

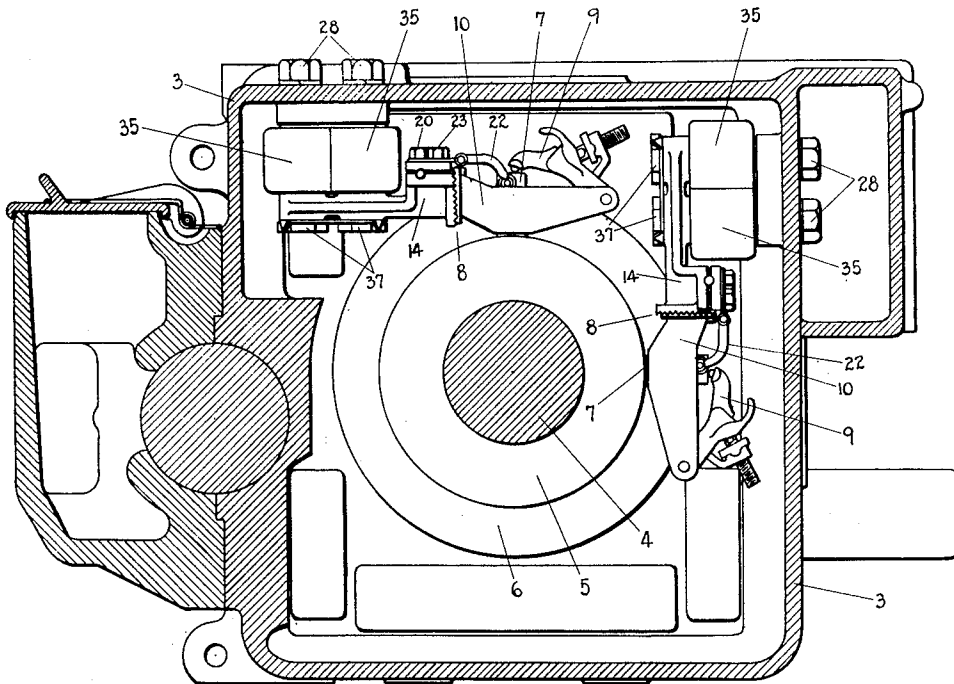
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W. J. BAUROTH

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ELECTRICAL CONDUCTOR SUPPORT

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ELECTRICAL CONDUCTOR SUPPORT

Walter J. Bauroth, Columbus, Ohio, assignor to
The Jeffrey Manufacturing Company, Colum-
bus, Ohio, a corporation of Ohio

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2 Claims. (Cl. 173—251)

This invention relates to new and useful im-
provements in electrical conductor supports, and
more particularly to that type including an in-
sulating block which is characterized by its much-
desired dielectric strength. However, it has been
found that in certain uses where this great dielec-
tric strength of the insulating block is essential,
it does not possess the requisite mechanical
strength to resist stresses causing breakage of the
insulator.

Accordingly, it is the object of this invention
to equip the electrical conductor support with
means for preventing breakage of such insulat-
ing blocks, and more specifically, means for di-
verting breaking stresses from the frangible in-
sulator to parts of the conductor support which
are able to withstand such stresses.

Another object of the invention is to provide
means for preventing accidental shifting move-
ment of the insulator supports with respect to
the device upon which they are supported.

Another object of the invention is to provide
means for preventing accidental movement of a
conductor with respect to the insulating supports,
and to provide a locking arrangement for holding
the conductor in its proper relation with respect
to the insulating supports.

A still further object of the invention is to pro-
vide a sectional conductor bracket which may be
readily adjusted without disturbing the electrical
cable connection between the sections.

Other objects and advantages of the invention
will become apparent during the course of the
following description:

In the accompanying drawing forming a part
of the application, and wherein like numerals are
employed to designate like parts throughout the
several views:

Figure 1 is a cross section of a motor and cas-
ing illustrating the invention applied thereto, and

Figure 2 is an enlarged side elevation of the
conductor support, the parts thereof being shown
in section to illustrate the internal construction
of various parts.

Referring now more particularly to the draw-
ing, the numeral 3 designates the field frame of
an electric motor including an armature shaft
4 upon which is mounted a commutator 5 operat-
ing in conjunction with an armature 6 as is well
understood in the art. A plurality of brushes 7
engage the commutator 5 and are carried by sec-
tional brush holders 8, all of which are of the
same construction.

As is customary, each brush holder is provided
with a pivoted and adjustable brush engaging

device 9 for retaining the brush in proper en-
gagement with the commutator. This brush en-
gaging device is pivoted to the outer end of each
brush holder. The inner end of the outer section
10 of each sectional brush holder is provided with
a slotted end wall 11 and a ribbed face 12 hav-
ing ribs extending transversely of the slot in the end
wall. This ribbed face is engaged with a corre-
sponding ribbed face 13 provided on the other
section 14 of the brush holder, and is retained
in the desired adjusted position with respect to
the same by a bolt 15 extending through the
slotted end wall 11 and into a threaded recess ex-
tending longitudinally of the section 14, as shown
in dotted lines in Figure 2.

