

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS P. TAYLOR and JAMES SCOTT BAGWELL

Appeal 2008-2437
Application 10/997,578
Technology Center 3600

Decided: September 29, 2008

Before WILLIAM F. PATE III, HUBERT C. LORIN, and
JOHN C. KERINS, *Administrative Patent Judges*.

WILLIAM F. PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

This is an appeal from the final rejection of claims 1-19. These are all of the claims in the application.

We have jurisdiction over the appeal pursuant to 35 U.S.C. §§ 6 and 134.

The claimed invention is directed to a system which uses wire mesh elements formed of vertical and horizontal panels to reinforce the soil. The elements compose panels at right angles which are stacked and backfilled with the soil to form a soil retaining structure. Claims 10-19 are directed to a method of use.

Claim 1, reproduced below, is further illustrative of the claimed subject matter.

1. A system using wire mesh elements formed of vertical and horizontal wires for reinforcing soil, the system comprising:

a first wire mesh element having a first bend formed therein at a first angle to form first and second panels, wherein the second panel is oriented substantially horizontally and the first panel extends upwards from the second panel at the first angle, and wherein a top-most horizontal wire of the first panel is at least a distance $D+X$ from the top of the vertical wires of the first panel; and

a second wire mesh element having a second bend formed therein at a second angle to form third and fourth panels, wherein the fourth panel is oriented substantially horizontally and the third panel extends upward from the fourth panel at the second angle,

wherein the second element is positioned above the first element so that at least a portion of the vertical wires of the first panel penetrate the fourth panel to at least the distance D when the second panel is covered with a material to a height of X above the top-most horizontal wire of the first panel, wherein X represents a maximum distance separating the top-most horizontal wire of the first panel from the fourth panel, and

wherein the first and second elements are not fastened together but may move vertically and laterally relative to one another as the value of X decreases due to compression of the material.

REFERENCES

The references of record relied upon by the examiner as evidence of lack of novelty and obviousness are:

Hilfiker '557	US 4,391,557	Jul. 05, 1983
Hilfiker '618	US 4,643,618	Feb. 17, 1987
Hilfiker '939	US 4,856,939	Aug. 15, 1989
Hilfiker '072	US 5,733,072	Mar. 31, 1998
Hilfiker '970	US 6,357,970B1	Mar. 19, 2002

REJECTIONS

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hilfiker '557.

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hilfiker '618.

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hilfiker '939.

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hilfiker '970.

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hilfiker '072.

Claims 10-19 stand rejected under 35 U.S.C. § 103 as unpatentable over Hilfiker '557 in view of Hilfiker '072.

Finally, claims 10-19 stand rejected under 35 U.S.C. § 103 as unpatentable over Hilfiker '618 or Hilfiker '939 or Hilfiker '970 or Hilfiker '072 in view of Hilfiker '072.

It is apparent that the Examiner has grouped the rejections labeled VII-IX in the Appeal Brief together in this last rejection. We further note that the Examiner includes a rejection in this last grouping of Hilfiker '072 in view of Hilfiker '072. We regard this as simply an obviousness rejection over the teachings of Hilfiker '072.

ISSUES

The issues for our consideration are the anticipation rejections of claims 1-9 and the obviousness rejections of claims 10-19. These issues turn on whether the first and second elements taught in the Hilfiker patents are fastened together and whether they may move vertically and laterally relative to one another. Furthermore, with respect to the obviousness rejections of claims 10-19, the Appellants question whether Hilfiker '072 satisfies the backfilling limitations of claim 10.

FINDINGS OF FACT AND A CONCLUSION OF LAW RE: CLAIM CONSTRUCTION

1. Hilfiker '557 uses a system of wire mesh elements for reinforcing the soil. Each of the trays, lettered T, is comprised of a first wire mesh element that forms a right angle and has two panels, a horizontal panel and vertical panel. The vertical panel of the first wire element has a rearwardly-extending hook on the top. A second wire element is emplaced over the top of the first wire element with the angle placed

- in the hook on the top of the first wire element. In our view, the hook prevents upward motion of the second wire element but would permit lateral and downward motion of the second wire element.
2. Appellants do not provide a definition of “fastened” or “not fastened together” in Appellants’ specification. The Random House Dictionary of the English Language, Second Unabridged Edition (1987) defines “fastened” as “attached firmly” or “fixed securely.” Therefore we construe “not fastened together” as “not attached firmly” or “not fixedly secured.”
 3. It is our finding that the angle portion of second wire mesh element which is hooked on the uppermost hook component of the first wire mesh element of Hilfiker ‘557 is not fastened to the wire mesh element, inasmuch as the top panels can move laterally and downwardly with respect to the first element. With our claim construction in mind, there is no firm attachment between the wire mesh elements.
 4. Hilfiker ‘618 shows another embodiment of a system using wire mesh elements for reinforcing the soil. First and second wire mesh elements consist of first and second panels which form an angle to one another with one panel extending horizontally and another panel extending generally vertically. The panels are secured in position, not only by the backfill but by transverse bars 32 positioned at the intersection between the first panel and the second panel of each of the wire mesh elements. See col. 3, ll. 35-59. As far as we can determine, the individual panels of the first and second wire mesh

