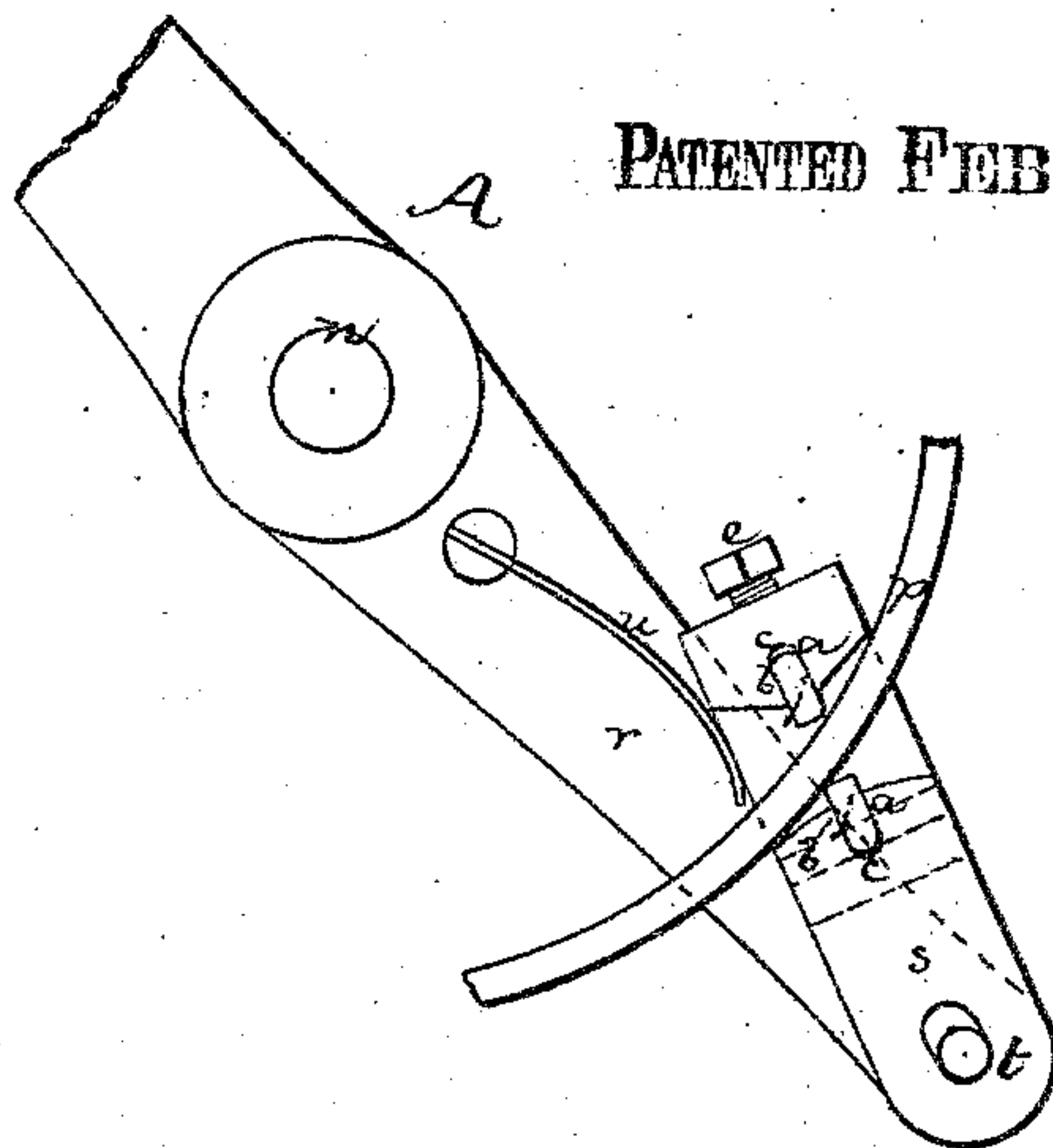


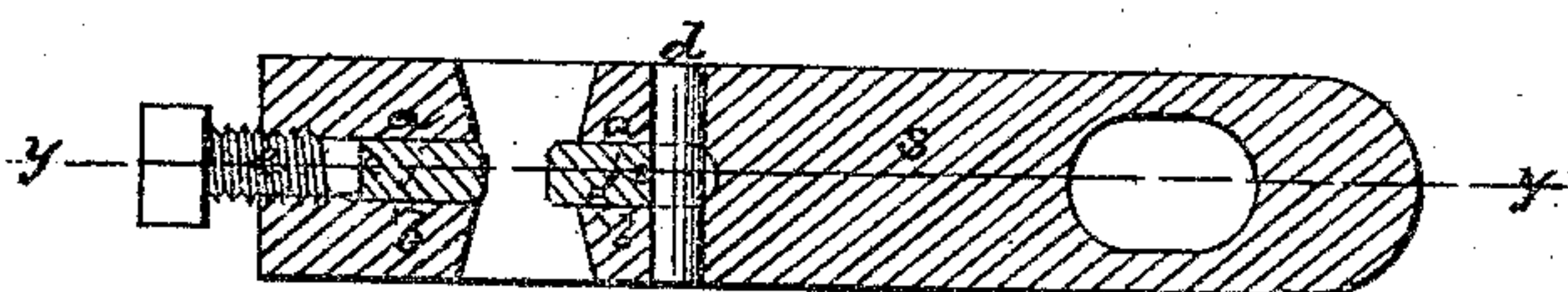
*M. G. Crane & A. M. Polsey.  
Imp'd Friction-Pawl-Mechanism.*

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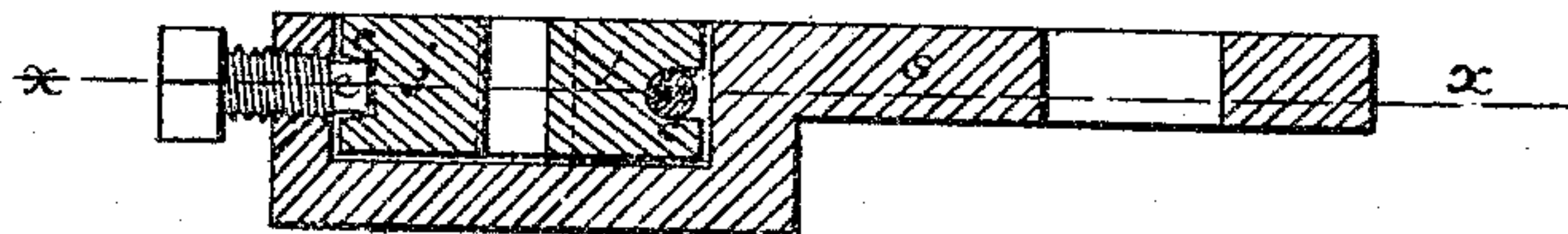
PATENTED FEB 15 1870



B



C



Witnesses.  
S. B. Kidder,  
At. W. Frothingham.

M. G. Crane  
A. M. Polsey  
by their Atlys.  
Crosby, Halsted & Gould



# United States Patent Office.

MOSES G. CRANE, OF NEWTON, AND A. M. POLSEY, OF BOSTON, ASSIGNORS  
TO WILLIAM SMITH HALL, OF QUINCY, MASSACHUSETTS.

Letters Patent No. 99,761, dated February 15, 1870.

## IMPROVEMENT IN FRICTION-CLUTCH MECHANISM.

The Schedule referred to in these Letters Patent and making part of the same

### To all whom it may concern:

Be it known that we, MOSES G. CRANE, of Newton, Middlesex county, and A. M. POLSEY, of Boston, Suffolk county, all in the State of Massachusetts, have invented an Improvement in Friction-Pawl Mechanism; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention, sufficient to enable those skilled in the art to practise it.

In United States Letters Patent, Nos. 86,833 and 91,123, granted to WILLIAM SMITH HALL, there is shown a driving wheel actuated by friction-pawl or gripping mechanism of peculiar organization, the flange of the wheel being gripped by and between two pins of the pawl lever when the lever is thrown in one direction, but assuming such a position that the wheel-flange runs freely and loosely between them when the pawl-lever is at rest or is driven in the opposite direction.

