

## Examiners' comment on candidates' performances in QE 2006 Paper A

### General consideration

The inventor wants to achieve protection for the new form of tower crane and method of use he has devised (see page 2, line 24 of the examination paper). Accordingly, the Examiners were looking for a device claim as well as a method claim in order to provide the necessary scope of protection for the client's invention. Omitting an independent method claim would not only clearly disregard the client's (justified) explicit wish for protecting his method of folding his tower crane but also opens the room for competitors and construction companies to redesign their existing tower cranes to be able to be folded according to the client's method. As the method of folding the tower crane would be used for commercial purposes (in contrast to a method of opening a bottle using the cork screw of the 2005 Paper A which, when carried out, would fall within the private and non-commercial use exclusion) such commercial method would not be exempted from patent infringement. These legal considerations were expected to be taken into account by the candidates when drafting the claims. Notably, about 30 % of the candidates did not include any method claim, which resulted in considerable deductions of the marks.

It was readily apparent that US patent 3,934,729 pertaining to a foldable tower crane was the closest prior art from which the independent claims had to be delimited. The tower crane of US patent 3,934,729 is folded by a rather complicated mechanism comprising two cylinders (pivots) in which an operating cylinder is first used to bring the jib of the tower crane down to its lowermost operating position and then the second cylinder is used to tilt the unit 136 anti-clockwise through about 60° after which the jib is brought into alignment with the tower by folding the jib through a pivot arranged on the base of the tower.

The folding mechanism of the tower crane according to the invention can be regarded as a simpler construction of the folding mechanism which also had two pivots for folding the tower. However, in contrast to the US patent document, folding is achieved by one pivot being mounted on top of the tower and a second pivot being located in between the top and the base of the tower. By this arrangement, in addition to the simpler construction, a more compact tower crane for transportation can be achieved, unlike the tower crane of the



US patent document, since an upper part of the tower, the jib and jib mounting can be rotated and folded alongside the tower.

The task of the paper thus consisted of drafting an independent device and an independent method claim that covered this concept in the broadest possible scope in a clear and concise manner.

### **Independent claims**

The independent claim should comprise the following features, wherein it was understood that the features could be expressed using different wording.

#### Apparatus claim

1. A tower crane comprising -

1.1 a tower having a central longitudinal axis,

1.2. a jib,

1.3. a jib mounting on the tower,

1.4. the jib mounting including a first pivot located within the outer periphery of the tower, whereby the jib is movable relative to the tower from a position extending laterally from the central longitudinal tower axis and a position aligned with, or parallel to the central longitudinal tower axis,

1.5. the upper part of the tower being pivotally attached to the tower by a second pivot located at the edge of the tower, whereby the upper part of the tower together with the jib and jib mounting is movable between a position extending upwardly from the tower (parallel to the central longitudinal axis) and a position lying alongside the tower.

#### Method claim

2. A method of folding a tower crane (as defined in any of the preceding apparatus claim) comprising the steps of,

2.1 moving the jib relative to the tower from a use position extending laterally from the upright tower to a position wherein the jib extends upwardly from the tower, and

2.2 moving the upper part of the tower together with the jib to bring the said upper part and jib alongside the tower.

The feature 1.5 was regarded to be of particular importance for establishing patentability since the positioning and the functioning of this second pivot was not disclosed in US patent 3,934,729.

Achieving novelty was generally not a problem in this paper but nevertheless the majority of the candidates failed in drafting independent claims that came close to the expected solution. Notably, almost all candidates restricted the independent claims to a crane the tower of which comprises at least two sections even though it was explicitly mentioned on page 2, line 25 that the “tower preferably consists of two or more sections which can be telescoped together” (see, for example, also page 3, lines 6 of the paper which explains “the specific arrangement shown in the drawings comprises a two part tower”). It was also clear that the second pivot as defined in feature 1.5 would work in a crane comprising only one tower section. By limiting the claim to at least two sections candidates excluded a “one tower section” embodiment from the scope of protection. Likewise, a number of candidates restricted the independent claim to a tower crane comprising a cabin. This limitation was not necessary for the invention to work. These unnecessary limitations resulted in a deduction of marks for the respective independent claim - up to 50 % of the marks in some cases.

Another unnecessary limitation frequently found in the independent claims was the location of the first pivot (feature 1.4). Although the paper clearly stated that the pivot 52 could be located anywhere within the outer periphery of the tower, this pivot was frequently defined to be arranged along the central longitudinal axis of the tower. In other answer scripts, no definition of the position of the first pivot was given, which could result in clarity problems.

