

No. 762,587.

PATENTED JUNE 14, 1904.

H. L. HURST & J. A. WERTZ.

SPRING HINGE.

APPLICATION FILED JAN. 15, 1904.

NO MODEL.

Fig. 1

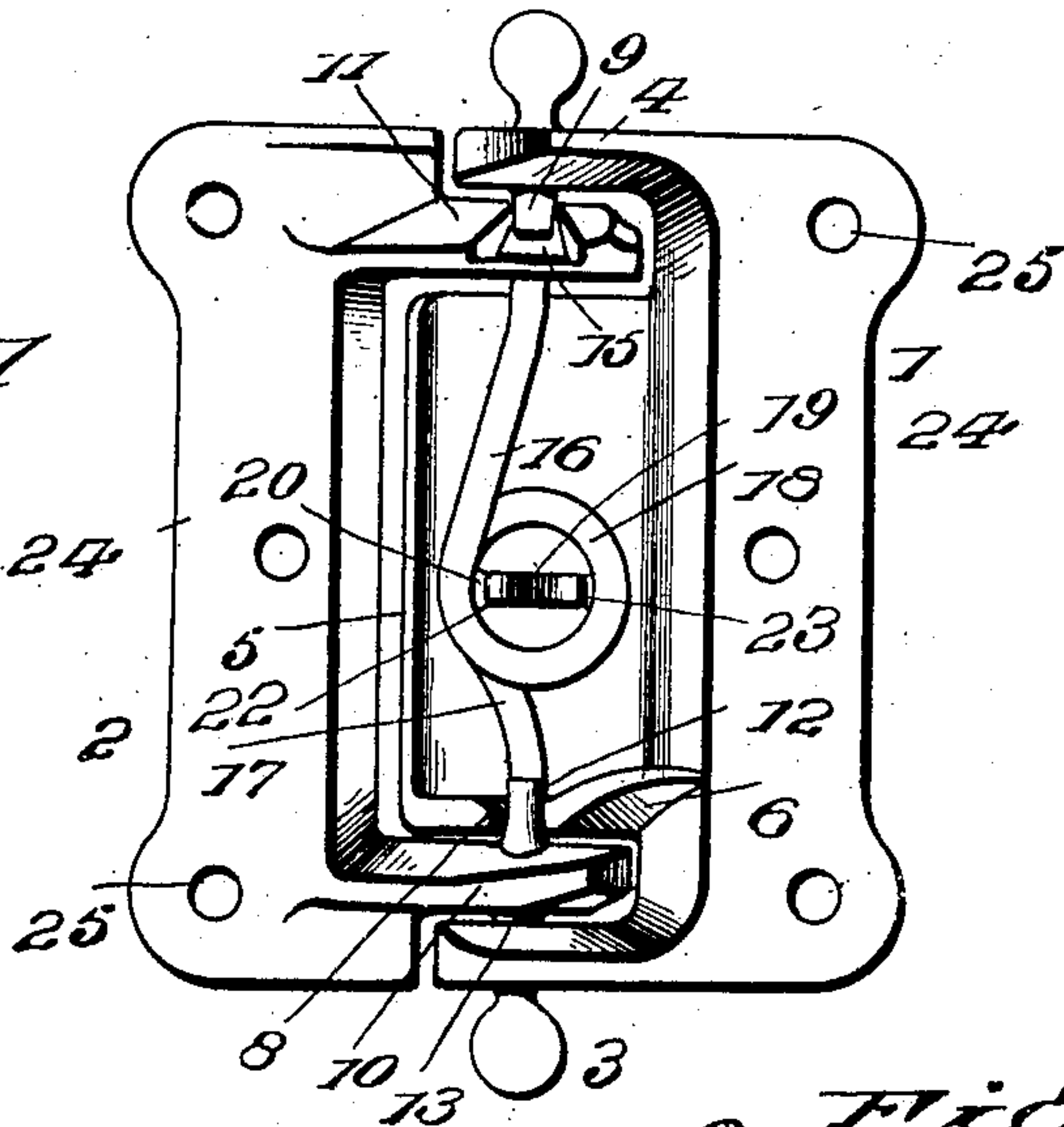


Fig. 2

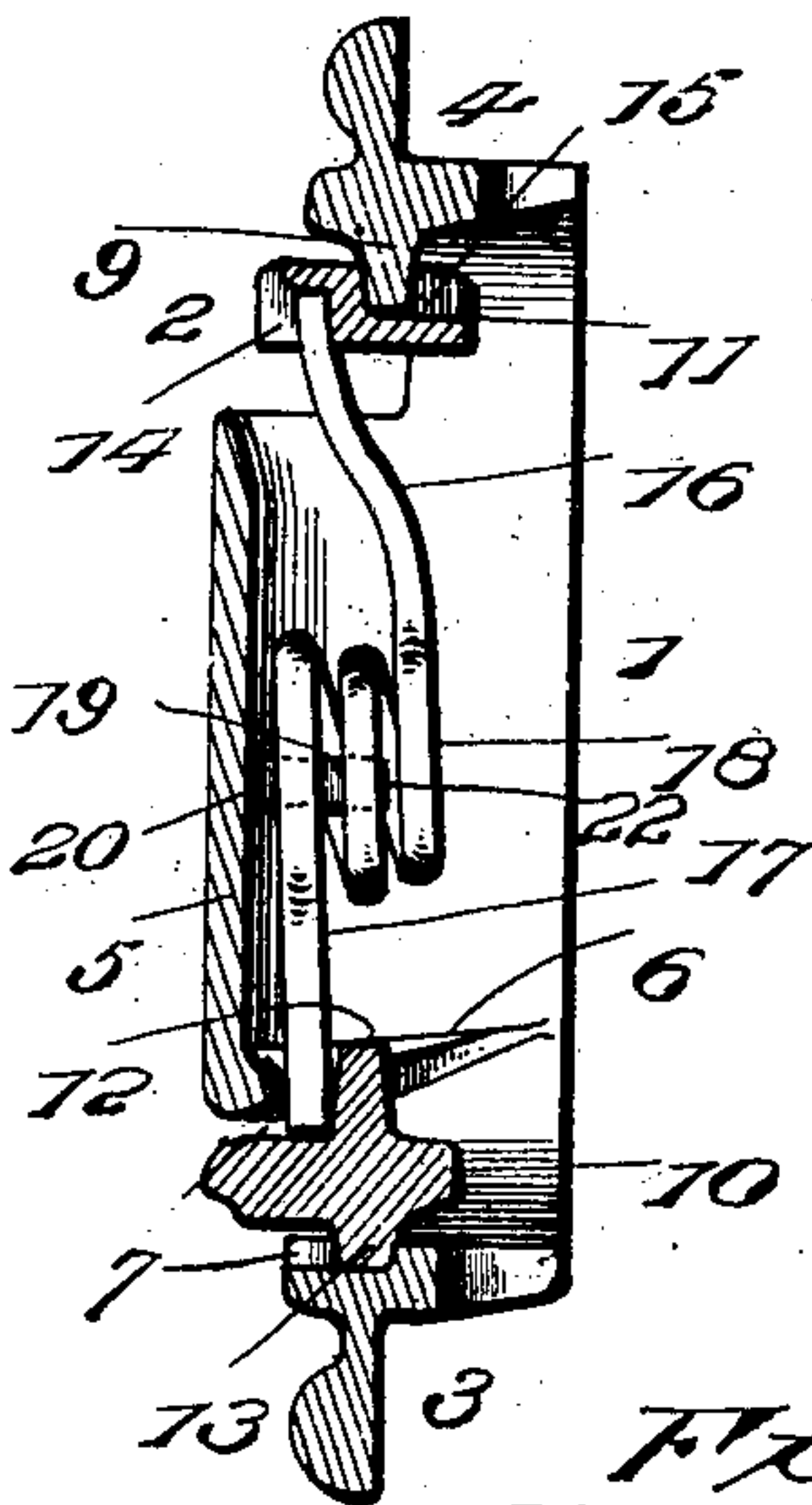


Fig. 3

