

W. J. COWAN.
SPRING HINGE.

APPLICATION FILED OCT. 3, 1902.

NO MODEL.

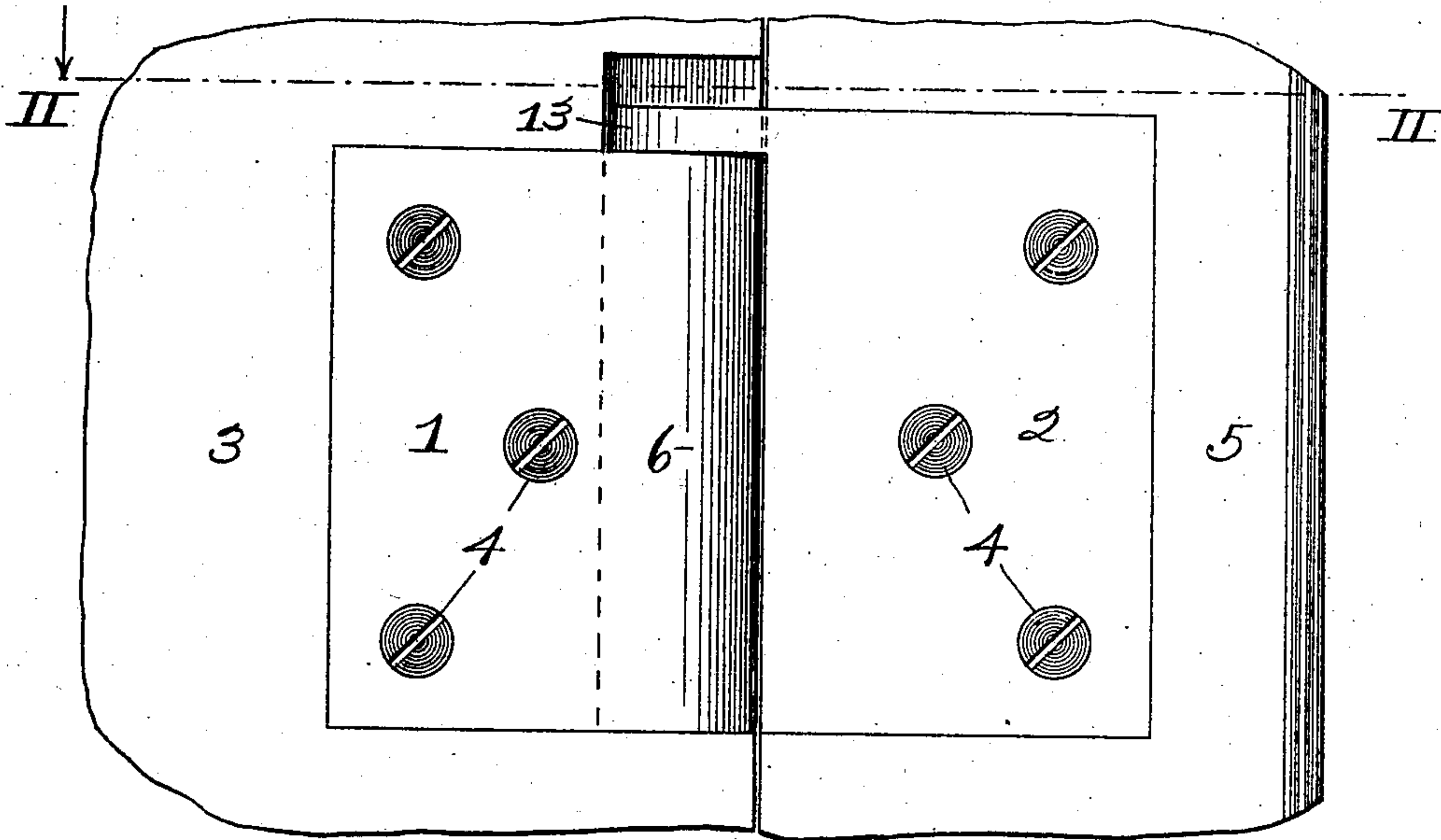


Fig. 1.

