

P. MÄRKSCHE.
 COMBINED HINGE AND DOOR CHECK.
 APPLICATION FILED NOV. 9, 1908.

973,680.

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Patented Oct. 25, 1910.

Fig. 1.

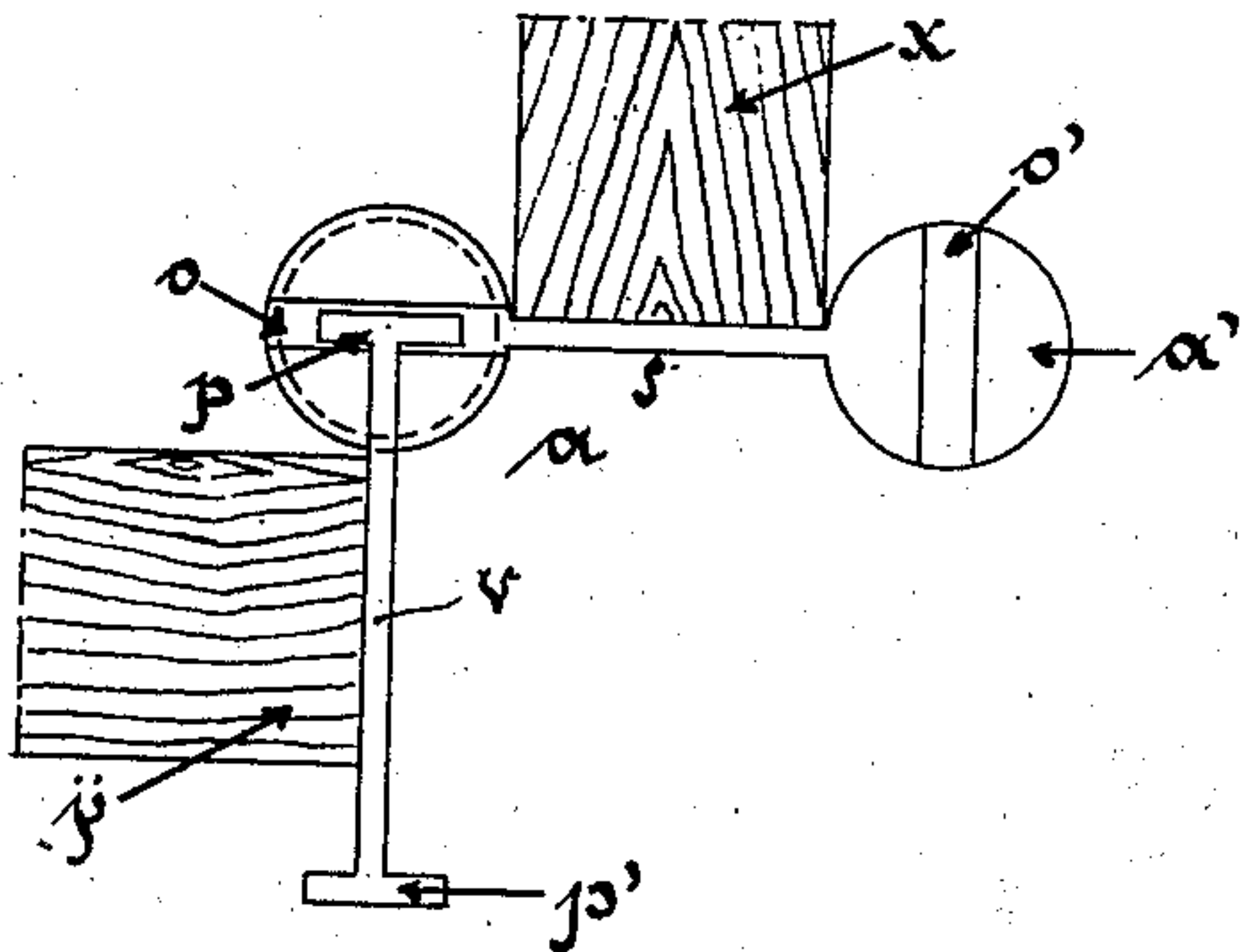


Fig. 2.