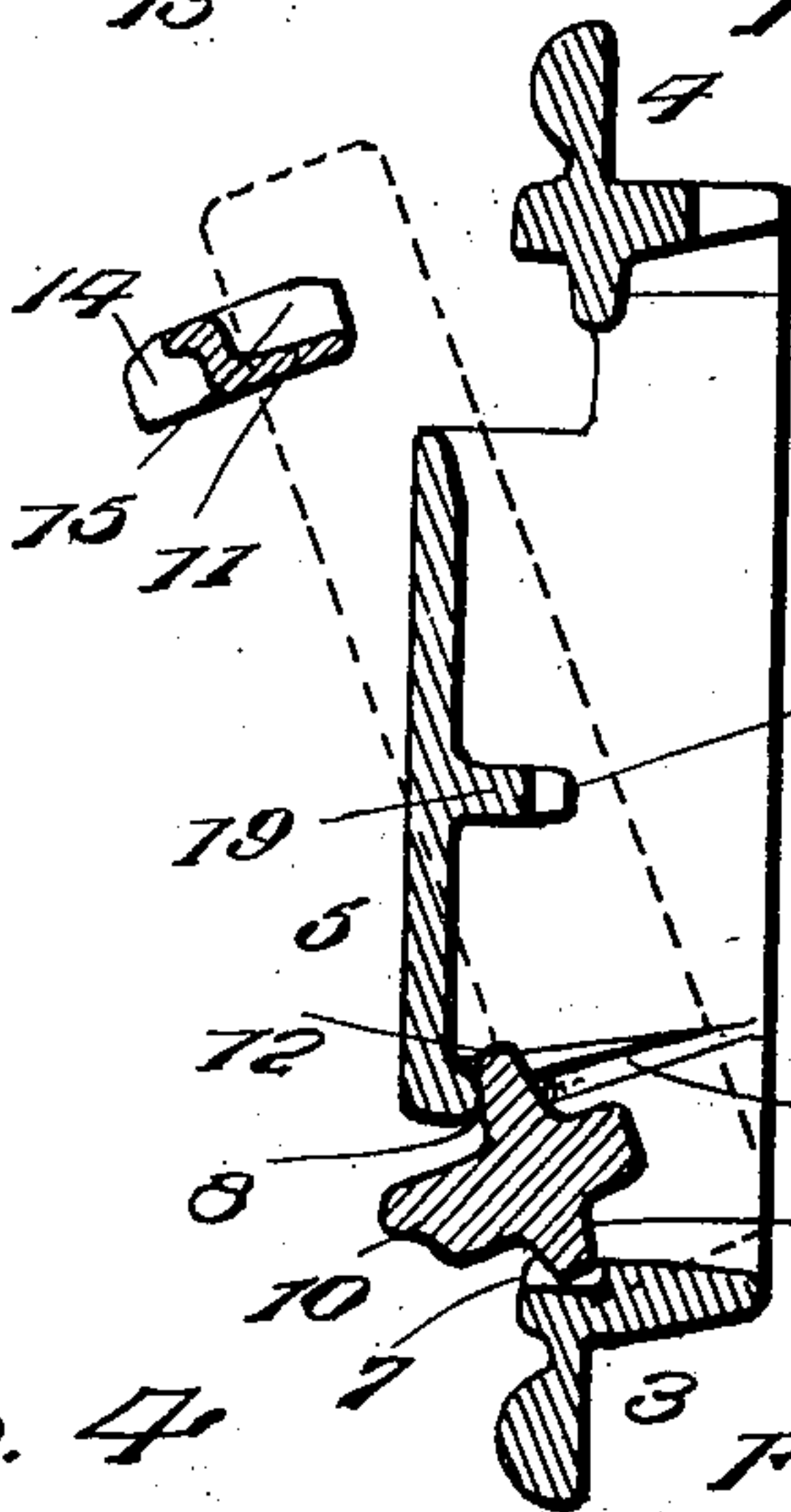


Fig. 6

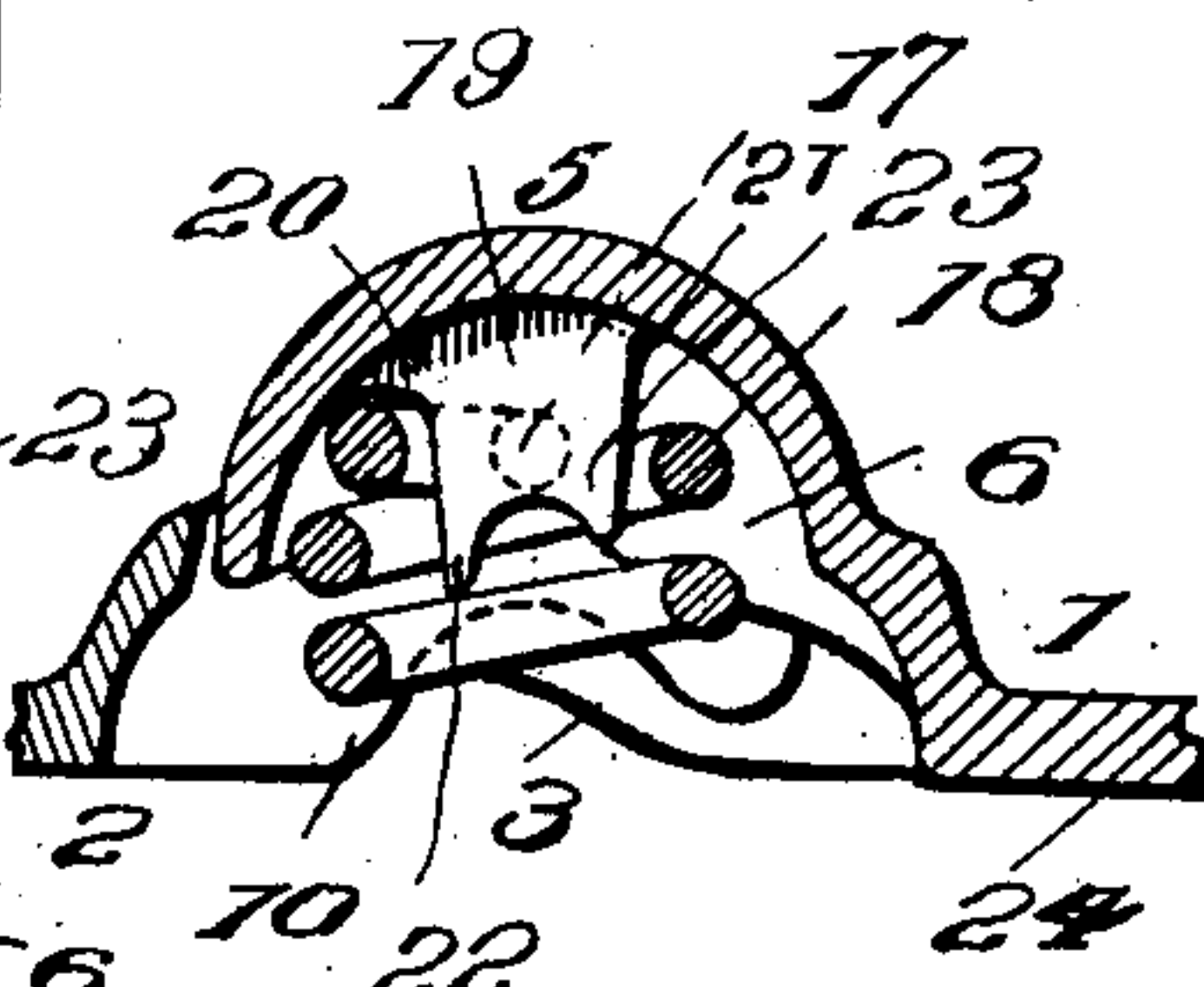


Fig. 4

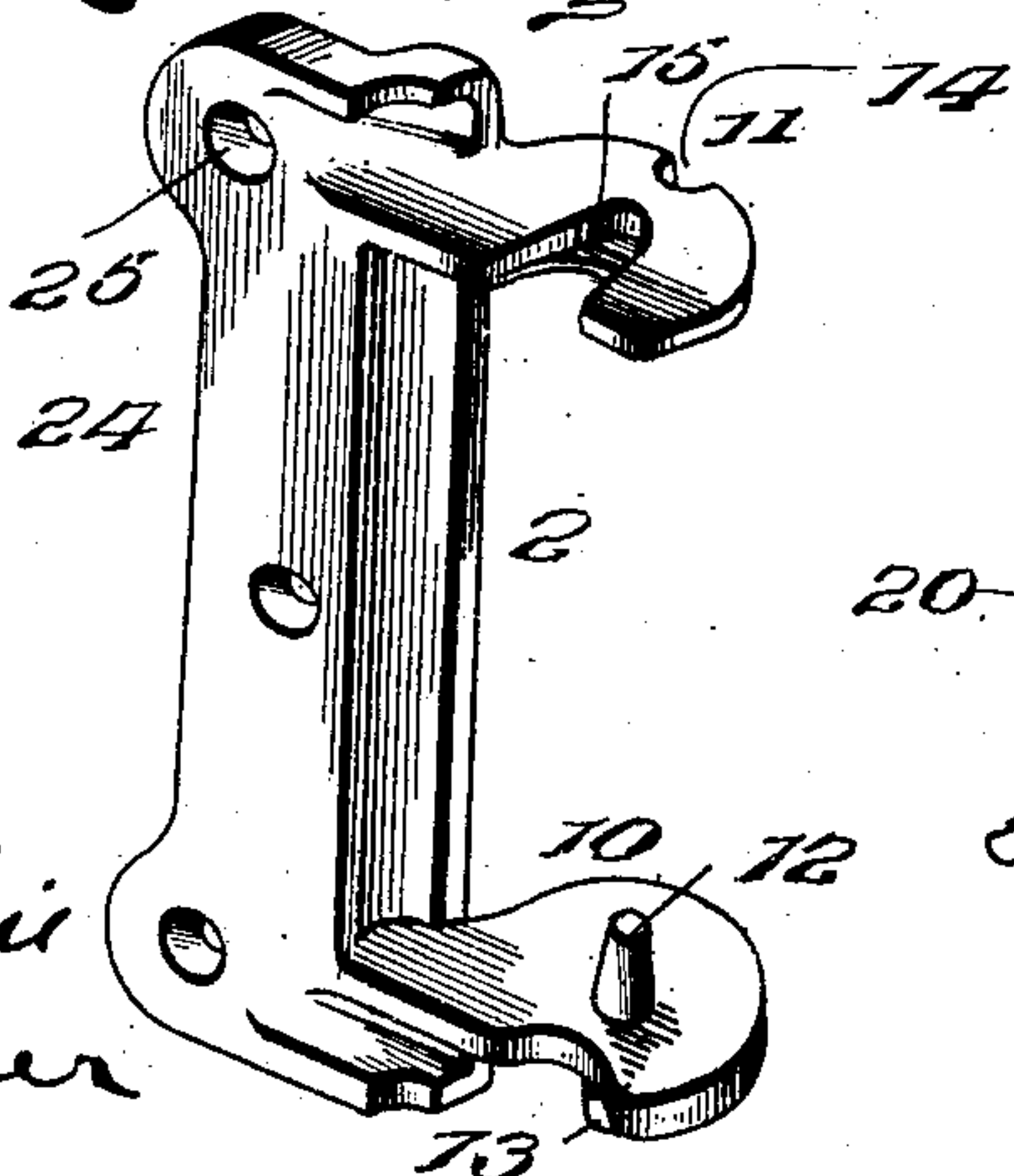


