

No. 808,984.

PATENTED JAN. 2, 1906.

J. T. HAMBAY.
SIGNALING APPARATUS.
APPLICATION FILED JUNE 30, 1905.

3 SHEETS—SHEET 1.

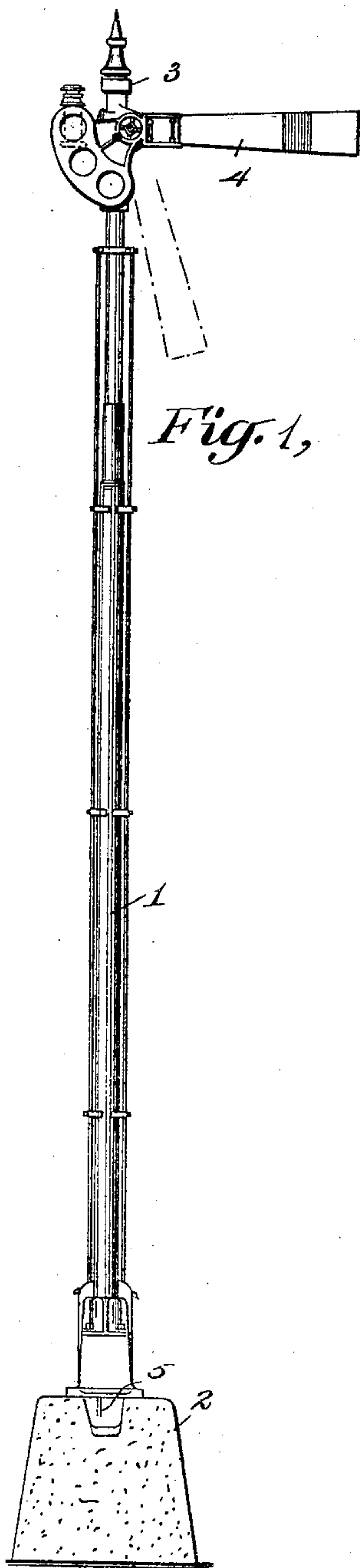


Fig. 1,

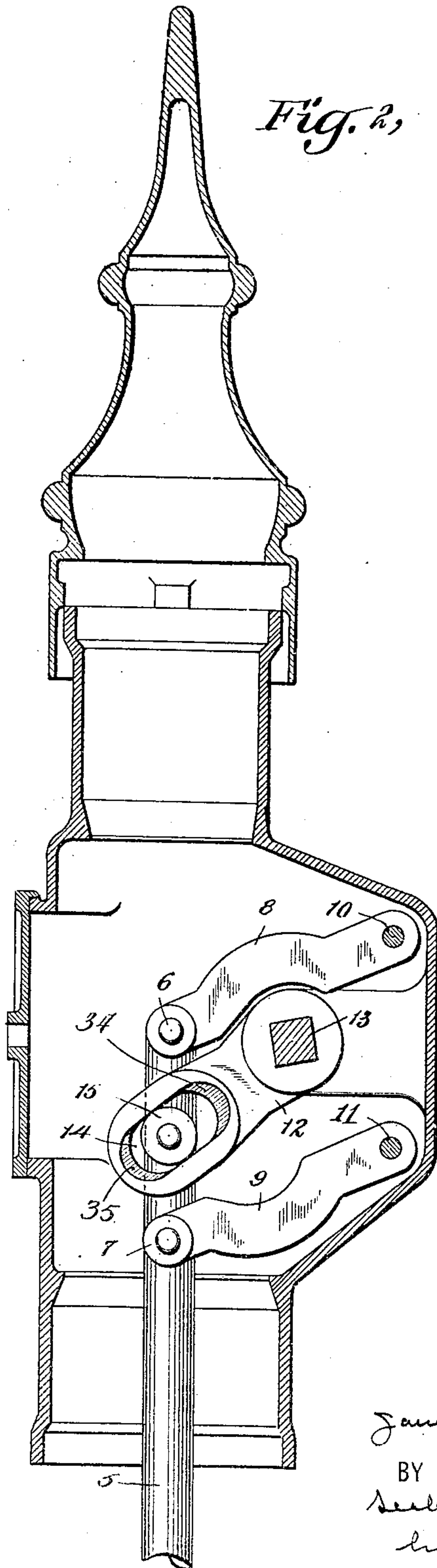


Fig. 2,

