

No. 679,591.

Patented July 30, 1901.

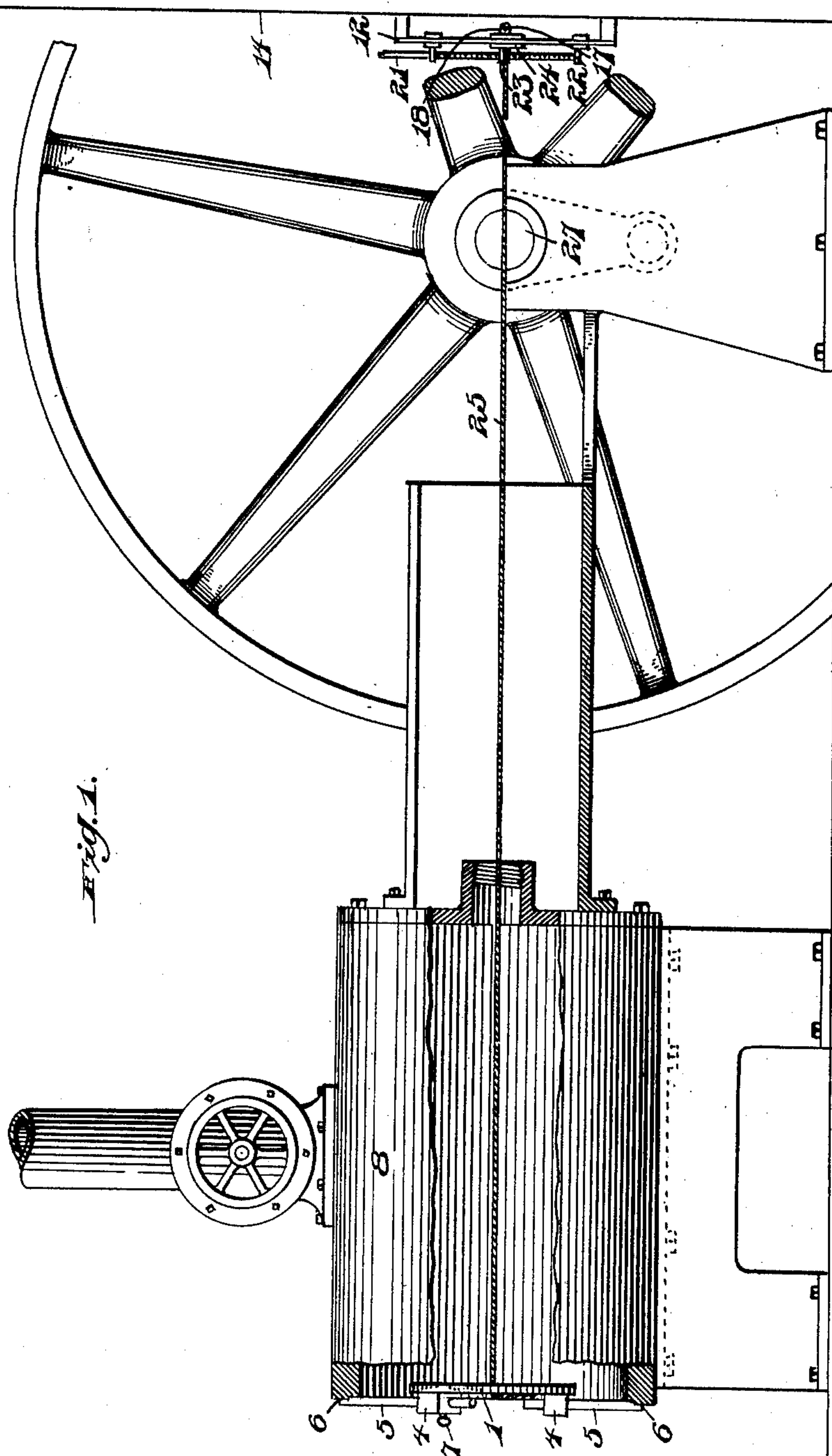
J. M. BARNES.

CENTERING DEVICE FOR LINING UP ENGINES.