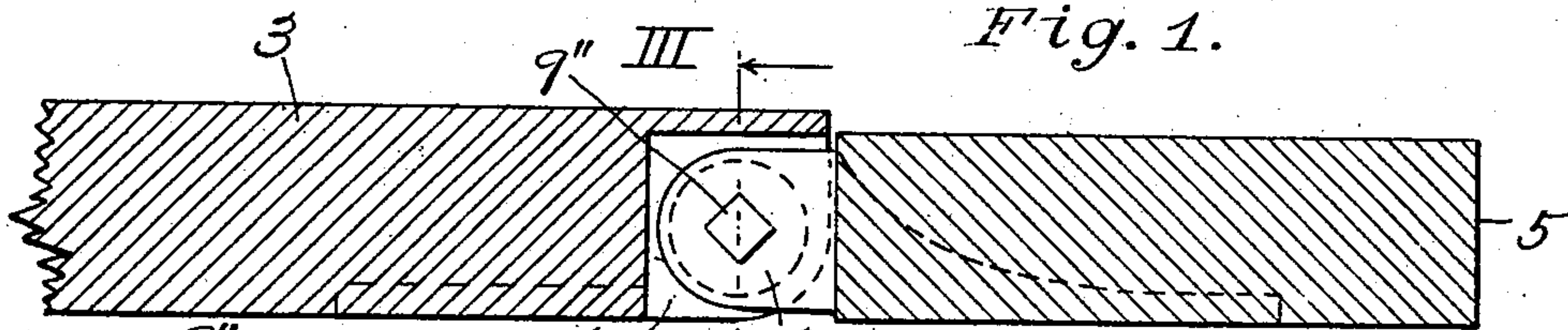


Fig. 2.

