

(No Model.)

2 Sheets—Sheet 1.

A. C. HALL & H. S. BAILEY.

WHEEL HUB.

No. 362,506.

Patented May 10, 1887.

Fig. 1.

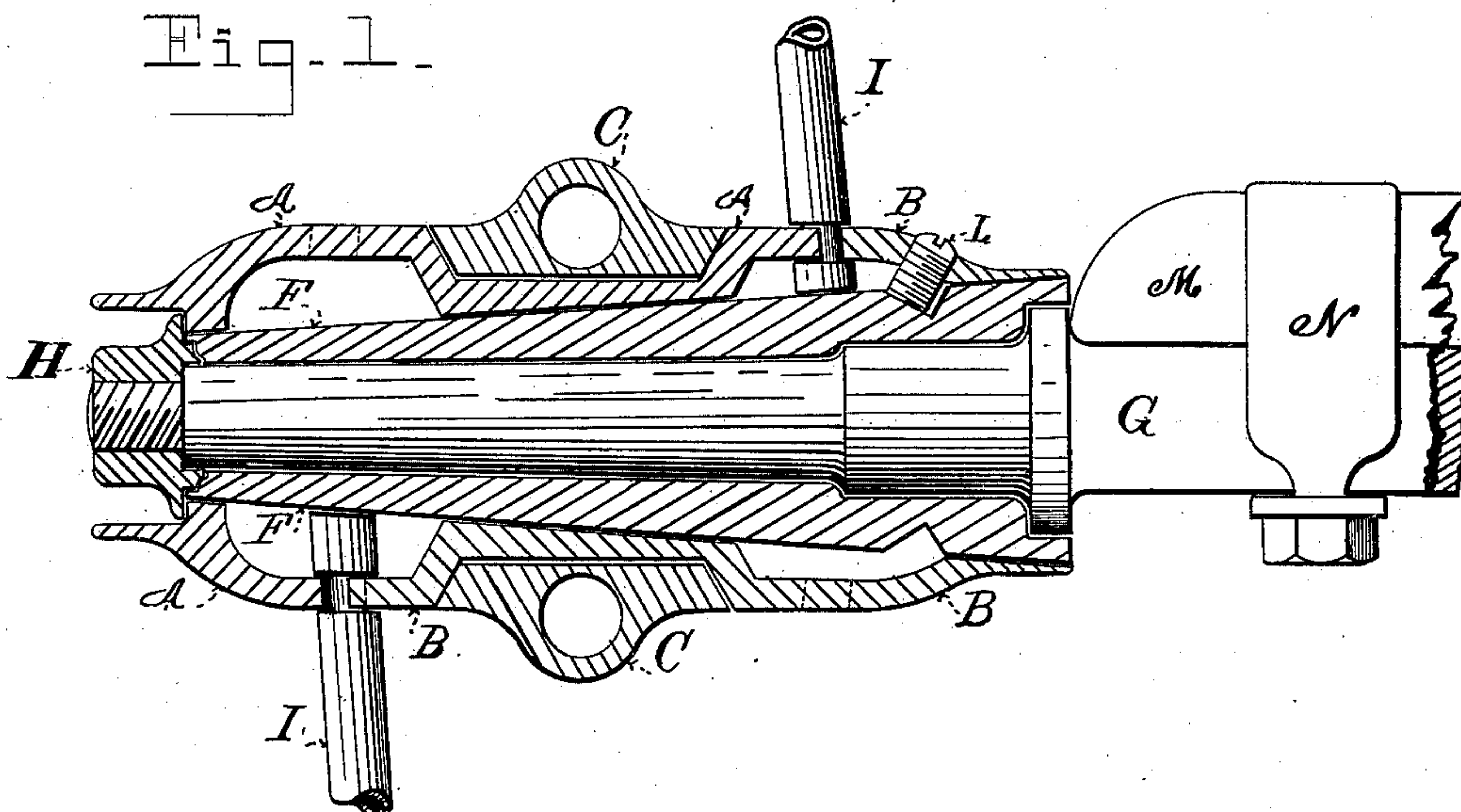


Fig. 2.

