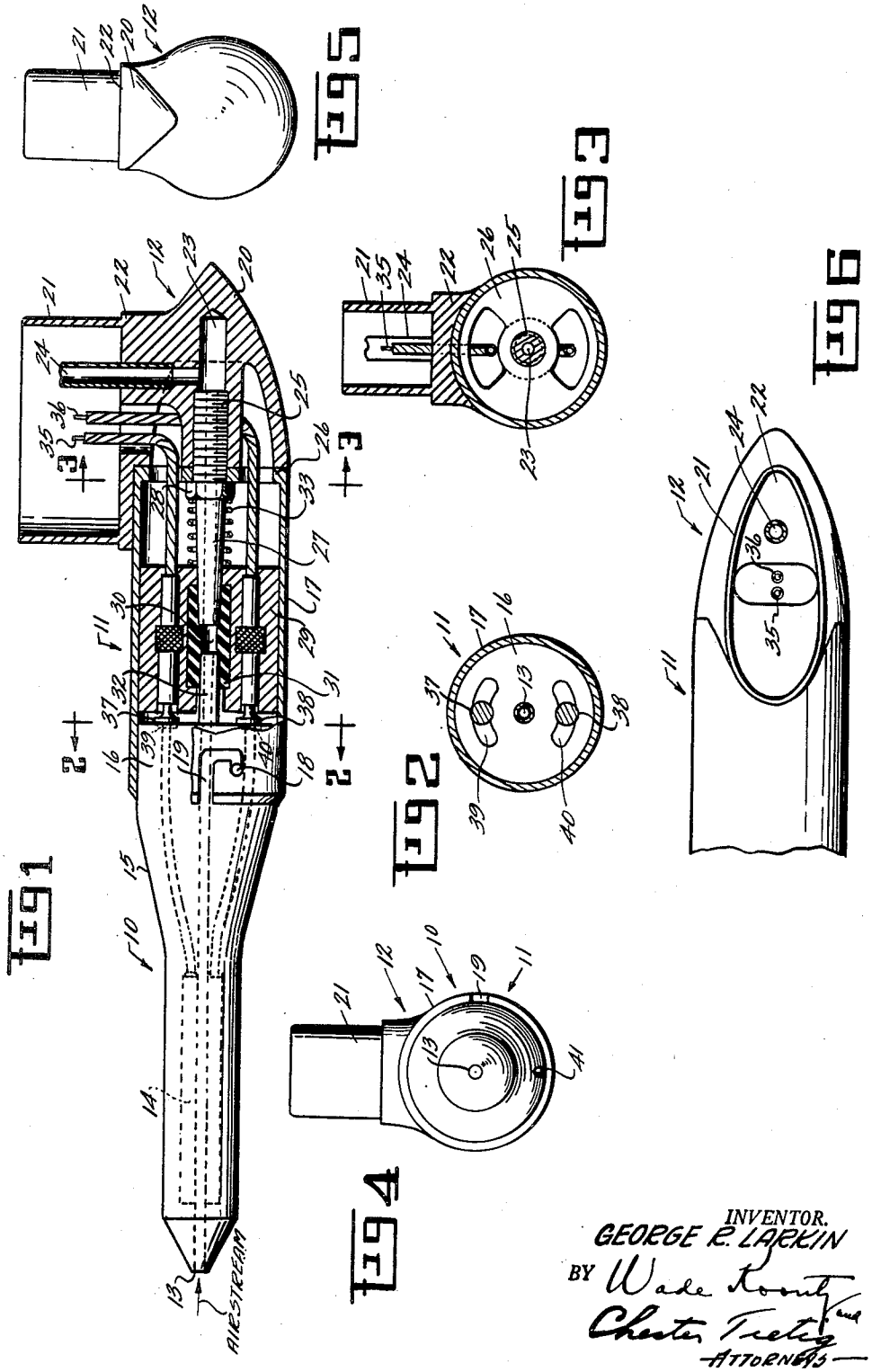
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PITOT TUBE UNIVERSAL MOUNTING

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PITOT TUBE UNIVERSAL MOUNTING

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The invention described in the specification and claims may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to a Pitot tube universal mounting and is an improvement of my previous Patent 2,510,986 of June 13, 1950.

Briefly stated, the invention comprises a Pitot tube mounting in three detachable sections arranged end to end, the intermediate section being so positioned that the location of the specially designed bayonet section between this section and outermost section is such that the drain hole of the latter will be automatically positioned at the bottom hereof whenever it is replaced after removal.

Among the objects of the invention therefore is a provision of an easily demountable Pitot tube mounting.

Another object of the invention is a provision of a Pitot tube mounting, the parts of which are easily assembled and disassembled and are so simplified that they may be readily molded in large quantities of synthetic resin plastic.

Another object of the invention is a provision of a Pitot tube mounting, the two rear parts of which may be so adjusted that when the fore or tube part is inserted in the middle part to complete assembly, the drain hole of the tube will always be toward the bottom when the parts are completely assembled, and the electrical heating connections will be completed at the same time.

Another object of the invention is to provide a quick disconnect joint for the Pitot tube from its mounting so that no wires need be loosened in order to make an electrical disconnection.

