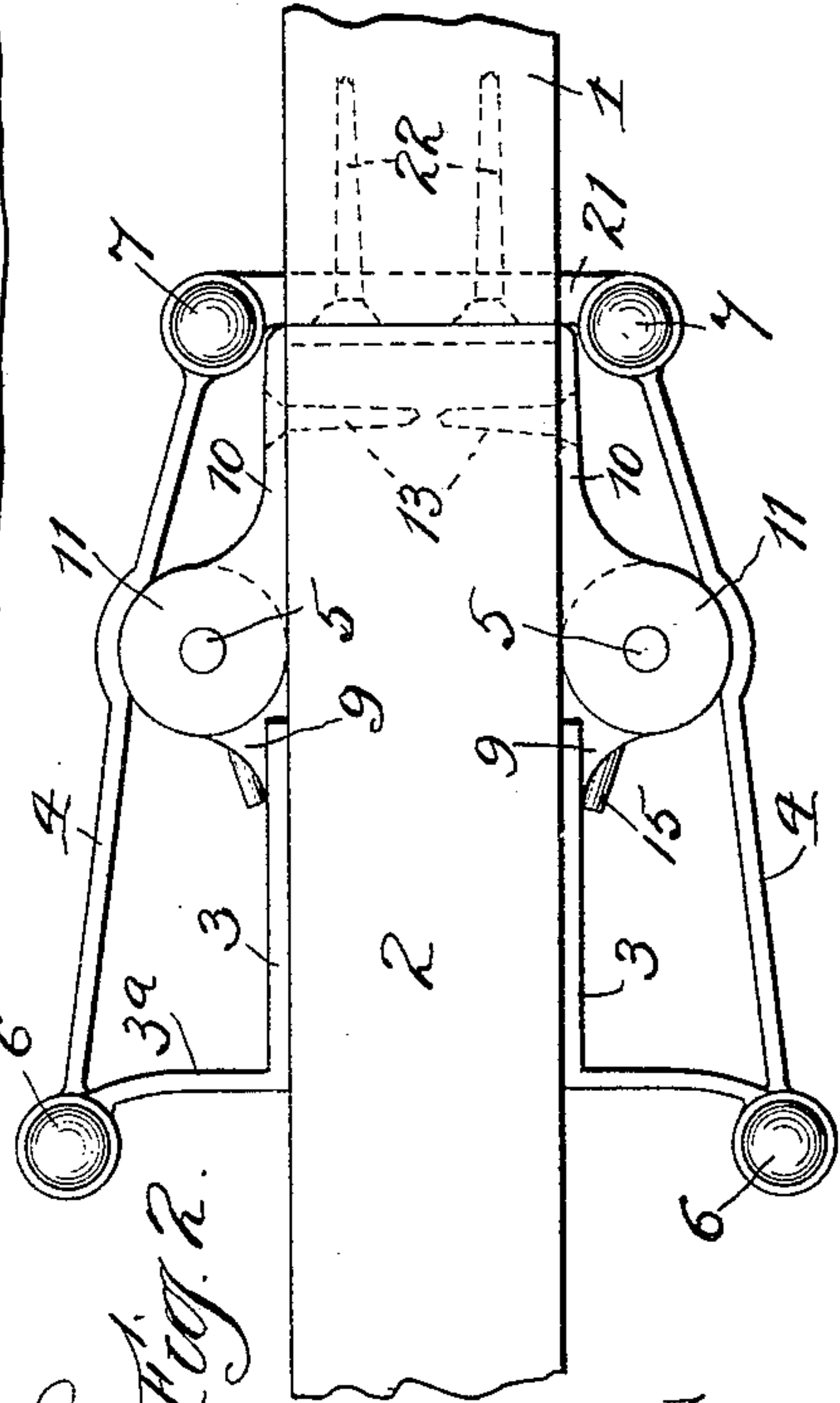
