

E. B. WEDMORE.
SWITCH FOR ELECTRIC CIRCUITS.
APPLICATION FILED OCT. 16, 1906.

917,209.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 2.

Fig. 3.

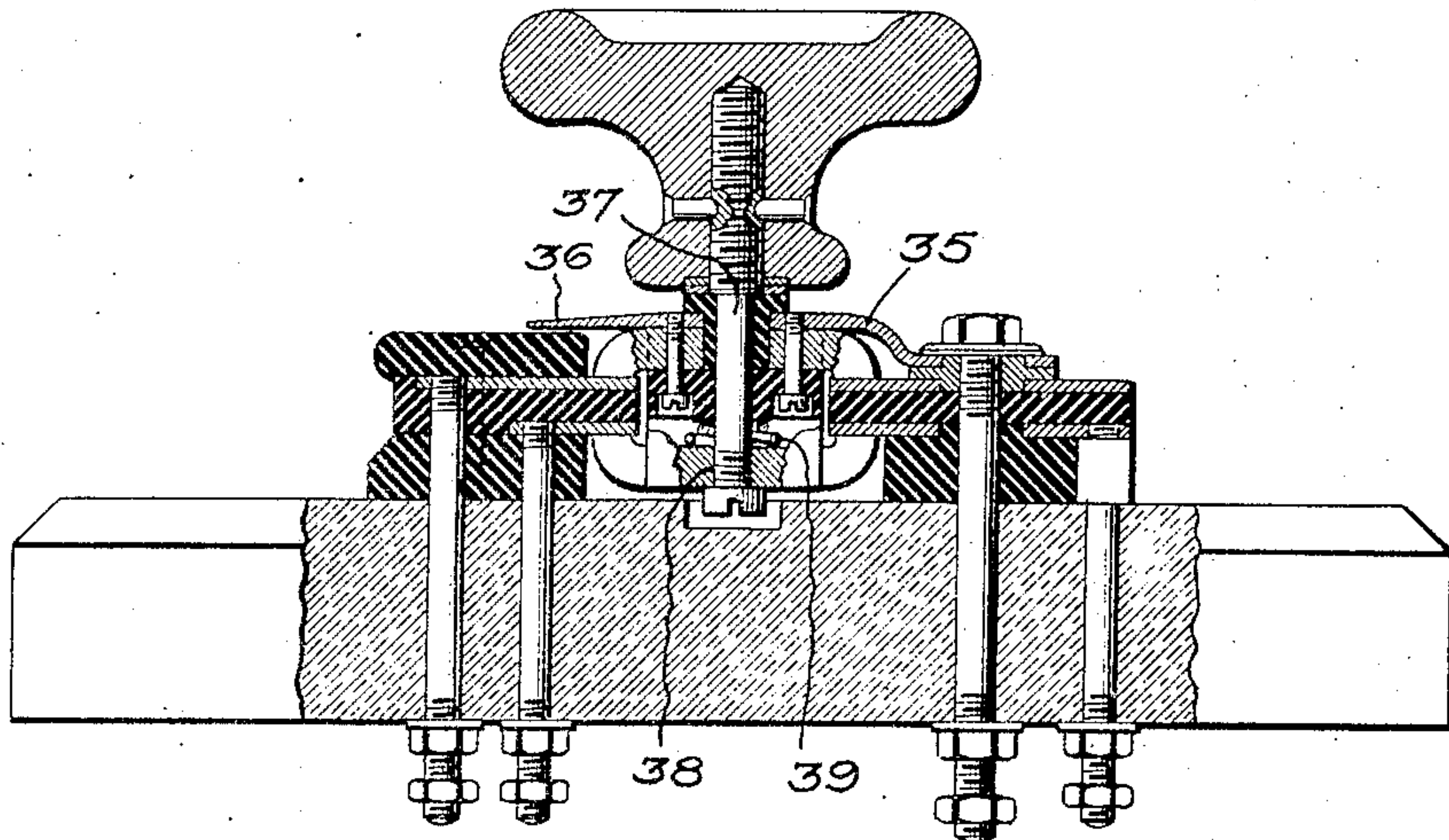
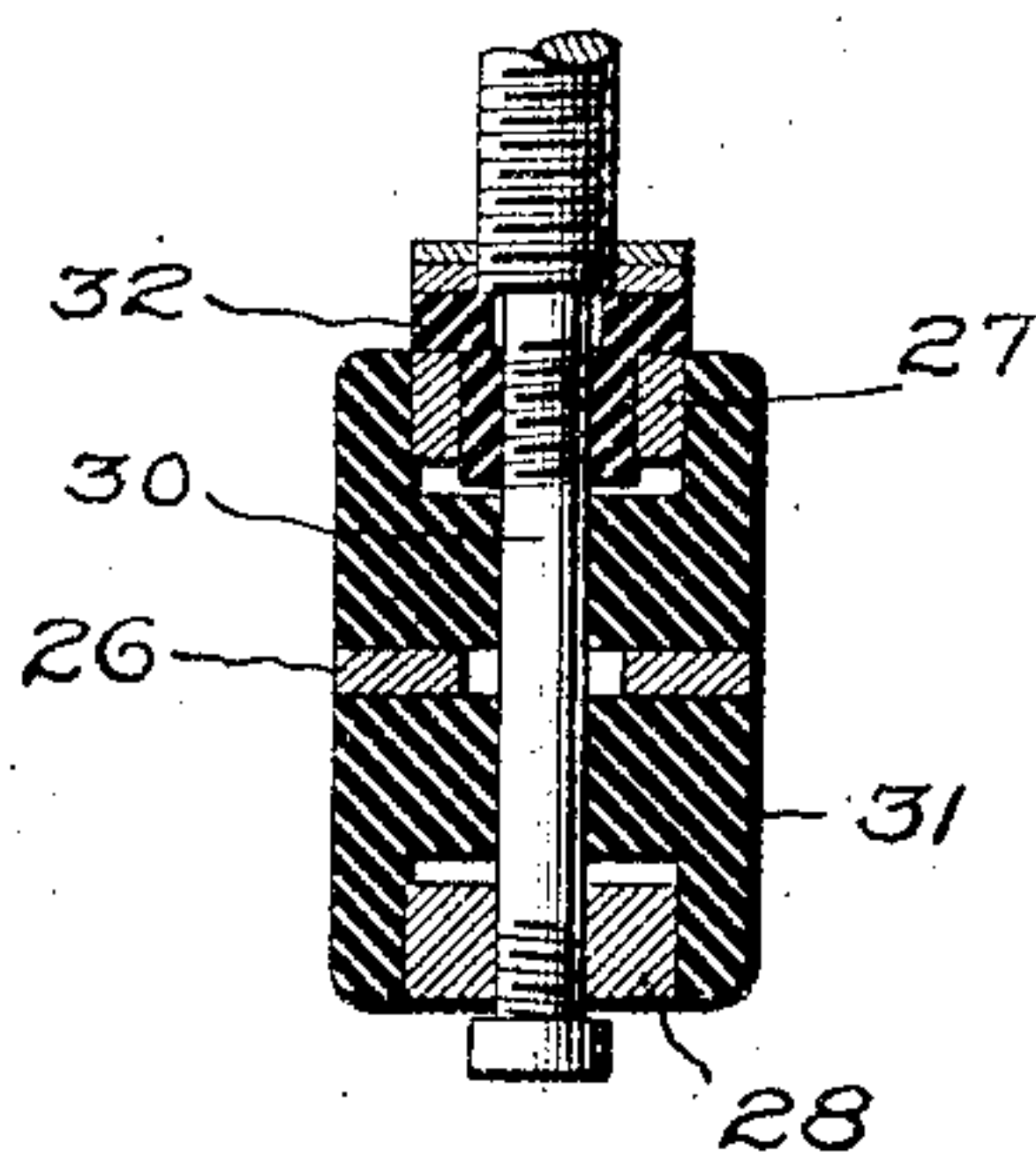


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SWITCH FOR ELECTRIC CIRCUITS.

