

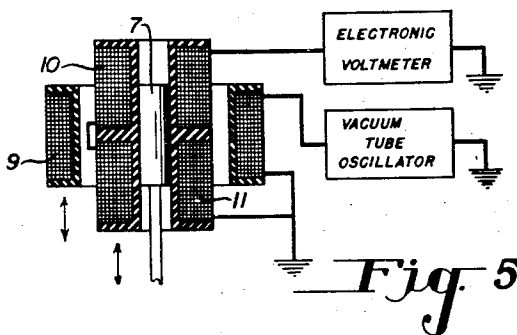
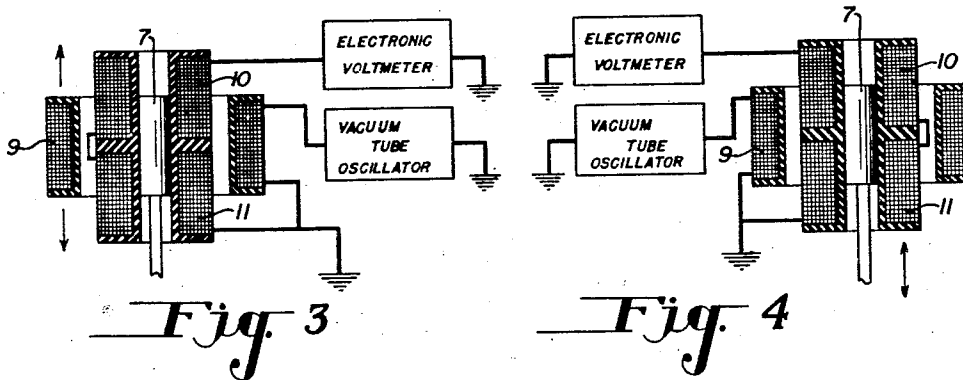
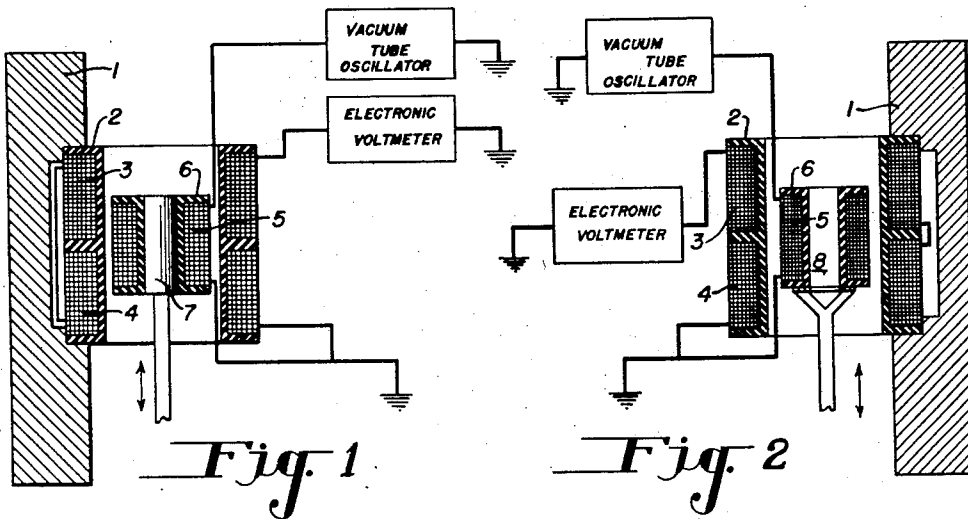
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J. J. NEFF

2,452,862

ELECTRIC GAUGING HEAD

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INVENTOR.

JOSEPH J. NEFF

BY

Frank H. Harmor

ATTORNEY

UNITED STATES PATENT OFFICE

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ELECTRIC GAUGING HEAD

Joseph J. Neff, South Euclid, Ohio, assignor, by
mesne assignments, to Jack & Heintz Precision
Industries, Inc., Cleveland, Ohio, a corporation
of Delaware

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3 Claims. (Cl. 171-119)

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This invention relates in general to electronic gauges and more particularly to gauge heads and has for one of its primary objects to provide an improved displacement pickup unit to include a driving coil and a pair of pickup coils, the pickup coils being contained in a single coil form and arranged concentrically with respect to the driving coil, the windings of the three coils being coaxially arranged, whereby the driving coil may fixedly carry an iron or air core and be disposed for relative longitudinal movement either inside of or outside of the pickup coils or the pickup coil form may carry the core and be disposed within the driving coil for relative longitudinal movement.