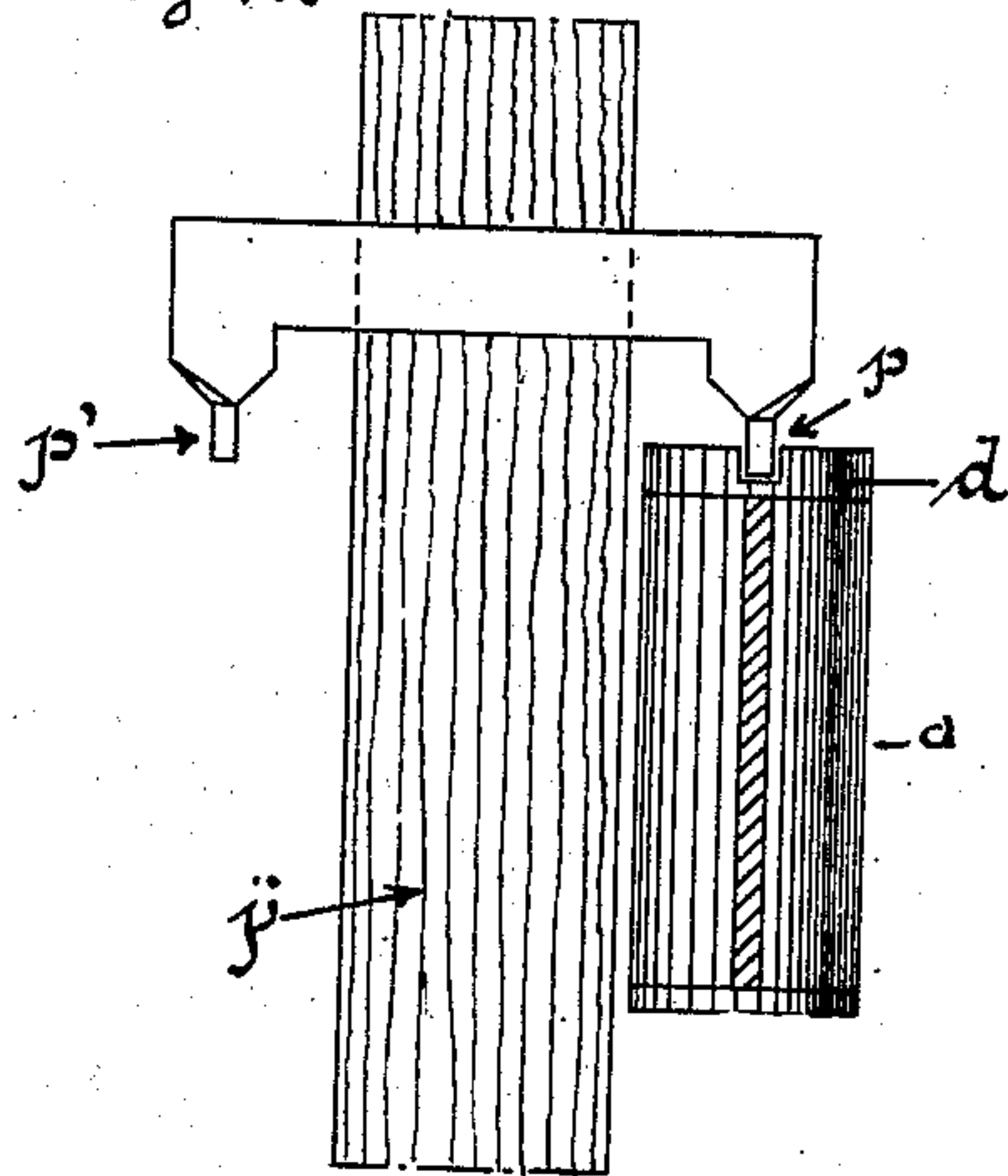


Fig. 3.