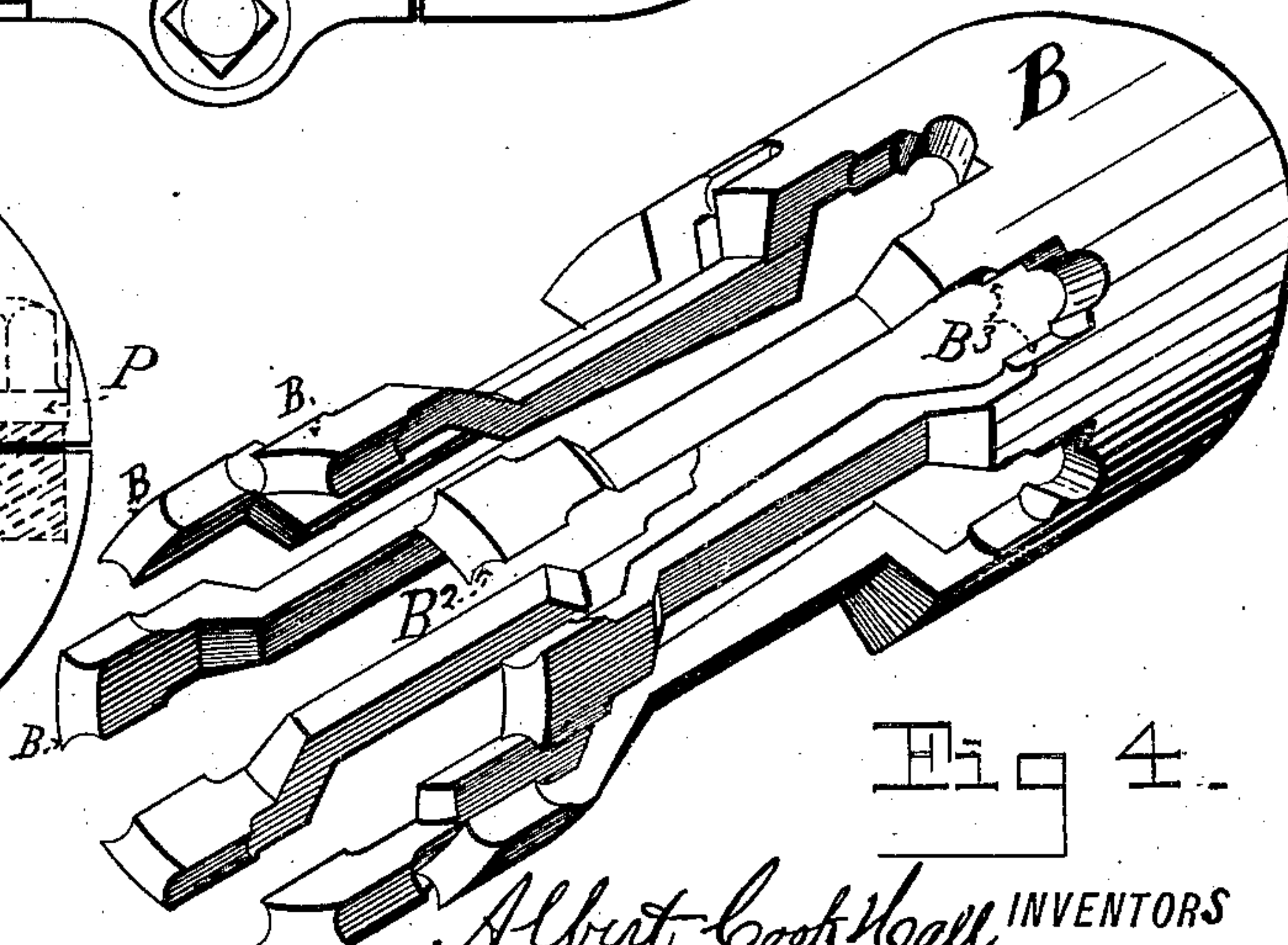