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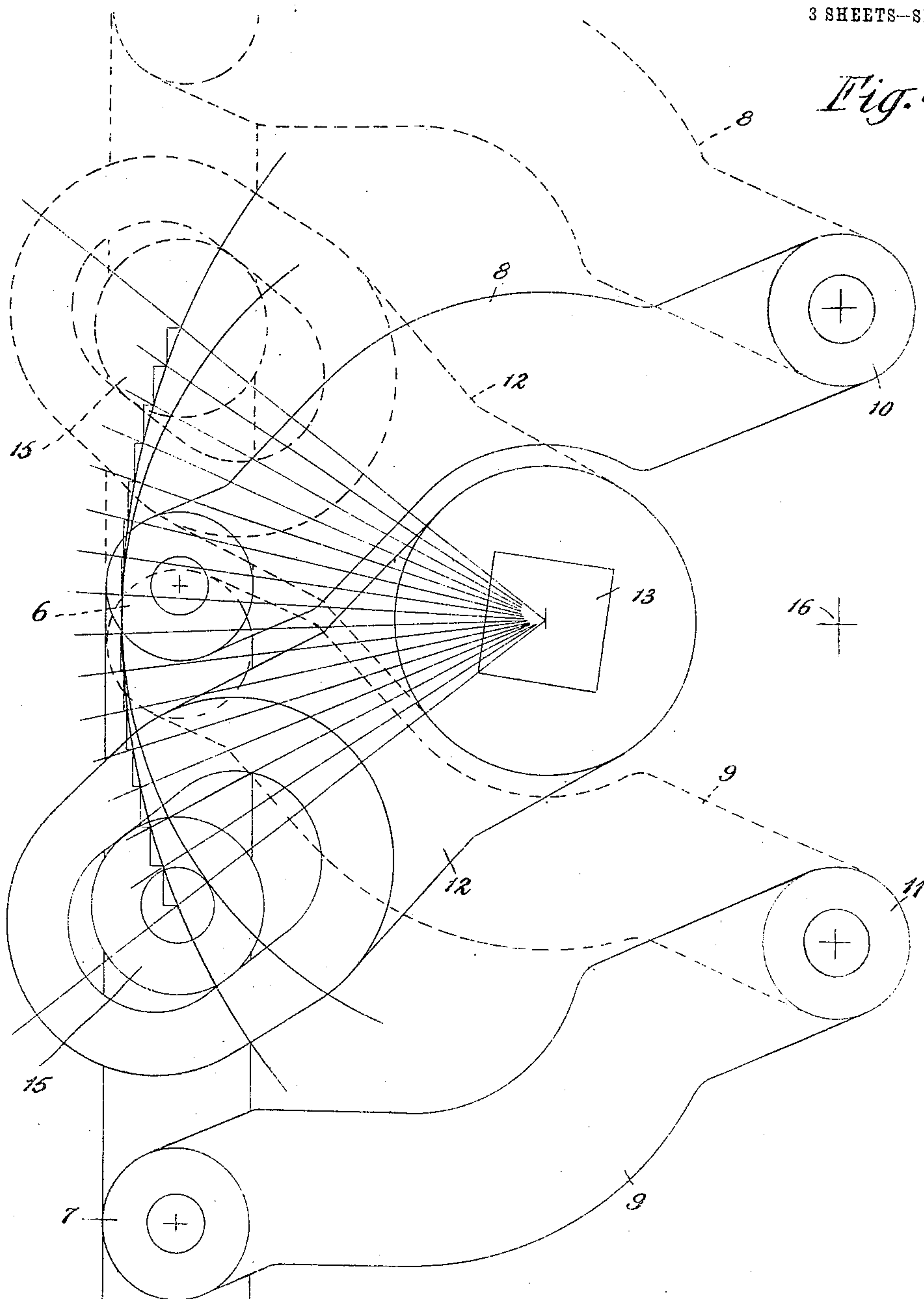
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3 SHEETS—SHEET 2.

Fig. 3,



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3 SHEETS—SHEET 3.

