

(No Model.)

F. W. SNOW.
SWITCH STAND.

No. 300,911.

Patented June 24, 1884.

Fig. 3.

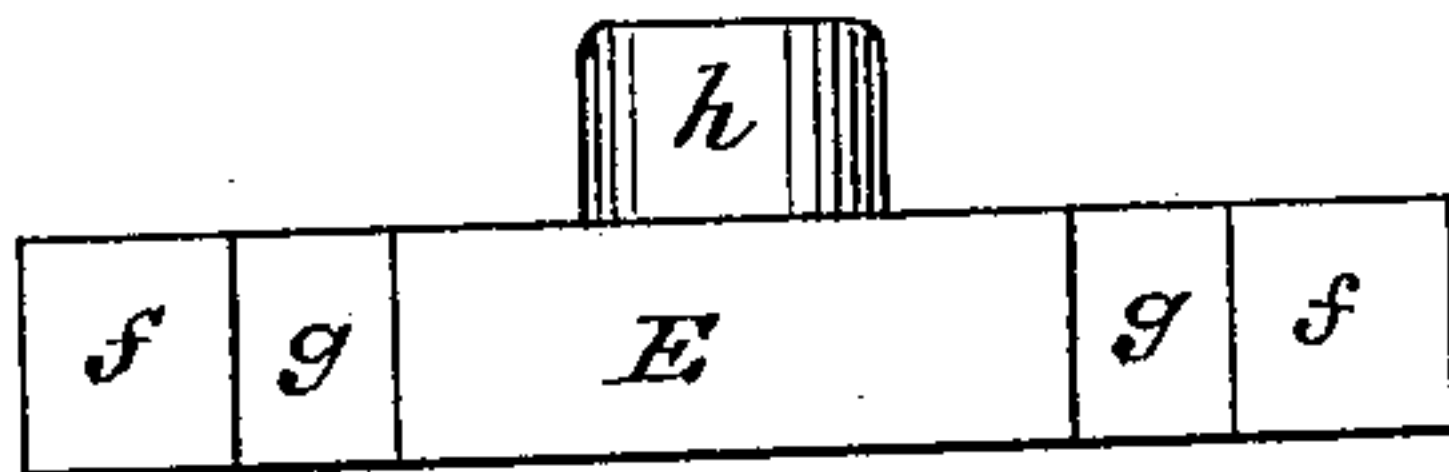


Fig. 5.

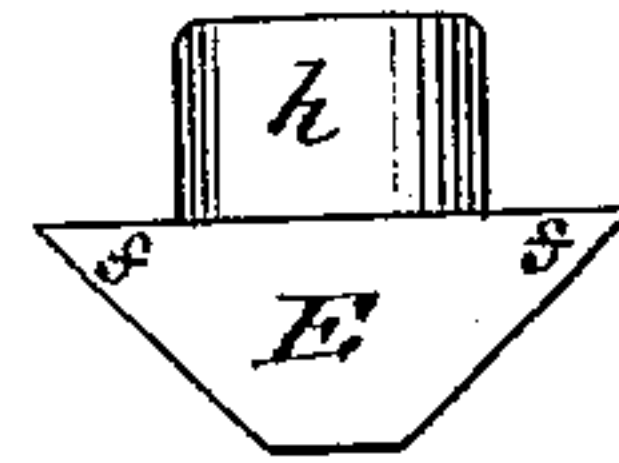


Fig. 4.

