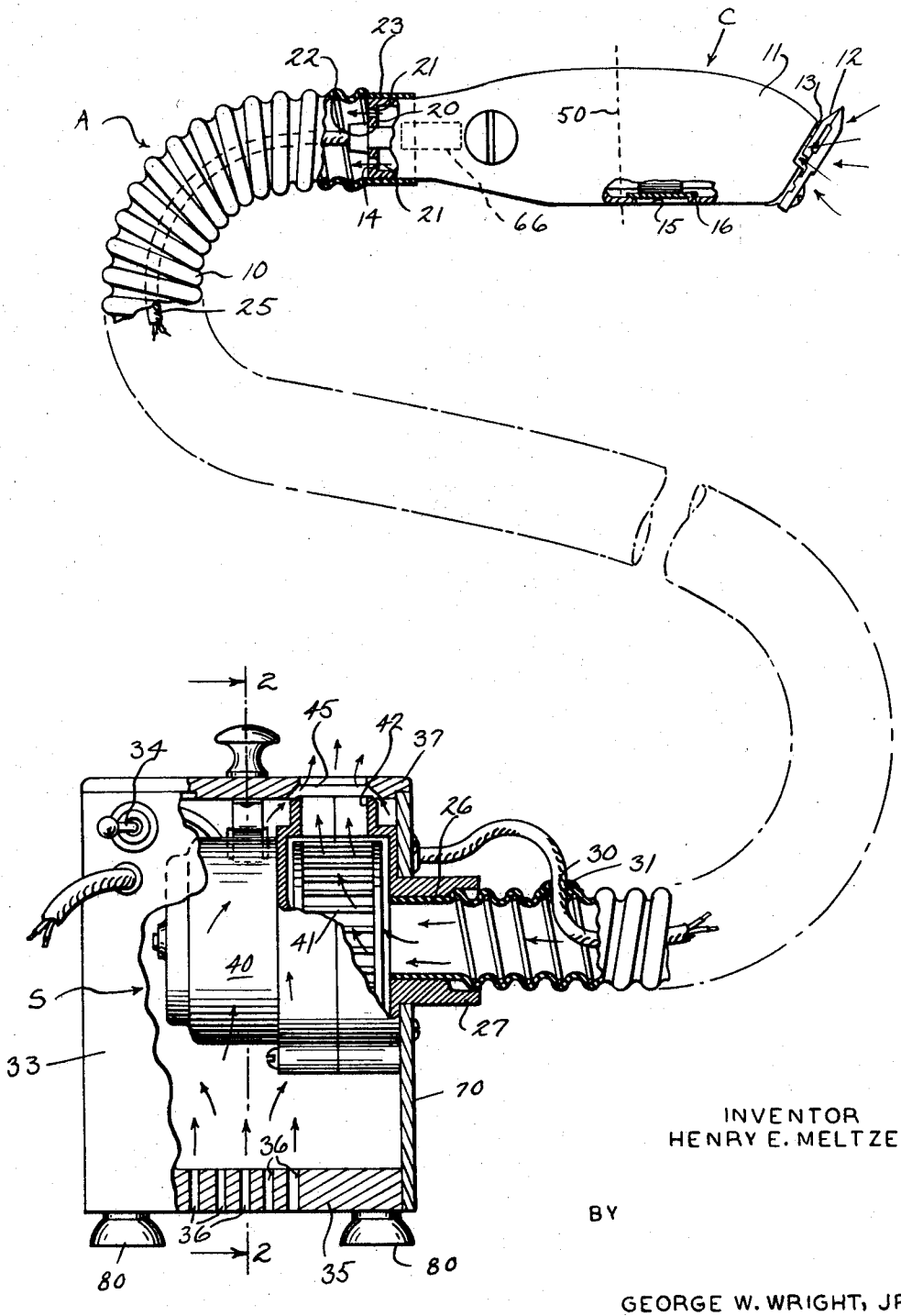
May 21, 1968 H. E. MELTZER 3,383,765

FORCED AIR COOLED HAIR CLIPPER

Filed March 7, 1967 2 Sheets-Sheet 1

Fig. 1



INVENTOR
HENRY E. MELTZER

BY

GEORGE W. WRIGHT, JR.

