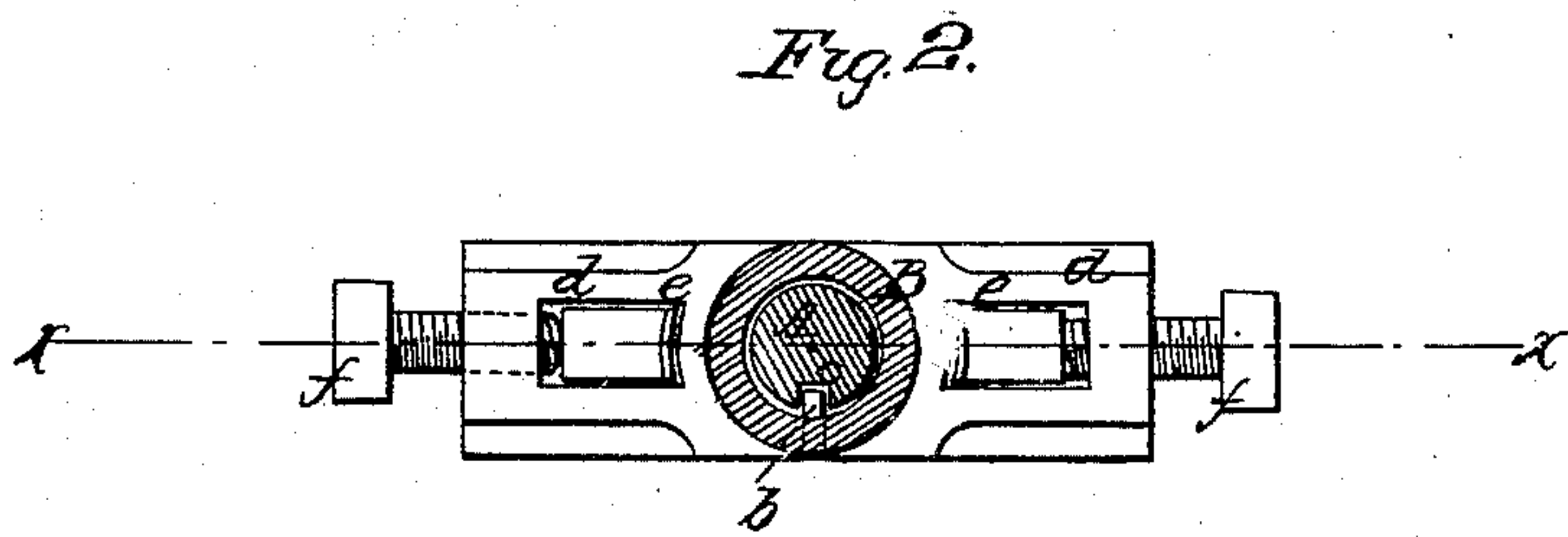
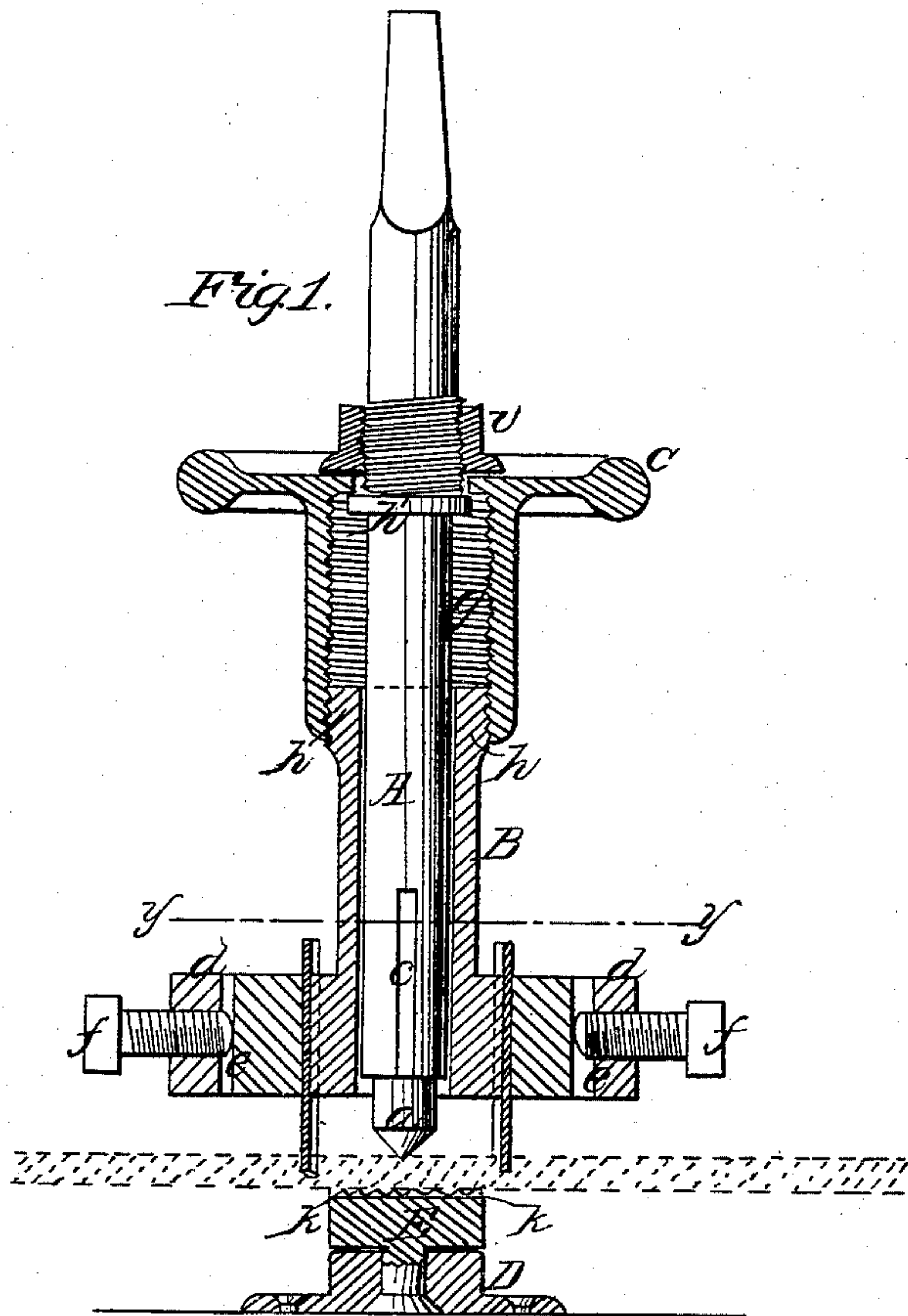