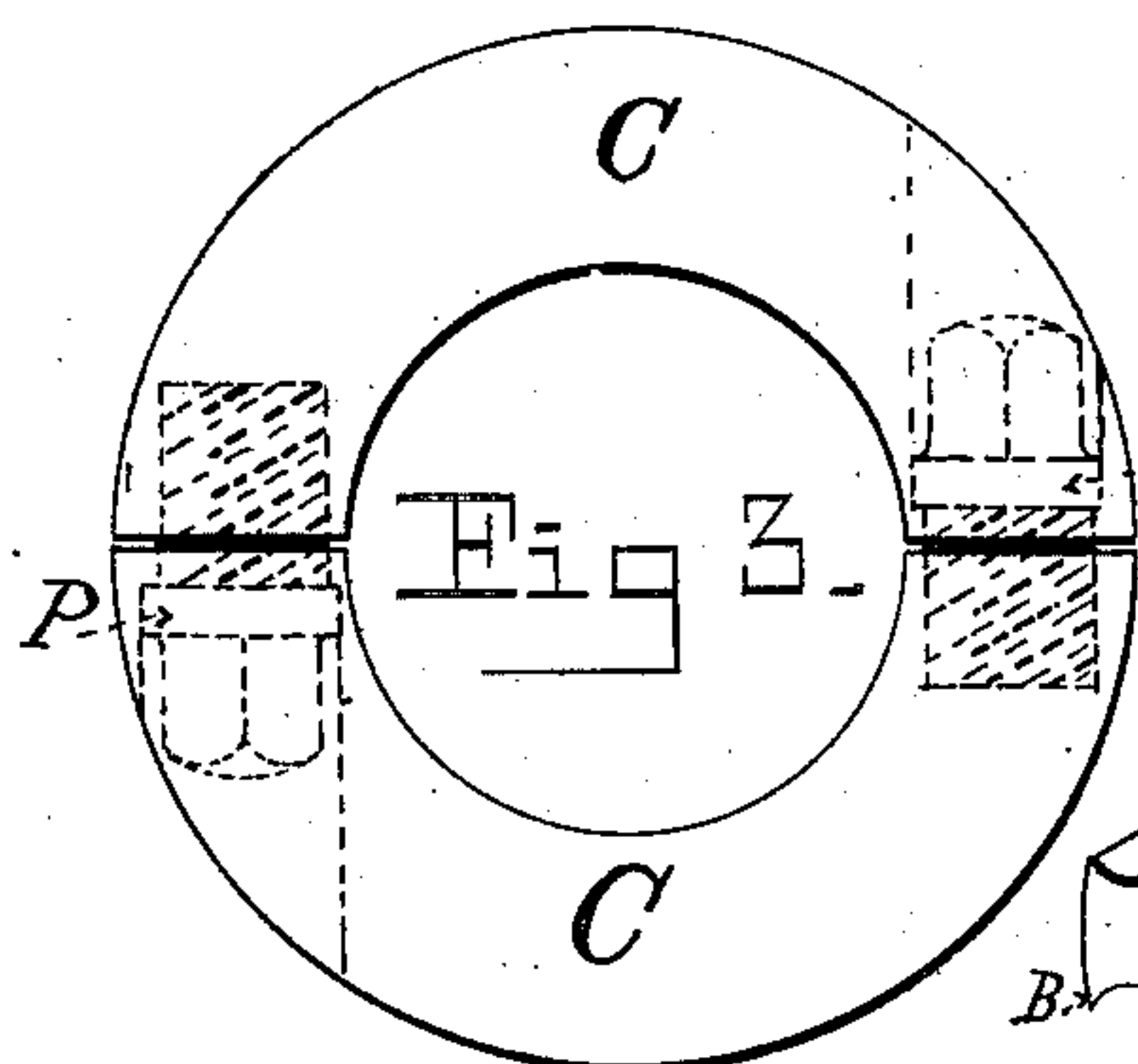