Fig. 5

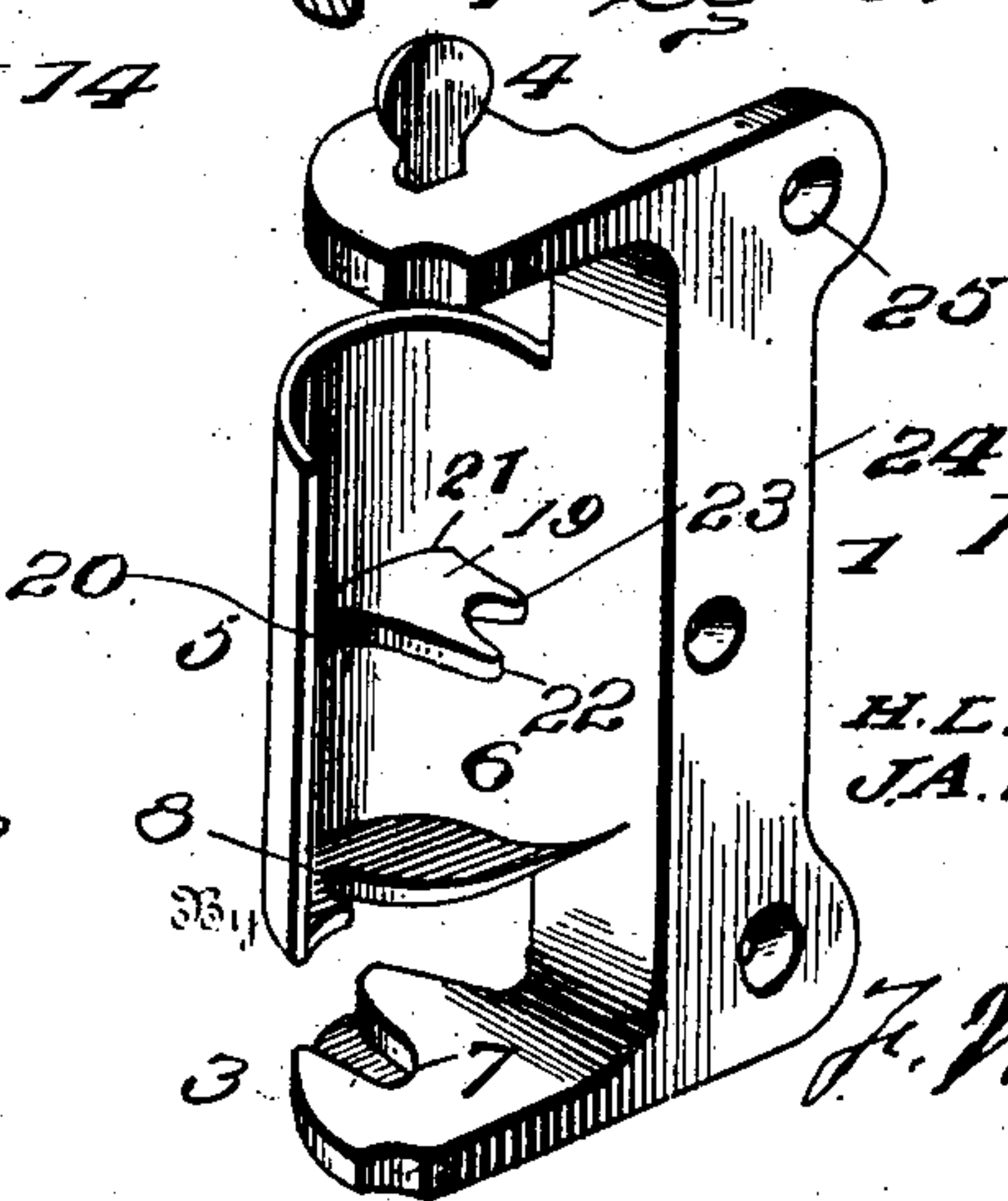


Fig. 7

Inventors  
H. L. Hurst  
J. A. Wertz

J. W. Bond  
Attorney

Witnesses  
J. M. Miller  
J. Tyler



# UNITED STATES PATENT OFFICE.

HARLAN L. HURST AND JOHN A. WERTZ, OF CANTON, OHIO, ASSIGNORS  
TO THE H. L. HURST MANUFACTURING COMPANY, OF CANTON, OHIO,  
A CORPORATION OF NEW JERSEY.

## SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 762,587, dated June 14, 1904.

Application filed January 15, 1904. Serial No. 189,093. (No model.)

*To all whom it may concern:*

Be it known that we, HARLAN L. HURST and JOHN A. WERTZ, citizens of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Spring-Hinges; and we do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to an improvement in spring-hinges of that class wherein the spring is housed within the hood of the spring-leaf and operates to maintain an effective working connection between the parts.

The main object of the invention is to simplify the construction of parts and arrange the same to permit a convenient and ready assembling without dispensing in any particular with the requisite strength and rigidity thereof.

The invention will be described in detail in connection with the accompanying drawings, wherein is illustrated the preferred form of construction, and in which—

Figure 1 is a rear elevation of our improved hinge. Fig. 2 is a central vertical section of the same. Fig. 3 is a section of the leaves of the hinge, showing the position of the parts when partly assembled. Fig. 4 is a perspective of the fixed leaf. Fig. 5 is a perspective of the movable leaf. Fig. 6 is a transverse sectional view of the hinge. Fig. 7 is a view in elevation of a modified spring.

From the drawings it will be noted that our improved hinge comprises the usual leaves, for convenience hereinafter referred to as the "movable" leaf 1 and the "fixed" leaf 2. Projecting laterally from the opposite ends of the movable leaf are arms 3 and 4 of practically the same form and extent. Intermediate the arms 3 and 4 is the hood 5, formed integral with the leaf and of the usual arched form. The end of the hood next the arms 3 is substantially closed by a web 6 for a purpose hereinafter mentioned. The hood is of a length to leave a space between its ends and

the arms 3 and 4 to permit the assembling of the parts, as hereinafter referred to.

The arm 3, near its free end, is formed with a recess 7, extending from the upper edge of the arm downwardly and opening into the surface of the arm from its inner side, but not extending entirely through the arm. Directly opposite the recess 7 the web 6 is formed with a slot 8, extending upward from the lower end of the web, with its upper end wall about on a line with the mouth of recess 7.

The arm 4 is provided with a downwardly-extending pintle 9, arranged in vertical alinement with the recess 7 and slot 8.

The fixed leaf 2 has two projecting arms 10 and 11 so spaced apart that they will enter the spaces between the hood and the arms 3 and 4 of the spring-leaf in assembling the parts.

Arm 10, which is arranged to coöperate with arm 3, is provided with a pin 12, projecting upwardly from the arm, and with a pin 13, projecting downwardly from the arm, the pins 12 and 13 being preferably in vertical alinement and arranged about centrally of the arm.

The arm 11, arranged to coöperate with arm 4, is formed on its outer side with a notch or recess 14, opening from the lower edge of the arm upward, but not extending through the arm. A notch 15 is formed in the inner edge of the arm approximately above the recess 14.

The operating-spring is preferably of the form shown in Fig. 2, having a long arm 16, a short arm 17, and a series of central turns or convolutions 18, the arms 16 and 17 being normally out of line to secure the necessary tension in operation.

19 represents a spring-retaining stud projecting inwardly about central of the hood 5 and tapering, as shown. The stud is so joined to the hood as to present spring-receiving shoulders 20 and 21 on opposite sides of the stud, the shoulder 20 being lower than the other shoulder, 21—that is, the arrangement is such that the spring convolutions are sup-



ported upon shoulder 20 when in position on the stud. The free end of the stud is formed in the shape of projections 22 and 23, the former, which is an extension of that side of the stud joining shoulder 20, being longer than the projection 23, as clearly shown in the drawings.

The leaves are provided with the extended portions 24, provided with the usual screw-holes 25 to receive the attaching-screws.