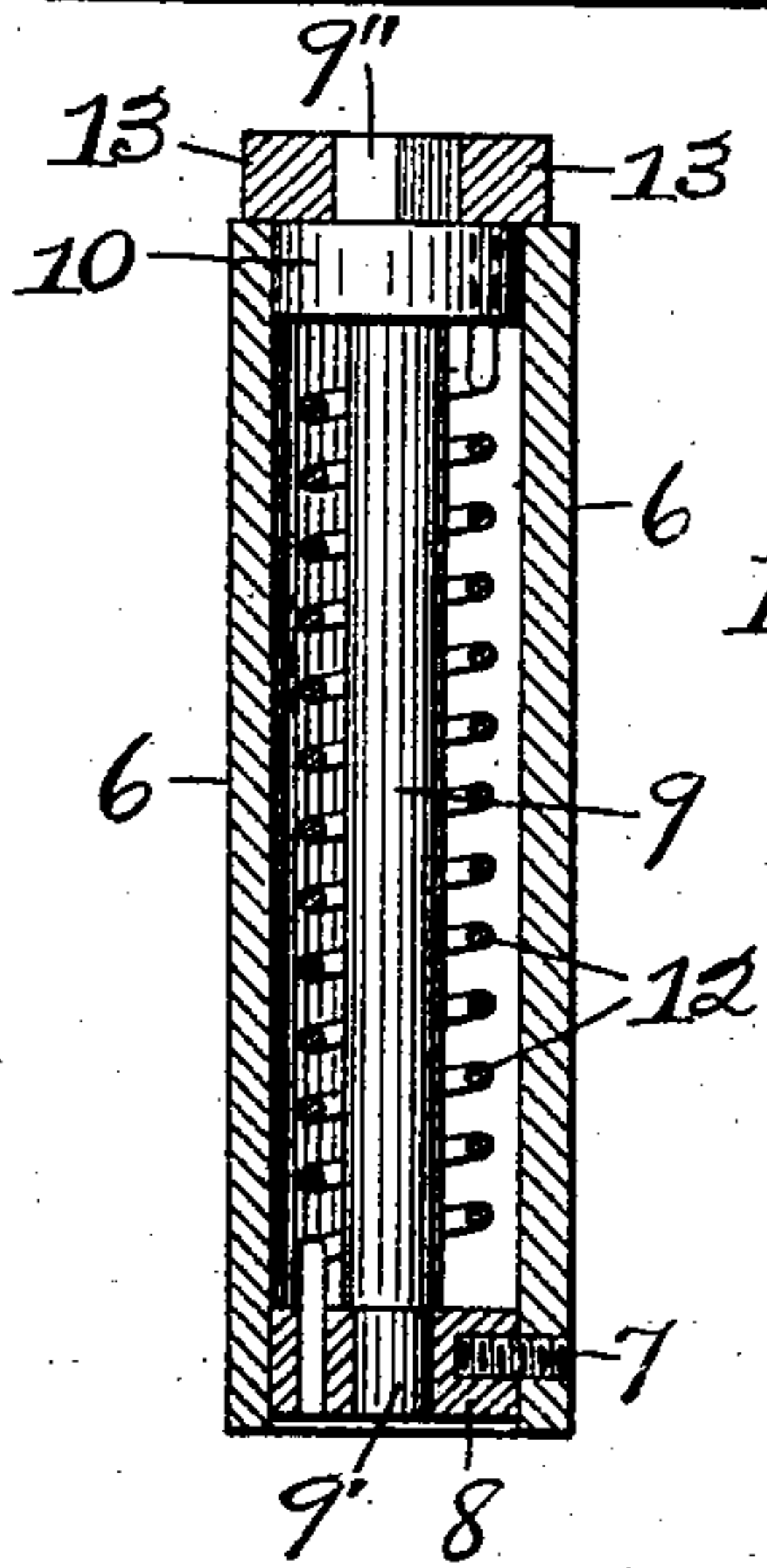


Fig. 3.

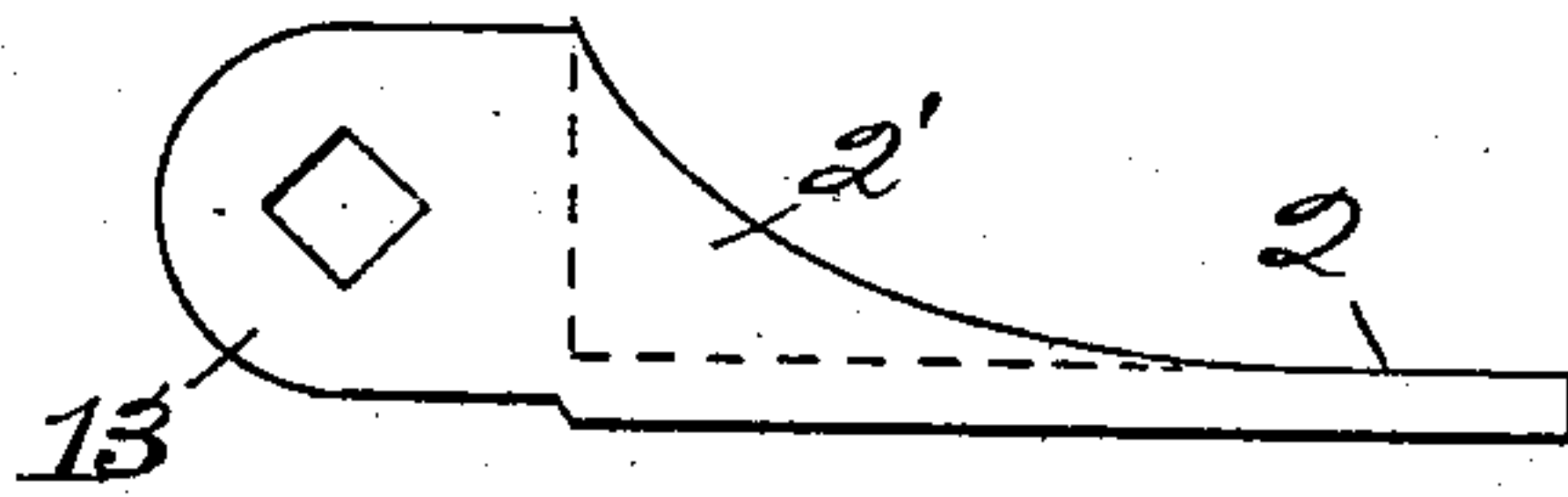


Fig. 5.

