

No. 885,160.

PATENTED APR. 21, 1908.

W. C. KIDD,
SWITCH STAND.
APPLICATION FILED DEC. 20, 1907.

Fig. 1.

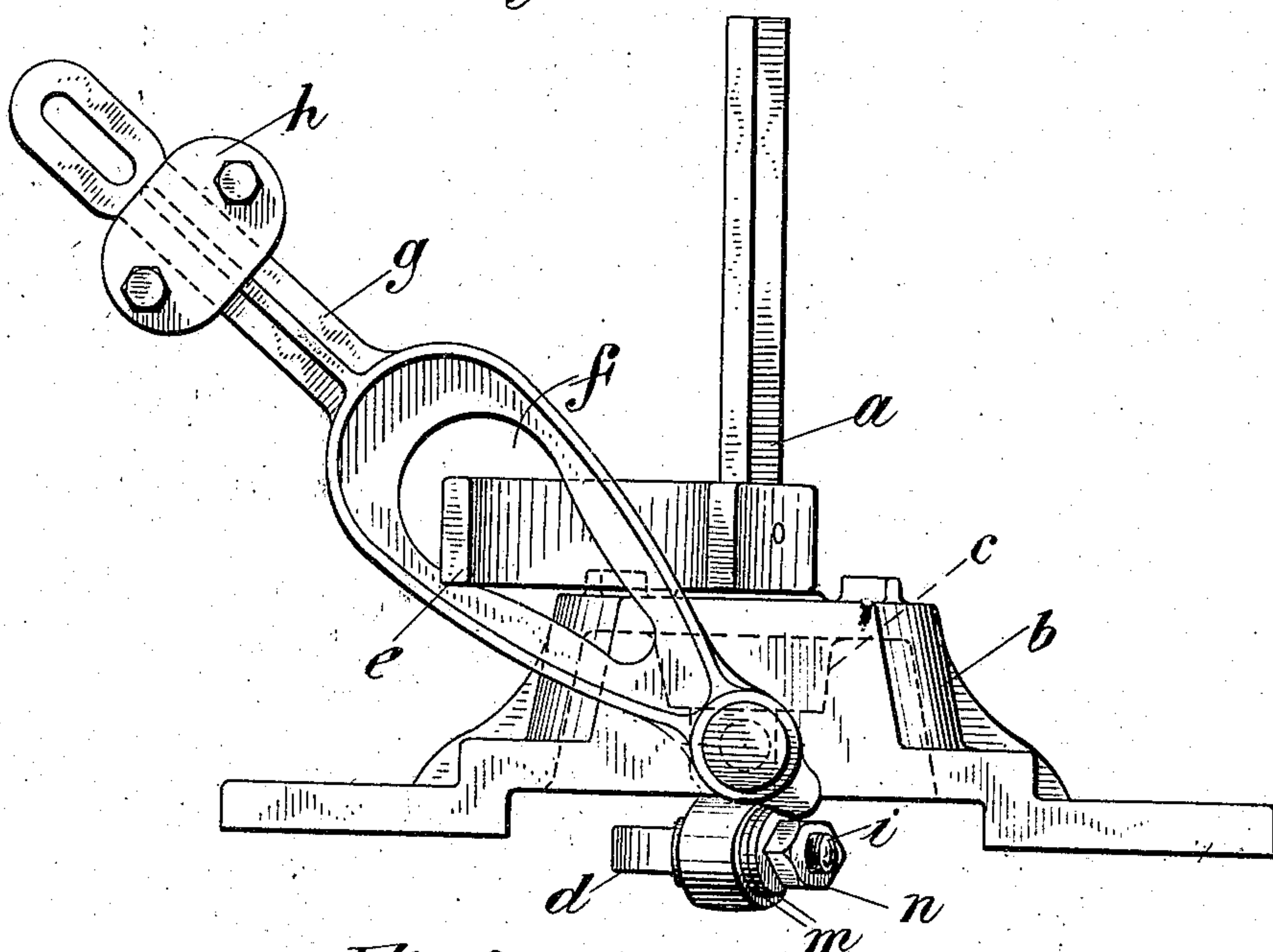


Fig. 2.