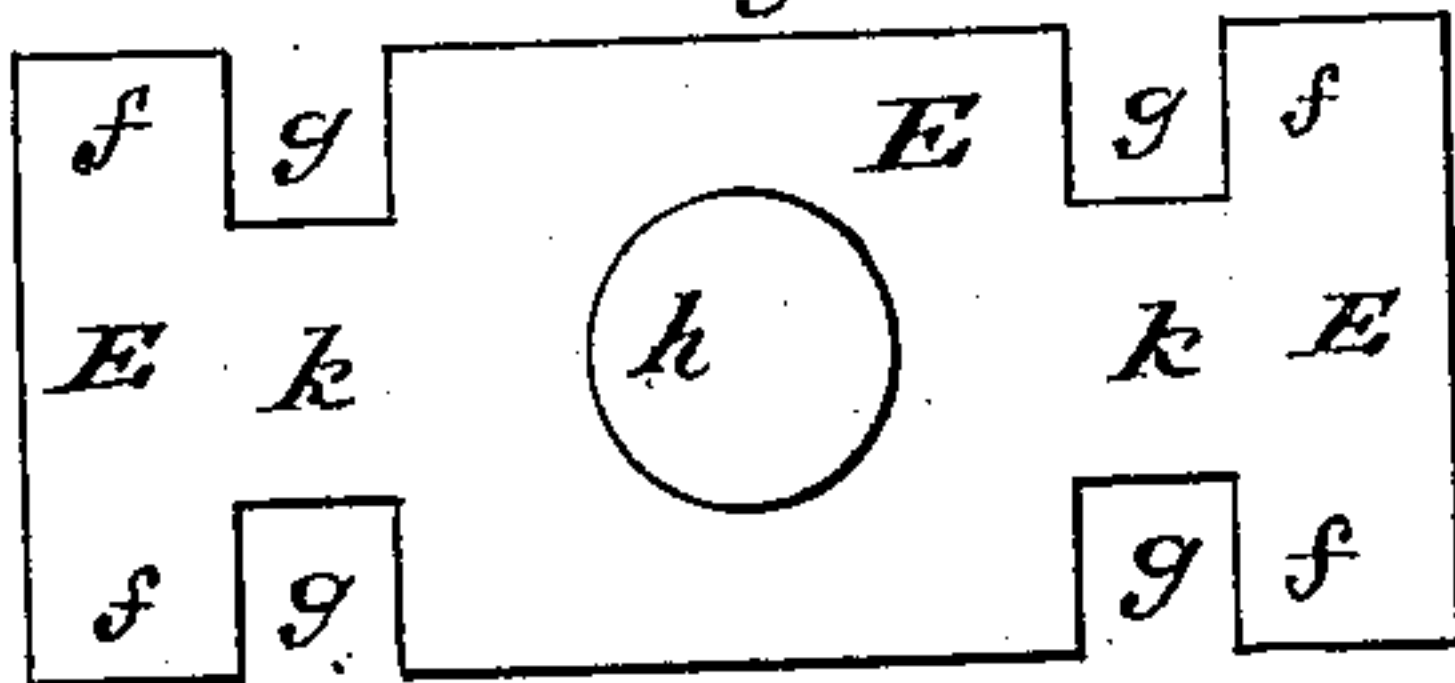


Fig. 1.

