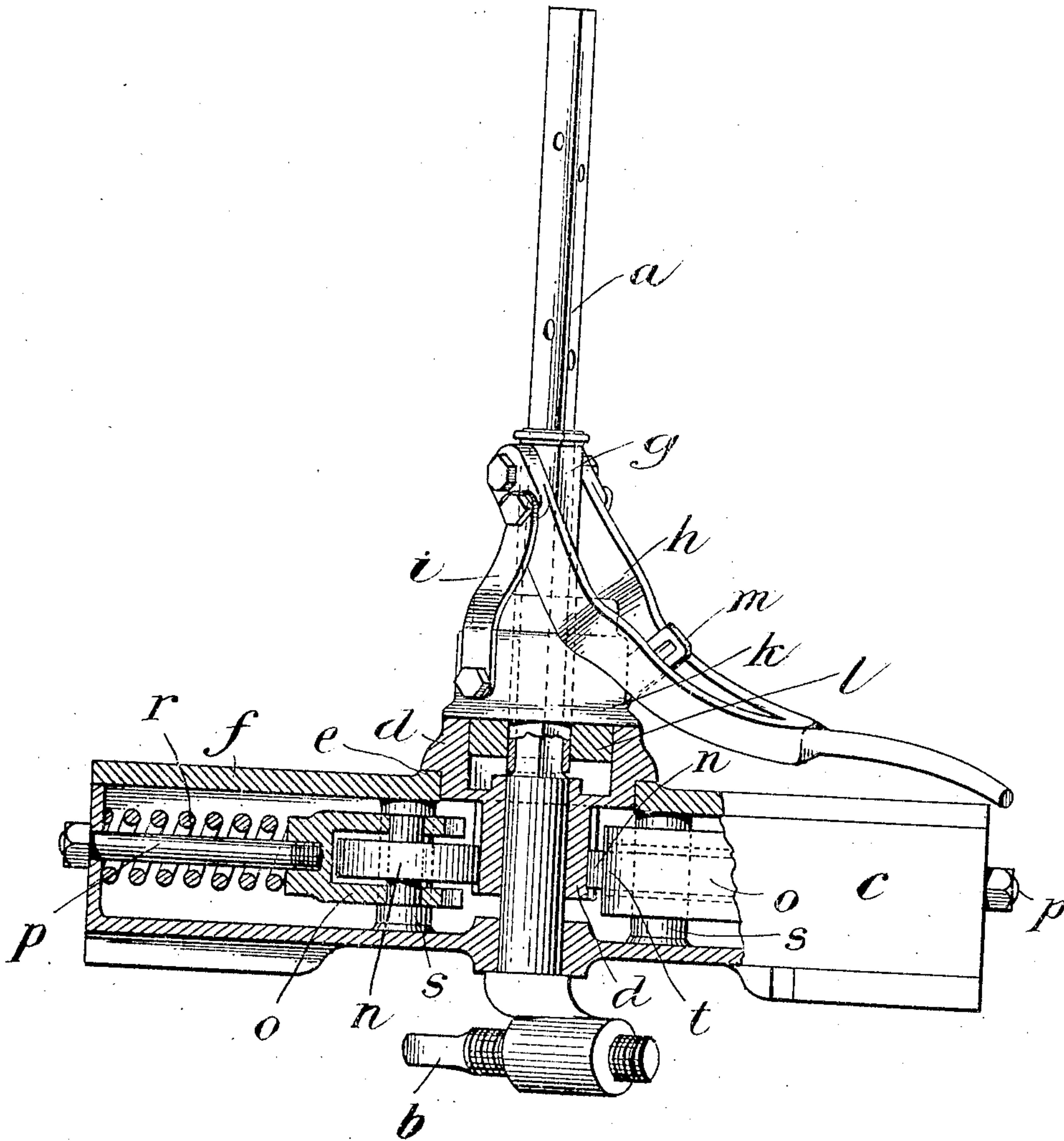


No. 881,969.

PATENTED MAR. 17, 1908.
F. W. SNOW & W. C. KIDD.
SWITCH STAND.
APPLICATION FILED DEC. 31, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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SWITCH STAND.

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2 SHEETS—SHEET 2.

Fig. 2.