Clarity of the claims was also a problem that affected the scope of claims in connection with the definition of the rotational movement provided by the tower crane of the invention. In order to clearly define firstly, the rotational movement of the jib and then the rotational movement of the upper part of the tower together with the jib and jib mounting, it was necessary to indicate a reference point. The best reference point to use was the central longitudinal axis of the tower. Insufficient definition, or a missing reference point for the movements, created the risk of claims that were not properly (if at all) delimited from US patent 3,934,729.

Apparatus claims directed to only parts of the invention (for example an isolated folding mechanism) were found to provide insufficient protection since they typically had severe clarity problems, did not suitably delimit the invention over the possible prior art in other technical fields and were also not in line with the client's instruction to draft a patent specification directed to the tower crane.

### **Dependent claims**

The following features were expected to be defined in the dependent claims:

#### Apparatus

3. A third pivot is provided at or adjacent the base of the tower for moving the tower between an upright position and a substantially horizontal position.
4. The upper part of the tower includes a cab.
5. A pinion and ring gear is provided for moving the upper part of the tower.

#### Method claim

6. The further step of moving the tower to a substantially horizontal position with the jib lying above it.

A considerable number of candidates included one or more of these features in their independent claims (or other features such as the brackets 49 that are used for mounting the first pivot in the illustrative embodiment of the client's write up) even though it was clear that these features were not essential for the invention to work. See for example, the client's comment on page 2, last paragraph: "The principle of my invention is that the tower preferably consists of two or more sections which can be telescoped together and the jib can be folded to lie alongside the tower". Inclusion of these limitations resulted in a deduction of marks.

### **Description**

The description is required to not only describe the invention but also to include a discussion of the prior art that draws a distinction between the invention and the prior art by indicating the problem with the prior art and how the invention solves that problem.

Preferably, the Examiners would like to see statements of advantage which will assist the Examiners' understanding of why the independent claim(s) submitted by the candidate is inventive over the prior art. Unfortunately, such "good drafting technique" was not seen in the answers of most candidates.

A large number of candidates did discuss the prior tower crane of the client in their description but not the crane of US patent 3,934,729 even though the latter was evidently the closest prior art. One candidate even mentioned that the US patent was deliberately not discussed in view of US patent prosecution. Rule 19(5)(b) of the Patent Rules requires the description of a Singapore patent specification to indicate the background art which, as far as it is known to the applicant, can be regarded as useful for the understanding, searching and examination of the invention. Apart from this "formal deficiency" of not complying with Rule 19(5)(b), no correct objective technical problem can be defined when taking the tower crane of the client as closest prior art for assessing inventive step since, for example, the tower crane of US patent 3,934,729 is already foldable and movable and devoid of the disadvantages of the client's present tower crane. Accordingly, not reciting US patent 3,934,729 resulted in a significant deduction of marks allocated to the description. Likewise, omitting the drawings of US patent 3,934,729 from the paper resulted in reduction of marks, since these drawings are helpful for fully understanding the client's invention. There was no justified reason for excluding them from the paper.

Attention to these requirements of "good drafting style" (which are far more than of formal nature) was generally poor amongst the candidates, with one candidate even not including the drawings of the tower crane of the client's invention in the answer script. Such omission of the drawings leads to an immediate failure since without drawings the patent specification lacks enabling disclosure which can only be rectified by shifting the filing date of application to the date when the drawings are submitted (see for example, Rule 26 (3)(4) of the Patent Rules).

Also, the Examiners could tell that a large number of candidates failed to spend a reasonable amount of effort to prepare a proper specific description. Although the Examiners accept "cut and paste" description copied from the examination paper, blindly doing so is unlikely to satisfy the requirement of Section 25(4), and thus easy marks were

lost as is the case for a number of candidates. For those candidates that do the “minimum”, the Examiners could only award nominal marks whereas for those candidates that “think out of the box” and spent more time in discussing the operation of the tower crane and possible variations based on their understanding of the examination paper, then the Examiners are inclined to reward these candidates, but such candidates were few and far between.

In summary, the majority of the answer scripts included claims that were excessively restricted and unclear, and candidates omitted the requested method claims. These two points, and a lack of attention to the requirements for drafting a specification as well as inconsistent wording, were predominant causes of failures.

Also this year the Examiners were asked to nominate one answer paper that can be published as an example on how to answer the paper. However, as it is unfortunately evident from the passing rate of paper A, no answer paper was of sufficient quality to be able to be used for this purpose.