No. 917,209.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed October 16, 1906. Serial No. 339,179.

To all whom it may concern:

Be it known that I, EDMUND B. WEDMORE, a subject of the King of Great Britain, residing at Rugby, England, have invented certain new and useful Improvements in Switches for Electric Circuits, of which the following is a specification.

This invention relates to switches for electric circuits, and has for its object the provision of a simple and efficient device of this character in which the arrangement of circuits may be varied in a convenient manner and in which the contact resistance is reduced to a minimum.

My invention, while it is capable of a broad application and may be used in a variety of places, is particularly well adapted for controlling the circuits of measuring instruments. In a device of this character, it is essential that the contact resistance shall be low so as not to interfere with the readings of the instrument.

In carrying out my invention, I provide a construction in which the contacts for varying the circuits are concentrically arranged in an arc of a circle, and a controlling element is pivoted to cooperate with these contacts. The controlling element is provided with brushes which engage the contacts, and means is provided whereby the brushes may be screwed into engagement with the contacts. As a convenient method of doing this, I arrange a handle on a controlling element, which handle is arranged by means of screw connections so as to tighten the contacts as it turns. The controlling element will then be immovable until the contacts are loosened.

My invention, therefore, consists in the features of construction and in the arrangement and combination of elements hereinafter set forth and particularly pointed out in the claims annexed to and forming a part of this application.

In the drawings, in which I have shown the preferred forms of my invention, Figure 1 is an elevation partly in section of one form of my device; Fig. 2 is a plan view of the same; Fig. 3 is a view similar to Fig. 1, of a slightly modified form; and Fig. 4 is a detail of the brush tightening mechanism shown in Fig. 1.

Referring to the drawings, 10 is an insu-

lating base of slate, soap-stone, or the like, upon which the switch mechanism is properly mounted. This switch is preferably of the double pole type so that in case the device is used with measuring instruments, the connection may be made with both ends of the shunt of the instrument. The contacts are arranged in an arc of a circle, and are in pairs 11, 12, 13, etc., the contacts of each pair being in a vertical alinement and the pairs being separated by insulating material 14.

In the construction shown in the drawings, the contacts are set into an insulating segment 15 so as to be flush with the surface, and the ring is supported above the base 10 in any manner, as by the support 16. Electrical connection is made with these contacts by means of studs 17 and 18 which at the upper ends are screwed into the contact segments, and at their lower ends are provided with the necessary terminal connections 19. Mounted concentrically with the ring 15 are a pair of contact rings 20 and 21 so arranged as to be in the same plane with the contacts 11 and 12, respectively, and separated by strips of insulating material 22 and 23. These rings and insulating strips are mounted on a stud 24 as a center and supported by an insulating block 25. Pivoted to this stud is a metallic controlling arm 26 arranged to move between the insulating blocks 23 and 22. At the outer end of this arm is a pair of contact brushes 27 and 28 adapted to bridge the pairs of contacts 11 and 12 to the rings 20 and 21. The end of the arm passes between the rings and the segments, and the brushes mounted thereon slide over the contacts. In order to make a good connection between the brushes and the contacts, I provide means for screwing the brushes into contact. This means comprises an operating handle 29 which is mounted on the end of the arm 26, and which has screw connections with the brushes whereby the latter may be tightened on to the contacts by turning the handle. The detail of this mechanism is shown in Fig. 4. The adjusting pin 30 which is rigidly screwed to the handle 29 is mounted on the arm 26 by means of an insulating block 31, which is supported at its middle by the arm. The brushes 27 and 28 are set into the

block and connected with the adjusting pin by right and left hand screw threads, the brush 27 being insulated from the stud by a bushing 32.