In assembling the parts the arm 10 of the fixed leaf 2 is passed within the space between the arm 3 and hood 5 and its pin 12 placed in the slot 8 in the web 6, the other arm of the fixed leaf being held above the movable leaf. The fixed leaf is now turned toward a horizontal or normal position, causing pin 13 of arm 10 to ride into recess 7 of arm 3 and the recess 15 of arm 11 to embrace pintle 9 of arm 4. The parts are then in their normal position, the pintle 9 resting in recess 15 and the pins 12 and 13 resting in recesses 8 and 7, respectively. The spring is inserted to operate the parts, the convolutions embracing stud 19 and resting at the lower end on shoulder 20, the short arm 17 of the spring being inserted in slot 8 in rear of the pin 12, the slot being of a depth to permit the insertion of the spring and the long arm 16 of the spring being forced into the notch 14 of arm 11, as shown. The spring thus operates to hold the parts in coöperative relation and tends to permit a ready and convenient movement without the usual nice adjustment and fit of the parts.

In operation the strain exerted upon the spring tends to decrease the diameter of its convolutions, which, owing to the tapering of the stud, is readily permitted without bending. The spring also has a tendency to tilt and bind; but as it is supported on one side only by shoulder 20 a leeway of movement is permitted without such binding. The lower turn of the spring will tend to ride off the stud and may rise beyond projection 23 of the stud, and, in fact, such freedom is essential to prevent binding; but the projection 22 will prevent the full escape of the lower turn of the spring, hence securing the parts against such dislodgment as will render the spring inoperative.

To aid in a proper contraction of the spring, it is preferably formed with gradually-decreasing turns or convolutions, as shown in the drawings, though a modified form of spring having two separately-arranged and spaced convolutions, as at 26 in Fig. 7, may be used, if desired.

What we claim as new is—

1. A spring-hinge comprising a fixed leaf and a movable leaf, a hood integral with the movable leaf, arms projecting from the movable leaf, arms projecting from the fixed leaf, one of said latter arms having pivotal connection with one arm of the movable leaf and with the hood, the other arm of the fixed leaf

having pivotal connection with the other arm of the movable leaf, and means for maintaining the said pivotal connection.

2. A spring-hinge comprising a fixed leaf and a movable leaf, a hood integral with the latter leaf and having a web formed with a recess, an arm projecting from the movable leaf contiguous the web of the hood, an arm projecting from one end of the fixed leaf, pintles projecting from the said latter arm and adapted to engage the arm of the movable leaf and the recess in the web of the hood to pivotally connect one end of the leaves, and means for pivotally connecting the opposite ends of the leaves, and a spring mounted in the hood and arranged to maintain said pivotal connections during the movement of the hinge-leaves.

3. A spring-hinge comprising a fixed leaf, and a movable leaf, a hood formed on the movable leaf, arms projecting from the movable leaf and spaced from the ends of the hood, a web closing one end of the hood, arms projecting from the fixed leaf and arranged to enter between the arms of the movable leaf and the ends of the hood, and means for pivotally connecting one arm of the fixed leaf with the hood-web and contiguous arm of the movable leaf, and a connection between the other arm of the fixed leaf and the other arm of the movable leaf, and a spring for maintaining the said pivotal connections during operation of the hinge.

4. A spring-hinge comprising a movable leaf and a fixed leaf, the movable leaf being provided with a hood and with two arms projecting parallel with the hood but spaced from the ends thereof, one of said arms being formed with a recess and the other provided with a pintle, a web closing the hood at the end next the recessed arm, said web being formed with a recess, the fixed leaf being provided with arms arranged to respectively coöperate with the arms of the movable leaf one of said fixed leaf-arms being provided with two pins projecting in opposite directions and arranged to engage respectively the recess in the movable leaf-arm and the recess in the web, the other fixed leaf-arm having a recess to receive the pintle on the remaining movable leaf-arm, and also formed with a spring-receiving recess in its edge, and a spring having two ends, one end resting in the spring-receiving recess in the fixed leaf-arm, and the other resting in recess in the web and between the wall of the web-recess and the pin on the fixed leaf-arm entering said web-recess.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

HARLAN L. HURST.  
JOHN A. WERTZ.

Witnesses:

F. W. BOND,  
J. R. BOND.