Referring now to the accompanying drawings,

Fig. 1 is a side elevation partly in section, of the entire device, including the tube.

Fig. 2 is a cross-section of the entire device taken on the line 2—2 of Fig. 1.

Fig. 3 is a cross-section of the entire device taken on the line 3—3 of Fig. 1.

Fig. 4 is a front elevation.

Fig. 5 is a rear elevation.

Fig. 6 is a plan view of a fragment comprising the rear portion of the mounting.

Referring now particularly to Fig. 1, 10 is the Pitot tube itself, 11 is the middle part of the device and 12 is the rear part. The Pitot tube as is well known in aeronautics, is a tube of small internal diameter, the front opening of which is 13 and the interior of which is electrically heated by a heater 14 shown diagrammatically in dotted line. 15 is a conical part, which increases diameter to that of a cylindrical part 16 which is adapted to fit snugly inside a cylindrical casing 17 which is the outer container of the middle section 11. The cylindrical part 16 of the tube 10 is provided with a button 18 which cooperates with a bayonet slot 19 in the cylindrical portion 17 to lock these two parts together in predetermined relation.

The rear portion 12 provides a streamline stern 20 which is surmounted by a collar 21 about the lower end of which is a flange 22. The portion 12 is provided with a longitudinal bore 23 through which the airstream from the tube is conducted. Connected to the bore 23 from above is a tube 24, preferably of semi-flexible plastic material which may be connected to a pressure measuring instrument (not shown) located above the collar 21. In the forepart of the bore 23 there is threadedly mounted a long nipple 25, which projects beyond the line 26 which

is a dividing line between the molded portion of part 12. A conical flanged fitting 27 is joined to the nipple 25 by a nut 28 which holds the fitting by its flange. The forepart, which is the narrower one, of the conical fitting 27 extends into a molded cylinder 29, in which there are three channels, the central one being 30 and containing a soft silicone rubber sleeve 31 for the reception of the fitting 27 and a second fitting 32, which is a part of the tube 10. The tube, the fitting 32, the channel 30 and the fitting 27 all conduct air pressure through the middle part 11 of the assembly and deliver it through the nipple 25, the bore 23 and the tube 24 to the measuring instrument (not shown). A spring 33 encircles the fitting 27 to lock the nut 28 and to correctly space the cylinder 29 from the nut 28. The collar 21 is intended to cooperate with a downwardly directed port (also not shown) in an aircraft or other vehicle, so that the port will fit around the collar 21 and butt on the flange 22 with a snug fit, sufficiently tight to support the entire assembly against vibration.

As will be seen from Fig. 1, the tube portion 10 is provided with integral molded electrical contacts 39 and 40 which are flush with the line 2—2.

Part of the function of the spring 33 is to insure that there is sufficient pressure behind the terminals 37 and 38 to furnish good electrical contact with corresponding arcuate terminals 39 and 40 (see Fig. 3). It will be evident therefore that when the Pitot tube 10 is inserted by its base or cylindrical portion 16 into the middle portion 11 of the mounting, that a predetermined relation between the position of the button 18 and that of the arcuate contacts 39 and 40 will insure contact of the terminals 37 and 38 with them when the button 18 is completely inserted into the bayonet slot 19. At the same time, a drain hole 41 will then be at substantially the bottom point of the Pitot tube 10 so that any moisture entering the tube 13 will find its way out of the drain hole 41 by the force of gravity. The spacial relationships between the positions of the hole 41, the button 18 and the arcuate contacts 39 and 40 are of the essence of the invention. Experts in the possession of this disclosure will know how to space them without further instructions.

I claim as my invention:

1. In a Pitot tube and mounting therefor, a Pitot tube, a drain opening in the tube, means for electrically heating said tube, cylindrical means including a bayonet lock for supporting said tube by its rear end and positioning said drain opening at the lowermost point, means for transmitting air pressure through said cylindrical means, means for carrying a heating current through said cylindrical means, terminals on both said Pitot tube and said current carrying means for transmitting heating current to the interior of said tube, means cooperating with said cylindrical means to provide an upward path substantially at a right angle to said tube and to said cylindrical means, and a collar integral with said cooperating path-providing means for attaching the completely assembled device to a co-operating port in a vehicle.

2. The combination comprising a Pitot tube, a casing therefor and a mount therefor, said Pitot tube and its casing being the forward portion of the combination, a substantially cylindrical body being the middle portion and a collared, flanged part being the rear portion, said rear portion containing right-angled passages for the transmission of electric current and pressure indications, the middle portion containing a multi-channel block, a projecting portion on the rear part of the Pitot tube adapted to fit a channel in said block and to transmit pressure therethrough, terminals projecting from said block for transmitting current to terminals on the rear of said Pitot tube, arcuate terminals on said Pitot tube flush with a rear wall thereof, said tube casing having a drain hole in the bottom thereof and a button on the side thereof, said middle portion of the mount having a bayonet slot adapted to cooperate with said button the relative positions of the button and arcuate terminals being such that when the Pitot tube and the middle portion of the mount are locked together by the bayonet slot and button, the electrical terminals in the middle section of the mount and in the rear wall of the Pitot tube are in con-

tact and the drain hole is substantially at its lowest possible point.

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