5 It will be seen that by turning the stud 31 by means of the handle 29, the brushes are screwed together, thereby tightening them into contact with the contact rings and segments. Electrical connection is made with
10 the rings 20 and 21 in a manner similar to that of the segments 11 and 12, the studs 33 and 34 passing through the base and screwing at their upper ends into the rings. By this construction, it will be seen that the
15 brushes 26 may be moved by means of the handle 29 so as to connect the rings 20 and 21 with the pairs of segments successively, and by turning the handle 29, the brushes may be screwed down so as to make a good
20 electrical connection with the contacts.

In Fig. 3 I have shown a slight modification in which the arm 35 carrying the contacting brushes is situated above the fixed contacts, and the arm itself is extended so as
25 to form a pointer 36. In this form, the stud 37 instead of being provided with right and left hand screw threads is provided with a single thread 38 for the same purpose, the spring 39 being provided to separate the
30 brushes when the handle is turned.

Various other modifications of the construction may be made without departing from the spirit of my invention, the scope of which I have set forth in the appended
35 claims.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. A switch for electric circuits comprising a series of contacts, a movable element
40 provided with brushes adapted to engage said contacts, and means carried by the element and movable therewith for tightening the brushes into close relation with the contacts.

45 2. A switch for electric circuits comprising a series of contacts, a pivoted controlling element adapted to successively engage said contacts, and means carried by the element and movable therewith for tightening
50 the same into close relation with the contacts.

55 3. A switch for electric circuits comprising a series of pairs of contacts, a movable element adapted to successively engage the same, and means carried by the element and movable therewith for tightening the movable element into close relation with the contacts.

60 4. A switch for electric circuits comprising a series of contacts, a movable element adapted to successively engage said contacts, a handle for moving said element, and means controlled by said handle for varying the pressure between the contacts and
65 the movable element.

5. A switch for electric circuits comprising a series of contacts, a pivoted element provided with a brush adapted to successively engage said contacts, a handle for moving
70 said element, and means for varying the pressure between the brush and the contacts by the movement of said handle.

6. A switch for electric circuits comprising a series of contacts arranged in an arc of a circle, a contact ring concentric therewith, a movable element adapted to bridge
75 the successive contacts and said ring, and means carried by the element and movable therewith for varying the contacting pressure between the bridging element and the
80 contacts.

7. A switch for electric circuits comprising a series of contacts arranged in an arc of a circle, a circular contact arranged concentric therewith, a movable element pivoted
85 concentric with said contacts and provided with a brush arranged to successively bridge the contacts and the circular contact, and means carried by the element and movable therewith for varying the pressure between
90 the contacts and the brush.

8. A switch for electric circuits comprising a series of pairs of contacts arranged in an arc of a circle, a pair of contact rings concentric therewith, a pivoted element adapted
95 to bridge said rings and said pairs of contacts successively, and means movable with said element for varying the contacting pressure between the bridging element and the contacts of each pair.
100

9. A switch for electric circuits comprising a series of pairs of contacts arranged in an arc of a circle, a pair of contact rings concentric therewith, a pivoted element provided with a pair of brushes movable between the rings and contacts and adapted to
105 successively bridge the contacts of each pair and the rings, a handle for moving said element, and means whereby the contacting pressure of said brushes is varied by the
110 turning of said handle.

10. A switch for electric circuits comprising concentrically arranged contacts, a pivoted element provided with a brush adapted to move in an arc of a circle between said
115 contacts and engage the same, and means carried by the element and movable therewith for tightening said brushes on to said contacts.

11. A switch for electric circuits comprising concentrically arranged contacts, a pivoted element provided with a brush adapted to move in an arc of a circle between said
120 contacts and engage the same, a handle for moving said element, and screw connections between the handle and the brush for varying the contacting pressure of the latter.
125

12. A switch for electric circuits comprising concentrically arranged pairs of contacts, a pivoted element provided with
130

brushes adapted to move in an arc of a circle
between said contacts and simultaneously
engage the pairs, a handle for operating the
element, and screw connections between the
5 handle and the brushes for pressing the lat-
ter on to the contacts.

In witness whereof, I have hereunto set

my hand this nineteenth day of September,
1906.

EDMUND B. WEDMORE.

Witnesses:

CHARLES H. FULLER,
J. A. FOSTER.