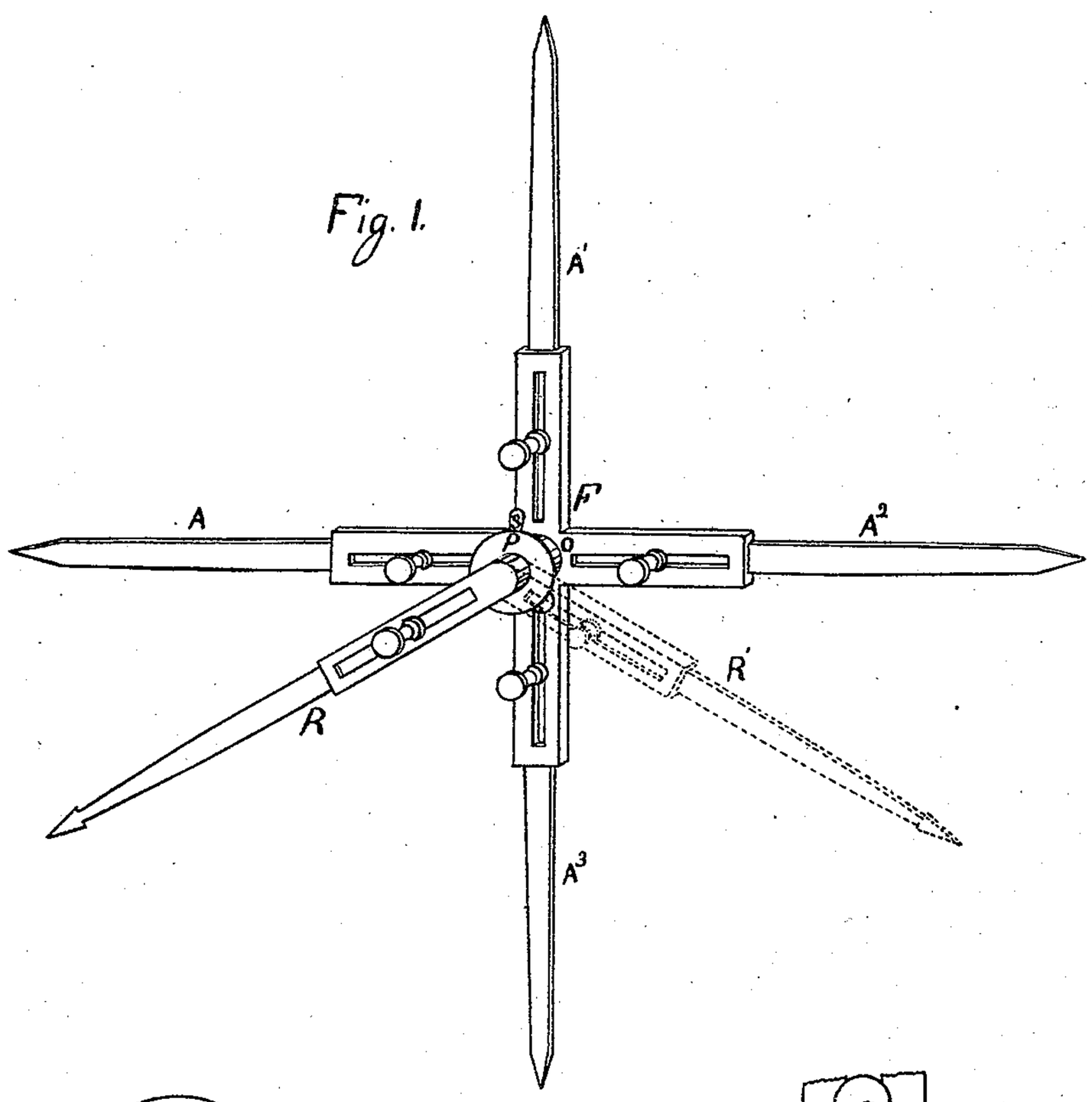
G. F. HAWLEY.