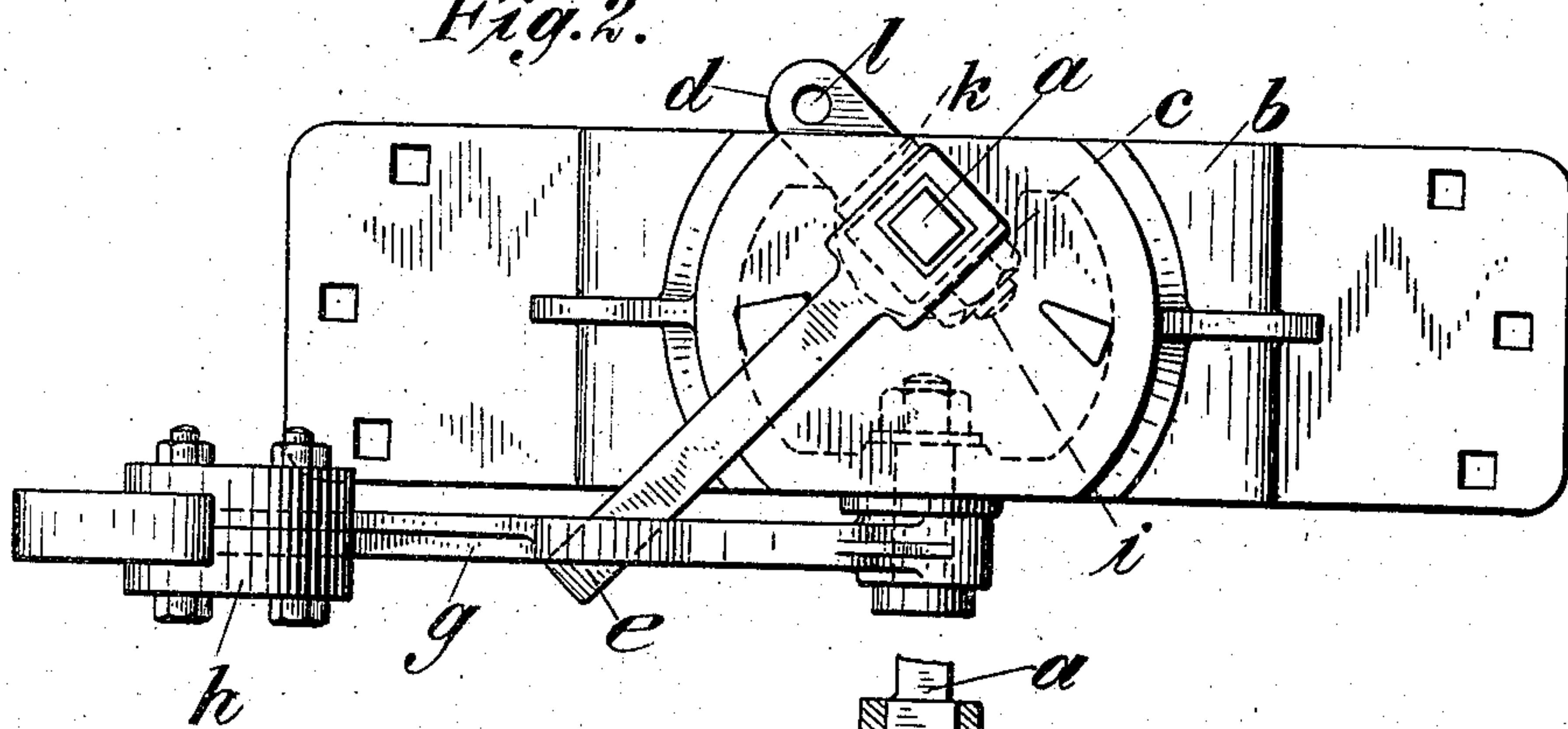
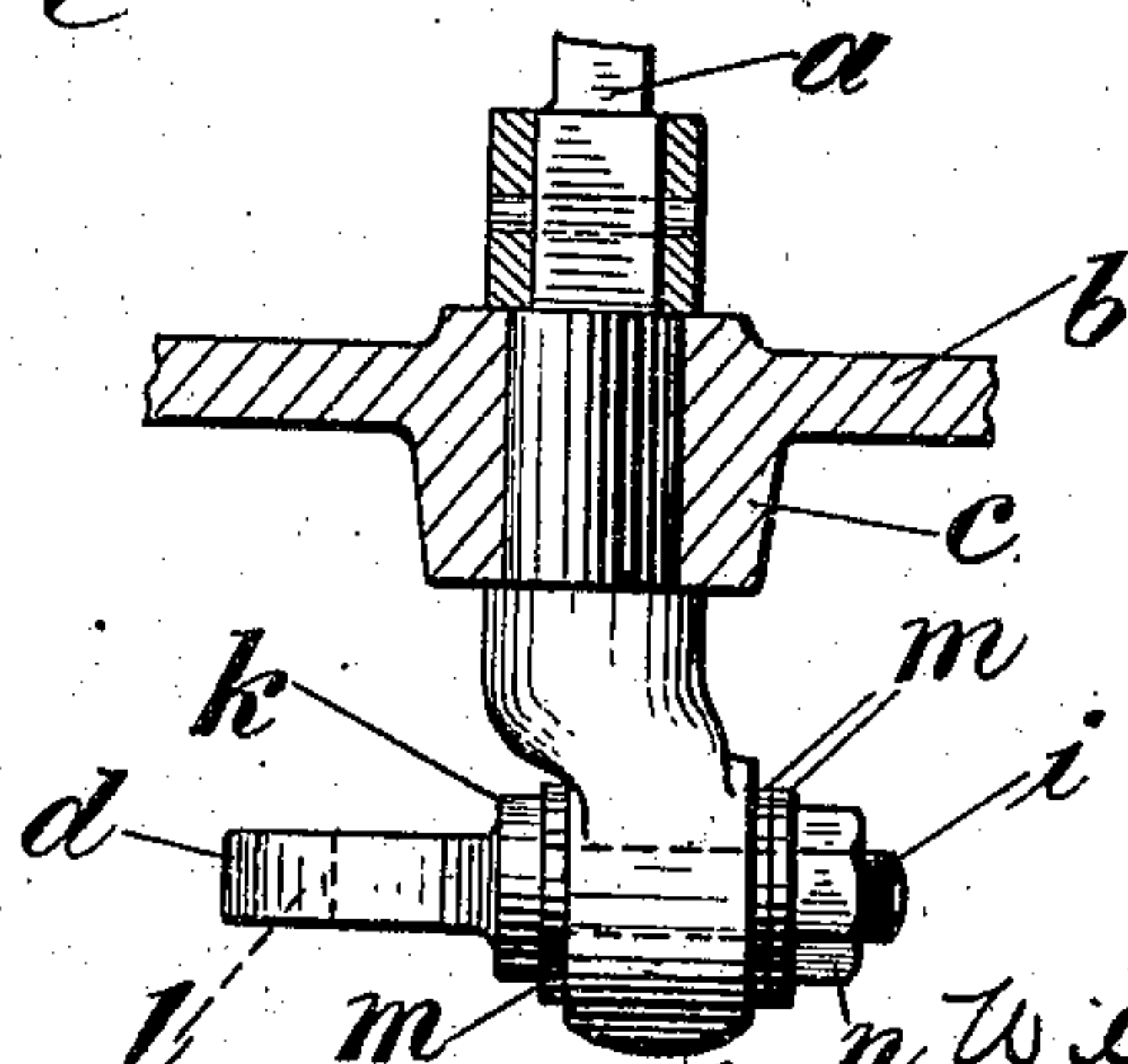


