Feb. 16, 1926.

1,573,496

T. A. JANSSON ET AL

TRIPOD

Filed April 11, 1925

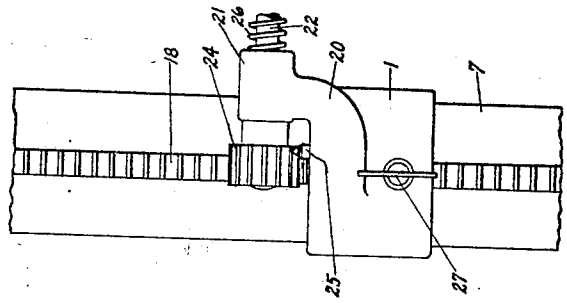


Fig. 4

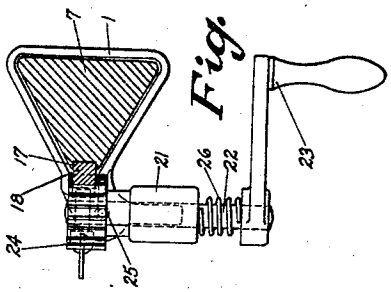


Fig. 5

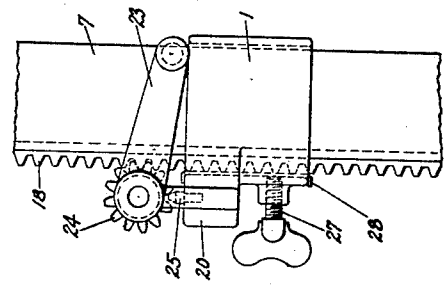


Fig. 3

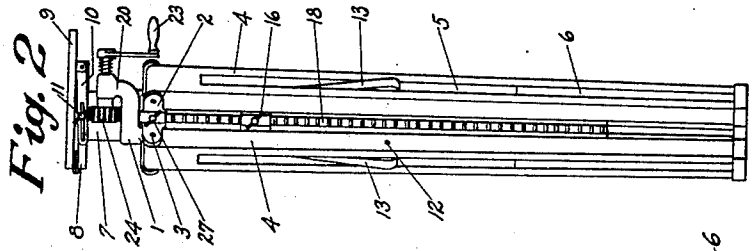


Fig. 2

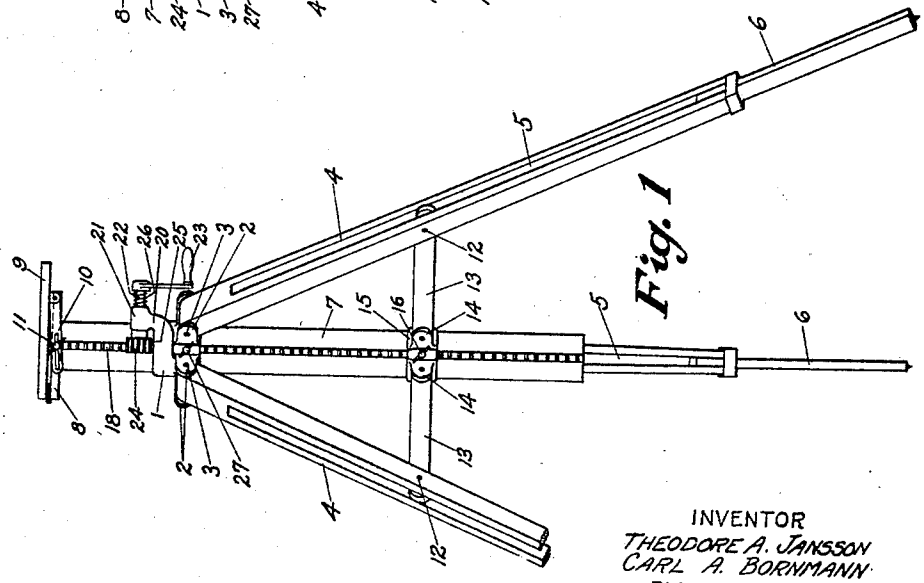


Fig. 1

INVENTOR
THEODORE A. JANSSON
CARL A. BORNMANN
BY
Philip S. Hopkins
ATTORNEY

Patented Feb. 16, 1926. 1,573,496

UNITED STATES PATENT OFFICE.

THEODORE A. JANSSON, OF JOHNSON CITY, AND CARL A. BORNMANN, OF BINGHAMTON, NEW YORK, ASSIGNORS TO ANSCO PHOTOPRODUCTS, INC., OF BINGHAMTON, NEW YORK.

TRIPOD.

Application filed April 11, 1925. Serial No. 22,421.

To all whom it may concern:

Be it known that we, THEODORE A. JANSSON and CARL A. BORNMANN, citizens of the United States, and residents of Johnson City and Binghamton, respectively, county of Broome, and State of New York, have invented certain new and useful Improvements in a Tripod, of which the following is a description, reference being had to the accompanying drawing, which forms a part of this specification.