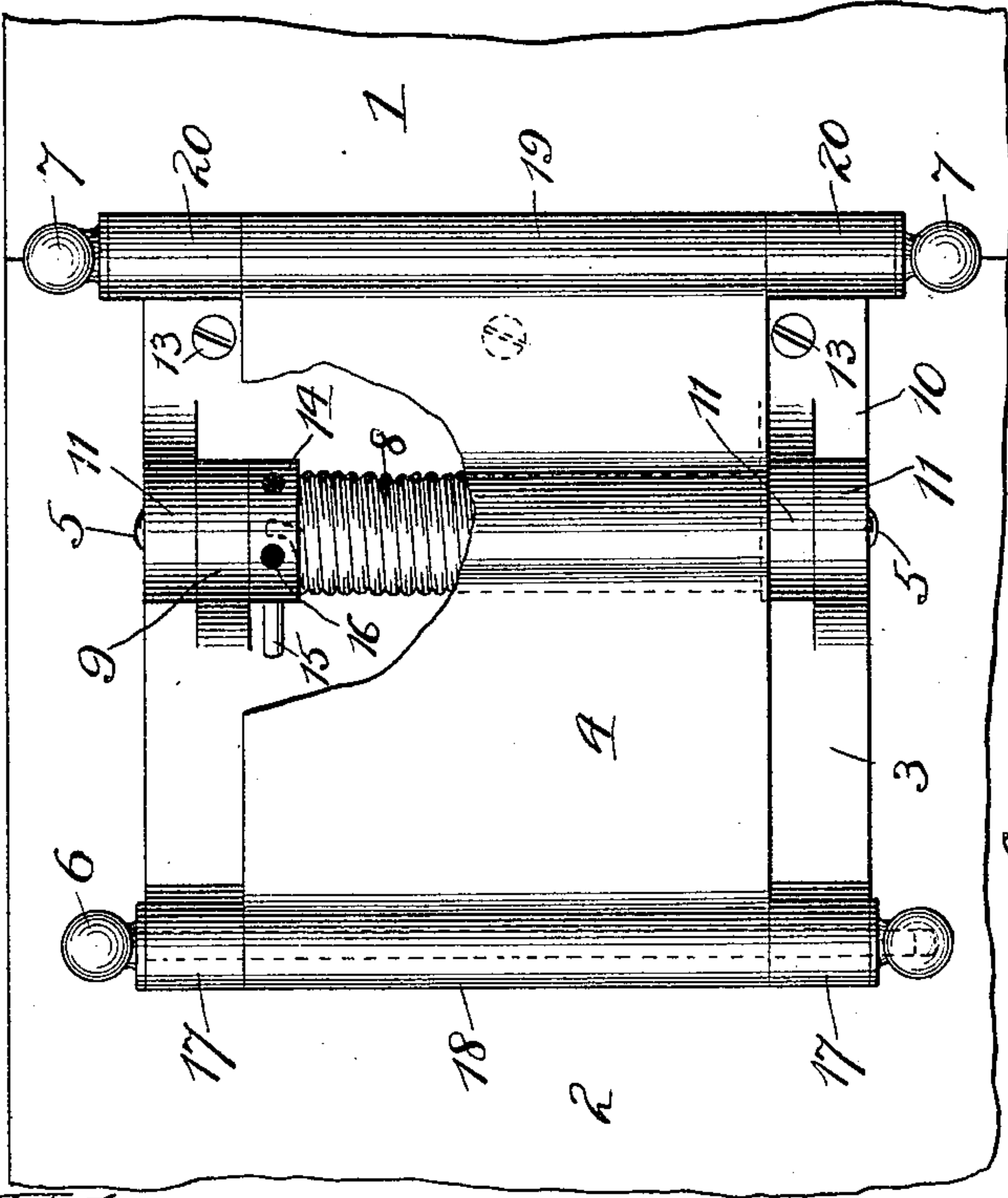
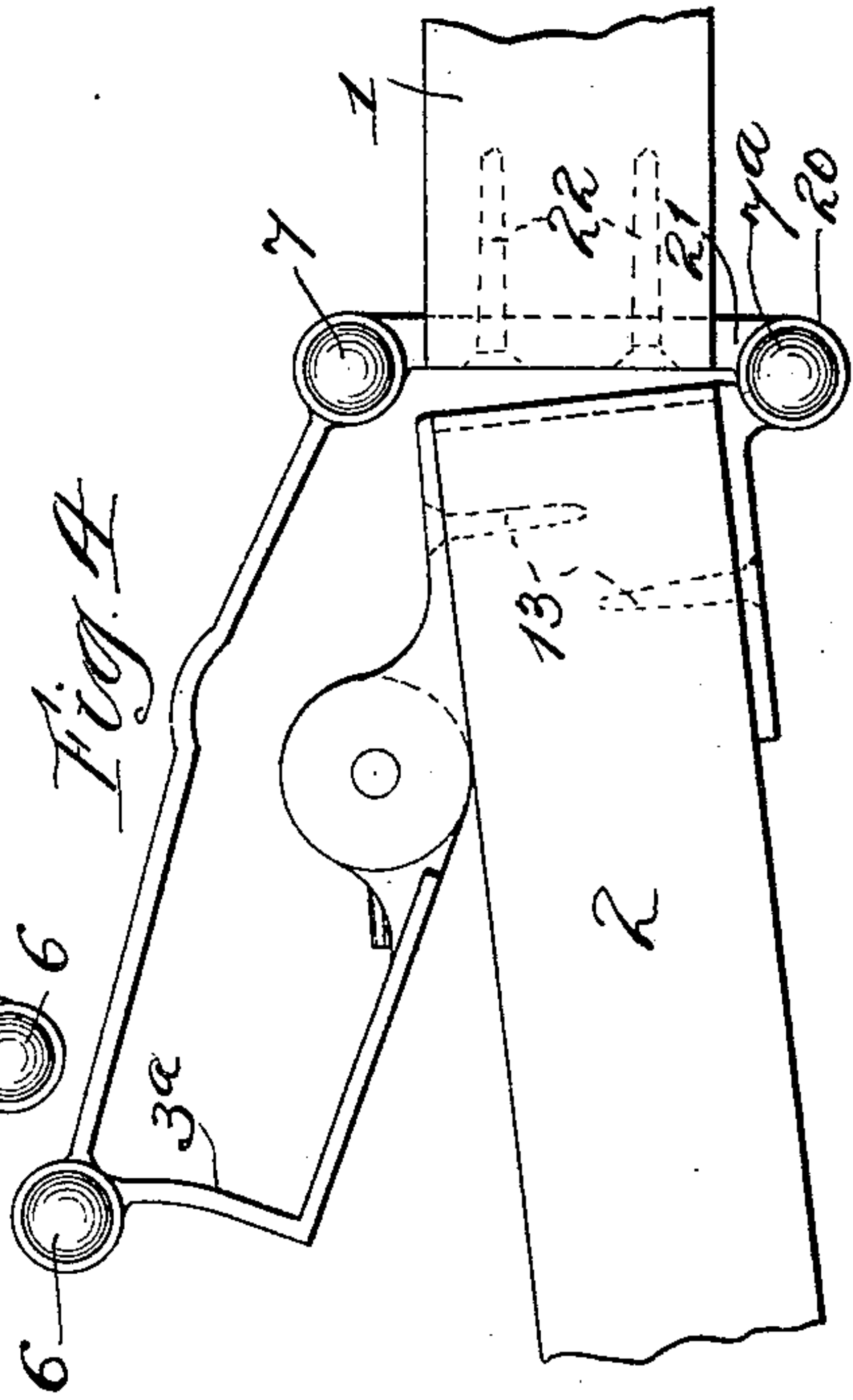