May 21, 1968 H. E. MELTZER 3,383,765

FORCED AIR COOLED HAIR CLIPPER

Filed March 7, 1967 2 Sheets-Sheet 2

Fig. 2

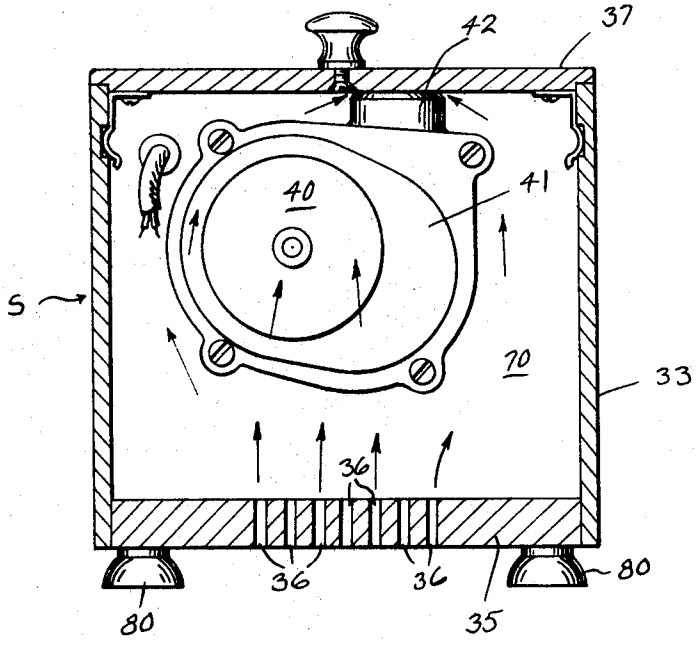
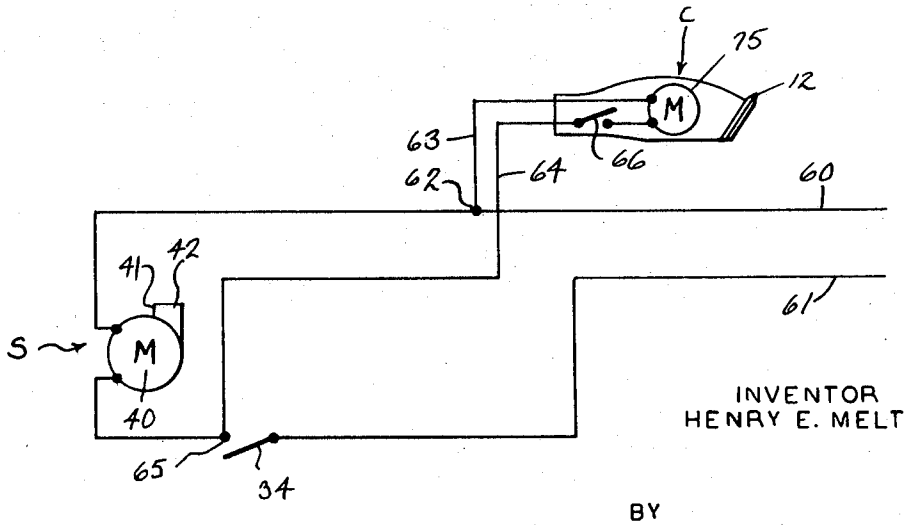


Fig. 3



INVENTOR
HENRY E. MELTZER

BY

GEORGE W. WRIGHT, JR.

United States Patent Office 3,383,765 Patented May 21, 1968

3,383,765

FORCED AIR COOLED HAIR CLIPPER

Henry E. Meltzer, 1745 Flett St.,
Racine, Wis. 53403

Filed Mar. 7, 1967, Ser. No. 621,235
2 Claims. (Cl. 30—123)

ABSTRACT OF THE DISCLOSURE

A forced air cooled electric hair clipper of the type having a sealed outer casing open at its front and rear end terminations. A cutter head at the front end termination and a flexible hose or tube connected to the rear end termination in open communication with a suction apparatus for circulating relatively cool air about and around the clipper head and through the working parts in the clipper casing for cooling purposes.

