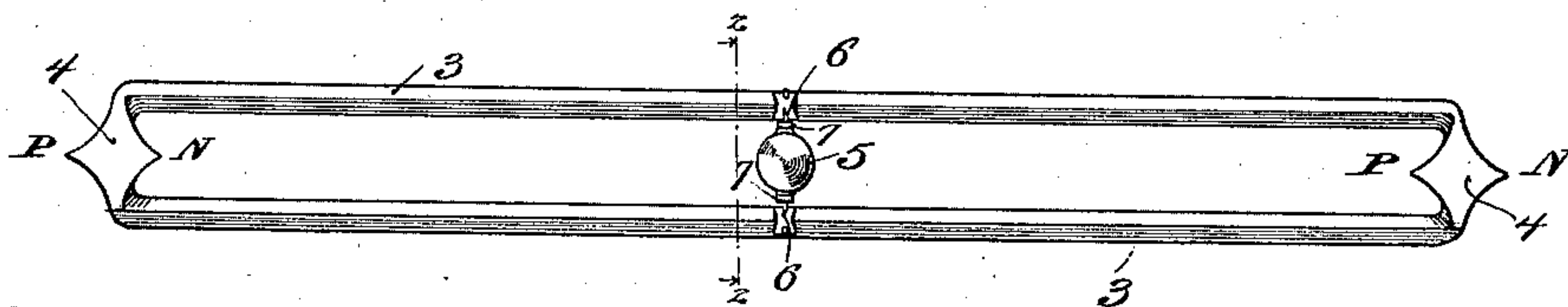


H. WAGNER.  
 COMPASS NEEDLE.  
 APPLICATION FILED JAN. 19, 1911.

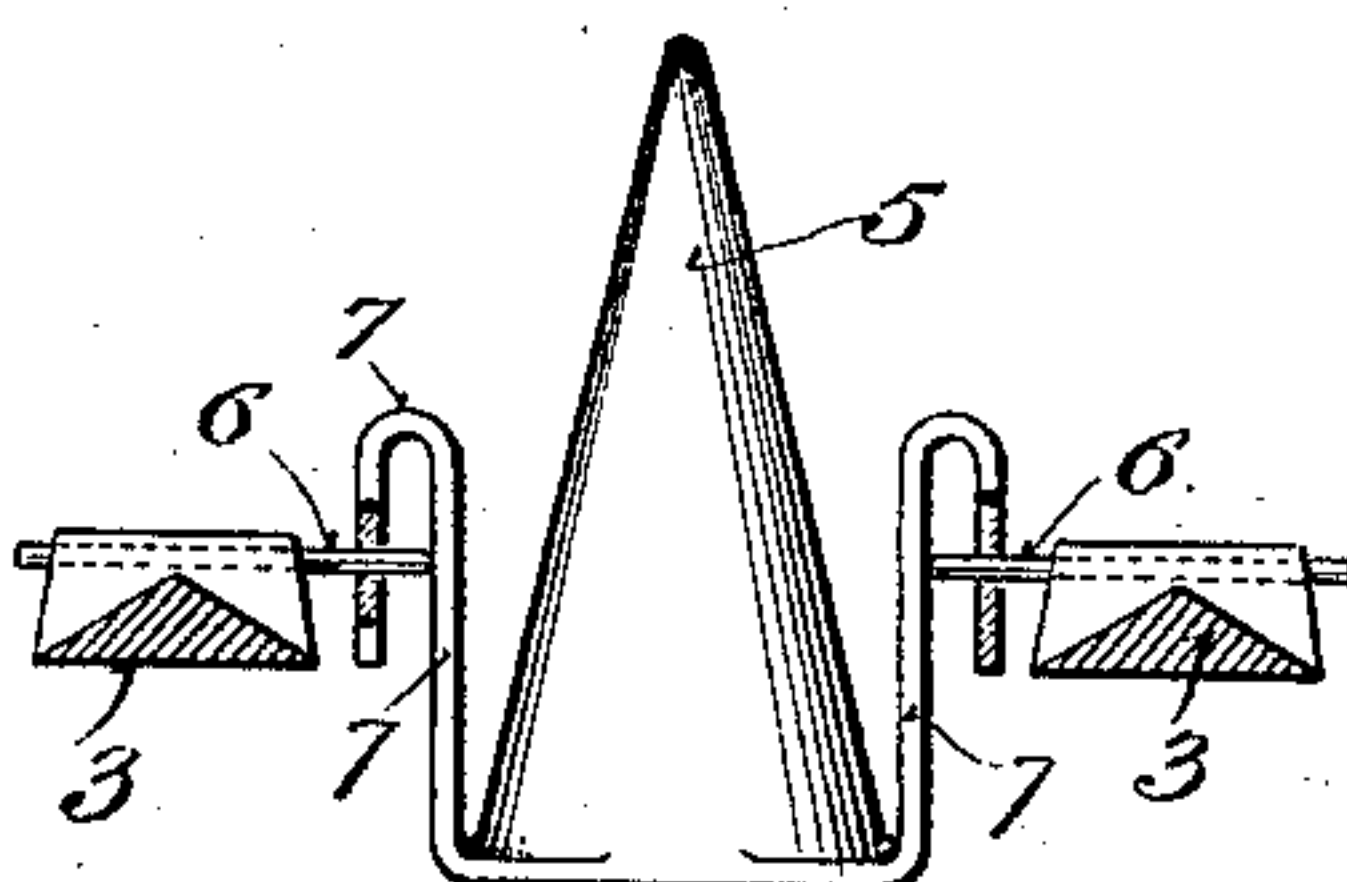
996,689.