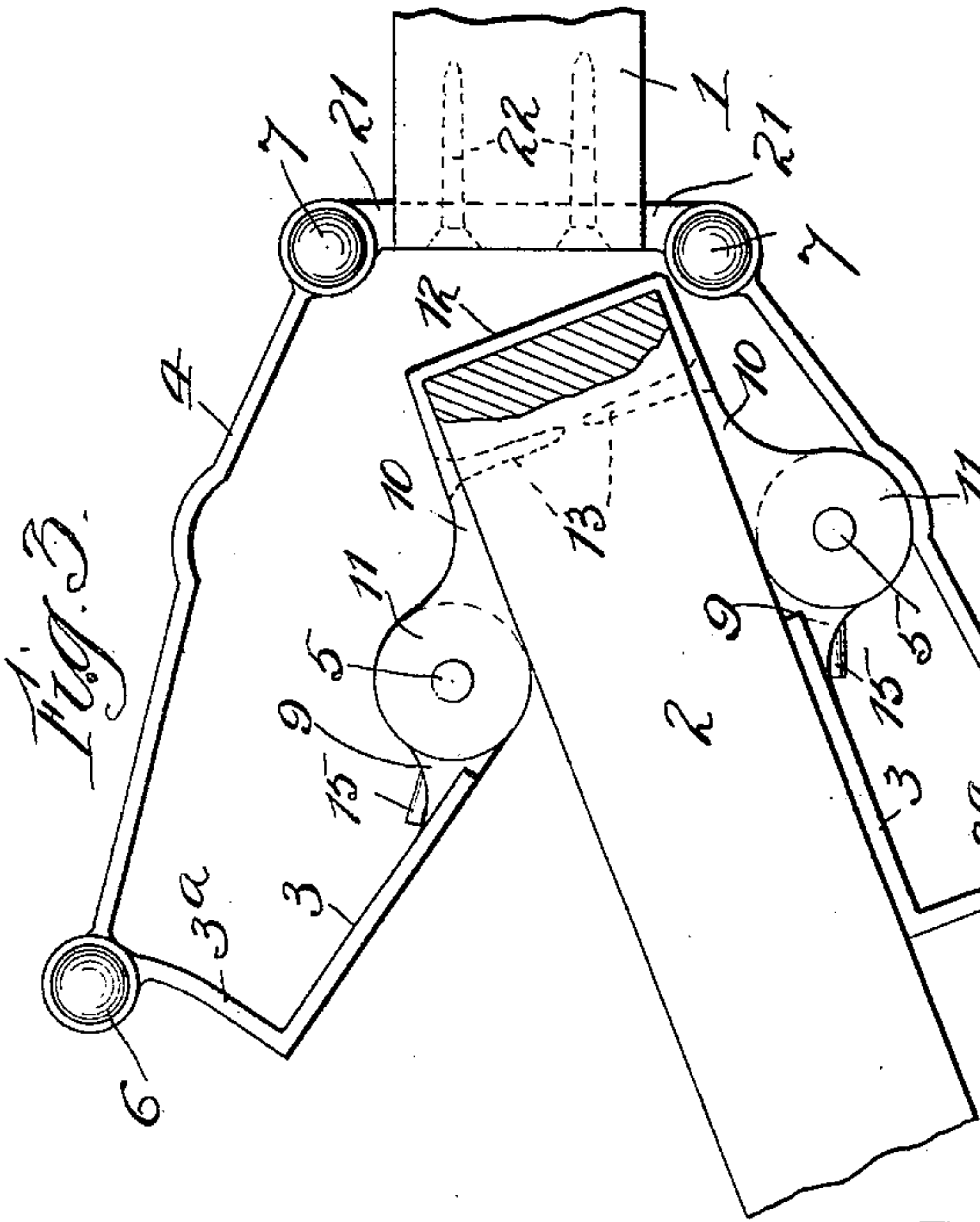