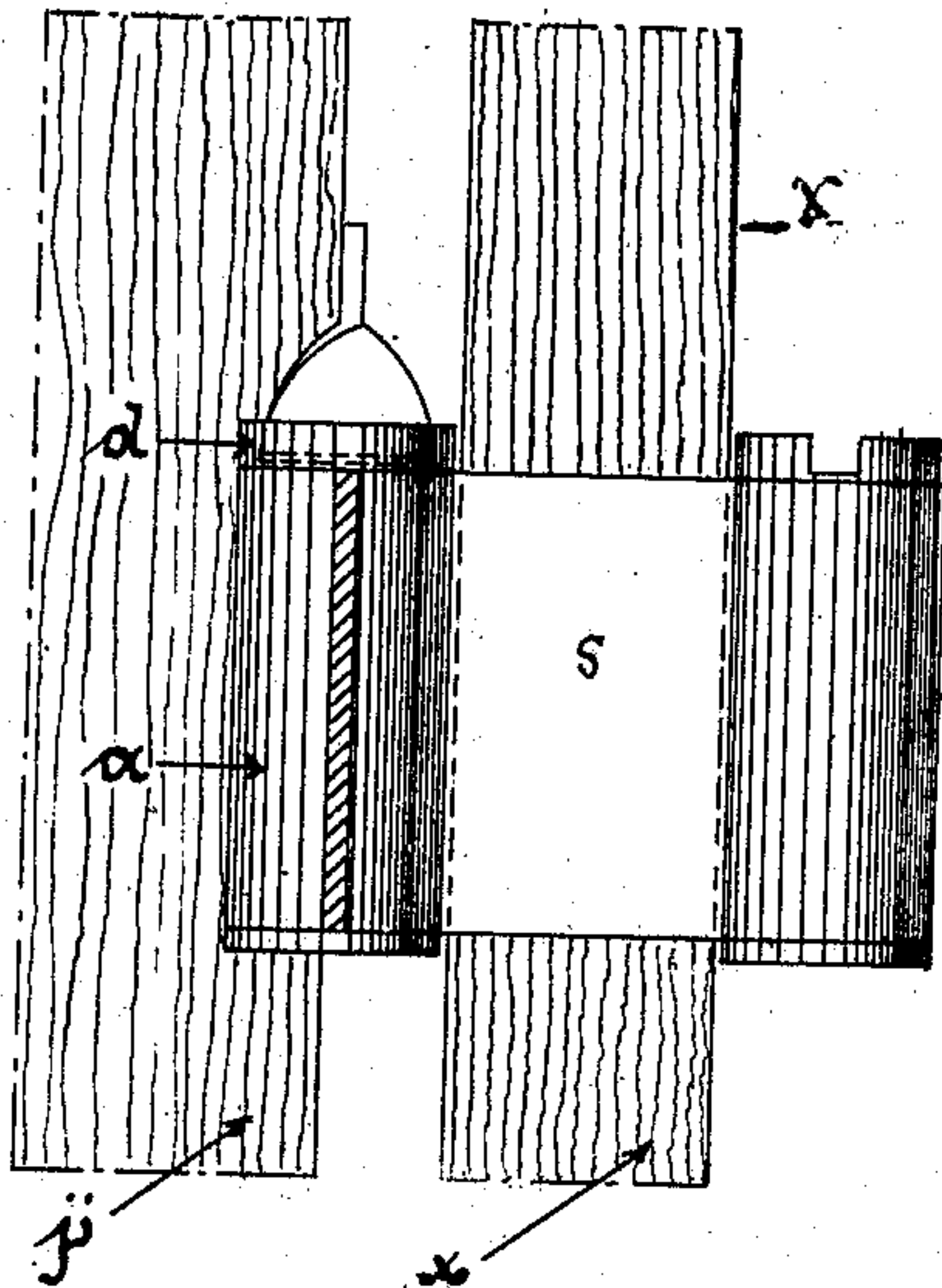
