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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT FRIGG, ERIC HATTLER, WALTER WIDMER, and ELENA BARRIOS

Appeal 2010-005678
Application 10/532,909
Technology Center 3700

Before KEN B. BARRETT, EDWARD A. BROWN, and JAMES P. CALVE, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 19-40. App. Br. 2. Claims 1-18 have been canceled. *Id.* We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We reverse.

THE CLAIMED SUBJECT MATTER

Claims 19 and 37 are the independent claims on appeal. Claim 19, reproduced below, is illustrative of the appealed subject matter:

> 19. A device for the treatment of femoral fractures comprising:
>
> an intramedullary pin having a first longitudinal axis, a proximal portion, a distal portion, and at least one transverse opening through the proximal portion of the pin, the at least one transverse opening forming an oblique angle with the first longitudinal axis and having a noncircular cross-section;
>
> a bone fixation element having a second longitudinal axis, a first end, a second end, and a shaft, the first end configured and dimensioned to engage bone in the femoral head,
>
> a sliding sleeve having a central bore, an interior surface profile, and an exterior surface profile, the central bore and interior surface profile configured to receive the shaft of the bone fixation element while permitting free rotation of the bone fixation element relative to the sleeve, and the exterior surface profile having at least a portion with a non-circular cross-section adapted to mate with the non-circular cross-section of the transverse opening, thereby prevention rotation of the sleeve with respect to the intramedullary pin; and
>
> a locking mechanism configured and adapted to selectively lock rotation of the bone

> fixation element relative to the sleeve when in a first position and permit free rotation of the bone fixation element relative to the sleeve when in a second position.

THE REJECTIONS

1. Claims 19-25, 27, 31, 34-38, and 40 are rejected under 35 U.S.C. § 103(a) as unpatentable over Durham (US 5,032,125; iss. Jul. 16, 1991) and Lawes (US 5,454,813; iss. Oct. 3, 1995).

2. Claim 27 is rejected under 35 U.S.C. § 103(a) as unpatentable over Durham, Lawes, and Bramlet (US 6,648,889 B2; iss. Nov. 18, 2003).

3. Claims 28 and 29 are rejected under 35 U.S.C. § 103(a) as unpatentable over Durham, Lawes, and Fixel (US 4,432,358; iss. Feb. 21, 1984).

4. Claims 30, 32, and 39 are rejected under 35 U.S.C. § 103(a) as unpatentable over Durham, Lawes, and Bresina (US 5,908,422; iss. Jun. 1, 1999).

5. Claim 33 is rejected under 35 U.S.C. § 103(a) as unpatentable over Durham, Lawes, Bresina, and Frigg (US 6,187,007 B1; iss. Feb. 13, 2001).

ANALYSIS

Rejection of claims 19-25, 27, 31, 34-38, and 40 - Durham and Lawes

Regarding claim 19, the Examiner found Durham discloses a device comprising an intramedullary pin 20, a bone fixation element 60, a sliding sleeve 40, and a locking mechanism 90 capable of limiting the axial displacement of sliding sleeve 40 relative to intramedullary pin 20. Ans. 3, 4; *see also* Durham, fig. 1. The Examiner found that Durham does not

disclose that an interior surface profile of the sliding sleeve is configured to permit free rotation of the bone fixation device relative to the sleeve. Ans. 4.

The Examiner found Durham discloses that the interior surface profile of the sliding sleeve may include flat surfaces, and the outer surface profile of the bone fixation device complementary flat surfaces, but found that Durham discloses this is a preferred embodiment. Ans. 4. Regarding these flat surfaces, Durham states "[b]ore **42** [of sleeve 40] is preferably keyed. Referring to FIG. **4**, the bore **42** includes opposing flat surfaces **44**[]" (*see* Durham, col. 3, ll. 61-63), and that "[b]ody member **62** [of lag screw 60] is preferably also keyed and, to that end, includes opposing flat surfaces **66** which complement and cooperate with the flat surfaces **44** of sleeve **40**[]" (*see* Durham, col. 3, l. 66 – col. 4, l. 2). Durham also states, "[t]he surfaces **44** and **66** cooperate to prevent lag screw **60** from rotating within sleeve **40** while permitting lag screw **60** to slide axially within sleeve **40**." *See* Durham, col. 4, ll. 3-6. The Examiner found that Durham's engagement surfaces are not critical to the device's function, and are capable of being modified without destroying Durham. Ans. 4-5, 9. The Examiner found that if Durham's flat surfaces were omitted from the sliding sleeve and bone fixation device, the interior surface profile of the sliding sleeve and outer surface profile of the bone fixation device could each have a circular cross-section, permitting the bone fixation element to rotate freely relative to the sliding sleeve. *Id.* The Examiner concluded that it would have been an obvious matter of design choice to manufacture the interior surface profile of the sliding sleeve and the outer surface profile of the bone fixation element of Durham's device with a circular cross-section. Ans. 5.