Fig. 4,

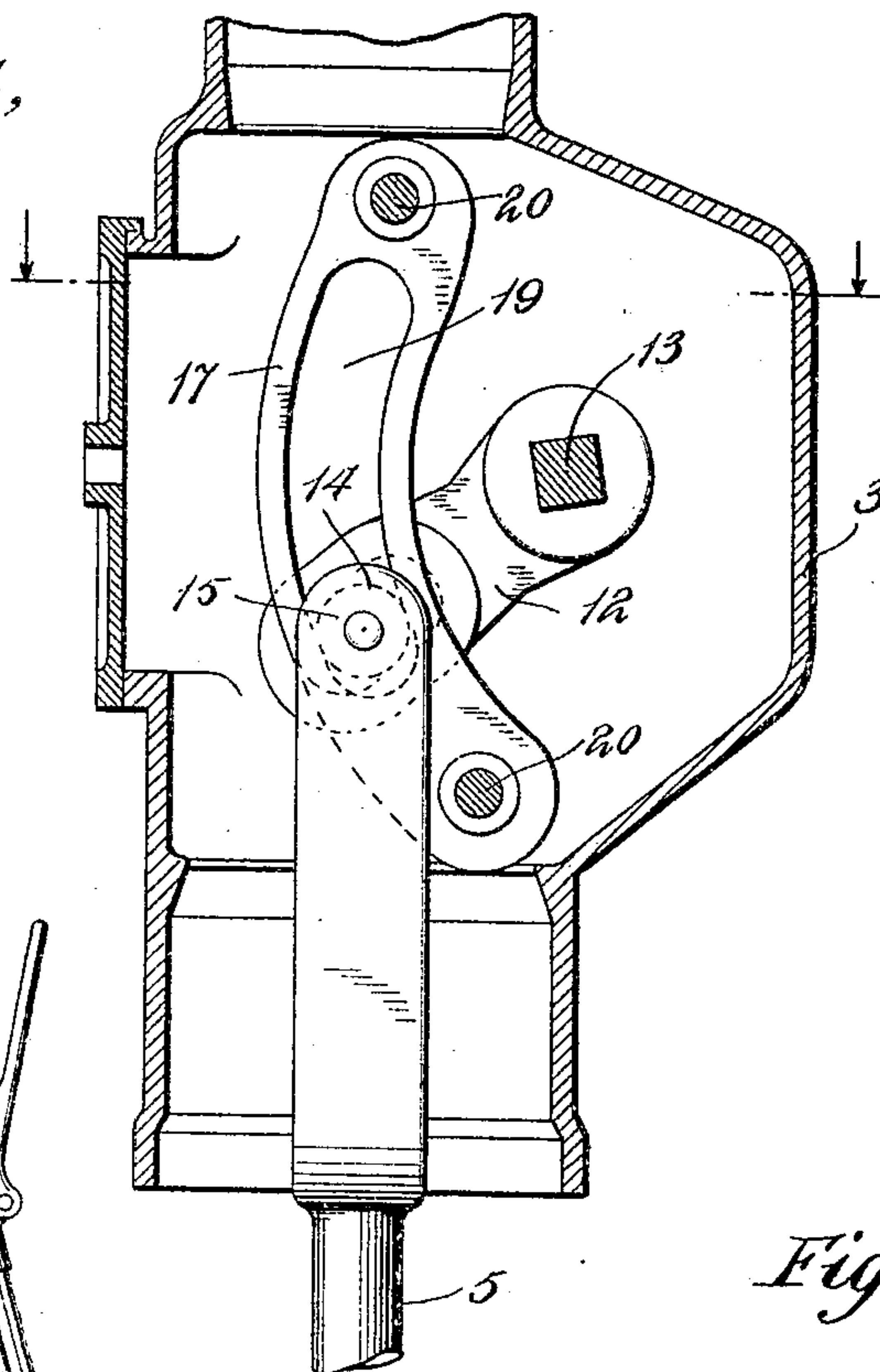