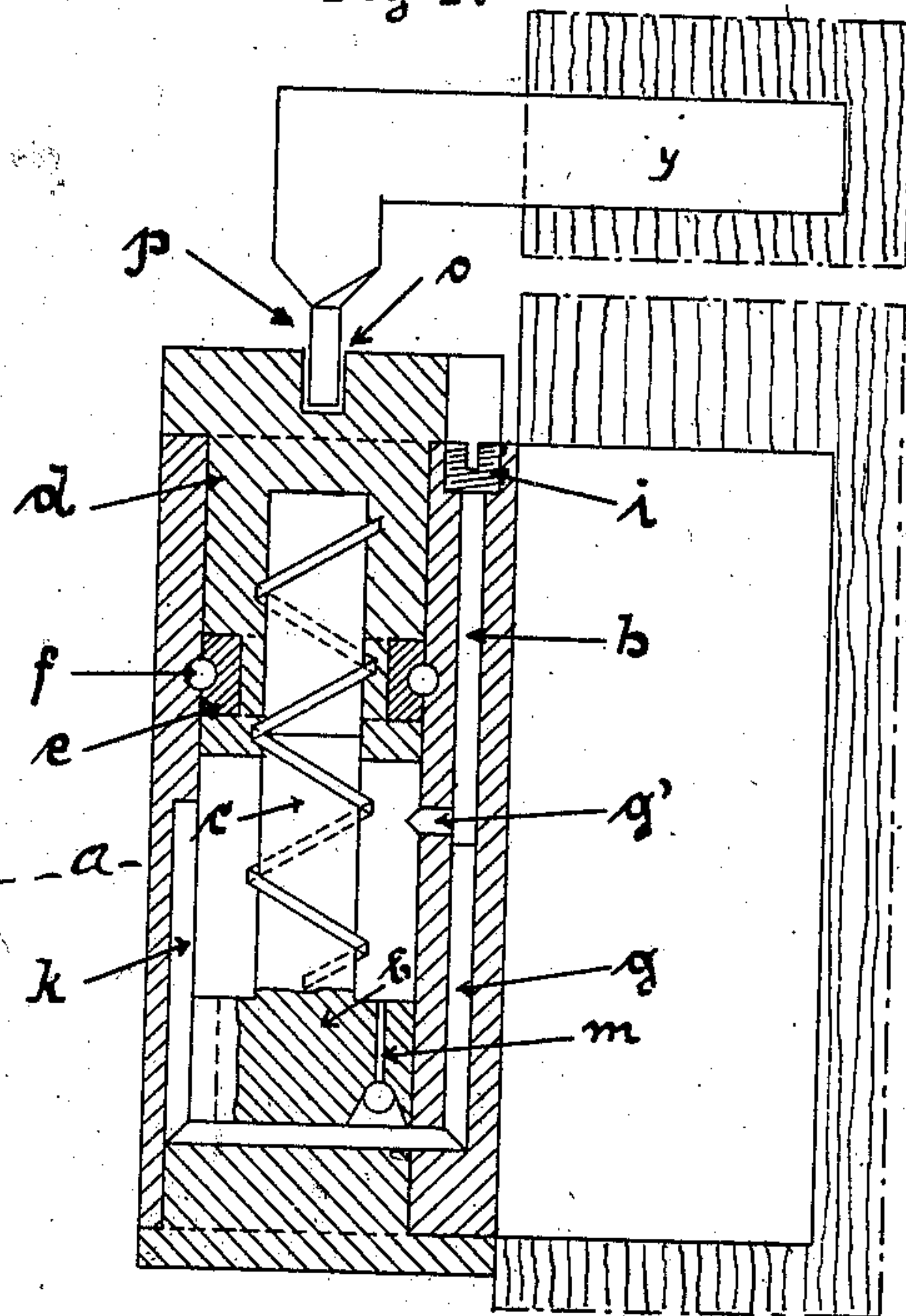