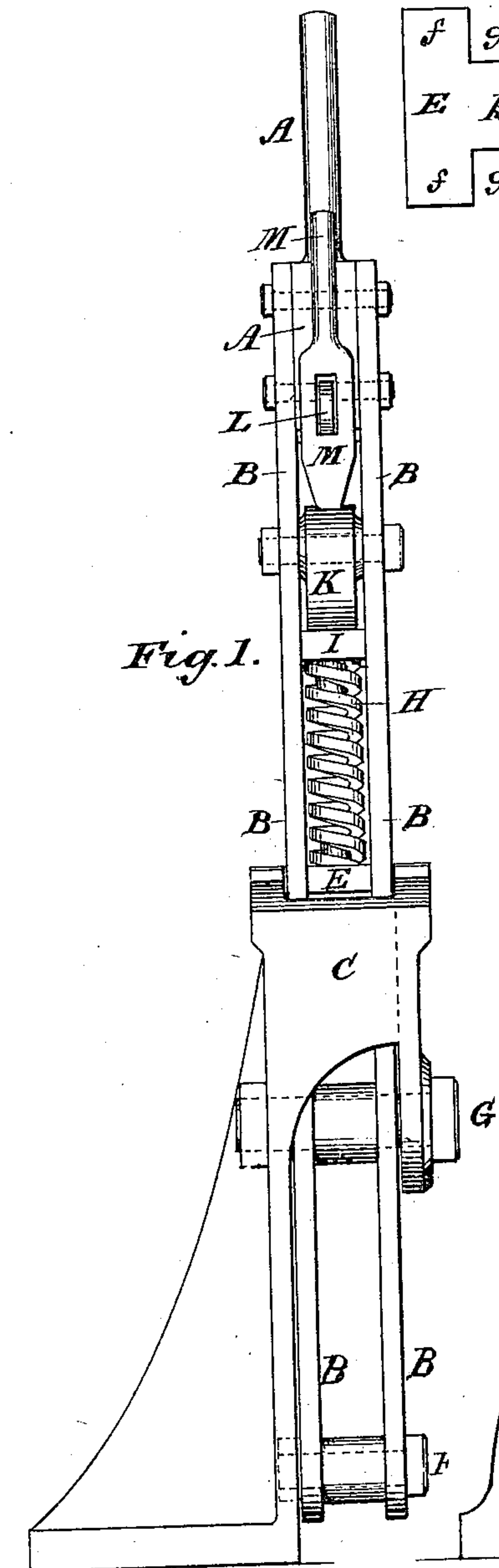


Fig. 6.