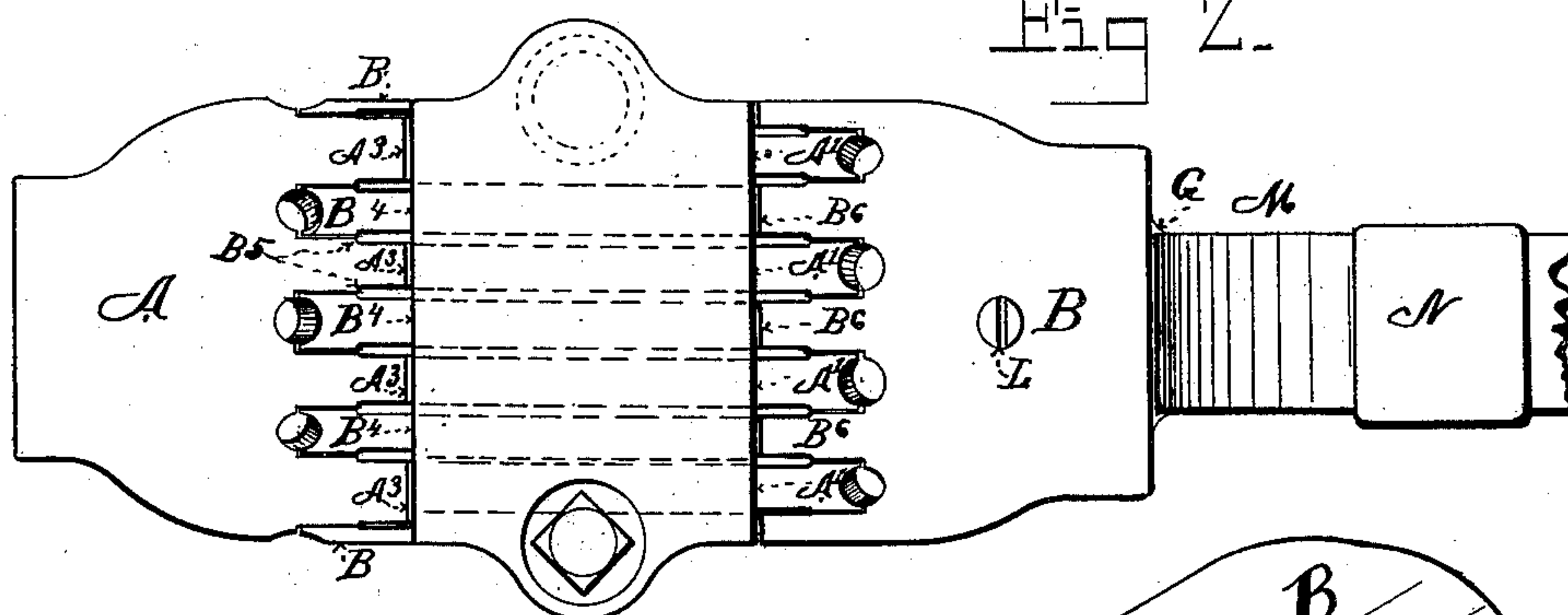