Fig. 3.



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SWITCH-STAND.

No. 885,160.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM CHARLES KIDD, a citizen of the United States, and a resident of Suffern, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

One object of the present invention is to provide an automatic switch stand which shall be particularly adapted for use in connection with light rails such as are commonly employed in temporary construction work, excavating operations and in mines. For such purposes, the stand is not required to be provided with locking mechanism, or with mechanism to guard against its being tampered with or to make it difficult to be operated from the track, inasmuch as no high factors of safety are necessary in such kinds of work though they may be required, for instance, upon passenger railroads.

For such uses as are specified above, a switch stand should have the following characteristics. In the first place it should be compact, or in other words, should be made to occupy as little space as possible. In mines, for instance, some switch stands could not be employed on account of lack of space. In the present case, besides making the stand small and compact, the handle is arranged to move parallel with the rails so that the stand can be conveniently operated where limitations of space would not permit the handle to move in any other way. Another characteristic which such stands should have is ease of operation. They should be able to maintain the switch rail in one of its normal positions, but at the same time should be capable of being operated automatically without the use of excessive force, and at all times should be in condition to be instantly thrown by hand. Still another characteristic which these stands should embody is such simplicity of construction as will make them comparatively cheap to manufacture.

Another object of the present invention is to provide an improved form of crank arm and improved means for securing and adjusting the crank arm upon the lower end of the vertical shaft or spindle through which the throw of the switch may be varied.