In the continuous use of electric appliances and particularly in the barbering field, the motor within the casing of the electrical apparatus eventually becomes quite hot. Undue, prolonged heat within the casing of the appliance not only causes wear and tear on the working parts, but particularly in hair clippers and the like, causes a discomfort to the operator of the clipper as well as to the customer, especially when the clipper head comes in contact with the skin. It has been the practice in the past, to have two or three clippers and the barber would switch from one to the other as each clipper became unduly warm. Where it is necessary to use clippers constantly, even two or three clippers are not enough to avoid discomfort to the user and customer and avoid, as mentioned, overheating.

There has long been a need for some means to cool the hair clipper while in use and also during the brief periods it may not be in use. To my knowledge, the only attempts in the past have been to use ventilating apertures or slots in the casing of the clipper and while this helps, there was no positive means provided to actually draw the ambient air through the casing and working parts.

It is, therefore, a primary object of my present invention to provide a positive means for drawing air through and about the clipper casing, thereby overcoming all of the difficulties in the present use of hair clippers, and cooling the motor and all the working parts.

Another important object is to provide a hair clipper wherein the outer casing is completely sealed except at its front and rear end terminations and to provide means for drawing air through the front opening entirely through the casing and out the rear end termination.

A further object is to provide a novel apparatus having a motor operated suction fan carried within a substantially rectangular shaped casing wherein the suction port is connected at one end to a flexible hose or tubing, which is in turn secured to the rear end termination of the clipper casing, whereby upon rotation of the suction fan, air will be drawn through the clipper casing and tubing.

Still another object of the present invention is to provide means for cooling both the suction fan motor and the motor and working parts of the hair clipper.

A salient feature of the present invention resides in providing novel means for drawing relatively cool air through the clipper head and casing of the clipper and for preventing the operation of the clipper when the cooling apparatus is inoperative or is in its "off" position.

Another important object of the present invention is to provide novel means associated with the outlet port of the suction apparatus so that not only is air drawn through the inlet port upon rotation of the fan but also by a type of

venturi action through the housing of the suction apparatus.

A further object of the present invention is to provide a simple, practical and reliable construction that is economical to manufacture, easy to assemble and positive in its operation.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings in which,

FIGURE 1 is a side elevational view in perspective, showing the apparatus in its operative position with certain parts being broken away and in section to illustrate details in its construction;

FIGURE 2 is a vertical transverse section through the suction apparatus, the section being represented by the lines 2—2 of FIGURE 1 of the drawings, looking in the direction of the arrows, and

FIGURE 3 is a diagrammatic view illustrating one type of electric circuit for the apparatus and hair clippers.

A clearer understanding of the construction and method of operation of this invention may be had by referring to the drawings (forming a part of the present specification), wherein like reference characters designate the same or similar parts throughout the several views.

The letter A generally indicates the new and improved forced air cooled electrical appliance and the same includes broadly a hair clipper C, suction apparatus S connected through a flexible hose or tubing **10**. The specific structure of the hair clipper C may be of any standard or conventional type and as such does not form a material part of the present invention except that certain minor modifications may have to be made to adapt the particular hair clipper to the present invention. Therefore the clipper C broadly includes an outer casing **11** and a clipper head **12**. The clipper head is usually operated by means of an electric motor and the like, not shown, and as stated may be of any standard construction. It is important, however, that the outer casing of the clipper be open only at its front and rear end terminations **13** and **14** respectively. All other parts of the casing **11** are uniform and sealed. Thus, if the clipper casing is provided with slots or apertures indicated by the reference numeral **15** to normally provide for the ingress and egress of air, these openings should be sealed and may be sealed by providing a length of insulation material **16** over the slots or apertures. Clippers that are manufactured with the novel forced air cooling means in mind, will be constructed with no apertures throughout the entire length of the casing **11**, except at the aforementioned rear end terminations **14** and openings will be left for the mounting of the clipper head **12** etc. When the clipper head **12** is mounted to the front end of the clipper the inherent characteristics will provide spaces and openings through which air may circulate. The rear wall **20** of the clipper is preferably provided with a series of apertures **21** and through the center axial opening **22** the electric cord extends. While the flexible hose or tube **10** may be of any desired construction, it is preferable to have the same of a resilient material and the sleeve **23** thereof is received about the rear portion of the clipper casing **11** and sealed so that upon the application of suction in the tubing, air can only be drawn through and about the clipper head **12** and through the entire inner portions of the casing, as indicated by the arrows in FIGURE 1. It should be noted that the electric cord **25** is carried within the flexible hose or tubing **10** and it should be noted that the opposite sleeve **26** of the tubing **10** is received within and sealed to the inlet throat **27** of the suction