(Application filed Mar. 27, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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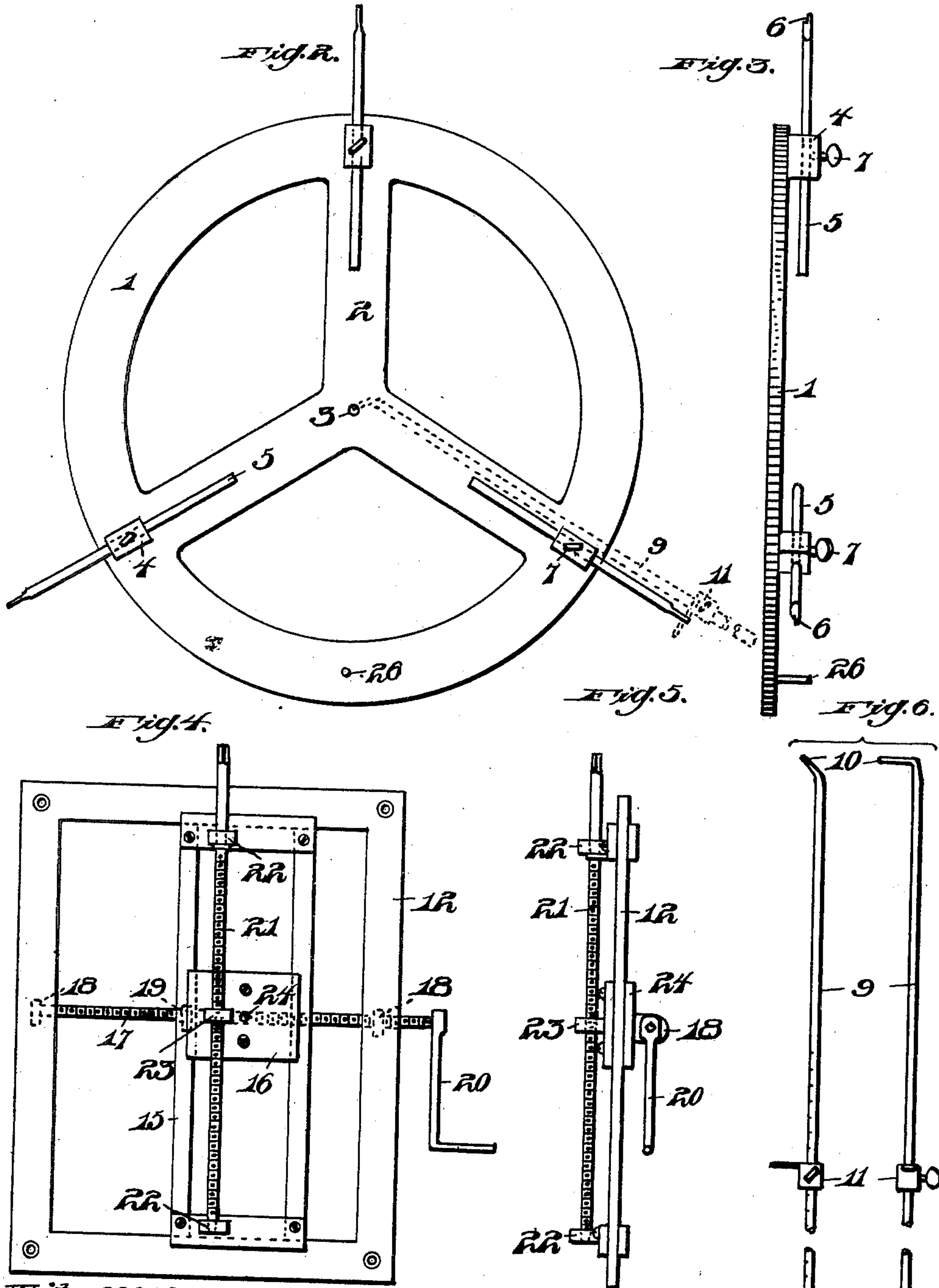
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UNITED STATES PATENT OFFICE.

JAMES M. BARNES, OF NEW BRIGHTON, PENNSYLVANIA.

CENTERING DEVICE FOR LINING UP ENGINES.

SPECIFICATION forming part of Letters Patent No. 679,591, dated July 30, 1901.

Application filed March 27, 1901. Serial No. 53,049. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. BARNES, a citizen of the United States of America, residing at New Brighton, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Centering Devices for Lining Up Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in centering devices for lining up engines, and has for its object to provide novel, simple, and effective means whereby an engine may be lined up easily, quickly, and absolutely true, so that all parts thereof may be in perfect alinement in order to obtain the smooth and easy running of the engine that is desired.

20 In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

25 Figure 1 is a side elevation of an engine, partly in section, with my improved centering device in position for lining up the same. Fig. 2 is a plan view of the centering-spider, which is adapted to be secured in the one end of the cylinder. Fig. 3 is a side view of the same. Fig. 4 is a detail plan view of the centering device, which is adapted to be rigidly secured to a suitable support and to which the other end of the centering-line is connected. Fig. 5 is a detail side elevation of the same. Fig. 6 is a side view, partly broken away, of the removable gage employed in connection with the centering-spider shown in Figs. 2 and 3.