Heretofore it has been customary to provide a long and massive forging in which the crank arm was threaded and to adjust the throw of the switch by screwing the crank arm back and forth in the forging. The provision of a long and massive forging was necessary in order to give the proper strength, and this involved a considerably more expensive construction than is desirable in stands of the present character. Accordingly a new crank arm has been devised which is provided with a shoulder or some other fixed abutment; and to adjust the position of the crank arm upon the vertical shaft, spacing members, such as washers, are employed which may be fitted between the shoulder and the spindle on one side and, upon the other side, between the shaft and a fastening nut which latter is provided upon the end of the crank arm to secure the same firmly in position.

The present switch stand contains all of the above mentioned characteristics and will now be described with reference to the accompanying drawings in which a convenient and practical embodiment of the same is illustrated.

In said drawings: Figure 1 is a view in front elevation of the improved stand. Fig. 2 is a plan view, and, Fig. 3 is a detail sectional view through the vertical shaft or spindle.

The improved switch stand is provided as usual with a vertical shaft *a* upon the top of which a signal may be secured, as usual. This shaft is journaled in a base *b*, the lower part of the shaft being rounded for this purpose, and the base *b* being preferably provided with a long journal bearing *c* as shown (Fig. 1). The extreme lower end of the shaft *a* is formed with an eye in which the crank lever *d*, for operative connection with a switch, is secured.

In order that the stand may be as compact as possible, and to cheapen the manufacture of the stand as well, the number of parts required for the operation thereof have been reduced to a minimum. This reduction has involved the elimination of all gears, springs and other mechanism such as it is common to include within all casings of a switch stand with the result that there is no mechanism whatever within the casing, and in fact there is no casing at all unless the base *b* may pos-

sibly be said to incase the vertical shaft. Moreover, gears are generally provided in switch stands where it is desirable that the operating lever shall move in a vertical plane; but all gearing has been eliminated in the present stand while the movement of the operating lever is still made to take place in a vertical plane, by the provision of an arm *e* rigidly secured upon the shaft *a* and projecting through a slot *f* in the operating lever indicated by the character *g*. The arm *e* is preferably made rather massive, and is provided with a squared opening which fits upon a correspondingly squared portion of the vertical shaft, and the slot in the shaft *g* is preferably pear shape as illustrated although the precise form of this slot is not an essential to the present invention.

The operating lever *g* is pivoted to the base near the lower part thereof and is provided with a weighted arm above the slot. Said arm may be weighted in various ways and preferably by the provision of an adjustable weight *h* which can be moved into the particular position required for giving to this lever the proper balance. It will be understood that this weighted arm serves to hold the switch in its turned position, but permits the switch to be thrown from its turned position against one rail to its position against the other rail by the wheel of a passing car. It will also be understood that this weighted arm assists the operator in throwing the switch by hand for when it is swung up from its position upon one side of the shaft it will more readily drop into its position upon the other side of the shaft on account of its being weighted. In order to limit the swing of the arm *e* lugs *o* are provided upon the base, one on each side of the vertical shaft, and which check the movement of the arm *e* when the latter reaches the limit of its movement upon either side.

Referring now to the crank arm upon the lower end of the vertical shaft *a*, it will be seen that this crank arm differs from the usual crank arm which is screwed into the lower end of the vertical shaft. In the present case the crank arm consists of a member *d* having a projection *i* which is inserted through the usual eye upon the extreme lower end of the vertical shaft. An abutment such as a shoulder *k* is formed upon the crank arm *d* and limits the extent to which the projection *i* can be inserted through the vertical shaft. In practice this shoulder and the eye *l*, to which the switch rod is attached, are separated from each other by such a distance as to produce, when the shoulder abuts squarely against the vertical shaft, the precise extent of throw in the switch that may be desired. It is obvious that in different cases the extent of the throw desired will vary and in order to adapt the stand for different throws, one or more spacing mem-

bers such as washers *m* are inserted between the shoulder *k* and the vertical shaft. Moreover, when the switch wears out and consequently requires a longer throw in order to change it from one of its limiting positions to its other limiting position, the shoulder *k* may be adjusted further away from the vertical shaft by the insertion of one or more washers *m* between it and the shaft. When the stand is sold, the shoulder *k* and the eye *l* will preferably be so related to each other as to effect the particular throw of the switch desired with the shoulder *k* abutting against the vertical shaft; and a plurality of washers are provided between the fastening nut *n* and the other side of the vertical shaft for use as spacing members in effecting the subsequent adjustment of the crank arm to change the extent of the throw when for any reason it may be desirable so to do.