(No Model)

G. HOCHSTRASSER.
SPRING HINGE.

No. 582,740.

Patented May 18, 1897.



Witnesses.
Wm. J. Flanning
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Fig. 1.

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UNITED STATES PATENT OFFICE.

GOTTLIEB HOCHSTRASSER, OF CHICAGO, ILLINOIS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 582,740, dated May 18, 1897.

Application filed March 11, 1895. Renewed October 24, 1896. Serial No. 609,999. (No model.)

To all whom it may concern:

Be it known that I, GOTTLIEB HOCHSTRASSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a full, clear, and exact specification.

My invention relates to hinges for pivotally supporting doors; and it is more particularly designed for use on swinging or unlatched doors where used on the exterior of the building or swung in other places where they will be likely to blow open.

My invention has for its object to provide improved means for hinging the door and holding it closed without necessarily employing a spring of increased or unusually great tension for that purpose.

With this end in view my invention consists in certain features of novelty by which the said object and certain other objects hereinafter appearing are accomplished, all as fully explained with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of my improved device partly broken away to show the spring for closing the door. Fig. 2 is a plan view thereof, showing the door and the door-jamb, the door being closed. Fig. 3 is a similar view, the door being partly in section and partly open; and Fig. 4 is a similar view illustrating the adaptation of my improvements to a door which swings in one direction only.

Like signs of reference indicate like parts throughout the several views.

Both of the forms of my invention shown, in addition to being means for closing the door and holding it closed, constitute a hinge for pivotally supporting the door on its jamb.

I will first describe my invention in the form in which it is adapted for use on doors swinging in both directions, as shown in Figs. 1 to 3.

1 represents the door-jamb, and 2 the door, to which latter on each side is hinged an arm 3, which is also hinged to a link or plate 4, adapted in turn to be hinged to the door-jamb 1, the axis or pintle 5 of the first said hinge being located at that end or edge of the arm

3 which is nearest the jamb 1, and consequently between the axes of the hinges 6 7 and the arm 3, being forced toward the door by a spring 8, whereby the effect of swinging the door on either of the hinges 7 will be to throw the plate or link outward away from the door by carrying the hinge 5 toward the hinge 6, and consequently also throwing the outer edge of the arm 3 outward away from the door, as shown in Fig. 3, and against the pressure of the spring 8, which, through its tendency to return the arm 3 to its normal position against the door, pulls the door back into alignment with its jamb and brings the parts into the position shown in Fig. 2. When in this position it will be seen that the pintle or axis 5 of the intermediate hinge is between the axes of the hinges 6 7 and almost in a straight line drawn between these latter, so that these joints represented at 5 6 7 will automatically lock with one another when the door is closed, and consequently require considerable initial force to unlock them by moving the axis 5 toward the axis 6, such being a pull or pressure almost directly against the dead-center of the hinge 6. Hence it will be seen that the power of this locking action of the joints may be increased or diminished, as desired, by arranging the axis 5 more or less into straight line with the axes 6 7, it being obvious that should the axis 5 be carried a sufficient distance beyond or on the opposite side of such straight line the joints would form an absolute lock and render it impossible to open the door at all by pressure applied to the door itself.