Our invention relates to stands or tripods and is particularly adapted as an adjustable support for photographic cameras, although it will be readily understood that the same may be advantageously used in many other arts.

More particularly it is an object of our invention to provide an adjustable tripod which may be raised or lowered in its supporting position and which is automatically locked in any set position.

A further object is to provide a stand or support which is sturdy in construction and rigid and free from vibration in operation.

A still further object is to provide a combined operating and automatic locking device for manipulating the support or tripod.

Still another object is to provide a tripod of the character described which is easy and smooth in operation, light in weight and which enables the user to quickly assemble or dismantle.

Another object lies in the provision of an operating member for the tripod, which when moved to one position, may be manipulated to raise or lower the supporting element and which upon its release by the operator at any given position will automatically lock the supporting member in its adjusted position.

Many other objects and advantages in details of construction and operation will be apparent as the description proceeds, reference being had to the accompanying drawing, wherein like reference numerals indicate like parts.

In the drawing:—

Figure 1 illustrates our improved tripod unfolded and set up ready for use.

Figure 2 shows the tripod in its collapsed or folded position.

Figure 3 is a detail showing clearly the operating and locking device.

Figure 4 is a detail showing the operating parts in locking position.

Figure 5 is a cross sectional view.

A sleeve or hollow casting 1 preferably triangular in form, is provided on its lower edge on each of its sides with outstanding ears or lugs 2, forming bearings for the pivots 3, mounted in the upper end of legs 4. The legs 4 are slotted as at 5, such slots forming slideways for extensions 6, suitably secured therein whereby added length may be had for the legs when desired.

Slidable through the hollow casting or sleeve 1, is a supporting member 7 on the top of which is adjustably mounted the table or platen 8, preferably provided with a hinged supporting surface 9, which through the medium of a pivoted, slotted bracket 10 and wing nut or set screw 11, may be tilted upwardly and secured at any desired angle. This table or platen is adapted to receive, as by screws or other suitable means, a photographic camera or other instrument such as surveying instruments, etc. which it may be desired to support.

Pivoted intermediate the ends of legs 4, as at 12, are the outer ends of links 13, pivoted also at their inner ends to ear 14 carried by a second sleeve, also preferably a hollow casting 15 of aluminum or other light material, slidable up and down the supporting member 7. A set screw 16 provides means for locking the sleeve 15 at any desired point on the member 7. The links 13 and the sleeve 15 lend rigidity to the legs 4 when in unfolded or operative position, and in addition permits adjustment of said legs toward and away from the member 7, thus enabling use of the tripod under varying conditions and circumstances of space, in which it may be required to set up the tripod. This arrangement also provides additional means for adjusting the space to which the tripod may be set.

A channel 17 is cut in one corner of the member 7, extending downwardly from the top the entire length of the supporting member. A toothed rack 18 is suitably secured within this channel with the teeth of said rack projecting therefrom. Rigid with the casting 1 and preferably formed as an integral part thereof, is an arm 20 provided at its upper end with a bearing 21 in which

it rotatably mounted a shaft 22 provided at its outer end with a handle or crank 23 and at its inner end with a pinion 24 meshing with the teeth of the rack 18. It will be noted that the pinion 24 is wider than the rack 18.

Rigidly mounted on the upper side of the casting 1, is a pin 25 slightly offset from the rack 18. This pin 25 is mounted for engagement with the teeth of the pinion 24 for a purpose to be described.

The shaft 22 is mounted in the bearing 21 for sliding movements as well as for rotation. A coil spring 26 is placed around this shaft between the bearing 21 and the end of the handle 23 which is secured to the outer end of the shaft. The tendency of this coil spring is to normally throw and hold the shaft 22 to the right in Figures 1 and 2 in which position the pinion 24 engages both the rack 18 and the pin 25, whereby the supporting member 7 is securely locked in its adjusted position.

A secondary locking or securing means is provided as shown in Figure 3 in the form of a set screw 27 having bearings in the side of the casting 1 and engaging at its inner end, a flat strip or ribbon of metal 28 lying between the casting 1 and the teeth of the rack 18. As clearly shown in Figure 3, the ends of this strip or ribbon are out-turned in order to prevent its displacement. It will be understood that tightening of the set screw 27 will effectively lock the supporting member 7 in any given position with respect to the casting 1. This additional locking means is usually unnecessary, for as will be readily understood from the foregoing description, the pinion 24 engaging both the rack 18 and the pin 25 simultaneously, automatically and effectively locks the member 7 against movement in either direction.