D. E. RICE & W. EVERETT.
TUBE SHEET CUTTER.

No. 47,983.

Patented May 30, 1865.



UNITED STATES PATENT OFFICE.

D. E. RICE AND WILLIAM EVERED, OF DETROIT, MICHIGAN.

IMPROVED TUBE-SHEET CUTTER.

Specification forming part of Letters Patent No. 47,983, dated May 30, 1865.

To all whom it may concern.

Be it known that we, D. E. RICE and WILLIAM EVERED, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Tube-Sheet Cutter; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same, taken in the plane indicated by the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention consists in the employment or use of a center-point inserted in the end of a bore-spindle, in combination with a longitudinal sliding sleeve and cutter-head and with a hand-wheel or other equivalent device in such a manner that by means of the hand-wheel the cutters in the cutter-head can be set up while the center-point turns in the center of the hole to be cut, and the necessity of first drilling a hole, so as to allow the drill center-point to follow the longitudinal motion of the cutters, is avoided.

A represents a steel spindle, squared at the upper end to fit a drilling-machine in the same manner as other tools, and pointed at its lower end, so as to form an ordinary center-point, *a*, as clearly shown in Fig. 1 of the drawings. This spindle fits into a sleeve, B, which slides easily up and down, but is compelled to rotate with it by means of a feather-key, *b*, projecting from the inner surface of the sleeve into a groove, *c*, in the spindle, as shown more particularly in Fig. 2. From the lower end of the sleeve radiate two or more arms, *d*, which form the tool-holders, being provided with slots *e* to receive and with set-screws *f* to hold the cutters in position and to adjust the same closer to or farther from the center, according to the size of the hole to be bored. The upper end of the sleeve B is furnished with a screw-thread, *h*, which fits into an internal

thread, *g*, cut into the hub of a hand-wheel, C. This hand-wheel rests upon a collar, *h'*, projecting from the spindle A, and it is held in place by a nut, *i*, which allows it to turn freely and independent of the spindle, but prevents it from moving on the same in a longitudinal direction. On the table of the drilling-machine is fastened a bracket, D, supporting a revolving rest, E, with a series of points, *k*, to support the sheet to be bored.

The operation is as follows: When the spindle A is fastened in the drilling-machine, the center-point *a* is brought down hard in the center of the hole to be cut out of the sheet, which lies on the points of the revolving rest E, as shown in red outlines in Fig. 1. Then let the sheet be held or moved up to something that will hold the same from turning around with the cutters. Now, feed the cutters down to the work with the hand-wheel C and nut *g*, instead of the feeding mechanism of the drilling-machine. By this arrangement we do not have to drill first a small hole to let the end of the drill go through, as with the old style. We can also use thinner cutters and less power, and we save time in having to handle the work once less than by the ordinary method of drilling.

It is obvious that the cutters can be readily adjusted for holes of different size, and, if desired, the number of cutters may be increased; but from our present experience two cutters will do the work to perfect satisfaction.

We claim as new and desire to secure by Letters Patent—

1. The sleeve B, arranged to carry the cutters or tools, in combination with the spindle A and feed-wheel C, or its equivalent, constructed and operating substantially as and for the purpose set forth.

2. The combination of the revolving rest E with the spindle A, sleeve B, and hand-wheel C, constructed and operating substantially as and for the purpose described.

D. E. RICE.

WILLIAM EVERED.

Witnesses:

A. BENSTER,

JAS. D. ALLISON.