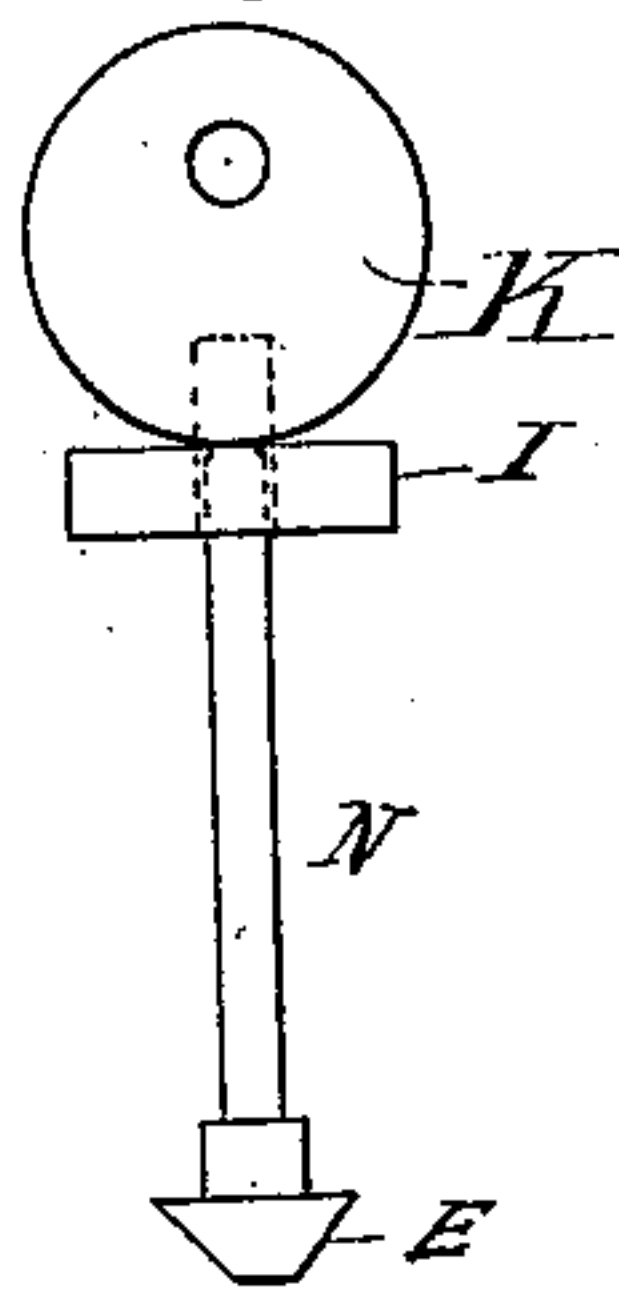
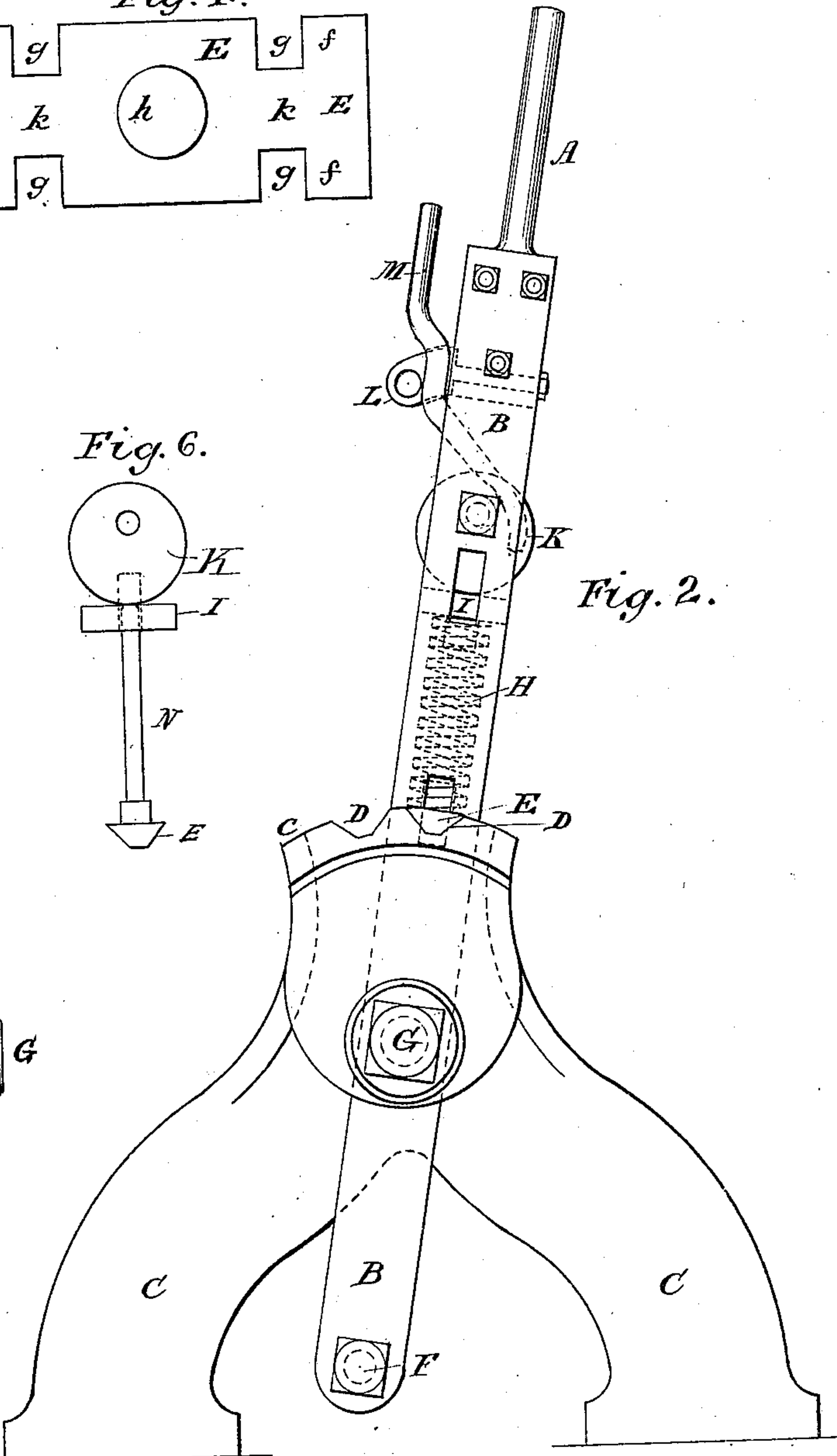


Fig. 2.