Fig. 5,

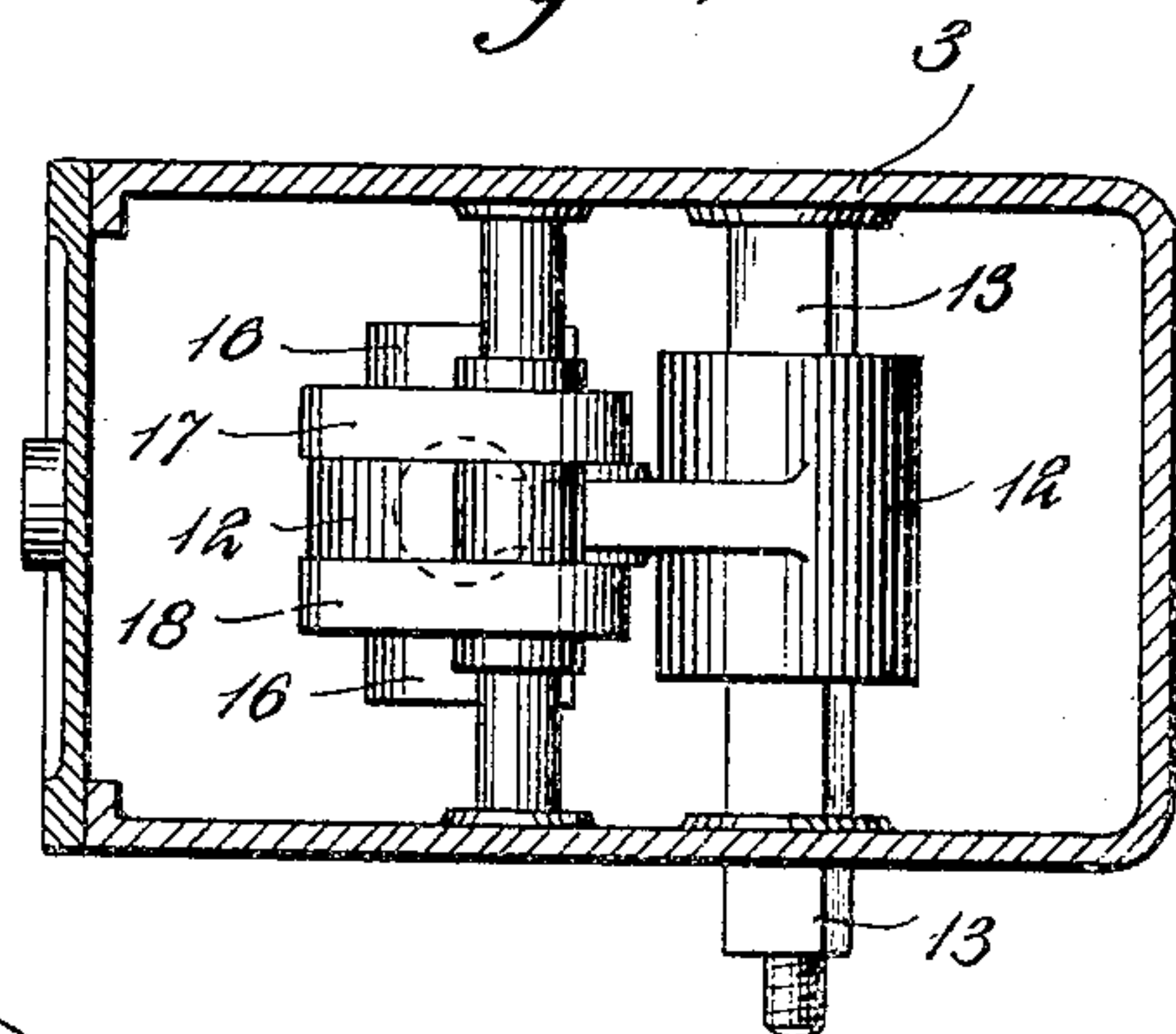