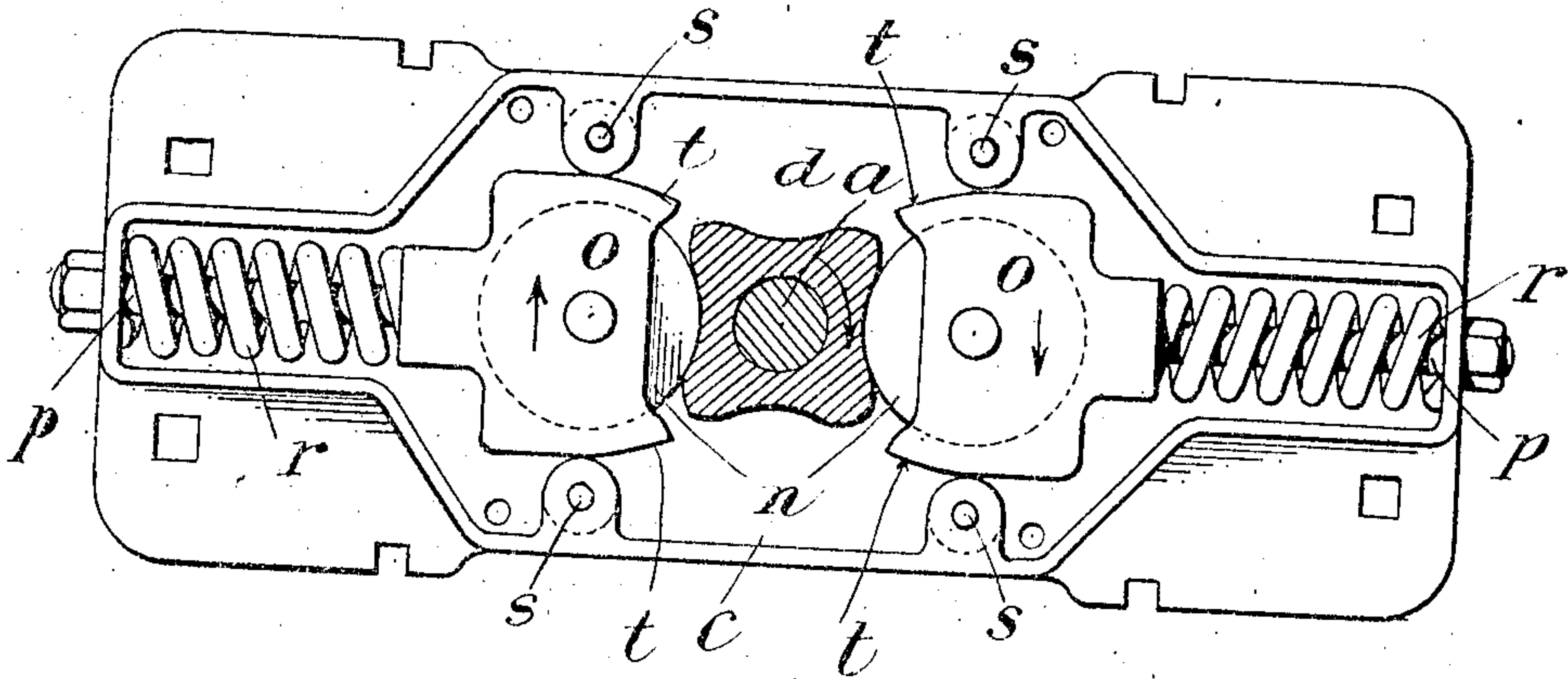
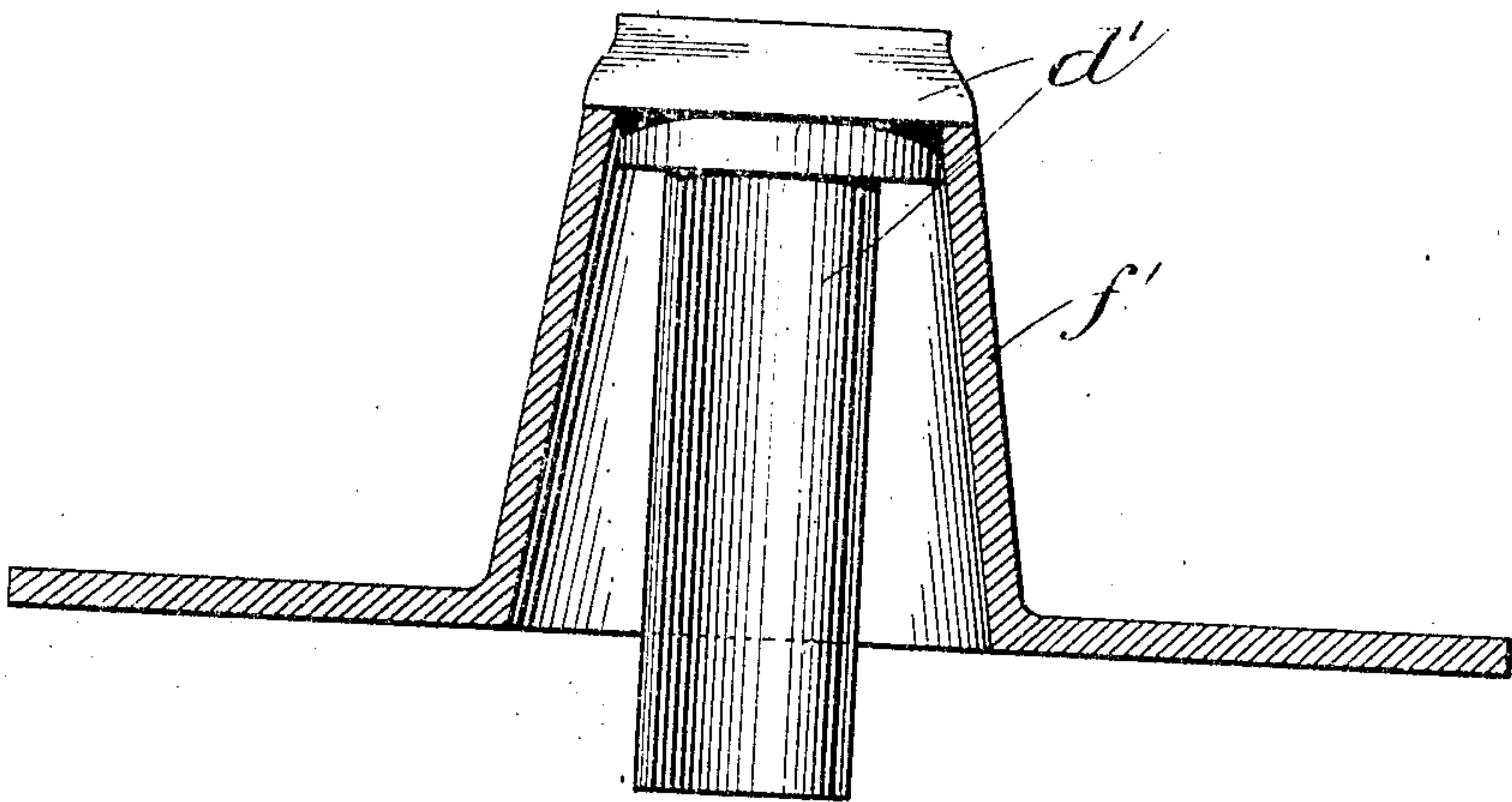