In the use of this impelling friction mechanism, it is found that the stress of the wheel-flange upon the pins, or of the pins upon the flange, sometimes causes them to get loose or to wear unevenly, and so that they do not press upon the wheel-flange over the whole length of their acting surfaces, in consequence of which they sometimes fail to gripe the wheel-flange at the proper time, and slip over it instead of imparting motion to it.

In building HALL's treadle-mechanisms for him, we have devised the improvement constituting the present invention, in which we have sought to remedy the difficulties attending the use of the gripping pins, our invention being made for and assigned to said HALL.

In our invention, instead of using the pins, we use two swiveling keys, setting in slots extending from the opposite sides of the groove in which the wheel-flange runs, the gripping edges of these keys accommodating themselves to the opposite surfaces of the wheel-flange, and thereby hugging to the wheel along the whole length of each. To compensate for wear, we combine with one of the keys an adjusting screw or its equivalent, against which the key rests and upon which it swivels, the key being kept always in proper position with relation to the flange by forcing it up, as it wears, by the screw.

It is in the combination with the pawl lever or arm of these swiveling keys, that our invention consists, as also in the provision for adjustment of the keys to compensate for wear.

The drawings show that part of the wheel-driving mechanism directly embodying our improvements.

A shows an inner side view of the pawl lever and gripping mechanism.

B is a section of the line  $x x$ .

C, a section of the line  $y y$ .

The connection of the pawl lever and friction-clutch or gripping mechanism with the treadle mechanism will be readily understood from the correspondence be-

tween the view A of the accompanying drawing and the view C of the said HALL patent No. 86,833, and the detail view shown in said HALL patent No. 91,123, the latter view and the view A of the accompanying drawings being the same, with the exception of the change in the wheel-driving device, so that for convenience of reference, the same letters will be used now as were used for corresponding parts in the drawing of said patent No. 91,123.

$r$  denotes the pawl lever, fulcrumed at  $n$ , and having pivoted at its lower end, (as seen at  $t$ ), the pawl-carrying arm  $s$ , this arm being thrown into normal position, as seen at A, by a spring,  $u$ , and coming into line with the pawl lever when the lever moves upward. Instead of the two pins  $j j$ , shown in such patent No. 91,123, we use the two keys or pawls  $j j$  seen in the accompanying drawings; the pawls fitting into slots  $a a$ , cut into the arm on opposite sides of a cross slot or mortise,  $b$ , cut into the arm as seen in the drawings, the flange  $p$  of the wheel to be driven running in this mortise.

In the inner end of each key  $j$  is a notch,  $c$ , and across one or each slot a pin,  $d$ , extends, the key notch straddling this pin, so that the key can swivel slightly upon it. The keys are preferably made of steel, and, as each one swivels, it will readily be seen that the whole length of the flange-abutting edge of each will bear equally upon the flange, even though such edge may wear unequally at its opposite ends.

The outer key is shown as resting upon the point of a screw pin,  $e$ , swiveling upon this point, the same as the other key swivels upon the pin  $d$ . By turning up the screw, the key will be fed toward the opposite key, thus enabling them to be at all times kept at suitable distance apart, to properly gripe the wheel flange.

It will be obvious that either or both keys may be readily slipped out and replaced by new ones when worn. They operate to impel the wheel when moved in one direction and allow the wheel to slip through them when moved in the opposite direction, in precisely the same general manner as the pins operate in the HALL patents referred to.

We claim—

In combination with the pawl arm, the gripping keys  $j j$ , substantially as described.

Also, the arrangement of the keys to swivel, substantially as described.

Also, in combination with the keys, a screw or its equivalent, for relative adjustment of them, substantially as described.

Executed December 14, 1869.

MOSES G. CRANE.  
A. M. POLSEY.

Witnesses:

J. B. CROSBY,  
FRANCIS GOULD.