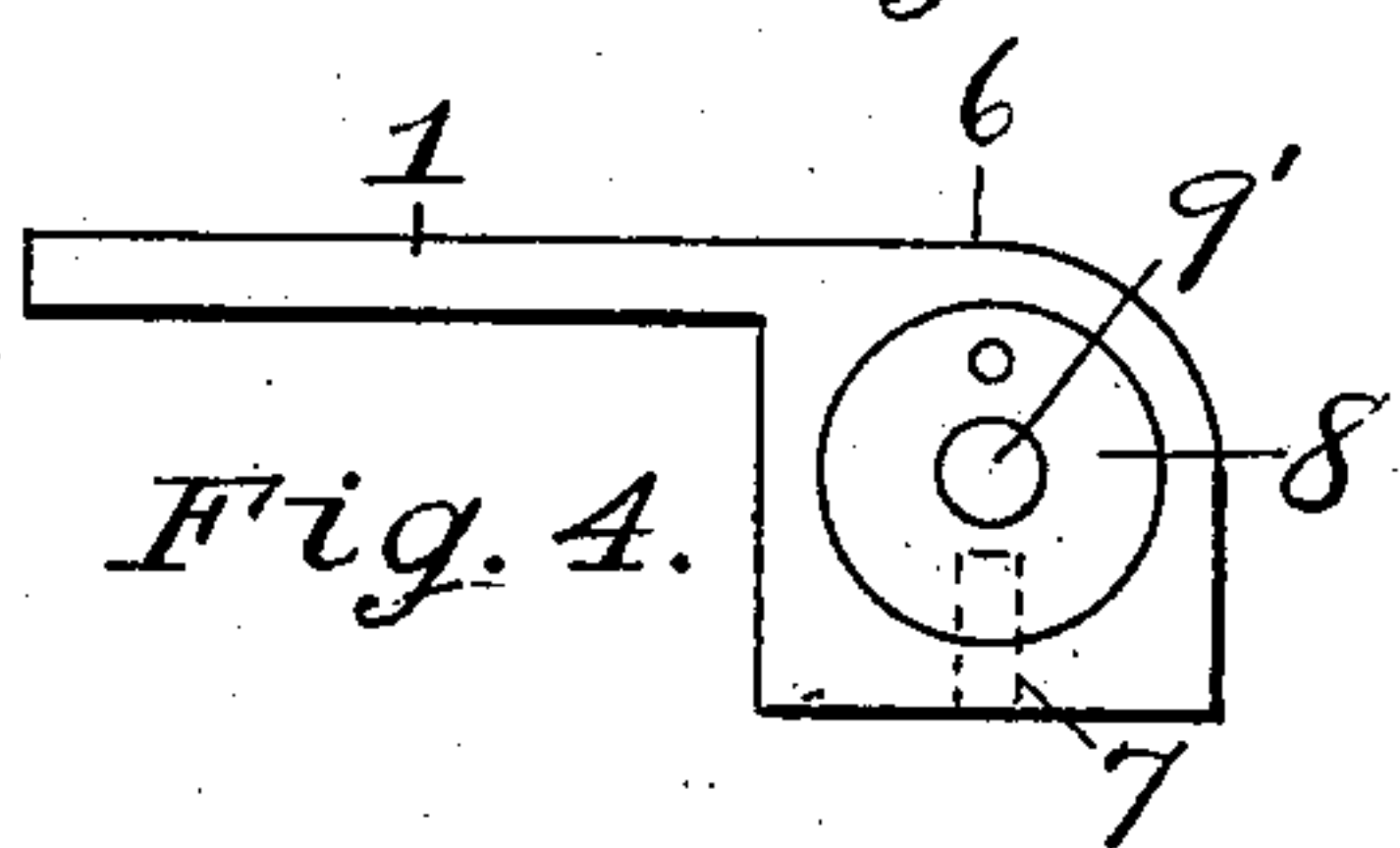


Fig. 4.

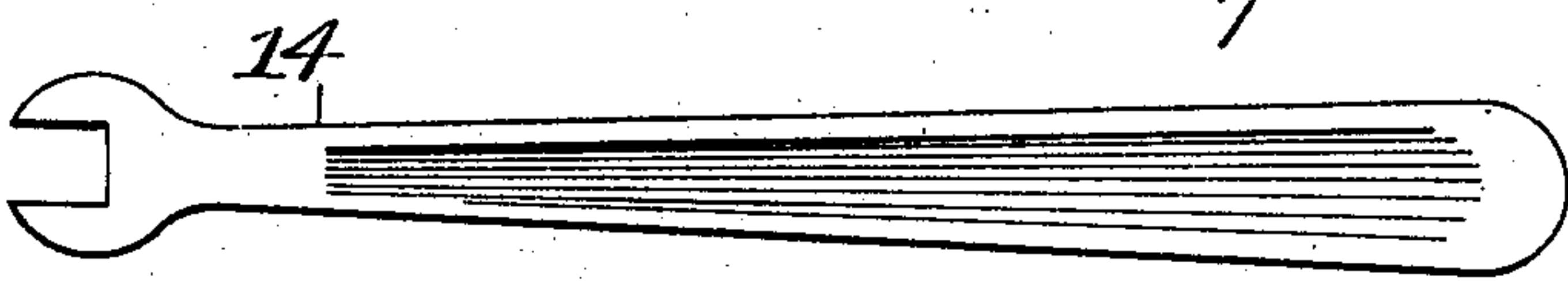


Fig. 6.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM J. COWAN, OF KANSAS CITY, MISSOURI.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 720,116, dated February 10, 1903.