- elements are not connected together but are held in position by the backfill and rods 36 which extend from bars 32 to the form panel P. Thus, it is our finding that these individual wire mesh elements are not fastened together and may move laterally and vertically relative to one another due to compression of the material.
5. Hilfiker '939 also discloses first and second wire mesh elements having two panels angled with respect to one another to form a horizontal and vertical panel. The top portion of the wire mesh elements have a convex portion 20 extending forwardly from a concave portion 18, and when one element is placed upon another the cross wire 16A at the fold line of next successive tray is engaged within the concave portion 18 of the tray therebeneath, thereby securing the trays together. See col. 3, ll. 30-39 and col. 4, ll. 33-39. Therefore, in the preferred embodiment in Hilfiker '939, the trays are secured or fastened together and it is our finding that claims 1-9 do not lack novelty over this embodiment.
 6. However, turning to the prior art illustrated in Hilfiker '939 and particularly the embodiment in Figure 9, we are of the view that this embodiment does disclose first and second wire mesh elements formed of two panels at right angles in which the elements are not fastened together but may move vertically and laterally relative to one another as the X value decreases due to the compression of the materials. Therefore, it is our finding that the embodiment of Figure 9, labeled "Prior Art" in Hilfiker '939 anticipates claims 1-9.

7. Hilfiker '970 shows a more complex system where two or more first wire mesh elements having a bend formed therein and comprised of two panels, one a horizontal and one a vertical panel are used together. Hilfiker '970 also uses a backing member which is connected to the face section of the panels using a hog ring 34. See col. 3, ll. 37-59. Figure 5 shows the backfill compacted and settled to the extent that it has forced backing mat BM on the lower left downwardly. As this occurs, the backing mat slides lower and the hog ring 34 opens to allow the upper wire element to move downwardly with respect to the lower wire element. As can be seen, these elements are not fastened together and lateral and vertical freedom of movement is permitted. Thus, it is our finding that Hilfiker '970 anticipates claims 1-9.
8. Hilfiker '072 discloses another set of first and second wire mesh elements with panels that extend perpendicular to one another and form a vertical and horizontal section. The upper portion or vertically upstanding panel of the wire mesh element is provided with a prong portion 24 which interacts with the wires 22 and 22' to connect the panels together. The embodiment of Figures 8-10 shows pin numbered 78 and 80 used to connect the panel members together. See col. 3, ll. 21-40 and col. 4, ll. 4-19. As Hilfiker explains, these connections allow the mat to settle without placing undue stress at the connection points between the mats. We take this to mean that the connections remain attached as the value of X decreases due to the

compression of materials. Therefore, it is our view that the panels of Hilfiker '072 are fastened together.

9. Hilfiker '072 also shows backfilling in Figures 14-16. When the first panel is in place, it is backfilled except for a void area 90. See col. 4, ll. 21-27. The overlying wire mesh element is then placed on the backfill and attached to the lower or first wire mesh element. Void 90 is backfilled later. Therefore, Hilfiker '072 teaches a process of reinforcing the earth with wire mesh elements backfilled in the manner Appellants claim.

PRINCIPLES OF LAW

The prior art may anticipate a claimed invention, and thereby render it non-novel, either expressly or inherently. *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Express anticipation occurs when the prior art expressly discloses each limitation (i.e., each element) of a claim. *Id.* In addition, “[i]t is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it.” *Id.*

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art,

(2) any differences between the claimed subject matter and the prior art, (3) the level of ordinary skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,” *id.* at 1739, and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740.

The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.* In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a prima

facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *Id.* at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

With regard to Appellants' argument that Hifiker '557 or Hilfiker '618 can not anticipate, because Hilfiker intends the final structures to be at least partially embedded in concrete, this argument is wrong as a matter of law. It has long been held that an intermediate product or article can anticipate a claimed article even if the intermediate product is merely a stage in the final production of a non-anticipatory article. *See In re Mullin*, 481 F.2d 1333, 1336 (CCPA 1973)(an article that is intended and appreciated is no less anticipatory be it an intermediate structure rather than an end use item)(citing *In re Herbert*, 461 F.2d 1390 (CCPA 1972)). The court, in the *Mullin* decision, goes on to distinguish the accidental anticipation cases: *Tiglmann v. Proctor*, 102 U.S. 707 (1880) and *Eibel Process Co. v. Minn. And Ont. Paper Co.*, 261 U.S. 45 (1923).

ANALYSIS

With respect to the §102 rejection over Hilfiker '557, it is our finding that the hooking mechanism, as it is called by Appellants, does not fasten the trays together, but the that the trays or elements may move vertically and laterally relative to one another as the compression of the material increases.

Thus, claim 1 lacks novelty over the Hilfiker '557 reference, and claims 2-9 fall therewith.