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SWITCH-STAND.

No. 881,969.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed December 31, 1907. Serial No. 408,835.

To all whom it may concern:

Be it known that we, FRED WILLIAM SNOW, a citizen of the United States, and a resident of Hillburn, in the county of Rock-
land and State of New York, and WILLIAM
CHARLES KIDD, also a citizen of the United
States, and a resident of Suffern, in said
county and State, have invented certain new
and useful Improvements in Switch-Stands,
of which the following is a specification, ref-
erence being had to the accompanying draw-
ings, forming a part hereof.

The invention relates particularly to im-
provements in automatic switch stands
which permit a switch to be thrown by the
wheels of a passing train and which at the
same time is capable of being operated by a
yardman or trainman through a handle.

One of the objects of the invention has
been to provide a mechanism of this sort in
which the means for holding the switch in its
turned position and which resist the move-
ment of the switch from its turned position
shall be nicely balanced in the stand so that
the parts may work evenly, while at the same
time it has been sought to avoid a construc-
tion in which these parts could reach a dead
center that is a point in which the switch
would be partly thrown and would tend to
remain in this partly thrown or open position.
It will be understood that in these switch
stands the means tending to resist the auto-
matic throw of the switch during the first
part of its movement assist the throw of the
switch during the second half of its move-
ment and that the point where these means
change from "resisting" to "assisting" means
is generally a dead center and that it is ex-
tremely desirable to avoid a construction in
which such points occur. Moreover, in a
construction in which the resisting means are
balanced with respect to the rotating mem-
ber the movement of which is resisted, that
is where they are symmetrically arranged
one on one side of the rotating member and
the other on the opposite side of the rotating
member, there is a tendency toward the for-
mation of a dead center point from the very
fact of the evenness of the balanced arrange-
ment, so that it has been difficult heretofore
to provide a construction in which the ad-
vantages of a balanced arrangement might
be secured without the concomitant disad-
vantages of dead center points.