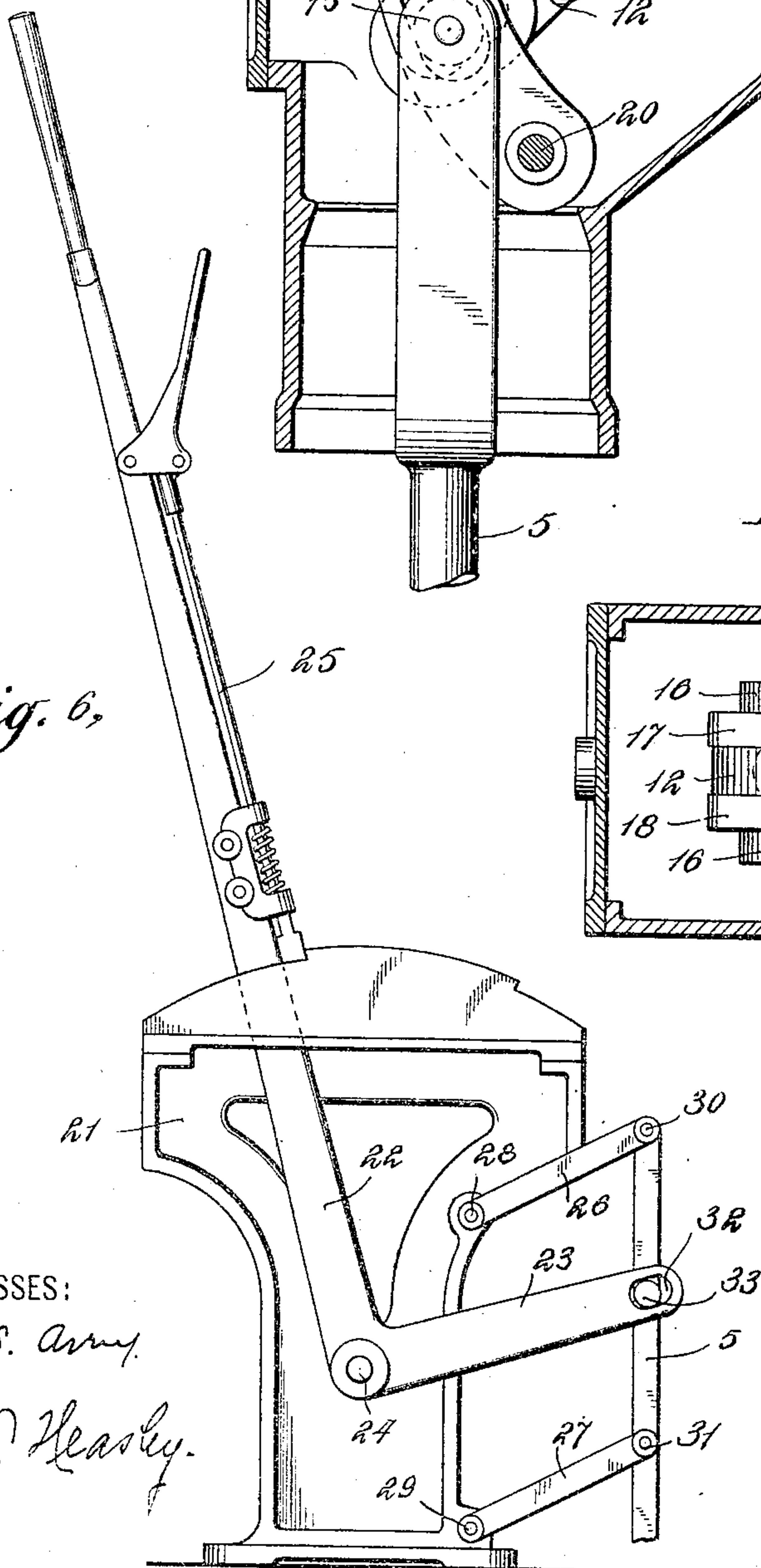