With regard to Hilfiker '618, it is our finding that the elements or trays therein are not fastened together and can move laterally and vertically as the earth is compacted. Thus, claim 1 lacks novelty over Hilfiker '618, and claims 2-8 fall therewith.

With respect to Hilfiker '939, it is our finding that the preferred embodiment of Hilfiker '939 is fastened together. However, it is our further finding that the prior art embodiment of Figure 9 shows two trays which are not fastened together and may move laterally and vertically relative to one another. Therefore, claim 1 lacks novelty over Hilfiker '939, and claims 2-8 fall therewith.

With respect to Hilfiker '970, it is our finding that the two wire mesh elements are not fastened together and are permitted to move vertically and laterally relative to one another as the value of X decreases due to compression. Therefore, claim 1 lacks novelty over Hilfiker '970, and claims 2-8 fall therewith.

Finally, with respect to Hilfiker '072, it is our finding that the embodiment disclosed therein has elements that are fastened together, and thus, claim 1 and claims 2-9 depending therefrom do not lack novelty over Hilfiker '072.

With respect to the obviousness rejection based on Hilfiker '557, in view of Hilfiker '072, it is our finding that the method of backfilling disclosed in Hilfiker '072 is clearly applicable to other wire mesh elements, and it would have been obvious to use this known technique with the similar

devices of the other Hilfiker wire mesh elements in the same way to yield a predictable result.

Appellants argue that Hilfiker '557 is totally silent with regard to moving vertically and laterally relative to one another. As noted above in our findings, the upper wire mesh elements of Hilfiker '557 are not precluded by the hooks from moving laterally or downwardly relative to the lower elements. If Appellants' "embedded in concrete" argument on page 19 of the Brief is to be understood as an argument that the combined teachings of Hilfiker '557 and '072 contain an extra step (casting a concrete wall) that Appellants do not claim, we merely state that Appellants' claim 10 is of the open-ended "comprising" type. If it is to be understood as an argument that an intermediate article is not anticipatory, it is not credited as a matter of law. For these reasons, the subject matter of claim 10 is unpatentable over the combined teachings of Hilfiker '557 and Hilfiker '072. Claims 11-19 fall therewith.

Regarding the last rejection of claims 10-19 as unpatentable over Hilfiker '618, Hilfiker '939 or Hilfiker '970 in view of Hilfiker '072, we will affirm this rejection to the extent that it is based on Hilfiker '618, Hilfiker '939 (the embodiment of Figure 9), and to the extent that it is based on Hilfiker '970. As noted above, it would have been obvious to use the backfill method of Hilfiker '072 with the mesh wire elements disclosed: (1) in Hilfiker '618, (2) in the Figure 9 embodiment of Hilfiker '939, or (3) in Hilfiker '970. Appellants arguments that the trays are fastened together or that the trays do not allow vertical and lateral movement, is not credited, at least to the extent indicated in Hilfiker '618, Hilfiker '939, embodiment of

Figure 9, or Hilfiker '970. The argument that the concrete structure precludes vertical and lateral movement is not convincing as a matter of law.

Accordingly, it is our conclusion that the Appellants have not established any error in the Examiner's position that Hilfiker '557; Hilfiker '618; Hilfiker '939, in the embodiment of Figure 9; or Hilfiker '970 combined with the teachings of Hilfiker '072 renders obvious the subject matter of claim 10. We further note that claims 11-19 are not separately argued and fall with claim 10.

CONCLUSION

The Appellants have failed to convince us of any error in the Examiner's § 102 rejection at least to the extent indicated above in our Findings of Fact. The Appellants have also failed to convince us of any error in the Examiner's § 103 rejection, at least as it is applicable to Hilfiker '557; Hilfiker '618; Hilfiker '939, embodiment of Figure 9; or Hilfiker '970 in view of Hilfiker '072.

The rejection of claims 1-9 under 35 U.S.C. §102 as anticipated by Hilfiker '557 is affirmed.

The rejection of claims 1-9 under 35 U.S.C. §102 as anticipated by Hilfiker '618 is affirmed.

The rejection of claims 1-9 under 35 U.S.C. §102 as anticipated by Hilfiker '939 is affirmed.

The rejection of claims 1-9 under 35 U.S.C. §102 as anticipated by Hilfiker '970 is affirmed.

The rejection of claims 1-9 under 35 U.S.C. §102 as anticipated by Hilfiker '072 is reversed.

Appeal 2008-2437
Application 10/997,578

The rejection of claims 10-19 under 35 U.S.C. §103 as unpatentable over Hilfiker '557 in view of Hilfiker '072 is affirmed.

The rejection of claims 10-19 under 35 U.S.C. §103 as unpatentable over Hilfiker '618, or Hilfiker '939, embodiment of Figure 9, or Hilfiker '970 in view of Hilfiker '072 is affirmed.

The rejection of claims 10-19 under 35 U.S.C. §103 as unpatentable over Hilfiker '072 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

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HAYNES AND BOONE, LLP
901 MAIN STREET
SUITE 3100
DALLAS TX 75202