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PHOTOGRAPHIC DEVELOPER

Heinrich Ulrich and Karl Saurwein, Ludwigs-
hafen-on-the-Rhein, Germany, assignors to
Agfa Ansco Corporation, Binghamton, N. Y., a
corporation of New York

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This invention relates to a photographic de-
veloper and more particularly to such a developer
in which the usual alkali or the usual preserva-
tive or both have been replaced by compounds
hitherto not known for this purpose.

One of its objects is to provide a developer in
which the usual alkali and the preservative are
replaced by a compound uniting both functions.
A further object is to replace the usual alkali
compounds by compounds of which the alkalini-
ty can be adjusted in a degree not hitherto
known.

For certain purposes of photographic develop-
ment it is desirable to have only a weakly alkaline
developer in order to avoid drawbacks involved
with the use of stronger alkaline developers.

According to this invention it has been found
that the salts of hydroxyalkylamines with weak
acids are excellently suited to replace for many
purposes the alkali hitherto used in developers.
The use of the salt of a weak acid of a hydroxy-
alkylamine involves the advantage that the alkali-
nity of the developer can be adjusted to any
requirement. As hydroxyalkylamines which are
suitable, there is mentioned, for instance, mono-,
di- or triethanolamine, propanolamine, butanol-
amine, oleyl ethanolamine, furthermore cyclo-
hexylethanolamine, hydroxyethylmorpholine,
hydroxyethylpiperidine, hydroxyethylethylene-
diamine, ethyldiethanolamine or the like, further
the ethers or hydroxyethers obtainable from
hydroxyalkylamines by etherification with alco-
hols or by reaction with ethylene oxide or the
like. The substitution products of the amines
enumerated likewise may be used. All ammonia
derivatives are suitable which contain in their
molecule one or several alkyl radicals with one
or several hydroxy groups, and, if required, con-
tain still further aliphatic, cycloaliphatic or mono-
nuclear aromatic radicals. Suitable weak acids
are, for instance, carbonic acid and sulfurous acid.
The salts of hydroxyalkylamines with sulfurous
acid present furthermore the advantage that
they are capable to replace the preservative of
the usual developers. Therefore, it is possible
to produce photographic developers which con-
tain besides the developing agent the sulfite of
an hydroxyalkylamine which replaces both, the
usual alkali and the preservative.

The salts of the hydroxyalkylamines with the
weak acids are easily obtainable by reacting
with the compounds on each other. If the acid
is gaseous, for instance, in the case of sulfurous
acid, the hydroxyalkylamine is saturated with
the gas if the amine is liquid.

The compounds enumerated above may, for
instance, be added to the developing baths custo-
mary in the photographic industry, for instance,
solutions of aminophenols, hydroquinone, hy-
droxyphenylglycine and the like. They may also
be applied in combination with other substances
suitable for the development of photographic
plates, films and the like, for instance with sodium
bisulfite, acetone bisulfite and the like.

The following examples serve to illustrate the
invention:

Example 1

Monomethylparaminophenol sulfate	2 grams	
Triethanolamine	5 cc.	
Triethanolamine sulfite	3 cc.	15
Water to	100 cc.	

For use this solution is diluted by 20 parts of
water on one part of concentrated developer.

Example 2

Monomethylparaminophenol sulfate	3 grams	
Triethanolamine sulfite	6 cc.	
Potassium bromide	0.2 gram	
Water to	500 cc.	25

Example 3

Water	500 cc.	
Monomethylparaminophenol sulfate	1.5 gram	
Triethanolamine	8 cc.	30
Butanolamine sulfite	10 cc.	
Potassium bromide	1 gram	

Example 4

Water	500 cc.	35
Monomethylparaminophenol sulfate	0.3 gram	
Hydroquinone	0.4 gram	
Sodium carbonate sicc.	4 grams	
Ethanolcyclohexylamine sulfite	5 grams	
Potassium bromide	2 grams	40

Our invention is not limited to the foregoing
examples. Other weak acid salts of other hy-
droxyalkylamines may be used and we contem-
plate as included within our invention all such
modifications and equivalents as fall within the
scope of the appended claims.

The term "hydroxyalkylamine" in the speci-
fication and the claims is intended to include
amines containing at least one alkylhydroxy radi-
cal linked to the nitrogen atom of the amine.

What we claim is:

1. A photographic developer comprising a de-
veloping agent and a weak acid salt of a hydroxy-
alkylamine.

2. A photographic developer comprising a developing agent and a weak acid salt of a hydroxyalkylamine selected from the group consisting of carbonates and sulfites.
- 5 3. A photographic developer comprising a developing agent and the sulfite of a hydroxyalkylamine.
- 10 4. A photographic developer comprising a developing agent and a weak acid salt of a hydroxyalkyl-amine selected from the group consisting of monoethanol-amine, diethanol-amine, triethanol-amine, propanol-amine, butanol-amine, oleylethanol-amine, cyclohexylethanol-amine, hydroxyethyl-morpholine, hydroxyethyl-
piperidine, hydroxyethylethylene-diamine, and ethyldiethanol-amine.
5. A developer comprising monomethylpara-aminophenol sulfate, triethanolamine, triethanol-amine sulfite and water.
6. A developer comprising monomethylpara-aminophenol sulfate, triethanol amine sulfite, potassium bromide and water.
7. A developer comprising monomethylpara-aminophenol sulfate, hydroquinone, sodium carbonate sicc., ethanol cyclohexylamine sulfite, potassium bromide and water.
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HEINRICH ULRICH.
KARL SAURWEIN.