Witnesses:-

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Inventor:-

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UNITED STATES PATENT OFFICE.

FRED. W. SNOW, OF RAMAPO, NEW YORK.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 300,911, dated June 24, 1884.

Application filed October 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRED. W. SNOW, of Ramapo, in the county of Rockland and State of New York, have invented certain new and
5 useful Improvements in Switch-Stands, of which the following is a specification, reference being had to the drawings, in which—

Figure 1 is an elevation of one side of a switch-stand containing my improvements.
10 Fig. 2 is an elevation of another side of the same stand, the interior parts being shown by dotted lines in these figures; and Fig. 3 is a side elevation, Fig. 4 a plan view, and Fig. 5 an end elevation, of one of the parts of the locking device. Fig. 6 is a detached view of the
15 locking mechanism, showing a detail omitted elsewhere for the sake of clearness.

The invention has two objects—that is to say, first, to provide a means by which lever-
20 switches can be locked so as not to move by hand or under any ordinary power, and yet be capable of being moved by the strain of car-wheels upon the rails into certain definite positions, where they are again locked, be incapable
25 of locking except in those positions, and when unlocked be capable of being moved freely by hand. Spindle-switches—that is to say, switches operated by an upright rotating shaft—have been contrived which accomplish
30 these ends; but the devices used for the purpose are not capable of application without material modification to lever-switches—that is, switches operated by a vibrating lever.

The second object of my invention is the
35 special construction of locking devices, which may be applied to any switch, and will serve all of the above functions.

The essential features of a switch-stand embodying my invention are as follows:

40 First. A standard or fixed part, which may be of any kind, to form a basis for the moving parts, which are the second essential feature of such a switch-stand, and may also be of any kind; but, as before stated, the advantages of
45 my improvement best appear in its application to a stand in which the principal moving part is the common vibrating lever.

Third. A bevel-nosed bolt or cam.

50 Fourth. Suitable engagements or catches for the bolt or cam, the bolt and its catches be-

ing one on the fixed the other on the moving parts of the switch, and the bevel of the bolt being so related to the catches that while it acts to hold the switch under ordinary strain, yet when great power is applied the two will
55 slide upon each other.

Fifth. A spring or its equivalent tending to hold the bolt in engagement with the catches when they are brought into conjunction, but which, yielding under pressure, suffers the
60 bolt and catches to move upon each other. This constitutes the resistance to motion of the switch by accidental causes, and it is essential that its power should be so proportioned that while nothing but great power—
65 such as that of the wheels upon the rails—can overcome it, yet if its effect were removed from the switch there would be nothing to prevent the easy operation of the latter by hand. I have therefore—
70

Sixth. Means for moving the switch free of the pressure of the spring, and my method of doing this, by simply releasing the bolt or cam from pressure, is of great importance, other devices for that purpose being either
75 very complicated in themselves or necessitating a complicated arrangement of the other parts, and being also incapable of application to lever-switches.

Having thus defined the invention, the definition will be more fully understood by the following description of the drawings, which represent a lever-switch stand embodying my invention.

C represents the standard or fixed part, 85 the construction and shape of which will be readily seen in Figs. 1 and 2. Its essential peculiarity is that its upper edge, *c*, which forms the arc of a circle centered at the pivot G, is provided with notches or teeth D, 90 constituting the catches hereinbefore referred to.

A B B is the lever of the switch, pivoted in the standard by the bolt G. It consists of the solid handle A and plates B B, bolted to the
95 handle, though this construction is not essential. The rail-moving rod is connected to the lower end of the lever by the pin F, in the usual manner.

