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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MIN-SEOK SONG, CHAN-OH YOON, EUN-KYUNG PARK,
BU-GI JUNG, and JANG-SOON KIM

Appeal 2020-004060
Application 14/386,980
Technology Center 1700

Before TERRY J. OWENS, CHRISTOPHER C. KENNEDY, and
MICHAEL G. McMANUS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), the Appellant¹ appeals from the Examiner's decision to reject claims 30–32, 34, and 35. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as LG Chem, Ltd. (Appeal Br. 2).

CLAIMED SUBJECT MATTER

The claims are directed to a touch panel. Claim 30, reproduced below, is illustrative of the claimed subject matter:

30. A touch panel comprising an adhesive film comprising a semi-cured adhesive composition and a substrate having a print step height from 5 μm to 50 μm ,
wherein the semi-cured adhesive composition comprises
a primarily crosslinked radical polymerizable composition comprising a compound having at least one unsaturated double bond and a photopolymerization initiator,
the compound having at least one unsaturated double bond comprises at least one of acrylic monomers and acrylic prepolymers, and
cation polymerizable composition comprising a cation polymerizable compound and a cation polymerization initiator,
wherein the ratio of the radical polymerizable composition to the cation polymerizable composition is 1:1,
wherein the cation polymerizable compound comprises at least one of epoxy resins or vinyl ether resins,
wherein the photopolymerization initiator is activated upon UV irradiation of from 1 mW/cm^2 to 10 mW/cm^2 and the cation polymerization initiator is activated upon UV irradiation of from 50 mW/cm^2 to 150 mW/cm^2 , and
wherein the cation polymerization initiator comprises at least one of aromatic oxosulfonium ions and aromatic iodonium salts.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Urban	US 4,717,605	Jan. 5, 1988
Kishioka	US 2003/0232192 A1	Dec. 18, 2003
Kobayashi	US 2005/0244633 A1	Nov. 3, 2005

REJECTIONS

Claims 30–32, 34, and 35 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention, and under 35 U.S.C. § 103(a) over Kishioka in view of Urban and Kobayashi.

OPINION

Rejection under 35 U.S.C. § 112, second paragraph

The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of the Appellant’s Specification, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. *See In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971).

The Examiner states (Final Rej. 3):

It is unclear what is meant by “print step” and the specification as filed does not provide a definition, illustration, or any description as to what a “print step” on a substrate represents. Further a search of the prior art does not uncover one art recognized definition, illustration, or adequate description of the requisite feature. As such, it is the Examiner’s position that one of ordinary skill in the art would not be adequately appraised of the claimed feature of the substrate.

The Appellant’s Specification states:

The adhesive film is applied to a substrate having print steps, and the like. Here, if the adhesive film does not exhibit sufficient step absorption for absorbing the print steps, it is difficult for the adhesive film to exhibit sufficient adhesion capability, thereby causing a problem in product durability. [(Spec. 1: 26–29)]

...

[S]ince the adhesive film can be used in a semi-cured state, the adhesive film is softer than existing adhesive films used in a completely cured state. Therefore, the adhesive film according to the present invention exhibits excellent step absorption by absorbing a print step formed on a substrate. [(Spec. 3: 6–10)]

...

[T]he adhesive film is used in a semicured state, and attached to a substrate or the like having a print step height from 5 μm to 50 μm . Further, in order to completely bond the adhesive film to the substrate, the cation polymerizable composition is subjected to secondary crosslinking. [(Spec. 4: 26–29)]

The above portions of the Appellant’s Specification indicate that the Appellant’s print protrudes from the substrate as steps and that the adhesive is applied in a semicured state so it absorbs the steps such that the adhesive bonds completely to the substrate. The height of the steps is referred to in the Specification and claims as the print step height.

Thus, the Appellant’s claim term “print step height,” as it would have been interpreted by one of ordinary skill in the art in light of the Appellant’s Specification, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. Accordingly, we reverse the rejection under 35 U.S.C. § 112, second paragraph.

Rejection under 35 U.S.C. § 103(a)

Kishioka discloses “a double-sided pressure-sensitive adhesive sheet used for sticking and fixing a touch panel to a display surface of a display device” (¶ 13). The pressure-sensitive adhesive preferably is acrylic-based and can be polymerized using a photoinitiator (¶¶ 35, 40).

Urban glues optical glass components “using radiation curable adhesives which are based on ionically polymerizable epoxide systems and ionic photoinitiators of the triarylsulfonium complex salt type, and which additionally also contain at least one ethylenically unsaturated substance

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which can be polymerized by free radicals and at least one free radical photoinitiator” (col. 2, ll. 17–23). The preferred ethylenically unsaturated monomers include acrylic compounds (col. 3, l. 66 – col. 4, l. 5). “Gluing with such adhesives can be partially hardened with UV radiation until fixing of the glass components is achieved” (col. 2, ll. 23–25), and “[t]he gluing can be completely hardened by further UV radiation” (col. 2, ll. 30–31). “The proportion of the individual constituents in the adhesive composition can be varied within wide ranges and are not particularly critical” (col. 4, ll. 64–66). The ethylenically unsaturated substance which can be polymerized by free radicals can be 5–50% wt%, preferably about 10 wt%, of the ionically polymerizable epoxide system (col. 4, l. 66 – col. 5, l. 3).

The Examiner finds, regarding the ratio of ionically polymerizable epoxide system to ethylenically unsaturated substance, that “[a]s the workability of the adhesive is a variable that can be modified, among others, by adjusting the amount of the individual components, the precise amount would have been considered a result effective variable by one having ordinary skill in the art” (Final Rej. 6), so such a person “would have optimized, by routine experimentation, the ratio of ionically polymerizable peroxide system to ethylenically unsaturated substance that is polymerized by free radicals in the prior [art] to obtain the desired adhesive workability” (*id.* at 7).

The Appellant’s sole independent claim 30 requires a 1:1 ratio of radical polymerizable composition to cation polymerizable composition.² That ratio is outside Urban’s ratio range of 1:20 to 1:2, preferably 1:10

² The Appellant’s only disclosure of the 1:1 ratio indicates that it is a weight ratio (Spec. Table 1).

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(col. 4, l. 66 – col. 5, l. 3). The Examiner does not establish that the optimum ratio obtained by one of ordinary skill in the art through no more than routine experimentation would have been 1:1 when Urban’s adhesive is used to fasten Kishioka’s touch panel to a display surface (Final Rej. 9). Consequently, we reverse the rejection under 35 U.S.C. § 103(a).

CONCLUSION

The Examiner’s rejections are reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
30–32, 34, 35	112, second paragraph	Indefiniteness		30–32, 34, 35
30–32, 34, 35	103(a)	Obviousness		30–32, 34, 35
Overall Outcome				30–32, 34, 35

REVERSED