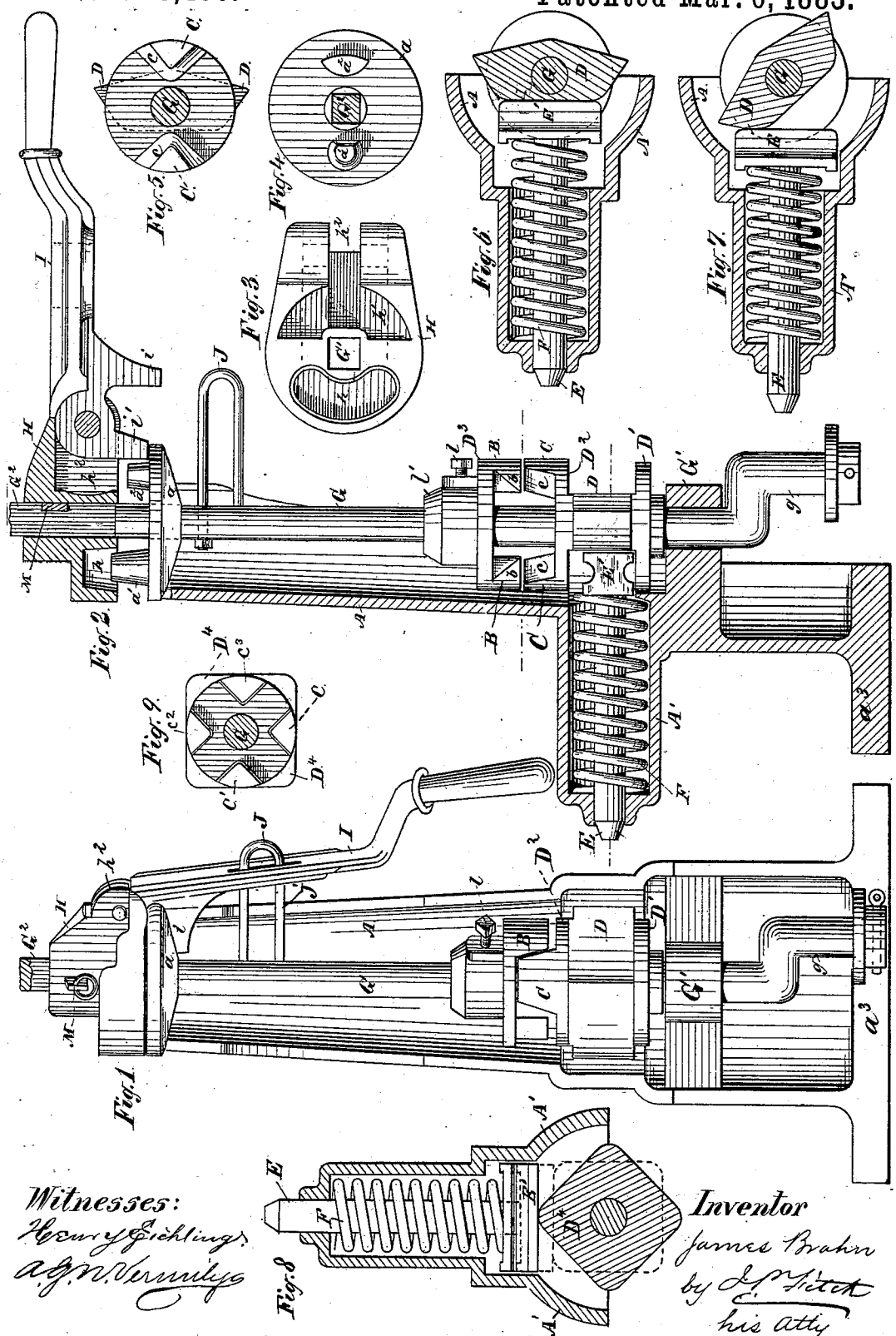


(No Model.)

J. BRAHN.
SWITCH STAND.

No. 273,450.

Patented Mar. 6, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES BRAHN, OF JERSEY CITY, NEW JERSEY.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 273,450, dated March 6, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRAHN, of Jersey City, in the county of Hudson and State of New Jersey, 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 part of the same, in which—

Figure 1 is an elevation of a switch-stand, showing the position of the parts when the switch is locked by the stand. Fig. 2 is an elevation of the same, partly in section, the stand being turned quarter round from the position shown in Fig. 1, and showing the position of the parts when the switch is unlocked for shifting the same. Figs. 3, 4, 5, 6, 7, 8, and 9 show detached parts of the stand, to be more fully described hereinafter.

My invention relates to that class of switch-stands designed to shift and lock railroad-switches, and yet permit the point of the switch-rail, when locked, to move against a yielding resistance away from its adjacent rail, to enable the wheels of cars to pass through the locked switch without leaving the main rail, and to spring back to its place when the wheels have passed through; and it consists in the devices and combination of devices hereinafter described and claimed.

A is the frame of my stand, consisting preferably of a cast-iron shell, and being, in fact, about one vertical half of a hollow post or cylinder, cast entire, open at the top and closed at the bottom, and the bottom a^3 being extended laterally to form a sufficient base. Fig. 1 shows this frame with the open side in front, and Fig. 2 shows a vertical central section of the same turned quarter round. Upon this frame, which is some three feet (more or less) in height, and within the same the working parts of the stand are mounted.