E is the bevel-nosed bolt shown in position 100

in Figs. 1 and 2, and detached in Figs. 3, 4, and 5. It moves in slots in the plates B B of the lever. These plates fit in the grooves *g g*, Fig. 4, so that the body E of the bolt is between the plates and the arms *f f*, outside them, bearing on the curved edge *c* of the standard.

h in Figs. 3, 4, and 5 is a knob or projection on the upper side of the bolt, to give a proper hold or center to the spring H. The bevel of the bolt is seen in the end view, Fig. 5. The upper end of the spring H bears upon the plate I, also moving in slots in the plates B B, so that the spring tends to separate the plate I and bolt E. Above the plate I, pivoted between the plates B B, is the eccentric K, operated by a handle, M, which may be locked to the lug L on the plates B B.

The operation of the devices is as follows: In Figs. 1 and 2 the switch is shown locked. The eccentric is turned down, depressing the plate I and compressing the spring, which forces the bolt into engagement with the catch G. The power of the spring and bevel of the bolt are so proportioned that the switch cannot now be moved by hand or any ordinary accidental force; but the power of the wheels tending to force the points from the rails would be sufficient, acting upon the moving rod and lever A B, to force the bolt out of one catch, D, along curve *c* into the other catch, locking the switch in its second position. It will be seen that the bolt cannot be fully thrown in any intermediate position, and when it is thrown the switch must be either open or closed; also, that the switch, when shifted in this way, remains locked in the second position. A suitable semaphore can be placed upon the lever or connected with any of the moving parts of the switch in any well-known manner.

As above shown, I have placed the catches on the standard, and the bolt, with its attachments, on the lever; but their position might be reversed, and, in fact, these two devices might be placed at other parts of the switch, it being only essential that one of them should be on a fixed and the other on a moving part.

In Fig. 6, which, as stated, represents a part of the locking mechanism detached, and shows a detail omitted in the other figures for the sake of clearness, E is a bolt or cam, seen from the end, as in Fig. 2. I is the spring-plate, and K the eccentric. N is a rod running from the top of the bolt E through the spring-plate, and of such a length that when the switch is locked

and the bolt E completely thrown the upper end of the rod will be exactly flush with the upper face of spring-plate I. In this position, if the switch is shifted automatically, without unlocking, the rod will be forced up into a hole in the eccentric, (indicated by the dotted lines in the figure,) dropping down again with the return of the bolt to its seat; but, after the switch is shifted by hand, if, by any accident—such as an obstruction between the rails—the bolt E is prevented from being completely thrown in locking, the rod N will prevent the eccentric from turning completely down, thereby notifying the operator of the trouble.

I am aware that heretofore there have been interposed between the levers of switches and the rails or points which they move springs or weights in such a manner that the power moving the rails acts upon the spring or weight. In such devices, however, the power acts directly upon the spring or weight, the latter always tending to restore the shifted switch to its original position, while in my invention this power acts upon the spring through the medium of the bevel-nosed bolt, which may be regarded as a cam. This cam action is therefore one of the distinctive features of my invention, and it will be understood, therefore, that in speaking of a “yielding” lock or bolt or locking mechanism I mean a bolt or locking-piece which locks by a cam or sliding contact and yields by a cam action. Such locks have been applied to spindle-switches, but in those cases differ materially from mine in the devices for locking and unlocking them, those which I refer to being incapable of application to a lever-switch without substantial modification.

What I claim is—

1. The combination of the standard C C, lever A B, catches D, bolt E, spring H, and suitable device to release the bolt from spring-pressure, substantially as described.

2. The combination of the standard C C, lever A B, catches D, bolt E, spring H, plate I, and eccentric K, substantially as described.

3. In a switch of any description, the combination of the fixed and moving parts with a yielding bolt and catch, a spring or its equivalent, and a device for relieving the bolt from the pressure of the spring, substantially as described.

FRED. W. SNOW.

Witnesses:

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G. M. THOMPSON.