The operation of our invention is as follows:

Assuming that the tripod is in the position shown in Figure 2, that is folded up for convenience in carrying it, and it is desired to set up the apparatus for use, the operator first loosens the set screw 16 carried by the sleeve or casting 15 and pivots the legs 4 outwardly to the desired distance. If greater height is desired, the slidable sections 6 may be pulled outwardly as shown in Figure 1, and suitably locked or secured in set position. With the camera or other instruments to be used secured on the platen 9, it is now desired to raise or lower the member 7 to the exact height required. To do this, the operator grasps the handle or crank 23 and pushes inwardly or to the left in Figure 1, against the tension of the coil spring 26 at which time, the pinion 24 will be disengaged from the locking pin 25, but because of the wide surface of the pinion 24, will not be disengaged from the rack 18. Keeping the handle 23 pushed inwardly in this position, the operator now rotates the same to raise or lower the supporting member 7 to the desired height. When this point has been reached, all the operator is required to do in order to lock the parts in such position, is to release his hold on the handle 23 at which time the coil spring 26 exerts its tension to force the shaft 22 back to the right in Figure 1, in which position the pinion 24 again engages with the pin 25, thus automatically and securely locking the supporting member 7 in a desired position.

After the desired adjustment has been made, as to the height of the supporting member 7, the set screw 16 should be locked to prevent accidental spreading or other displacement of the legs 4, and also if desired, the set screw 27 may be locked as an additional safeguard against accidental displacement of the supporting member 7.

It will be clear from the foregoing that we have devised a novel, practical, simple and inexpensive tripod which permits all of the adjustments necessary to a support of this character, such adjustments being smooth and simple in operation and automatically locked in adjusted position, as well as providing additional or supplementary manually operating lock as an extra safeguard. Although we have described our invention as being particularly adaptable as a support for photographic cameras, it will be understood that the same is susceptible to a wide variety of uses and we do not limit ourselves therefore either to such use nor to the exact structure shown and described, the same being the preferred embodiment only, other than by the appended claims.

We claim:

1. A tripod comprising legs and an adjustable supporting element, a rack on said element, a pinion engaging at all times with said rack for adjusting the position thereof, said pinion being slidable laterally with respect to said rack, and locking means engaging said pinion in one position of said pinion whereby said element is secured against movement.

2. A tripod comprising legs and an adjustable supporting element, a rack on said element, a pinion engaging at all times with said rack for adjusting the position thereof, said pinion being slidable laterally with respect to said rack, locking means engaging said pinion in one position of said pinion whereby said element is secured against movement and means normally forcing said pinion to said locking position.

3. A tripod comprising legs, and an adjustable supporting element, a rack on said element, a shaft slidable laterally of said rack and provided at one end with a handle, a pinion on said shaft engaging said rack

in all positions of said shaft, locking means engaging said pinion in one position of said pinion, and means for normally forcing said shaft and pinion to such locking position.

4. A tripod comprising legs and an adjustable supporting element, a rack on said element, a pinion always engaging said rack for adjusting the position of said element, said pinion being slidable laterally of said rack, a pin for engaging and locking said pinion in one position of said pinion, and means normally forcing said pinion to such locking position.

5. A tripod comprising legs secured at one end to a sleeve, a supporting element adjustable thru said sleeve, shiftable means carried by said sleeve for adjusting said element, and a pin on said sleeve engaging said means in one position of said pinion for locking said element.

6. A tripod comprising legs secured at one end to a sleeve, a supporting element adjustable thru said sleeve, means carried by said sleeve for adjusting said element, a pin on said sleeve engaging said means in one position of said pinion for locking said element and means normally forcing said first named means into such locking position.

7. A tripod comprising legs secured at one end to a sleeve, a supporting element adjustable thru said sleeve, a shaft slidably and rotatably journaled in said sleeve, provided with means engaging at all times with said element for adjusting the same, means normally locking said first named means against rotation, and a handle on said shaft for sliding the same out of locking engagement.

8. A tripod comprising legs secured at one end to a sleeve, a supporting element slidable thru said sleeve, a rack on said element, a pinion rotatably and slidably journaled on said sleeve and having engagement at all times with said rack, a pin on said sleeve for engaging said pinion in one position of said pinion and means for sliding said pinion out of engagement with said pin whereby said supporting element may be adjusted.

9. A tripod comprising legs secured at one end to a sleeve, a supporting element slidable thru said sleeve, a rack on said element, a pinion rotatably and slidably journaled on said sleeve and having engagement at all times with said rack, a pin on said sleeve for engaging said pinion in one position of said pinion, means for sliding said pinion out of engagement with said pin whereby said supporting element may be adjusted and means for normally forcing said pinion into engagement with said pin.

10. A tripod comprising legs secured at one end to a sleeve, a supporting element slidable thru said sleeve, a rack on said element, a shaft rotatably and slidably journaled on said sleeve and having a handle at one end and a pinion on the other end engageable at all times with said rack, a pin on said sleeve for engaging said pinion in one position of said pinion, a coil spring on said shaft for normally forcing said pinion into pin engaging position, and means for disengaging said pin and pinion and permitting adjustment of said supporting element.

THEODORE A. JANSSON.
CARL A. BORNMANN.