apparatus S. The electric cord 25 adjacent the sleeve 26 extends through the tubing wall as indicated by the reference numeral 30 and a sealing gasket or plug 31 may be used to prevent air from being drawn through the aperture. Cord 25 then extends into the housing 33 of the suction apparatus and is in circuit with a source of power and "On" and "Off" switch 34 as shown in FIGURE 3 of the drawings, and as will be explained in detail, as the description proceeds.

The suction apparatus S as previously mentioned is carried within a substantially rectangular shaped box-like housing 33, the bottom wall 35 of which is provided with a series of apertures 36 and the open upper end is closed by a removable cover 37 as shown more particularly at the bottom of FIGURE 1 of the drawings and in FIGURE 2.

The suction apparatus S may also be of any conventional construction to include a motor 40 driving a suction fan 41, which in turn is connected to the aforementioned inlet port 27 and outlet port 42. The outlet port terminates adjacent the upper open end of the housing 33 and to allow air to be drawn in the direction of the arrows, FIGURES 1 and 2, through the inlet port and out the outlet port, a hole 45 is provided in the cover 37 in alignment with the open throat portion of the outlet port 42. Preferably the inner wall of the aperture 45 is flared outwardly to provide a conical shaped inner end which is spaced from and does not close or seal the outlet port 42. Thus, when the fan is rotated, not only will the air be drawn through the flexible hose or tubing 10 and out the outlet 42 but due to a type of venturi action, air will be drawn through aperture 36 in the bottom wall 35 and about the motor casing 40 and out the hole 45. Thus, the motor 40 operating the suction fan 41 is cooled as well as the clipper by means of the action created by a single suction fan.

Inasmuch as it is contemplated to provide an "On" and "Off" switch 34 for the suction apparatus, generally speaking the suction apparatus will be operated when the clipper is on or off, and this is usually desirable unless the clipper is to be put aside for an extended length of time. Therefore, it is important that the motor and inside of the casing 33 be sufficiently cooled, and this then is the reason for providing the novel shaped hole or aperture 45 previously described. Attention is now directed to FIGURE 3, wherein a simple electrical diagram is illustrated. The two main lines 60 and 61 may be connected to any source of electrical energy and are in turn connected to the electric motor 40 of suction apparatus S. Line 61 is provided, however, with the aforementioned "On" and "Off" switch 34. The electric clipper is in circuit with line 60 at the point 62 through line 63 and the other line 64 is in circuit with line 61 at a point 65 adjacent the open part of the circuit from switch 34. The clipper which is also provided with an "On" and "Off" switch 66 cannot be operated, i.e., its motor 75 cannot be excited until the circuit is completed by closing the switch 34. When switch 34 is closed the motor M of suction apparatus S will immediately be excited and operate to turn the suction fan. Thus air will be constantly drawn through the inner portion of casing 11 of the clipper C regardless of whether the clipper is running or not. Again, it should be obvious that the suction apparatus S may be of any desired type and of course, the outer casing may be any standard construction and can be secured to one wall 70 of the housing 33 by means of screws or bolts, as shown. Housing 33 may of course be supported in any desired manner but preferably is provided with feet 80 at each corner and which are secured to the under surface of wall 35. These feet may be in the nature of suction cups if desired, and serve not only to firmly support the housing 33 on a surface but also to space the bottom wall 35 from its supporting surface so that air may circulate freely through the apertures 36.

From the foregoing, it can be seen that when the motor 40 is operating and the suction fan rotating, air is drawn through the clipper head 12 as indicated by the arrows, through the casing 11 of clipper C thereby cooling its motor and working parts, and the air proceeds out the apertures in the rear wall 14 through the flexible hose 10 and out the outlet throat 42. At the same time, as previously mentioned, the flow of air from the exhaust or outlet throat 42 causes air to be circulated within housing 33 and about the motor casing 40 for the suction apparatus to cool it.