Appellants contend that Durham does not teach or suggest a sliding sleeve having a "central bore and interior surface profile configured to receive the shaft of the bone fixation element *while permitting free rotation of the bone fixation element relative to the sleeve*," as claimed. App. Br. 6. Appellants contend that, in contrast, Durham discloses a lag screw and sleeve that are keyed to one another such that they cannot be rotated relative to one another. Reply Br. 3.

Regarding the limitation, "a locking mechanism configured and adapted to selectively lock *rotation* of the bone fixation element relative to the sleeve when in a first position and permit free *rotation* of the bone fixation element relative to the sleeve when in a second position" (emphasis added), Appellants contend that Durham does not teach or suggest a locking mechanism that selectively locks and permits relative rotation of lag screw 60 and sleeve 40. Reply Br. 3-4. Appellants contend that if lag screw 60 and sleeve 40 included corresponding circular surfaces, Durham does not teach or suggest that compression screw 90 includes any feature that would prevent relative rotation of lag screw 60 and sleeve 40. Reply Br. 4. We agree.

The Examiner found Durham's compression screw 90 is capable of limiting the *axial displacement* of the sliding sleeve 40 relative to the intramedullary pin 20. Durham states:

> Thus, when compression screw **90** is tightened within lag screw **60**, head **94** presses against the end of sleeve **40** to provide the compression heretofore found only in a compression hip screw assembly having a compression plate external to the bone. Thus, compression screw **90** provides a means for cooperation with the lag screw and the

> sleeve for applying sliding compressive forces to selected fractures of the femur.

Durham, col. 4, ll. 24-32. Appellants contend that the head 94 of compression screw 90 merely abuts an end of sleeve 40 such that if the sleeve 40 and lag screw 60 included circular surfaces, lag screw 60 would freely slide *and* rotate within sleeve 40 even when engaged with compression screw 90. Reply Br. 5 (citing Durham, col. 4, ll. 21-29; fig. 6). The Examiner did not make a finding supported by a preponderance of the evidence that Durham's compression screw 90 would prevent rotation of lag screw 60 relative to sleeve 40 absent the opposing flat surfaces 44 and 66.

The Examiner relied on Lawes for teaching a device in which the cross-section of a transverse bore is non-circular and complementary to the exterior profile of a sliding sleeve. Ans. 4 (citing Lawes, col. 3, ll. 62-67). As such, the Examiner's application of Lawes does not cure the deficiencies of Durham discussed *supra*. We do not sustain the rejection of claim 19, and claims 20-25, 27, 31, and 34, which depend therefrom.

As to claim 37, the Examiner's findings and conclusions (Ans. 3-5, 8-10) and Appellants' contentions (App. Br. 9; Reply Br. 6-7) are similar to those discussed *supra* in regard to claim 19. Accordingly, we do not sustain the rejection of claim 37, and dependent claims 38 and 40.

Rejections of claim 27 - Durham, Lawes, and Bramlet; claims 28 and 29 - Durham, Lawes, and Fixel; claims 30, 32, and 39 - Durham, Lawes, and Bresina; and claim 33 - Durham, Lawes, Bresina, and Frigg

The Examiner’s application of Bramlet to claim 27 (Ans. 5-6), Fixel to claims 28 and 29 (Ans. 6-7), Bresina to claims 30, 32, and 39 (Ans. 7), and Bresina and Frigg to claim 33 (Ans. 7-8) does not cure the deficiencies of the Examiner's reliance on Durham and Lawes for the rejection of claim

19 or claim 37, as discussed *supra*. Hence, we do not sustain any of these rejections.

DECISION

The Examiner's decision rejecting claims 19-40 is reversed.

REVERSED

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