

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUO TAKEDA et al.

Appeal No. 2000-1655
Application No. 08/836,892

ON BRIEF

Before ABRAMS, NASE, and GONZALES, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 28 and 33 to 40, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a method of installing a frost heave damage preventive structure in soil having a seasonal freezing layer and a maximum freezing depth (claims 33 to 35), a frost heave damage preventive structure for protecting piles supporting a ground structure, located in a cold region, from damage due to frost heave of soil and thaw settlement (claims 36 to 40) and a method of installing the frost heave damage preventive structure defined in claim 36 (claim 28). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

| | | |
|---------------------------------------|-----------|---------|
| Upton 1963 | 3,090,204 | May 21, |
| Childers et al. 1965 (Childers) | 3,198,857 | Aug. 3, |
| Long 19, 1972 | 3,706,204 | Dec. |

Claims 28, 33, 34 and 36 to 40 stand rejected under 35 U.S.C. § 103 as being unpatentable over Long.

Claims 33 to 35 stand rejected under 35 U.S.C. § 103 as being unpatentable over Long as applied to claim 33 above, and further in view of Upson or Childers.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the answer (Paper No. 20, mailed January 3, 2000) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 19, filed November 17, 1999) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to the claims under appeal. Accordingly, we will

not sustain the examiner's rejection of claims 28 and 33 to 40 under 35 U.S.C. § 103. Our reasoning for this determination follows.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting **evidence**¹ that would have led one of ordinary skill in the art to combine the

¹ Evidence of a suggestion, teaching, or motivation to modify a reference may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), Para-Ordinance Mfg., Inc. v. SGS Importers Int'l., Inc., 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed. Cir. 1995), cert. denied, 117 S. Ct. 80 (1996), although "the suggestion more often comes from the teachings of the pertinent references," In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. See, e.g., C.R. Bard Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 1804 (1999). A broad conclusory statement regarding the obviousness of modifying a reference, standing alone, is not "evidence." See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

The 35 U.S.C. § 103 rejection based on Long alone

We will not sustain the rejection of claims 28, 33, 34 and 36 to 40 under 35 U.S.C. § 103 as being unpatentable over Long.

Long discloses a method and apparatus for improving bearing strength of piles in permafrost. As best shown in Figure 1, the soil in which a pile 20 is to be used includes a seasonal-frost or seasonal-thaw region 10 and a permafrost or permanently frozen region 12. The limits of the seasonal-thaw region are the surface 14 of the soil and the general dividing line 16 separating the seasonal-thaw region from the permanently frozen region. Long teaches (column 2, line 63, to column 3, line 2) that in practice, it should be understood that the

depth of the line 16 will vary depending on the climatic conditions in any particular year and that the seasonal-thaw region is that portion of the soil which freezes during the cold arctic winters but thaws during the summers whereas the permanently frozen region remains frozen year around.

Long's pile 20 includes an upper portion 22 exposed to the atmosphere, an intermediate portion 23 located in the seasonal-thaw region and a lower portion 24 located in the permanently frozen region. The lower portion 24 of the pile 20 is provided with a plurality of appendages such as longitudinally spaced rings 26 permanently secured thereto as by welding. Long teaches (column 3, lines 25-27) that the rings 26 will not extend above the permanently frozen region of the hole.

In Long's method (column 3, lines 28-40), a hole is dug through the seasonal-thaw region 10 into the permanently frozen region 12 and is large enough to receive the pile 20 with the rings 26 integrally attached. The lower portion 24 of the pile is completely below the seasonal-thaw region.

Next a slurry of fill material (e.g., soil, aggregate or water) is introduced into the hole around the pile. Finally the fill material is frozen to form an integral attachment between the rings, the cylindrical outside surface of the pile and the permafrost soil.

Long teaches (column 3, lines 41+) that with his invention the "jacking" forces in the seasonal-thaw region will be effectively reduced since the main securement of the pile with the soil will be in the generally permanently frozen region. Thus the freezing and thaw in the seasonal-thaw region will cause the fill material in that region to slide over the outside surface of the pile rather than to work the pile up or down. Since the rings become permanently locked in the fill material the fill material between adjacent rings becomes trapped and in effect becomes a lateral extension of the pile. As a result the effective outside diameter of the pile becomes increased. This increase in effective outside diameter increases the surface area between the material trapped by the rings and the surrounding soil thus providing an increased

frictional surface area to reduce movement of the pile in the hole.