The arm 3 is preferably in the form of a plate of considerable depth or vertical extent, provided at its inner edge with ears or eyes 9, through which the pintle 5 passes, and thus hinges the arm 3 to a plate 10, having similar ears 11. The plates 10 are preferably formed in one piece with a connection 12, which passes around the edge of the door, the U-shaped piece thus formed being secured to the door by screws 13 or other suitable device.

The spring 8 is preferably a coil-spring of the ordinary type sleeved upon the pintle 5 and having one end secured to the usual tightening-hub 14, which is provided with a pin or lug 15, bearing against the arm 3 and be-

ing adapted to be inserted in any one of a series of sockets 16 in the hub 14, whereby the tension of the spring on the arm 3 may be varied. The other end of the spring 8 is
 5 secured to the lower ear 11 of the plate 10 or otherwise anchored so that the spring cannot rotate with the hub 14. The arm 3 is thus constituted what I shall hereinafter term a "spring-arm."

10 In order that the hinges 6 may be sufficiently outside of a straight line extending through the axes 5 and 7, the outer edges of the arms 3 are provided with angle-bends or outward extensions 3^a, on which are formed the per-
 15 forated knuckles or ears 17, by which the pin or pintle 6 connects the arm 3 to the perforated knuckle 18 of the link or plate 4. The opposite end of the plate 4 is provided with a similar knuckle 19, located between the per-
 20 forated knuckles 20 on a plate 21, secured to the door-jamb by screws 22, the pintle 7 passing through knuckles 19 20, as will be understood, and thus hinging the plate 4 to the door-jamb.

25 The plate 4, as indicated in Figs. 1 and 2, is arranged on the outer side of the spring 8 and is of sufficient depth or vertical extent to entirely cover the spring and its connected parts, so as to shield the same from view and
 30 thus not only make the device more attractive, but prevent the tension of the spring being altered by mischievous persons. When it is desired, however, to have access to the spring, the pintle 6 may be withdrawn, where-
 35 by the plate 4 may be thrown back out of the way.

When the door is closed or in alinement with its jamb, both arms 3 rest flat against it, as shown in Fig. 2, and the plates 4 come close
 40 to or touch slightly against the ears 9 11. I prefer to have these arms 3 of the angular form shown, so as to rest against the door, instead of having them straight and extending obliquely out to the hinges 6, because such
 45 angular form constitutes a support for the outer ends of the plates 4 against the door and prevents the strain from bending the plates 4, which might occur if such strain were borne entirely by the plates 4 where
 50 they cross the ears 9 11.

Should it be desired to apply my improvements to a door swinging in one direction

only, as shown in Fig. 4, the arm 3, plate 4, spring 8, and connected parts would be omitted on one side, and in their stead would be
 55 employed an ordinary hinge 7^a for hinging the door to the jamb.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is— 60

1. The combination with a door and a door-jamb, of a spring-arm tending to spring toward the door and having its end nearest the jamb fixed to the door, a link hinged to the other end of said spring-arm and extending
 65 across the said fixed end of said spring-arm and being hinged to the door-jamb, and means other than said link, for also hinging the door to the jamb, substantially as set forth.

2. A spring-hinge, having in combination 70 a spring, means for securing said spring to the door, an arm adapted to be hinged to the door and upon which said spring bears and forces said arm toward the door, a plate hinged to said arm and projecting across and cover-
 75 ing said spring and being adapted to be hinged to the door-jamb, the first said hinge being located between the other two said hinges, substantially as set forth.

3. A spring-hinge having in combination 80 a plate adapted to be secured to the door, an arm hinged to said plate, a spring carried by said plate and acting upon said arm to force said arm toward the door, a second plate or
 85 link hinged to said arm at one end, and means for hinging the other end of said second plate or link to the door-jamb, substantially as set forth.

4. A spring-hinge having in combination 90 an arm adapted to be hinged to and to rest against the door and having the outward projection 3^a at its outer end, a spring for forcing said arm toward the door, a plate hinged to the outer end of said projection 3^a at one end, and means for hinging the other end of
 95 said plate to the door-jamb, the first said hinge being located between the other two said hinges and between the door and said plate, substantially as set forth.

GOTTLIEB HOCHSTRASSER.

Witnesses:

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 EDNA B. JOHNSON.