Application filed October 3, 1902. Serial No. 125,768. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. COWAN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Spring-Hinges, of which the following is a specification.

My invention relates to separable spring-hinges for doors; and the object of my invention is to construct a spring-hinge in such a manner that the door may be removed from its doorway or frame without removing the hinges from either the door or the frame, as a part of each hinge will remain fixed to the door, while the other part of each hinge will remain fixed to the frame or casing.

Referring now to the drawings, Figure 1 is a front elevation of a hinge constructed in accordance with this invention, showing portions of a door and the frame to which the hinge is secured. Fig. 2 is a sectional plan view taken on line II II of Fig. 1. Fig. 3 is a vertical section of the hinge, taken on line III III of Fig. 2. Fig. 4 is a bottom plan view of the spring-holding member of the hinge. Fig. 5 is a top plan view of the detachable member of the hinge. Fig. 6 represents a wrench adapted for tensioning the spring of the hinge.

1 designates the spring-holding member of the hinge. This member is secured to a door frame or casing 3 by screws 4.

2 designates the complementary hinge member, which is secured to the door-stile 5 by screws 4.

Integral with the inner portion of the hinge member 1 is a spring-housing 6, having a cylindrical bore therethrough. The outer corner of said housing adjacent to the member 2 is rounded, as shown. A recess adapted to receive said housing is cut in the edge of the frame 3, adjacent to the door. The top of the detachable member 2 is provided with an inwardly-projecting web 2', which adds necessary strength to this portion of the hinge. This web is seated in a suitable recess cut in the stile of the door 5.

Rigidly secured within the lower end of the bore of the housing 6 by a screw 7 is a collar 8, in which is a concentric hole in which is rotatably mounted the lower end of the pintle 9. Integral with said pintle, near the up-

per end thereof, is a collar 10, which fits rotatably within the bore of the housing 6. The upper end of the pintle is squared for the purpose described hereinafter. Surrounding the pintle between the collars 8 and 10 is a helical spring 12. The upper end of said spring is inserted permanently in a hole drilled in the rotatable collar 10, and the lower end of said spring is inserted permanently in a hole drilled in the fixed collar 8.

The pintle 9 is shouldered near its lower end, so that the portion 9' thereof, that is mounted in the collar 8, is of smaller diameter than the main portion of the pintle. This prevents the pintle from working downward through said collar 8.

The leaf 2, which is attached to the door, is provided at its upper end with a horizontally-projecting ear 13, in which is a square opening adapted to fit, but not tightly, over the squared upper end 9' of the pintle. The thickness of said ear should be equal to the height of said squared end of the pintle. The recess cut in the door-frame 3 must be elongated above the housing 6 sufficiently to allow the ear 13 to be raised off from the pintle, so that the door may be removed from the frame without drawing any of the screws 4.

Supposing the door to have been removed from its frame, the operation of remounting it upon the hinge member 1 would be as follows: The door is set at approximately a right angle with its frame—that is, in half-open position. The squared end 9' of the pintle 9 is engaged by a thin wrench, as 14, and is turned in the proper direction to tighten the spring 12. When a suitable tension is produced, the pintle is turned (if necessary) to permit the opening in the ear 13 to register therewith, and the door is then raised, the said opening is registered with the pintle, and the door is lowered until the ear 13 rests upon the housing 6. The wrench is of course removed from the pintle as soon as the latter enters the opening in the ear 13. Two or more of these hinges being employed for each door, the door will be held in alinement as strongly as by any other type of spring-hinge. By using this hinge the labor of attaching and detaching the leaves of the hinge from the frame or the door is obviated.

Having now fully described my invention,

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

5 A separable spring-hinge comprising a spring-housing having a leaf integral therewith, a collar secured non-rotatably in the bottom of the housing, a pintle having its lower end rotatably mounted in said collar, a rotatable collar on the upper portion of the pintle, within the housing, the upper end of
10 the pintle being squared, a helical spring surrounding the pintle between said collars and having its respective ends secured to said

collars, and a detachable leaf provided at its top with a horizontally-projecting ear having an opening therein adapted to fit over 15 the upper end of the pintle, substantially as described.

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

WILLIAM J. COWAN.

Witnesses:

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