

UNITED STATES PATENT OFFICE

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AUTOMATIC CRANK LATCH

Robert J. Pagliuso, La Canada, Calif.

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4 Claims. (Cl. 74-547)

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This invention is an improved tripod crank latch.

Certain types of tripods have a leg box in which there is axially shiftable a stiff column. One of the improvements here is to provide a manually operative means for the steady and fast shift of the column upwardly and includes a double swing function crank and means for automatically and releasably holding the crank in either of its swung positions; one being an idle and the other an effective position.

A further improvement in the column and box combination resides in a simple, practical and reliable and easily operable means to solidly clamp the box and the column at a given position of adjustment.

The invention resides in certain advancements in the tripod structure art as set forth in the ensuing disclosure and having, with the above, additional objects and advantages as hereinafter developed, and whose constructions, combinations and sub-combinations and details of means, and the manner of its assembly and the manner of operation will be made manifest in the following description of the herewith illustrative embodiment; it being understood that modifications, variations, adaptations and equivalents may be resorted to within the scope, spirit and principles of the invention.

Figure 1 is a top plan of the tripod leg box partly broken away to show the automatic crank latch. Figure 2 is a side elevation of the assembly partly broken away to show combined features.

In this embodiment a stiff column 2 has along one side a gear rack 3 whose teeth are transverse to the length of the column and slidably fitted on the column is a box consisting of an upper section 4 having a bottom 4b from which depends a hub 4h. The hub passes freely through an axial hole in a box section 5 forming the bottom of the box. A ring nut 6 threaded at 7 on the hub forces the two sections of the box toward each other.

For the purpose of shifting the column up or down along the bore of the box hub means are mounted in the box section 4 (the upper section) for manual operation to effect the said shift. This means includes a tangential spindle 10 mounted in journals 11-12 in the section 4 and between which is rotative a small pinion 10p fixed on the spindle and in constant mesh with the said gear rack 3. The spindle is rotative by means of a double swing hand crank 13 having a hub 13h mounted on a transverse

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pivot 14 and disposed in a slot 10s in the outer end of the spindle. The crank is capable of being swung from the out-of-the-way (full line) position shown in Fig. 2 to an effective position shown in dotted lines. A feature of the crank device is that it is automatically yieldably latched in either of its possible positions just mentioned.

For that purpose a spring latch device is mounted in the box to engage and cooperate with the hub of the crank in its alternate positions. The latch here includes a thimble 15 slidably fitted on the outer end of the spindle and having a transverse or head part 15h working to and fro in the said slot 10s in the end of the spindle and in which the crank hub is operative to engage the contiguous head of the latch or thimble 15. The thimble is constantly thrust against the crank hub by a suitable spring here in coil form about the inner portion of the spindle enclosed in the box; the spring 16 here being confined between one of the journals and the inner end of the thimble.

The hub 13h is of the nature of a cam and has generally parallel facets 13f and 13f' the former of which is retentionally engaged by the thimble head when the crank is in idle position, Fig. 2, and the other being engaged by the thimble when the crank is swung to the outwardly presented or effective (dotted line) position. At one side of the crank hub there is provided a projecting stop shoulder 13s which will ride over and onto the near end of the thimble when the crank is in effective cranking or rotating position for the pinion—to shift the column in the box.

What is claimed is:

1. A crank assembly including a box, a spindle rotatively mounted in the box, a crank pivoted on the spindle for swing from an idle to an effective position, and means for automatically locking the crank in its effective position and including a thimble sleeve telescoping on the spindle and engaging and yieldably stabilizing the crank in the effective position, and a spring on the spindle for actuating the thimble sleeve and constantly pressing the outer end of the sleeve against the hub of the pivoted crank during its swing in either direction and yieldably latching the crank in its dual positions radially of the spindle.

2. The assembly of claim 1; and said crank having a facet for stabilizing engagement with said sleeve when the crank is in idle position.

3. The assembly of claim 1; said crank having a hub with facets on opposite sides of its pivot

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for alternate holding engagement with the said sleeve.

4. The assembly of claim 1; the pivoted end of the crank having a dual faceted hub on which said sleeve rests and having a swing limiting stop shoulder to engage said sleeve when the crank is in its effective position.

ROBERT J. PAGLIUSO.

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