Fig. 4.

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Ogden A. Hoffman
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(No. Model.)

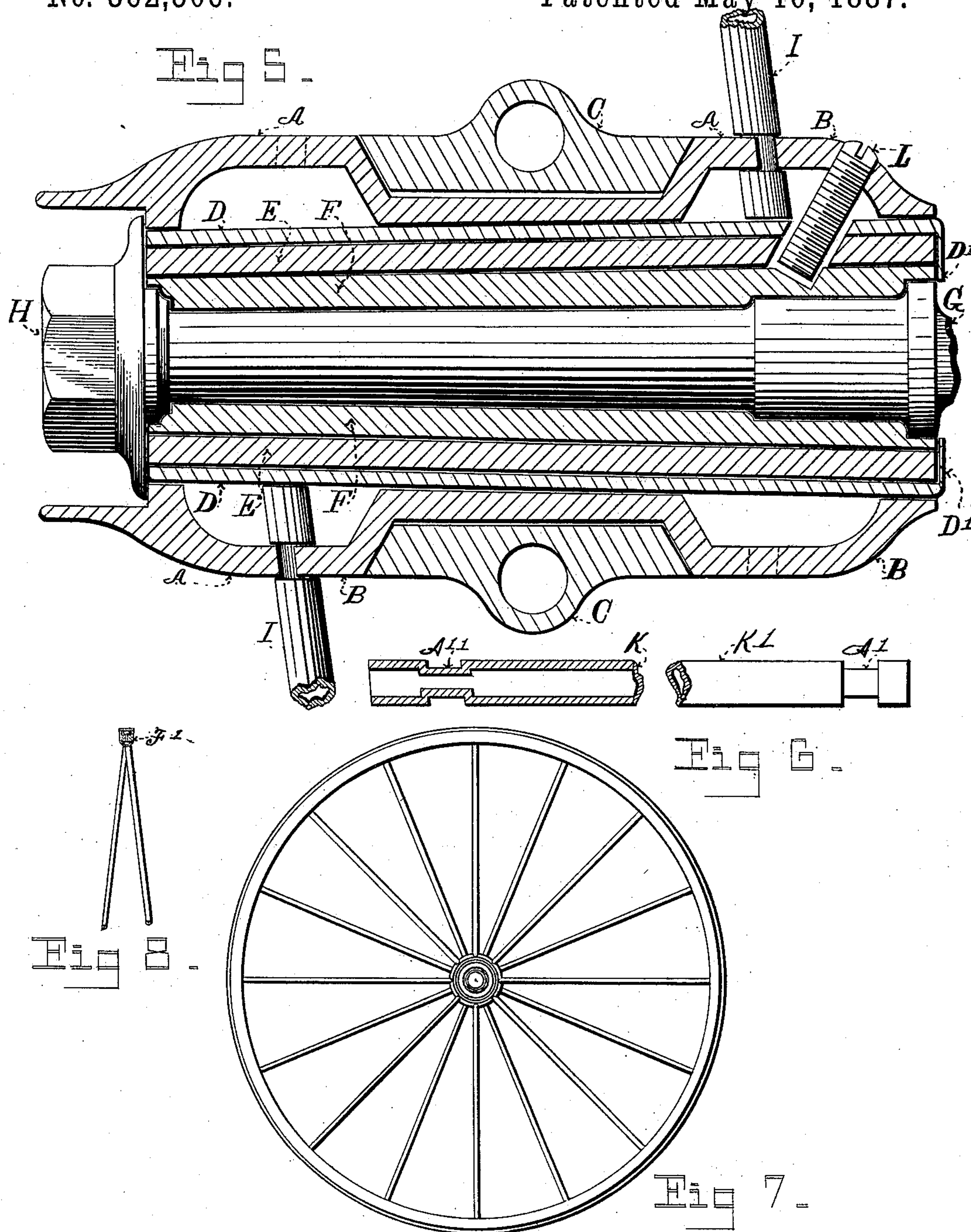
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UNITED STATES PATENT OFFICE.

ALBERT COOK HALL AND HOWARD SAFFORD BAILEY, OF DENVER, COLORADO; SAID BAILEY ASSIGNOR TO SAID HALL.

WHEEL-HUB.

SPECIFICATION forming part of Letters Patent No. 362,506, dated May 10, 1887.

Application filed December 27, 1886. Serial No. 222,747. (No model.)

To all whom it may concern:

Be it known that we, ALBERT COOK HALL and HOWARD SAFFORD BAILEY, citizens of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Wheel-Hub, of which the following is a specification.

Our invention relates to improvements in metallic hubs in which metallic spokes are secured a short distance apart and radiate toward the felly at a slight inclination toward each other; and the objects of our improvements are, first, to provide a hub constructed entirely of metal; second, to provide an elastic hub; third, to provide a hub that can be applied to the standard axle-boxes now in use.

We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a diametrical section through the hub and through an axle-box with axle in place. This view is a modification of the complete invention. Fig. 2 represents a plan of the hub with the spokes left out. Fig. 3 represents side elevation of the circular binding-wedge. Fig. 4 represents a perspective view of one of the principal portions of the hub. Fig. 5 represents a diametrical section through the complete invention, also through the axle-box to the axle. Fig. 6 represents a section and plan of a tubular metallic spoke to be used in connection with this hub. Fig. 7 represents a side elevation of completed wheel. Fig. 8 represents a cross-section of the felly (with spokes extending from it) to be used in connection with this hub.

Similar letters refer to similar parts throughout the several views.

Referring to Fig. 2, A and B are two cylindrical metallic castings, each being provided with an equal number of fingers running parallel with their axis and formed at equal distances apart, the spaces between the fingers of each cylinder being also equal and admitting the fingers of each other. The fingers of A are exactly like B, except that the sides of the fingers B at B² and B³ are made concave, while the sides of the fingers of A are made convex. Consequently, when the fingers of A are pushed into the spaces between the fingers of B and the fingers of B are pushed into the

spaces between the fingers of A, they will fit together metal to metal, as shown in Fig. 2.