Devices for Centering Cylinders.

No. 152,487. Patented June 30, 1874.

Fig. 1.



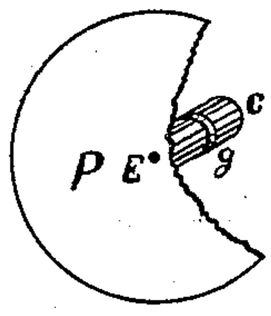


Fig. 2.

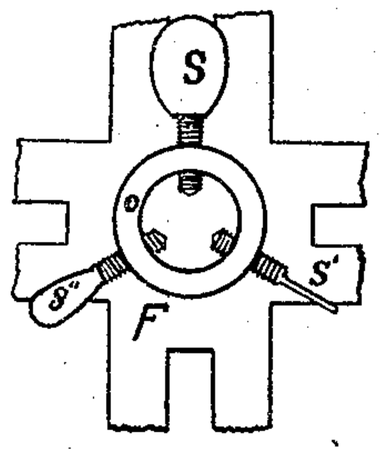


Fig. 3.

Witnesses.
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GEORGE F. HAWLEY, OF GRAND RAPIDS, MICHIGAN.

IMPROVEMENT IN DEVICES FOR CENTERING CYLINDERS.

Specification forming part of Letters Patent No. **152,487**, dated June 30, 1874; application filed December 19, 1873.

To all whom it may concern:

Be it known that I, GEORGE F. HAWLEY, of the city of Grand Rapids, county of Kent and State of Michigan, have invented a new Device for Centering Cylinders.

The following description, taken in connection with the accompanying drawings hereto annexed, forms a full and exact specification, wherein are set forth the nature and principles of the invention, by means of which the same may be distinguished from others of a similar class, together with such parts thereof as are claimed as new and are desired to be secured by Letters Patent of the United States.

The nature of my invention consists in a frame provided with three or more adjustable longitudinally, and also provided with one adjustable revolving, arm turning in an adjustable hub, so constructed that the whole device may be readily adjusted in a cylinder, and by the revolution of the revolving arm the exact center quickly ascertained. The principal object of my invention is to center the cylinder of a steam-engine so that the piston may be quickly and accurately adjusted to a line drawn through the exact center of the cylinder, thereby insuring the perfect working of the piston.

In the drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a view of the adjustable hub C with the dial P, and Fig. 3 is an enlarged view of a portion of the frame with the cylinder O and set-screws.

In Fig. 1, F represents the frame, which is provided with four short slotted arms, as shown. Fitted into these slotted arms are the arms A A^1 A^2 A^3. Each of the last-named arms is held in place and adjusted by a set-screw, as shown. In the center of the frame F is a cylinder, O, rigidly attached thereto and provided with set-screws S S′ S″, as shown in Fig. 3. Into cylinder O is fitted the hub C, which supports the dial or circular plate P. The hub C is provided with the groove *g*, as shown in Fig. 2, which groove is provided to receive the points of the set-screws S S′ S″, and is thereby more firmly held in place by the set-screws. The arm R is provided with a small pin rigidly attached, which fits into the hole E in the disk or dial P, by means of which it is revolved.

In centering a cylinder my device is used as follows: The frame is placed in the cylinder to be centered, and the arms A, A^1, A^2, and A^3 are extended until their outer points are pressed against the inner surface of the cylinder, and are fastened by means of the set-screws, thus holding the frame firmly in place. This brings the point E very near the center of the cylinder. By revolving the arm R, if the point E is out of the center it will be quickly discovered, and the plate of dial P, being firmly attached to the hub C, can be adjusted by means of the set-screws S S′ S″, so that the small hole in the plate will be the exact center of the cylinder, which may be tested by revolving the arm R, as before described.

I claim—

The device for centering cylinders consisting of the adjustable arms supported by the frame F, in combination with the revolving arm R, turning in the adjustable plate P, all constructed substantially as described.

GEO. F. HAWLEY.

Witnesses:

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EDWARD TAGGART.