Fig. 4.



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COMBINED HINGE AND DOOR-CHECK.

973,680.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed November 9, 1908. Serial No. 461,808.

To all whom it may concern:

Be it known that I, PAUL MÄRKESCH, a subject of the German Emperor, residing at Vohwinkel, Germany, have invented new and useful Improvements in Combined Hinges and Door-Checks, of which the following is a specification.

This invention relates to a combined hinge and door-check specially designed to be used with doors which open in both directions, the device being constructed so that the door is continuously supported by one of the checking-cylinders.

In the accompanying drawings the improved combined hinge and door-check is shown by way of example.

Figure 1 is a ground plan of the device. Fig. 2 is a rear view of the opened door; Fig. 3 is a front view of the door post, the door being in open position. Fig. 4 is a vertical section representing the checking cylinder on a larger scale.

As shown in Fig. 1, there are two checking cylinders a, a' fixed to the door-post x so that one is at the right hand side and the other at the left hand side of the door post. To the back of the door-leaf y there are fixed two depending arms p, p' which form part of a plate r secured to the rear face of the door, said depending arms engaging respectively with a hollow pintle d of the corresponding checking cylinder a or a' , when the door is closed.

The checking cylinders perform the double function of the fixed members of a double acting hinge and of liquid chambers: they are constructed as follows: in the upper end of the checking cylinders a or a' , which are both of the same construction, a hollow pintle d is mounted so that it can turn in said cylinder but not displace itself in vertical direction. The hollow pintle d is maintained in its position by means of a clamping ring e which has pins f which engage with horizontal slots of the cylinder. The upper end of the hollow pintle d is closed and flanged so that its flange rests upon the upper edge of the cylinder a . A groove o , or o' , is arranged in the upper flanged part of the hollow pintle d which serves for the reception of the depending arm p or p' . The hollow pintle d has a central boring in its lower part which is threaded at high pitch and receives the correspondingly threaded rod c of piston b .

Said piston b is guided with a feather in a vertical groove k of the inner surface of the cylinder wall, so that it cannot rotate. The piston b has a non-return valved opening m for the passage of the checking liquid which fills the cylinder above the piston b . A channel g , arranged in the wall of the cylinder serves for filling the checking-liquid into the cylinder: said channel terminates at its lower end below the piston b and it has a branch channel g' which terminates in the boring of the cylinder above said piston. The upper end of the channel g is closed by means of a pin h whose upper, threaded end i is screwed into the threaded enlarged upper end of said channel. The end of pin h reaches down close to the branch channel g' so that the orifice of this branch channel can be more or less obstructed by said pin. The lower free end of the depending arms p, p' is flattened.

The device operates as follows:—The cylinder between the upper surface of the checking liquid is filled into the cylinder a through the channel g after the pin h has been removed, so that it fills the part of the piston and the lower surface of hollow pintle d . The pin is screwed in and the device is ready for operation. Normally both depending arms p, p' engage with the corresponding grooves o, o' of the hollows d of the checking cylinders a, a' . If now the door is opened the depending arm p or p' which is situated in the direction in which the door is being opened remains in engagement with its hollow pintle, the other arm sliding out of the groove of its hollow pintle. The depending arm which remains in engagement with the groove of the corresponding hollow pintle causes said hollow pintle to revolve whereby the piston b of the corresponding cylinder, mounts rapidly owing to the high pitch of the thread. The checking liquid flows through the non return valve m from the upper to the lower side of the piston. The door is rotatably supported on said hollow pintles of the checking cylinders which serve as a double acting hinge. When the door is being closed automatically by any of the numerous well known devices for the automatical closing of doors, the liquid which has collected under the piston checks the movement of the door being slowly forced by the descending piston through the channel g and branch g' .

back into the upper part of the cylinder. The speed at which the checking liquid flows back can be easily regulated by means of pin *h*.

5 I claim:—

In a combined hinge and door check, the combination with the door and door frame, of a plate secured to the rear edge of the door and having depending arms at its opposite ends, two checking cylinders secured, 10 respectively, to the opposite sides of the door frame each provided with a vertical channel in its wall, terminating at its lower end just above the bottom of the cylinder 15 said cylinder provided midway its length with a port communicating with said channel, means including a screw valve, for closing said vertical channel, a hollow pintle having high pitched screw threads rotatably

mounted in each of said cylinders and having also a groove in its head to receive the corresponding depending arms of said fixed plate, means including a clamping ring, to prevent vertical movement of said pintle, a piston seated in the respective cylinders 25 and having a threaded piston rod adapted to engage the internal threads on the pintle, whereby it may be reciprocated by the rotation of the pintle, said piston being provided with a non-return valved opening and 30 means to prevent the rotation of the piston in the cylinder.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

PAUL MÄRKESCH. [L. s.]

Witnesses:

OTTO KÖNIG,
WALTER GLACHANY.