The appellants argue (brief, pp. 6-11) that the following claimed limitations are not taught or suggested by Long: (1) a plate-like reaction member extending approximately in parallel to a freezing front of the ground, and positioned in the ground at a depth which is deeper than a maximum freezing depth of the ground as recited in independent claim 36; and (2) excavating a pile hole in the soil to a depth below the maximum freezing depth and driving the pile into the pile hole so that the reaction member is positioned at the bottom of the excavated pile hole below the maximum freezing depth as recited in independent claim 33. We agree.

While the examiner's determination (answer, p. 3) that Long's rings 26 are positioned in the ground at a depth which is deeper than the maximum freezing depth of Long's seasonal-thaw region 10 is correct, Long specifically teaches that the rings 26 are located in the permanently frozen region 12 of the soil (column 2, line 57, to column 3, line 17; Figures 1

and 4-6) which is clearly not at a depth which is deeper than the maximum freezing depth of the ground. The examiner's further determination (answer, p. 4) that the recitation of "a maximum freezing depth" sets forth no method steps/structure that patentably defines over the teachings of Long is untrue for the following reasons. First, the structure of claim 36 requires a plate-like reaction member **positioned in the ground at a depth which is deeper than a maximum freezing depth of the ground** which is a structural limitation not suggested or taught by Long. Second, the method of claim 33 requires excavating a pile hole in the soil **to a depth below the maximum freezing depth** and driving a pile and reaction member into the pile hole so that the reaction member is **positioned at the bottom of the excavated pile hole below the maximum freezing depth** which are method limitations not suggested or taught by Long.

In addition, while the examiner (answer, pp. 5-6) may be correct that Long's permanently frozen region 12 and ring 26 are the full functional equivalents of the appellants'

unfrozen soil layer (i.e., soil below the maximum freezing depth) and reaction member 7, the examiner has not provided any **evidence** in the rejections before us in this appeal as to why it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have modified Long's method and apparatus to arrive at the claimed invention.² In our view, the only suggestion for modifying Long to meet the above-noted limitations stems from hindsight knowledge derived from the appellants' own disclosure. The use of such hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is, of course, impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

² Upon return of this application to the examiner, the examiner should review the background of the invention section of U.S. Patent No. 4,818,148 to Takeda et al. (of record) to determine whether or not the combined teachings of this patent and Long would render any pending claim unpatentable under 35 U.S.C. § 103.

For the reasons set forth above, the decision of the examiner to reject claims 28, 33, 34 and 36 to 40 under 35 U.S.C. § 103 is reversed.

The 35 U.S.C. § 103 rejection based on Long and Upson or Childers

We will not sustain the rejection of claims 33 to 35 under 35 U.S.C. § 103 as being unpatentable over Long as applied to claim 33 above, and further in view of Upson or Childers.

We have reviewed the references to Upson and Childers additionally applied in this rejection of claims 33 to 35 but find nothing therein which makes up for the deficiency of Long discussed above with respect to claim 33. Accordingly, we cannot sustain this rejection of appealed claims 33 to 35 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner to reject claims 28 and 33 to 40 under 35 U.S.C. § 103 is reversed.

REVERSED

| | | |
|-----------------------------|---|-----------------|
| NEAL E. ABRAMS |) | |
| Administrative Patent Judge |) | |
| |) | |
| |) | |
| |) | |
| |) | BOARD OF PATENT |
| JEFFREY V. NASE |) | APPEALS |
| Administrative Patent Judge |) | AND |
| |) | INTERFERENCES |
| |) | |
| |) | |
| |) | |
| JOHN F. GONZALES |) | |
| Administrative Patent Judge |) | |

Appeal No. 2000-1655
Application No. 08/836,892

Page 13

WENDEROTH, LIND & PONACK
2033 K STREET, N.W. SUITE 800
WASHINGTON, DC 20006

Appeal No. 2000-1655
Application No. 08/836,892

Page 14

JVN/jg