G is a shaft located within the said frame, journaled near the lower end in the bracket G' , formed on and projecting from the inner face of the frame A, and at the upper end in the cap a , that fits upon and is secured to the upper end of A, whereby the said shaft has a vibratory rotary motion on its journals. At the lower end of this shaft is a crank-arm, g , which is to be connected to the switch-rail (not shown) by a suitable switch-bar, (also not shown.)

D is a cam cast solid with the disks D' and D^2 . The part thus formed is placed loosely on the shaft G and rests on the upper face of the bracket G' . Upon the upper face of the disk D^2 are projections C, which constitute it a part of a clutch, the other part being the disk D^3 , having on its lower face the projections B. The form of these projections is shown in Figs. 1 and 2, and also Fig. 5, which is an upper face view of the disk D^2 . As will be seen, they are broader at their bases than at their tops, with inclined edges b and c , which serve a special purpose, to be presently explained. The disk D^3 is made fast to the shaft G by means of a set-screw, l , in the hub l' .

E is a shaft located in a socket or recess, A' , projecting from and preferably cast on the frame A, the outer end of the shaft passing through a hole in the outer end of said socket, and the inner end being provided with a broad, flat head, E' , the face of which is pressed against the straight inner face of the cam D by the spring F. With this arrangement it is evident that the said cam can be turned on the shaft G from the position shown in Fig. 6 to the position shown in Fig. 7 only by pushing the shaft E back into the socket A' against the stress of the spring F. The said shaft and spring thus act to hold the cam D in a fixed position on the shaft G, while permitting some movement of it against the stress of the spring.

In Fig. 8 is shown a modification of the form of the cam D, such modified form being indicated at D^4 in said figure. As will be seen, it is rectangular and equilateral, with the corners rounded off. This form permits the complete revolution on the shaft G, instead of the rocking motion of the segmental cam D, thus allowing the switch to be completely shifted while the clutch $D^2 D^3$ is locked, giving the cam a quarter-turn, and continuing it after such turn in engagement with the head E' of the shaft E. When the square form of the cam is used the sections $D^2 D^3$ of the clutch should each have four projections $c c' c^2 c^3$, Fig. 9, instead of two each, as shown at $c c'$, Fig. 5.

H is a head-block placed on and keyed fast to the upper end of the shaft G, the hole through the block and the shaft in cross-section at that place being preferably rectangular, as shown. To this block is hinged the lever

I, which is pivoted in a recess, h^2 , on one side of the block, as seen in Figs. 1, 2, and 3. On the upper face of the cap a are projections a' and a^2 , a side view of which is given in Fig. 2 and a face view in Fig. 4. The projection a' extends up into the recess h , whereby the rotary motion of the said block and the shaft G, to which the block is made fast, is limited to the length of the said recess. On the lower edge of the said lever, at its inner end, is a projection, i' , which, when the lever is raised and swung into the position shown in Fig. 2 in the act of shifting the switch, prevents the lever from being again depressed, the said projection being stopped against the projection a^2 , whereby the switch can be locked only after it has been fully shifted, when the projection i' is swung to the one side or the other, and out of the way of the said projection a^2 . i is another projection on said lever, which, when the lever is depressed, takes under the lower inclined face of the cap a , and thereby forces downward the shaft G and the parts rigidly connected with it.

I have above described a strong and conveniently made stop to limit the rotary motion of the shaft G, and also a practical device for lifting and forcing downward the shaft in the act of shifting, unlocking, and locking the switch; but I do not limit myself to the precise devices described and shown for said purposes. Any other suitable mechanism or other bar or projection on the shaft G may be employed.

J is a long staple, made fast to and projecting from shaft G, which, when the lever is depressed, passes through a slotted opening, as seen in Fig. 1, by which the switch may be locked by means of a padlock.

In order to bring the stress of the spring F to bear upon the cam D after the switch is locked, so that the point of the switch-rail may constantly feel the pressure of the spring forcing it against the adjacent main rail with no

lost motion, the lateral edges of the projections $b b c c$ are inclined, making the projection wedge-shaped, as shown. Now, when the shaft G, and with it the upper part of the clutch, has been lifted, and the switch shifted by rocking said shaft, the further movement of the shaft is stopped by the projection a' against the end of the recess h . Then, as the shaft G, and with it the upper part of the clutch, is forced downward in the act of locking the switch, the inclined edges of the projections $b b$ take against the correspondingly-inclined edges of the projections $c c$ at their outer ends first, and by forcing the former down upon the latter the cam D is slightly rocked on the shaft G against the stress of the spring F, thereby securing a constant pressure of the said spring tending to hold the shaft to its limit of motion as permitted by the projection a' and recess h , and also, of course, to press the point of the switch-rail into contact with its adjacent side rail.

I do not claim here by themselves the described devices at the top of the stand by which the lever I is made to force downward the shaft G and its attachments, nor the projections a^2 and i , these devices being secured to me in a previous patent.

What I do claim, and desire now to secure by Letters Patent, is—

1. The combination, in a switch-stand, of the shaft G, the cam D, the shaft E, clutch $D^2 D^3$, and spring F, as and for the purpose described.

2. The combination, in a switch-stand, of the shaft G, clutch $D^2 D^3$, provided with the projections B and C, having the inclined edges $b c$, the cam D, the shaft E, and spring F, and suitable mechanism for limiting the movement and lifting and forcing downward said shaft G, as and for the purpose described.

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Witnesses:

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