In the present construction the resisting
means, that is the resisting means during the
first half of the throw and the assisting means
during the last half of the throw, are sym-
metrically arranged or balanced, one on one
side of the rotating member, which moves
with the switch when it is automatically
thrown, and the other on the opposite side of
said rotating member. These means recip-
rocate back and forth during the movements
of the rotating member and while they are in
and near their limiting positions, which posi-
tions correspond to the limiting positions of
the switch, they are guided substantially in
a straight line so as to be incapable of any de-
flection, but while they are in or near an in-
termediate position, that is a position in
which the switch is open, they are capable of
being deflected and are deflected, one toward
one side and the other toward the other side
of the central shaft, according to the direc-
tion in which the rotating member is moving.
On this account it is impossible for the rotat-
ing member to get upon a dead center be-
cause in each position these deflected mem-
bers will tend to turn the rotating member
in one direction or the other.

Another object of the present invention
has been to adapt the stand for use as a high
stand or a low stand as may be desired, by
the mere substitution of some of its parts,
without interfering at all with the other
parts, so that a greater part of the stand may
be made up and kept in stock and sold with a
set of parts which adapt it to be used as a
high stand or with a set of parts which adapt
it for use as a low stand. For this purpose,
the cover plate of the switch casing is made
removable and the rotating block and lock-
ing block are also made removable, it being
obvious too that any length of shaft may be
employed.

The invention will be more fully described
in connection with the accompanying draw-
ings in which,

Figure 1 is a view partly in elevation and
partly in section of a switch stand embody-
ing the improvements. Fig. 2 is a view in
plan of the interior of the switch casing with
the cover plate removed, and, Fig. 3 is a
view in vertical section of a cover plate and
rotating block for a high stand, the stand
illustrated in Fig. 1 being a low stand.

Referring to Figs. 1 and 2, the shaft or

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spindle *a* is provided upon its bottom with suitable means *b* for connection thereto of a switch or switch operating rod (not shown). This shaft extends upwardly through the switch casing *c* which houses the resisting means presently to be referred to, a rotating block *d* being provided around the same near the lower end thereof which is rounded to permit it to be freely rotated so far as the block *d* is concerned. The block *d* rests upon a seat *e* in the cover plate *f* which is provided to form the top portion of the casing *c*, and is secured thereto in such a manner as to be removable therefrom at pleasure. Above the block *d* the shaft *a* is provided with a squared portion upon which a sleeve *g* is firmly secured. To this sleeve a handle *h* is pivoted which, through the medium of links *i*, engages, so as to be capable of lifting, a locking block *k* which is provided with a squared portion *l* adapted to engage in a corresponding square recess formed in the top of the block *d*. The block *k* carries a projection *m* through which a padlock or some other device may be passed in order to lock the handle *h* from being lifted. It will be clear from this construction that when the parts are in the position illustrated in Fig. 1 the switch cannot be turned except by turning the block *d* but that when the handle *h* is lifted so as to throw the locking block *k* up from its engagement with the block *d*, the switch may be moved without necessarily rotating the block *d*.

The block *d* constitutes what have been referred to hereinbefore as the rotatable means which are acted upon by the resisting means within the casing *c* to regulate the automatic movement of the switch. This block is formed at its lower end with four recesses, one pair of these recesses being engaged when the switch is in one of its limiting positions by rollers *n* (Fig. 2) which constitute a part of the resisting means, and the other pair of recesses being engaged by these rollers when the switch is in the other of its limiting positions. The rollers are mounted in housings *o* secured upon the ends of rods *p*, springs *r* being provided within the casing *c* for normally pressing the rollers inwardly against the block *d*.

It will be obvious from Fig. 2, that, as the block *d* turns from the position there illustrated the rollers will be forced outwardly and that the movement of the block *d* from one of its limiting positions to the other limiting position will cause the reciprocation of the rollers and rods, the springs *r* always tending to press the rollers inwardly so that during substantially the first half of the movement of the block *d*, they will resist the rotation thereof and during the last half of the movement of the block *d* they will assist the rotation thereof. During the reciprocation of the rollers, they are guided by guides