40 The common practice of lining up an engine is to strip the same of both cylinder-heads, if convenient, and follower-head, piston-rings, and bull-ring. The piston is disconnected from the cross-head and also the crank-pin. The slotted stick is then placed on the studs on the end of the cylinder farthest from the crank and a fine line drawn over the stick and through the center of the cylinder and attached to the upright stick at the other end of the bed-plate. Another stick, having a length about one-half an inch less than the diameter of the cylinder, is em-

ployed and has a pin in each end to be forced in or out to suit the adjustment. The line is then centered at each end of the cylinder. 55 It is the object of my invention to obviate this tedious and unreliable method and provide means whereby an engine may be perfectly lined with but little trouble. To accomplish this end, I provide a centering wheel or spider 1, having integral arms 2, formed within its inner circumference and provided at the center of the wheel with an aperture 3. This wheel or spider has arranged on one face thereof, opposite to each of the arms 2, an apertured clamp 4, which receives adjustable arms 5, notched at their outer ends, as shown at 6, said arms being held in the clamps 4 in the position to which they have been adjusted by means of set-screws 7. In 60 lining up the engine the end of the cylinder is adapted to be removed, and this centering wheel or spider is placed within the cylinder 8 and is centered and held therein by the adjustable arms 5. In order to have the aperture 3 of the wheel absolutely in the center of the cylinder when the wheel or spider is secured therein, I employ a gage-bar 9, provided with an angular end 10, which is adapted to be inserted in the aperture 3, and the scaled portion 80 of which bar carries an adjustable set or stop 11. The diameter of the cylinder 8 is determined, and the end 10 of the gage-bar is then inserted in the aperture 3, and each of the arms 5 is adjusted to the exact position to engage the notched end 6 of the arms against the stop 11. The arms 5 are then firmly secured in position by means of set-screws 11, and the notched ends of the arms 5 engage the end of the cylinder, as shown in Fig. 1. 90 The gage-bar 9, it is of course understood, is removed and laid to one side after each of the arms has been adjusted. In connection with the centering wheel or spider 1 I employ a frame 12, which is adapted to be rigidly secured to the wall 14 of the building or at any other desired point convenient. This frame 12 has arranged to move longitudinally therein a supplemental frame 15, and the supplemental frame has arranged therein to move 100 vertically a head-block 16. The supplemental frame 15 is movable longitudinally by means of a threaded shaft 17, which is journaled in lugs 18, carried by the frame 12

and threaded in a lug 19, carried by one of the uprights of the supplemental frame 15. This shaft is rotated to move the supplemental frame 15 longitudinally by means of a
5 removable crank 20, which may also be employed for moving the head-block 16 vertically by detaching the crank from the threaded shaft 17 and engaging the same with the end of the threaded shaft 21, which is journaled
10 in the lugs 22, carried by the upper and lower cross-bar of the supplemental frame, and which shaft 21 is threaded through the lug 23, carried by the head-block 16. This head-block 16 is provided with a central aperture 24,
15 which receives and has secured therein one end of the centering-line 25, the other end of said line being adapted to be passed through the aperture 3 in the centering wheel or spider 1 and the line drawn taut and held by wrapping the same around the pin 26, carried by
20 said wheel or spider 1.

It is believed that the operation and advantages of my improved centering device can be readily understood from the foregoing
25 description, taken in connection with the accompanying drawings, as it will be observed that the exact center in the cylinder is obtained by this means, and should the shaft 27 or its bearing have become worn this
30 will be readily indicated by the line passing across the end of said shaft and the exact

amount of metal necessary to place in the bar and line said shaft may be determined. The line 25 being exactly in the center of the cylinder all parts of the engine are set
35 from this line.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a device of the character described, the
40 combination with a centering-line, of a spider or centering wheel comprising an annular ring, a series of arms made integral with the inner circumference of the said wheel and having spaces formed therebetween, the cen-
45 ter of said wheel having an aperture formed therein adapted to receive the said centering-line, apertured clamps secured to the upper face of the said annular ring and in alignment with the said arms, straight arms cir-
50 cular in cross-section and of equal diameter throughout operating in said clamps, notched outer ends made integral with said arms, and set-screws in said clamps, substantially as
55 described.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES M. BARNES.

Witnesses:

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E. E. POTTER.