Sept. 1, 1953 H. G. R. DREW 2,650,588

ARTIFICIAL FEMORAL HEAD HAVING AN X-RAY MARKER

Filed Feb. 7, 1951

FIG. 1.

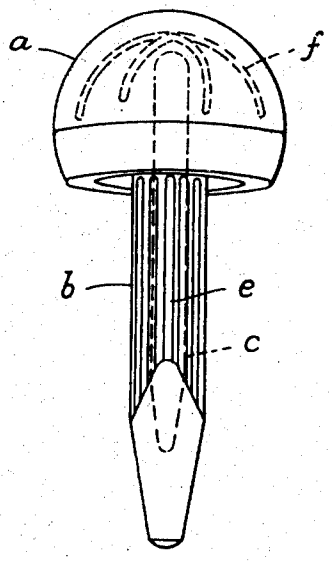


FIG. 2.

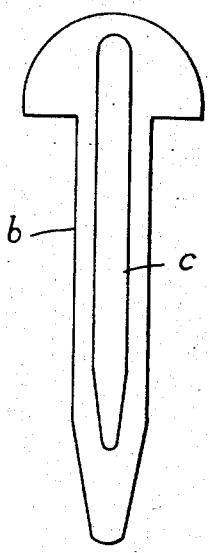


FIG. 3.

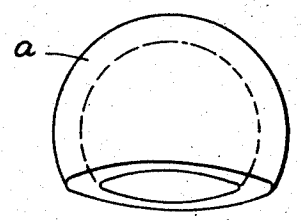
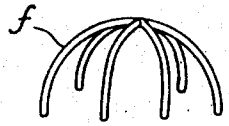


FIG. 4.



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ARTIFICIAL FEMORAL HEAD HAVING AN X-RAY MARKER

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Application February 7, 1951, Serial No. 209,876
In Great Britain December 29, 1950

3 Claims. (Cl. 128—92)

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This invention relates to an artificial femoral head to replace the head of the femur, which has been cut away owing to disease.

Artificial femoral heads of this kind are known which comprise a ball portion which replaces the head of the femur, and a stem portion which is placed firmly in position in the femur, which has previously been hollowed, so as to secure the ball portion in the position normally occupied by the head of the femur.

An object of the present invention is to provide in an artificial femoral head of the above kind X-ray contrast indicator means which enable an X-ray photograph to show whether or not the artificial femoral head has shifted from its original position after being in use for a period of time.

According to the present invention, the artificial femoral head comprises a ball portion to replace the head of the femur and a stem portion for insertion longitudinally within the femur, the ball and stem portions being made of a hard transparent artificial plastic material, and X-ray contrast indicator means within the ball portion comprising at least one indicator element located laterally remote from the longitudinal axis of the ball portion.

The hard transparent artificial plastic material of which the ball and stem portions are made is preferably polymerized methyl methacrylate, for example, the artificial resin solder under the registered trade-mark "Perspex."

The stem is made hollow, and a metal pin is firmly inserted in it. This pin serves a dual purpose, namely to give strength to the stem, and to provide a visual image on an X-ray photograph.

The exterior of the stem is fluted or grooved to prevent rotation.

One form of construction of the invention is illustrated in the annexed drawings, in which,

Fig. 1 is a perspective view of the device as a whole,

Fig. 2 is an elevation of the stem,

Fig. 3 is a perspective view of the ball, and

Fig. 4 is a perspective view of the indicator.

In these drawings *a* is the ball, which is formed from a solid block of polymerized methyl methacrylate, and is bowl-shaped. A hollow stem *b* is also formed from a solid block of perspex, one end of this stem being embedded in the cap by means of a dough of polymerized methyl methacrylate. A metal pin *c* is inserted in the stem *b*, and is held rigidly in place by means of a cement of polymerized methyl methacrylate in the form of dough. The exterior of the stem *b* is provided with a number of flutings *e* or shaped for the purpose as previously explained.

The indicator mentioned is in the form of a

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wire frame *f* of umbrella-like shape, some of the radiating wires being longer than the others as can be seen from the drawings. This frame is welded into the cap by means of a dough of polymerized methyl methacrylate. If an X-ray photograph is taken when the device is placed in position in the human hip, and should a further photograph be taken at a later date, any shifting of position of the device would be indicated by the positions of the wires of the frame.

In an alternative method the frame could be moulded in position.

The indicator is not necessarily of the form described, but might have any one of various other forms. It might, for example, be in the form of a strip of metal gauze.

I claim:

1. An artificial femoral head, which comprises a ball portion to replace the head of the femur and a stem portion for insertion longitudinally within the femur, the ball and stem portions being made of a hard transparent artificial plastic material, and X-ray contrast indicator means within the ball portion comprising at least one indicator element located laterally remote from the longitudinal axis of the ball portion.

2. An artificial femoral head, which comprises a ball portion to replace the head of the femur and a stem portion for insertion longitudinally within the femur, the ball and stem portions being made of a hard transparent artificial plastic material, and an X-ray contrast indicator device within the ball portion comprising at least one projecting element extending radially outwards from the longitudinal axis of the ball portion and downwards towards the stem portion.

3. An artificial femoral head, which comprises a ball portion to replace the head of the femur and a stem portion for insertion longitudinally within the femur, the ball and stem portions being made of a hard transparent artificial plastic material, and a frame within the ball portion consisting of X-ray contrast material and having a plurality of arms extending radially outwards from the longitudinal axis of the ball portion and downwards towards the stem portion, at least one of the said arms having a length different from that of at least one of the other arms.

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