s, which may comprise rollers as illustrated or some other suitable form of guide, and it will be noted that the ends of the housings *o* are beveled as at *t*, this beveling in Fig. 2 being somewhat exaggerated for clearness of illustration. When the parts are in one of the limiting positions of the switch, that is when the switch is against one of the rails and the parts are in the position shown in Fig. 2, the guides will prevent the housings from being deflected to one side or the other and thus it will be impossible for anybody to disturb the position of the switch or for the switch to be disturbed by anything but a considerable force; whereas if the housings could be deflected to one side or the other, the switch, as is obvious, would be very insecure against even a moderate force which might be exerted by an unauthorized person or from some cause or other. When however the switch is moved automatically so as to cause the block *d* to rotate in the direction of the arrow and when some movement of this block has been effected in this direction to cause the rollers *n* to be moved outwardly to some extent thereby bringing the beveled portions *t* of the housings *o* in line with the guides *s*, the block *d* as will be obvious, will tend to deflect the rollers and their housings, the one toward one side as indicated by the arrow thereon and the other toward the other side of the central shaft *a* as indicated by the arrow thereon. This deflection will absolutely prevent the existence of any dead center during the rotation of the block *d*, for it will be obvious that until the projecting portions of the block *d* at the corners thereof have both passed or traversed the rollers *n* in the rotation of the block *d*, the rollers will tend to resist the rotation and tend to push the block *d* back to its first position, whereas when these projections have passed the rollers *n*, the rollers will assist the further rotation and will force the block *d* to its other limiting position.

Fig. 3 illustrates clearly how a new block and cover plate can be substituted for the block and cover plate illustrated in Figs. 1 and 2. In these figures the cover plate *f'* is provided with a long or high seat upon which a correspondingly lengthened block *d'* is seated. It is unnecessary to amplify the description in this particular, as it will be readily understood without further description.

It is clear that the objects of the invention may be realized in other structures which may depart from those illustrated and described herein without avoiding the spirit of the invention, and the latter is accordingly not limited to the structure shown and described.

We claim as our invention:

1. In a switch stand, the combination of means to resist the movement of a switch, said means being capable of being deflected

while in an intermediate position to prevent the switch from being left open but to be firmly held from deflection while in a limiting position to maintain the switch in its proper position.

2. In a switch stand, the combination of a rotatable block, reciprocating means to resist the rotation of the block, means to permit the reciprocating means to be deflected when the block is in an intermediate position in order to prevent the block from remaining in an intermediate position and to hold the reciprocating means firmly from deflection when the block is in a limiting position.

3. In a switch stand, the combination of a rotatable block, a spring actuated roller to resist the rotation of the block, a beveled housing for the roller, and guides for the housing for the purpose specified.

4. In a switch stand, the combination of a rotatable block, rollers upon opposite sides of the block, said block having recesses in which the rollers engage, springs to press the rollers against the block, beveled housings for each of the rollers, and guides cooperating with the housings for the purpose specified.

5. In a switch stand, the combination of means to connect the stand to a switch, a rotatable member connected to said means, a block on said member, means to fasten the block to and unfasten the block from said member, means to resist the rotation of the block, and guides for the resisting means, said guides and resisting means cooperating to hold the block in its turned position but permitting the resisting means to be deflected when the block is partly turned in order to prevent the block from remaining partly turned and the switch from being left in an open position.

6. In a switch stand, the combination of a vertical shaft, means to connect the shaft with a switch, a block upon the shaft, means to fasten the block to the shaft so that it will rotate therewith, spring actuated rollers on opposite sides of the block to resist its rota-

tion, beveled housings for the rollers, and guides cooperating with the housings for the purpose specified.

7. In a switch stand, the combination of a vertical shaft, means to connect the shaft with the switch, a switch stand casing including a removable cover plate, a block extending through the cover plate and around the lower end of the shaft, and means within the casing acting against the lower end of the block to resist the rotation thereof, whereby the cover plate and block may be removed and a cover plate and block of a different size substituted therefor to vary the height of the switch stand without interfering with the other parts.

8. In a switch stand, the combination of a vertical shaft, means to connect the shaft with the switch, a casing having a removable cover plate, a block extending through the cover plate and surrounding the lower end of the shaft, means within the casing to resist the rotation of the block, means upon the shaft to fasten the block to the shaft and unfasten the block from the shaft, whereby the cover plate and block may be removed and a cover plate and block of a different size substituted therefor to vary the height of the switch stand without interfering with the other parts.

9. In a switch stand, the combination of a flat horizontal casing including a removable cover plate, a vertical shaft with operative connections for a switch, means around the shaft and extending through the casing and means within the casing to cooperate with said means to resist the rotation of the shaft and the movement of the switch.

This specification signed and witnessed this 31 day of October, A. D., 1907.

FRED WILLIAM SNOW.
WILLIAM CHARLES KIDD.

Signed in the presence of—
SCHUYLER C. PEW,
JEAN S. MACGREGOR.