Variations may obviously be made in the construction of the switch stand to change its form considerably from that shown in the drawings, without departing from the spirit of the invention, and the improvements may obviously be embodied in a great variety of switch stands and in switch stands which are intended for use upon passenger roads as well as upon roads which are built for temporary purposes such as in construction work and mining. Moreover, as will readily appear, the improved form of crank arm is not necessarily limited to embodiment in a switch of the character described herein and the invention, so far as it relates to such crank arm, is not limited in this respect.

I claim as my invention:

1. In a switch stand, the combination of a vertical shaft adapted to be operatively connected with a switch, an arm projecting therefrom, and an operating lever having a slot through which the arm extends.

2. In a switch stand, the combination of a vertical shaft adapted to be operatively connected with a switch, an arm rigidly secured to the shaft and projecting therefrom, and an operating lever having a weighted arm and a slot through which the arm upon the shaft extends.

3. In a switch stand, the combination of a vertical shaft, means upon the bottom of the shaft for operative connection with a switch, an arm projecting from the shaft above said means, and an operating lever having a slot through which said arm extends.

4. In a switch stand, the combination of a vertical shaft, a base through which said shaft extends, an arm projecting from the shaft above the base, and an operating lever pivoted to the lower part of the base and having a slot through which said arm extends.

5. In a switch stand, the combination of a vertical shaft, a base in which said shaft is journaled, means upon the shaft and below the base for operative connection with a

switch, an arm projecting from the shaft above the base, and an operating lever having a slot through which the arm extends.

6. In a switch stand, the combination of a vertical shaft, a base in which said shaft is journaled, means upon the lower end of the shaft and below the base for operative connection with a switch, an arm projecting from said shaft above the base, and an operating lever pivoted near the lower part of the base and having a slot through which said arm extends.

7. In a switch stand, the combination of a vertical shaft, a base in which said shaft is journaled, means upon the lower end of the shaft and below the base for operative connection with a switch, an arm projecting from said shaft above the base, and an operating lever pivoted near the lower part of the base and having a weighted arm and a slot through which the arm upon the shaft extends.

8. In a switch stand, the combination of a base, a vertical shaft journaled in the base, an arm rigidly secured to the shaft and projecting in a horizontal direction therefrom, lugs upon the base to limit the movement of the arm, and means to move the arm.

9. In a switch stand, the combination of a base, a vertical shaft journaled in the base, an arm rigidly secured to the shaft and projecting therefrom in a horizontal direction, lugs upon the base to limit the movement of the arm, and an operating lever pivoted to the base and having a slot through which the arm extends.

10. In a switch stand, the combination of a vertical spindle, an operating lever adapted to move in a vertical plane and having a slot therein, and a member projecting from the spindle and extending through the slot in the operating lever.

11. In a switch stand, the combination of a vertical spindle, a horizontal member projecting from the spindle, and an operating

lever pivoted to swing in a vertical plane and having a slot through which the horizontally projecting member extends.

12. In a switch stand, the combination with a base, a vertical shaft journaled therein, means underneath the base upon the vertical shaft for operative connection with a switch, a horizontally projecting member above the base, and an operating lever pivoted near the lower part of the base and having a slot through which the horizontally projecting member extends.

13. In a switch stand, a crank arm for operative connection with a switch, said crank arm having an abutment, means to fasten said arm in position, and spacing members for adjusting the position of said arm.

14. In a switch stand, the combination of a crank arm, means to which the crank arm is secured, means to secure the crank arm to said means, an abutment upon the crank arm and spacing members to adjust the position of the crank arm.

15. In a switch stand, the combination of a vertical shaft, a crank arm for operative connection with a switch, a shoulder upon the crank arm, a nut to secure the arm in position, and washers to adjust the position of the arm.

16. In a switch stand, the combination of a vertical shaft having an eye near the bottom thereof, a crank arm extending through the eye and having a shoulder, a nut to secure the crank arm to the shaft, and washers between the shoulder and the shaft on one side and between the nut and the shaft upon the other side for adjusting the position of the crank arm.

This specification signed and witnessed this 30 day of November, A. D. 1907.

WILLIAM CHARLES KIDD.

Signed in the presence of—

SCHUYLER C. PEW,

JEAN S. MACGREGOR.