic material, and a holding part which holds said plurality of permanent magnets (1) and said plurality of cores (2), and is composed of a metal non-magnetic material;

said holding part has a first flat plate part (4a), which is a flat plate vertical to a rotation axis of said rotor (6), and a plurality of supporting parts installed on said first flat plate part (4a) and disposed in a circumferential direction of said rotor (6);

said plurality of cores (2) is each arranged at a position between said plurality of supporting parts disposed in the circumferential direction;

each of said plurality of cores (2) has a locking part which latches together to at least one of said plurality of supporting parts; and

said plurality of permanent magnets (1) is each arranged at a position between said plurality of cores (2) arranged in the circumferential direction;

wherein each of said plurality of supporting parts has a first supporting part installed at said stator (12) side relative to an adjacent permanent magnet (1), and a second supporting part installed at the opposite side of said stator (12) relative to said adjacent permanent magnet (1); and

wherein each of the locking part of said plurality of cores (2) has a first locking part which latches together to an adjacent first supporting part, and a second locking part which latches together to adjacent first supporting part.

2. The permanent-magnetic synchronization motor according to claim 1, wherein

said first locking part protrudes in said circumferential direction at the stator (12) side than the adjacent first supporting part, and

said second locking part protrudes in said circumferential direction at the opposite side of said stator (12) than the adjacent second supporting part.

3. The permanent-magnetic synchronization motor according to claim 1 or 2, wherein each of said plurality of cores (2) adheres closely to the adjacent two

supporting parts.

4. The permanent-magnetic synchronization motor according to any one of claims 1 to 3, wherein each of said plurality of permanent magnets (1) forms a space between the adjacent cores (2).

5. The permanent-magnetic synchronization motor according to any one of claims 1 to 4, wherein said metal is steel.

6. The permanent-magnetic synchronization motor according to claim 1, wherein said holding part further has the second flat plate part (4b), which is a flat plate facing to the first flat part (4a) via said plurality of permanent magnets (1) and said plurality of cores (2), and is connected to at least one of the first supporting part and the second supporting part in said plurality of supporting parts.

7. The permanent-magnetic synchronization motor according to claim 6, wherein

said second flat plate part (4b) has a through hole, and

a tip part of at least one of the first supporting part and the second supporting part in said plurality of supporting parts penetrates through said through hole.

8. The permanent-magnetic synchronization motor according to claim 7, wherein, as for predetermined direction vertical to said rotation axis, dimension of a part protruded from said second flat plate part (4b) among said tip parts is larger than dimension of the opening of said through hole.