CONTAINER AND SYSTEM OF CONTAINERS OF SURGICAL INSTRUMENTS FOR KNEE SURGERY

This Application is a CON of Ser. No. 13/003,411, filed on Feb. 2, 2011, U.S. Pat. No. 8,701,890. The present invention relates to a container and a system of containers of surgical instruments, and in particular orthopaedic surgical instruments for knee surgery.

Any surgical procedure typically requires a number of instruments. In order to simplify inventory and procedure in the operating room it is known to group the instruments required in a surgical procedure together in one or more trays.

US-2006/0223035 (Fischer) discusses a collection of dental sub-kits for use in placing a dental post in a prepared recess. The surgical procedure for placing a dental post is relatively simple. As such, Fischer proposes to provide a number of sub-kits in which instruments are grouped by size, so that each sub-kit has instrumentation corresponding to a particular size. A dental practitioner selects a sub-kit of a desired size and then uses the relevant components to prepare the recess and insert the post. All the instruments required by a dental practitioner for the procedure are provided in a single container or sub-kit and the remaining sub-kits are not used.

While the sub-kit of Fischer can be useful in relatively simple surgical procedures, it does not scale easily to complicated surgical procedures, for example orthopaedic surgery such as knee surgery. Knee surgery is more complicated, involving more surgical steps and potentially more instruments (over 100 items taken into the operating theatre). Furthermore, individual surgeons may adapt the surgical procedure depending on the circumstances of the patient and the philosophy of the surgeon. For example, the surgeon may choose to adopt a fixed bearing or a mobile bearing or to use a cruciate retaining or a cruciate sacrificing methodology. As a result, instrumentation for knee surgery has been grouped for flexibility in the surgical method.

Orthopaedic surgery typically requires a large number of instruments during the surgical procedure. It is known to provide these tools in a number of trays, with each tray containing several instruments. The trays can then be sterilised with the tools in place and sealed before they are required during surgery. Once the seal on the tray has been broken it is necessary to sterilise all the instruments and reseal the tray before they can be used in another surgical procedure, even if some of the instruments have not been used.

For example, the P. F. C Sigma Total Knee System, which is commercially available from DePuy International Limited, typically requires surgical instrumentation in six trays, four of which have two levels. The number of instruments supplied depends on the surgeon preference and philosophy. In one configuration, a total of 134 instruments are provided. In other knee surgery systems as many as 162 instruments may be provided. The instruments in the trays include those where typically only a single one of each instrument type is required, such as instrument handles, resection tools and measuring devices. In addition, the instruments in the trays include size specific instruments such as trial implants for evaluating the success of the resections for the implant and the performance of the implant before implanting the final implant. Other size specific instruments include cutting guides or broaches for preparing the bone prior to trial and implantation. In the Sigma Total Knee System there are several types of implant, and therefore trial implant, and each type has a variety sizes. For example, one set of size specific instruments relates to the femoral implant and includes femoral notch guides and left and right femoral trials in five different sizes.

In a conventional tray system, such as is currently used in the P. F. C Sigma Total Knee System, the instruments are grouped together in trays that correspond to the surgical method, so that once a tray has been opened, in general the instruments required by the surgeon at a particular stage in the surgery are available for use. This simplifies the operating room procedure and enables the large number of instruments used in orthopaedic surgery to be kept track of more easily.

In such a system the trial implants are grouped together by type in a tray, so that the surgeon has access to all trials of the same type once a tray has been opened. For example, in the P. F. C. Sigma Total Knee System, a single tray contains instruments associated with cutting the femur, including cutting blocks in five different sizes. A second tray contains various types of femoral trial implants, again in five different sizes.

By grouping the instrumentation together in trays, the theatre staff and surgeon can keep track of the large number of instruments more easily. However, this system presents a disadvantage because during a typical procedure usually around 26 instruments (approximately 20%) are be used. The trays will all have been opened and all the instruments require sterilisation before they can be reused, or will require disposal in the case of disposable instruments. As result significant additional costs are incurred in decontaminating (cleaning and sterilising) or disposing of instruments which were not used in the operating room, but which were contained in open trays.

It would be desirable to reduce the number of instruments which were not used in complicated surgical procedures but which still require decontamination or disposal. Sterilising and packaging each instrument separately is impractical because of the need to maintain organisation, minimise packaging cost and waste and avoid use of excessive space in the operating room.

Accordingly, the present invention provides a system of containers holding surgical instruments of different types but of only a single size, which is the same across all the instruments in the container.

The applicant has identified that the biggest potential to save on opening redundant instrumentation is with size specific instruments. A surgeon may have some idea of the size of implant required for a particular patient from x-ray templating. As such, the surgeon will typically be able to identify close to the ideal implant size and choose appropriately sized instrumentation. By providing a container holding different types of instrumentation, but of only one size common to all the instruments in the container, the number of instruments which have not been used and yet are still required to be decontaminated or disposed of is reduced. In the prior art systems for knee surgery, even if the surgeon could identify the correct size and hence use instrumentation of only one size, all the instrumentation of other sizes would require sterilisation despite not having been used. The system proposed by Fischer to use a single sub-kit with all instrumentation cannot be scaled to complex procedures such as knee surgery because of the number of instruments and variables involved; it is not feasible to provide all the instruments for knee surgery in a single sub-kit of a particular size.

According to the present invention there is provided a system comprising at least:

- a first container containing at least a first surgical instrument of a first type that is size specific and a second surgical instrument of a second type that is size specific, wherein both the first and second instruments are of a first size; and
- a second container containing at least a third surgical instrument of the first type and a fourth surgical instru-