Fig. 6,



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UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF NEW YORK, N. Y.

SIGNALING APPARATUS.

No. 808,984.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed June 30, 1905. Serial No. 267,713.

To all whom it may concern:

Be it known that I, JAMES T. HAMBAY, a citizen of the United States, and a resident of the city of New York, county of New York, State of New York, have invented certain new and useful Improvements in Signaling Apparatus, of which the following is a specification.

My invention relates to an improvement in signaling apparatus, and is especially adapted to the operation of semaphore-signals.

In the following I have described, with reference to the accompanying drawings, several means for carrying out my invention, the particular features thereof being more fully set forth hereinafter in the claims.

Figure 1 is an elevation of a signal-post, showing a semaphore in normal or danger position. Fig. 2 is an elevation, partly in section and on an enlarged scale, of the case, showing the bearings, the semaphore being removed. Fig. 3 is a diagrammatic view of the phases of motion of the operating mechanism of Fig. 2. Fig. 4 is an elevation, partly in section and on an enlarged scale, showing a modification. Fig. 5 is a plan view of the parts shown in Fig. 4 looking in the direction of the arrows. Fig. 6 is an elevation of apparatus, showing a second modification, parts being broken away.

Similar numerals of reference indicate similar parts throughout the several views.

1 indicates a signal-post suitably supported on a foundation 2 and having a case 3, adapted to form bearings for certain of the operating mechanism of the semaphore 4. Operating-rod 5 is adapted to be actuated by any suitable mechanism. At its upper end, as shown in Figs. 2 and 3, rod 5 is pivotally connected at points 6 and 7 to links 8 and 9, respectively, which in turn are pivotally connected to the side wall of the case 3, as shown at points 10 and 11, respectively. A crank-arm 12 is fast on shaft 13, having bearings in the side wall of the case. Semaphore-signal 4 is fast on the outer end of shaft 13 and partakes of the motion thereof. The other end of crank-arm 12 is slotted, as at 14, to receive the roller 15 on rod 5.

As shown in Fig. 4, rod 5 is bifurcated, having arms 16, between which roller 15 is mounted. Roller 15 is adapted to travel in a plate preferably made in two parts 17 and 18, one on each side of the roller and each provided with a slot 19 to receive the roller. The plate is supported in the case 3 in any

suitable manner, as on bolts 20. It is obvious that the shape of the slot may be varied to cause the roller to travel any predetermined path.

As shown in Fig. 6, my invention is illustrated as applied to the signal-tower end of rod 5, the signal-post end being constructed in the customary way, (not shown,) rod 5 being pivoted directly to crank-arm 12. In Fig. 6, 21 indicates a frame, to which a bell-crank having arms 22 and 23 is pivoted, as at 24. Crank-arm 22 is provided with a spring-latch rod 25 for holding it in position in the usual way. Links 26 and 27 are pivotally connected at one end, as at 28 and 29, respectively, to frame 23 and at the other end, as at 30 and 31, respectively, to rod 5. The outer end of crank-arm 23 is slotted, as at 32, the slot being adapted to receive a roller 33, supported on rod 5.

As shown in Figs. 2 and 4, the result of the arrangement is to lengthen the stroke of crank-arm 12, and, as shown in Fig. 6, the result is to shorten the stroke of crank-arm 23, the said results being equivalent to each other.

The parts are preferably so proportioned and connected that the crank-arm on shaft 13 is caused to move through substantially equal distances during each equal interval of time, thus in turn causing the semaphore during each equal interval of time to move through substantially equal vertical distances. The advantage of this arrangement is that it results in a substantially constant leverage in moving the semaphore from the normal to clear position, and vice versa. Should it be desired to cause a variable leverage by any of the means disclosed, the proportions could obviously be changed accordingly.

The ends of slot 14 in crank-arm 12 may be provided with knife-edges 34 and 35, as shown in Fig. 2, so as to assist in cutting ice or snow which may collect in the slot.

It is obvious that the details of construction can be varied and that different means may be employed to accomplish the object of the invention without departing from the spirit thereof.

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

1. In a signaling apparatus a crank-arm and means for varying the distances between its centers during the operation thereof whereby the leverage on said arm is substantially constant.

2. In a signaling apparatus a crank-arm and means for actuating the same, the parts being so arranged that the leverage on the crank-arm is substantially constant.

5 3. In a signaling apparatus a rod, a crank-arm and means actuated by said rod adapted to travel on said arm so as to vary the distances between the centers of said arm during the operation thereof whereby the leverage on said arm is substantially constant.

10 4. In a signaling apparatus a rod, means for guiding said rod, a shaft, an arm mounted on said shaft and means actuated by said rod adapted to travel on said arm so as to vary
15 the distances between the centers of said arm during the operation thereof whereby the leverage on said arm is substantially constant.

20 5. In a signaling apparatus a rod, a crank-arm and means for guiding said rod so as to exert a substantially constant leverage on said arm.

25 6. In a signaling apparatus a rod, links adapted to guide said rod, a shaft, a slotted arm mounted on said shaft and a roller car-

ried by said rod and adapted to travel in said slot.

7. In a signaling apparatus a rod, links adapted to guide said rod and swinging on a predetermined radius, a shaft, a slotted arm 30 mounted on said shaft and adapted to swing on a radius different from that of the guiding-links and a roller carried by said rod adapted to travel in the slot.

8. In a signaling apparatus a shaft, a slot- 35 ted crank-arm mounted on said shaft, said slot being provided with knife-edges at its end.

9. In a signaling apparatus a rod, means for guiding said rod, a shaft, a slotted arm 40 mounted on said shaft, knife-edges at the ends of said slot and a roller carried by said rod and adapted to travel in said slot.

In witness whereof I have hereunto signed my name in the presence of two subscribing 45 witnesses.

JAMES T. HAMBAY.

Witnesses:

MAY SCHOFIELD AVERY,
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