The object of concaving and convexing the sides is to keep the extreme ends of the fingers from springing down. This form is preferable, but others would answer the same purpose.

The fingers should be of exactly the same length, and the spaces in depth should correspond with the length of the fingers, so that when the two are interlocked they will bear ends to ends. Holes are then drilled in the centers of the joints so formed to fit the contracted circular tenons A'' on the spokes.

B⁵ represents clearance-spaces between the fingers, their object being simply to save labor in milling the fingers into size and shape.

The fingers, extending downward and rising again, present when interlocked a circular recess with inclined sides. In this circular recess is fitted the circular wedge-band C. It is made in two halves and fits the angular sides of the fingers, but is not allowed to bear on their tops. The halves of the ring are bolted together by bolts P, which are countersunk into the metal enough so they will not extend above its surface. This ring-wedge bears on all the fingers of A on the side A' and on all the fingers of B on the side B', while all the fingers have clearance on the side opposite from that on which they bear, A³ and B⁶. Consequently, the circular wedge, when tightened, slides down the inclines and forces all the fingers of A against B and all the fingers of B against A, thereby wedging and binding them together, and also against the spokes, if they be in place.

The cylinders A and B should be bored to fit the cylindrical shield D. The ends of the spokes I should also rest on it. The shield D is provided with a flange, D'. This extends down over the end of the box F, even with the top of the axle G.

E is a hard-rubber sleeve, which is forced between the shield D and the box F. The flange D' prevents it from expanding out at one end and the axle-nut H at the other. The screw L is to keep the cylinders A and B from coming off from D in case they should work loose and the nut H be withdrawn, such a thing being possible but not probable, as they should fit tightly. This elastic hub has

been designed especially for light rapid-running wheels, which are constantly subjected to a severe concussion between the axle box and hub, caused by violently striking stones and other obstructions in the roads, such violent concussion causing rapid crystallization of the spokes where they join the hubs.

Our hub presents a very firm but slightly elastic bed, in which the axle and box lie, and, as the weight comes on the axle and the blow on the tire, the rubber will yield enough to ease the recoil, which will be disseminated throughout the rubber.

Fig. 1 is a modification of Fig. 5, the rubber E and shield D being left out. This form is adapted to heavy slow-running wheels, where great strength is needed. This hub has been especially designed to be used in combination with the metallic felly and metallic tubular spokes patented by A. C. Hall of this invention, his Letters Patent bearing date December 7, 1886, No. 353,744, the drawings of that patent being identical with Figs. 6, 7, and 8 in the drawings accompanying this specification.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A metallic elastic hub having two cylindrical metallic castings, each having a number of horizontal projecting fingers, each casting formed to fit one within the other and to meet shoulder to shoulder, having holes formed in the centers of the line of contact between the two cylinders adapted to receive tubular metallic spokes, having said fingers formed to present when interlocked an inverted circular

recess provided with inclined sides, having adapted to and fitting said circular recess a circular split or divided collar provided with bolts or studs and operating when contracted or tightened to diminish the diameter of said wedge-collar, and operating by bearing on the opposite sides of the inclines of said recess to force said cylinders and fingers tightly together and embrace tightly the spokes radiating from said holes, having the internal diameter of said cylinders formed to match the external diameter of a metallic shield provided with a flange extending from one end and covering the end of the axle-box, having the space between the shield and the axle-box filled tightly with an elastic substance, all arranged substantially as herein set forth and described.

2. A metallic hub having the cylindrical metallic castings A and B, interlocking and bound together by the circular wedge C, the shield D, rubber sleeve E, and screw L, in combination with the metallic tubular spokes K, having contracted circular tenons A' near each end, the metallic felly F, U-shaped in cross-section, having inwardly-projecting lugs or ribs placed at equal distances apart upon its circumference, said lugs having grooves fitting tenons of the spokes and made to securely clamp these tenons by means of rivets passing through the sides of the felly upon each side of the spokes, all arranged as herein set forth.

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Witnesses:

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