The section 14 of the brush holder serves as a
conductor and is provided with a conductor ter-
minal clamp 16, illustrated in the present instance
as being formed by a seat 17 in the section 14
cooperating with a corresponding seat 18 in a
clamping jaw 19 secured to the section 14 by
means of a set screw 20. A second clamp 21 for a
brush conductor lead 22 is secured to the clamping
plate 19 by means of a set screw 23.

The brush holder section 14 includes an arm
section equipped with a pair of spaced apertures
24 surrounded at both ends with outwardly pro-
jecting flanges or bosses 25 for a purpose which
will be presently described.

In order to support and insulate the brush hold-
ers from the field frame without causing break-
age of the necessary insulation adapted for high
voltage current, a special insulated support has
been designed. Two of such supports are em-
ployed for supporting each brush holder, and as
both of them are alike in construction, a de-
scription of one will suffice for both. Each
of these supports consists of a metallic member 26
having a threaded opening 27 in one end in which
is received a bolt 28 which passes through an
apertured boss in the field frame 3 for rigidly
securing the support thereto; it being noted that
the boss of the field frame is securely clamped
against one end of the metallic block 26.

The other end of the metallic member 26 is pro-
vided with a flange 29 forming a socket or cup
for the reception of a head 30 of a screw threaded
stud or bolt 31. Insulating material 32 elec-
trically insulates the stud from the metallic cast-
ing 26 and is molded around the head 30 and
extends out around the shank of the stud adjacent
the head as clearly designated by the numeral
33. After the insulating material has been placed
in the cup, the flange 29 is rolled to the shape
shown which holds the insulation and head in

place. The shank of the stud 31 extends a substantial distance beyond the insulation 33 and a nut 34 is threaded upon this shank up to a certain distance determined by the thickness of the insulating material 35, in which the casting 26 is to be embedded. This insulating material 35, in order to possess the high degree of dielectric strength, is preferably a composition of fibre and rosin or shellac, and is molded around the casting 26 and shank of the stud disposed between the nut 34 and the casting. Surrounding the nut 34, the insulating block 35 is provided with a depression 36 to avoid contact with the brush holding arm 14. Avoidance of contact between the insulating block 35 and the brush holder 14 is essential to eliminate the imposition of any breaking stresses upon the dielectric block 35. This is the reason why the nut 34 is provided with a direct and positive connection with the stud so as to divert breaking strains directed by the brush holder upon the insulation 35 away from this block of insulation and to the metallic stud.

The outer end of each stud 31 extends beyond its nut 34 and is adapted to be received in the enlarged openings 24 of the conducting brush holder to receive a sleeve nut 37 having a flange 38 for drawing the brush holder 14 toward the frangible insulating block 35 and into engagement with the nut 34 which directs the stresses into the stud 31 to prevent breakage of the highly frangible insulating material 35. In order to lock the nuts 37 against accidental rotation, a locking plate 39 having apertures for the two nuts is interposed between the flanges of the nuts and the bosses of the brush holder and are equipped with a pair of angularly disposed projections 40 which are bent to engage the polygonal sides of the nut flanges.

By supporting each brush holding arm 14 with a pair of studs 31, the brush holding arm is prevented from rotation about either of the studs as axes. In order to prevent rotation of the insulating supports about the axes of the bolts 28 the two insulating blocks of a pair are arranged in juxtaposed relationship so as to cause abutment of the contiguous sides of these blocks, and for this purpose they are preferably milled as at 41 to cause their close engagement.

From the foregoing description, it will be obvious that the brush holders are highly insulated

from the field frame of the motor. Moreover, it will be obvious that when the nuts 37 are driven home upon the studs 31, the brush holding arm 14 will be driven against the nuts 34 instead of against the highly frangible insulating blocks 35 and accordingly the clamping strains and stresses will be diverted by means of these nuts directly into the studs 31 so as to eliminate any possibility of breakage of the insulating blocks in assembling the brush holders on the field frame.

It is to be understood that various changes in size, shape and arrangement of the various parts may be resorted to without departing from the scope of the appended claims.

I claim:

1. A conductor support comprising a stationary member, a pair of studs mounted on said member and projecting side by side in substantially parallel relation, conductor engaging means supported from each of said studs in substantial alignment therewith and insulated therefrom, a conductor engaged by said conductor engaging means, and separate insulating bodies surrounding the adjacent ends of the studs and the respective conductor engaging means, said bodies having juxtaposed surfaces shaped for mutual abutment to prevent rotation of said bodies about the axes of said studs.

2. A conductor support comprising a stationary member, a pair of studs mounted on said member and projecting side by side in substantially parallel relation, other studs in substantial alignment with the first, means separately supporting said other studs from the first, said supporting means engaging said other studs at one end thereof, insulating means interposed between said supporting means and said other studs, a body of insulating material surrounding said supporting means and the supported ends of said other studs, the other ends of said other studs projecting from the insulating bodies and being threaded, nuts on said threaded ends engaging the respective insulating bodies, a conductor bar having a plurality of apertures in which said threaded ends are engaged upwardly of said nuts, and nuts on said threaded ends outwardly of said bar and clamping the latter against the first named nuts.

WALTER J. BAUROTH.