With the foregoing and other objects in view the invention consists in the combination of parts and in the details of construction hereinafter set forth in the following specification and appended claims, certain embodiments thereof being illustrated in the accompanying drawings, in which:

Figure 1 is a schematic sectional illustration of one form of gauge head and wiring diagram to include the oscillator and electronic voltmeter circuit, the two pickup coils being stationary and the driving coil carrying an iron core for movement longitudinally inside the two pickup coils;

Figure 2 is a similar view of a similar arrangement showing an air core instead of an iron core;

Figure 3 is a similar view of a modified form in which the pickup coils are stationary and carry the iron core and the driving coil is movable longitudinally outside of the pickup coils;

Figure 4 is a view similar to Figure 3 of a form in which the pickup coils with the iron core are longitudinally movable inside the stationary driving coil; and

Figure 5 is a view similar to Figures 3 and 4 in which the driving and pickup coils are both movable longitudinally with respect to each other.

Referring more particularly to the drawings, Figure 1 shows one form of the invention in which the housing shown schematically at 1 has anchored thereto a coil form 2 with a pair of longitudinally arranged pickup coils 3 and 4. Suitably arranged for longitudinal movement within the two pickup coils is a driving coil 5 in a coil form 6 inside of which is fixed an armature, or iron core, 7. The windings of the three coils are coaxially arranged.

As a variation, Figure 2 shows a similar arrangement in which an air core 8 may be substituted for the iron core 7 of Figure 1.

In Figure 3 the coils are varied to the extent that the pickup coils 10 and 11, fixed to the ar-

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mature 7, are of lesser diameter and fixed to a stationary support while the driving coil 9 is mounted concentrically about the pickup coils for movement longitudinally thereof.

In Figure 4 the same general arrangement of Figure 3 is shown except that the driving coil 9 is fixed to a stationary support and the pickup coils 10 and 11 with their armature 7 are movable longitudinally of the driving coil.

In Figure 5 the same general arrangement of Figures 3 and 4 is shown except that the driving coil 9 and the pickup coils 10 and 11 with their armature are both movable longitudinally with respect to each other.

In each instance the driving coil is arranged concentrically with respect to the two pickup coils and the armature is fixed to either the driving coil or the pickup coils. In each instance the windings of the coils are coaxially arranged and the armature is fixed to one and movable with respect to another type of coil.

Also in each modification the wiring diagram including leads from the coils to a circuit including a vacuum tube oscillator and electronic voltmeter circuit are similar to each other and generally similar to that shown in the U. S. Patent to Joseph J. Neff for Electrical caliper, No. 2,364,237, dated December 5, 1944.

I claim:

1. In an electrical displacement pickup mechanism, a pair of longitudinally arranged contiguous pickup coils of uniform outside diameters and coaxial windings, a driving coil disposed concentrically with respect to said pickup coils, an armature arranged concentrically within all of said coils and attached to one or more of said coils, said driving coil and said pickup coils being mounted to be relatively movable longitudinally of each other.

2. In an electrical displacement pickup mechanism, a pair of longitudinally arranged contiguous pickup coils of uniform outside diameters and coaxial windings, a driving coil disposed concentrically within said pickup coils, an armature arranged concentrically within all of said coils and attached to one or more of said coils, said driving coil and said pickup coils being mounted to be relatively movable longitudinally of each other.

3. In an electrical displacement pickup mechanism, a pair of longitudinally arranged contiguous pickup coils of uniform outside diameters and coaxial windings, a driving coil disposed concentrically within said pickup coils, an armature arranged concentrically within all of said coils and

attached to said driving coil, said driving coil being mounted to be movable longitudinally within said pickup coils.

JOSEPH J. NEFF.

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