Patented July 4, 1911.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
*Casimir Young*  
*May Downey.*

Inventor:  
*Hermann Wagner*  
 By *Clarence Young*  
 Attorneys.

# UNITED STATES PATENT OFFICE.

HERMANN WAGNER, OF WATERLOO, WISCONSIN.

## COMPASS-NEEDLE.

996,689.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed January 19, 1911. Serial No. 603,517.

*To all whom it may concern:*

Be it known that I, HERMANN WAGNER, a citizen of the United States, and resident of Waterloo, in the county of Jefferson and State of Wisconsin, have invented certain new and useful Improvements in Compass-Needles; and I do hereby declare that the following is a full, clear, and exact description thereof.

The uncertainty of an ordinary compass-needle is well known, and an equal distribution therein of the positive and negative elements of magnetism is impossible, because of the molecular condition of the steel from which it is made, but as equal forces balance one another, the equality of said elements of magnetism in a compass-needle is imperatively necessary in order that the needle may adjust itself to meridian position under the influence of lines of force emanating from etheric waves, the proper pivotal balance of said needle in a horizontal plane being assumed.

Hence my invention consists in what is herein particularly set forth with reference to the accompanying drawings and pointed out in the claims of this specification, its object being to eliminate the consequences arising from an unequal distribution of the positive and negative elements of magnetism in ordinary compass-needles and to provide compass-needles that are properly adjusted to the meridian so as to thereafter aline themselves therewith, when pivotally balanced in horizontal planes uninfluenced by local attraction.

Figure 1 of the drawings represents a plan view of one of my improved compass-needles, and Fig. 2, a central cross-section of the same.

Referring by numerals to the drawings, 3 indicates each of a pair of parallel bars either straight or curved coupled at their extremities by plates 4 each having a plurality of magnetic poles, the needle as a whole being preferably made from a single piece of steel. The plural poles are of the same number at each end of the needle, and like poles at both ends of said needle point in the same direction, the positive and negative poles being marked P and N respectively in Fig. 1. The bars 3 of the needle are shown centrally connected to an interposed pivot-cap 5, and it is preferable to provide said bars with trunnions 6 having their bearings in recurved wings 7 of the

pivot-cap to provide for movement of said needle in a vertical plane, its movement in a horizontal plane being upon a fixed cap-engaging pivot as is usual in the art.

To the plural poles at each end of the needle, the positive and negative elements of magnetism are separately applied and distributed as the meridian position of said needle in a horizontal plane may demand. Now, as each line of force emanating from an etheric wave is two-fold in its action, it repels a pole of its own nature and attracts to an opposite pole, and the opposite poles at each end of my improved compass-needle are brought to the closest possible proximity so that the etheric lines of force may exert their repelling and attracting power by the shortest route to therefore exert their greatest strength to further an energetic and decisive oscillation of said needle when the same is properly poised.

The needle to be magnetized is horizontally supported, and rubbed upon a bar thereof by the positive end of one and the negative end of the other of a pair of bar magnets, these magnets being moved outward from the middle of the opposing needle-bar toward its ends and back several times, after which said needle is turned over and its other bar similarly treated with said magnets. Care is taken that the reciprocation of the bar-magnets upon each needle-bar shall begin and leave off at approximately the middle of said needle-bar. By the operations aforesaid, the needle is thoroughly magnetized, and if broken into an indefinite number of pieces, each fragment will exhibit polarity, and like poles will all be in the same direction. After being magnetized, in the manner specified, the needle is tested in a non-magnetic room and adjusted to the meridian position, if necessary because of irregularities of the molecular conditions of the steel of which said needle is made. This adjustment is done with the proper pole of one of the aforesaid bar-magnets reciprocated in the manner aforesaid upon one or the other bars at the defective end of the needle.

The purpose of my invention is not to ascertain, in mariners' compasses the aberration of any magnetic needle due to local attraction in a ship, its cargo or machinery and to properly compensate for the same so as to bring the needle to its normal position, but instead to eliminate the consequences of



an unequal distribution of magnetism in such needles caused by irregularities of the molecular condition of the steel of which said needles are composed. Each of my  
5 needles is a unitary device comprising parallel longitudinal bars of magnetic metal and intermediate plates of like metal joining the extremities of said bars with which they are integral, each plate having at least one posi-  
10 tive and one negative pole and like poles of both plates point in the same direction. The parallel bars of the needle are conductors of an unbroken, uninterrupted magnetic current that flows to its lowest potential or the  
15 poles of least resistance in said needle. Hence there is equalization of magnetism in the needle, as well as an energetic and decisive oscillation of the same when properly supported.

20 I claim:

1. A compass-needle consisting of a pair of parallel bars of magnetic material having

end unions of like material and each union provided with a plurality of poles, the plural poles being of the same number at each  
25 end of the needle and like poles at both ends of said needle pointed in the same direction.

2. A compass-needle consisting of a pair of parallel bars united at their extremities and each union provided with a plurality  
30 of poles, the plural poles being of the same number at each end of the needle and like poles at both ends of said needle pointed in the same direction, a pivot-cap between the bars, and trunnions connecting said bars and  
35 cap.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

HERMANN WAGNER.

Witnesses:

N. E. OLIPHANT,  
MAY DOWNEY.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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