This then means that the useful life of the hair clipper is greatly extended, and further the comfort to the user and to the customer is greatly enhanced. Numerous laboratory tests have been conducted using identical hair clippers, both with the cooling apparatus associated therewith and without the same. In one such test, both clippers were run for fifty minutes. The ambient temperature was 75 degrees F. At the end of the fifty minutes, the following results were noted: utilizing the apparatus of the present invention, the hair clipper head 12 where it contacted the face of the customer was 98 degrees F. The clipper was held in the hand at a point to the rear of the dotted line indicated by the reference numeral 50, which is the normal place for barbers and tonsors to hold hair clippers while in use. The temperature where the thumb of the user contacted the case was 98 degrees F., and where the fingers contacted the case was 112 degrees F. Where the palm contacted the casing 124 degrees F. was registered. The same clipper without using the novel apparatus and teaching of the present invention had the following temperatures. Where the clipper head contacted the face 140 degrees F.; where the thumb of the user contacted the casing 111 degrees F.; where the fingers contacted the casing 125 degrees F. and where the palm contacted the casing 144 degrees F. Thus it can be seen that by utilizing the present invention, a significant reduction of temperature was had and, particularly in relation to customer comfort, it should be noted that the clipper head did not exceed 98 degrees F. (approximately normal body temperature).

It should again be stressed that while I have shown and described the invention as more particularly relating to cooling hair clippers, the same is especially adaptable to many other types of electrical appliances, for example, works very well with small hand grinders. Hand grinders utilize a rotary motor within the case and are usually equipped with a small fan within the casing. When the grinder is not in operation the fan does not rotate and thus the heat will continue to accumulate within the casing. By utilizing the teachings of this invention, the air would be continuously circulated through the casing for cooling the fan even when the grinder is not being operated.

Therefore, while I have shown and described an extremely efficient and effective way of cooling hair clippers and the like and certain embodiments of my invention, it will be understood that these embodiments are merely for the purpose of illustration and description, that various other forms may be devised and that changes may be made in the proportions and minor details of construction, without departing from the spirit of the invention or scope of the appended claims.

What is claimed as new is:

1. In combination, a forced air cooled electric clipper having a uniform sealed outer casing open at its front and end terminations, a clipper head secured adjacent said open front end termination, a length of flexible tubing, one end of said tubing having a smooth sleeve portion received over the rear end termination of said clipper casing, a suction apparatus remote from said clipper having an inlet throat and an outlet throat, the other end of said flexible tubing being received within said inlet throat, whereby upon operation of the suction apparatus air will be drawn around and about said clipper head through said clipper casing and out the exhaust throat of the exhaust apparatus thereby cooling the working parts of said clipper, said suction apparatus being supported within an

enclosed housing having top, bottom and side walls, said outlet throat terminating adjacent the inner surface of the top wall, said top wall having an aperture in alignment with the exhaust outlet throat of said suction apparatus, said aperture in alignment with said exhaust throat is believed at its inner edge to provide a space between the upper peripheral edge of said exhaust throat and said aperture to provide a venturi effect, said bottom wall of said housing being provided with a series of apertures, whereby upon operation of the suction apparatus air will be drawn through the clipper body and tubing and air emanating from the exhaust will draw and circulate air in and about the housing.

2. A forced air cooled electric hair clipper as set forth in claim 1, wherein said suction apparatus includes, a suction fan between said inlet throat and said exhaust outlet throat, a motor for rotating said fan, and an electric circuit for said fan motor and clipper including, an On and Off switch for said clipper and an On and Off switch for said fan motor, said On and Off switch for said fan

motor being positioned in said circuit between the source of power and said clipper On and Off switch, so that the motor for rotating said fan must be in closed circuit before the motor for operating said electric clipper can be excited.

References Cited

UNITED STATES PATENTS

2,748,472	6/1956	Sheley et al.	30—133
2,297,735	10/1942	Allen	30—133
3,073,026	1/1963	Schaedler	30—133
1,260,282	3/1918	Harrold	15—413 X

FOREIGN PATENTS

1,224,592	6/1960	France.

WILLIAM W. DYER, JR., *Primary Examiner.*

OTHELL M. SIMPSON, *Examiner.*

G. WEIDENFELD, *Assistant Examiner.*