

J. C. F. SCHAFER.

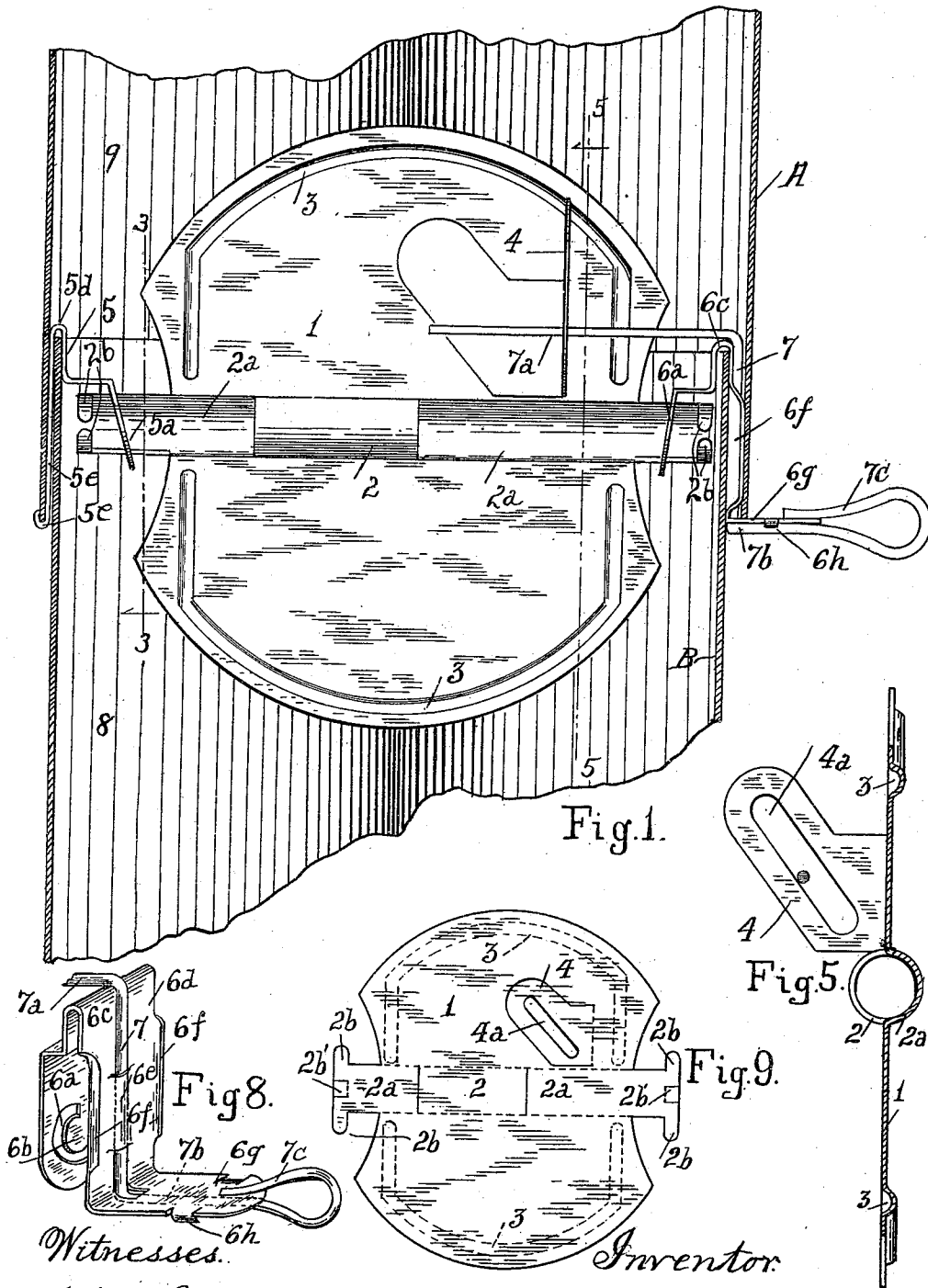
DAMPER.

APPLICATION FILED FEB. 15, 1909.

980,011.

Patented Dec. 27, 1910.

2 SHEETS-SHEET 1.



Witnesses.

Kathryn Nelson.

G. C. Caruthers.

Inventor.

JOHN C. F. SCHAFER.

By Atty N. DuBois.

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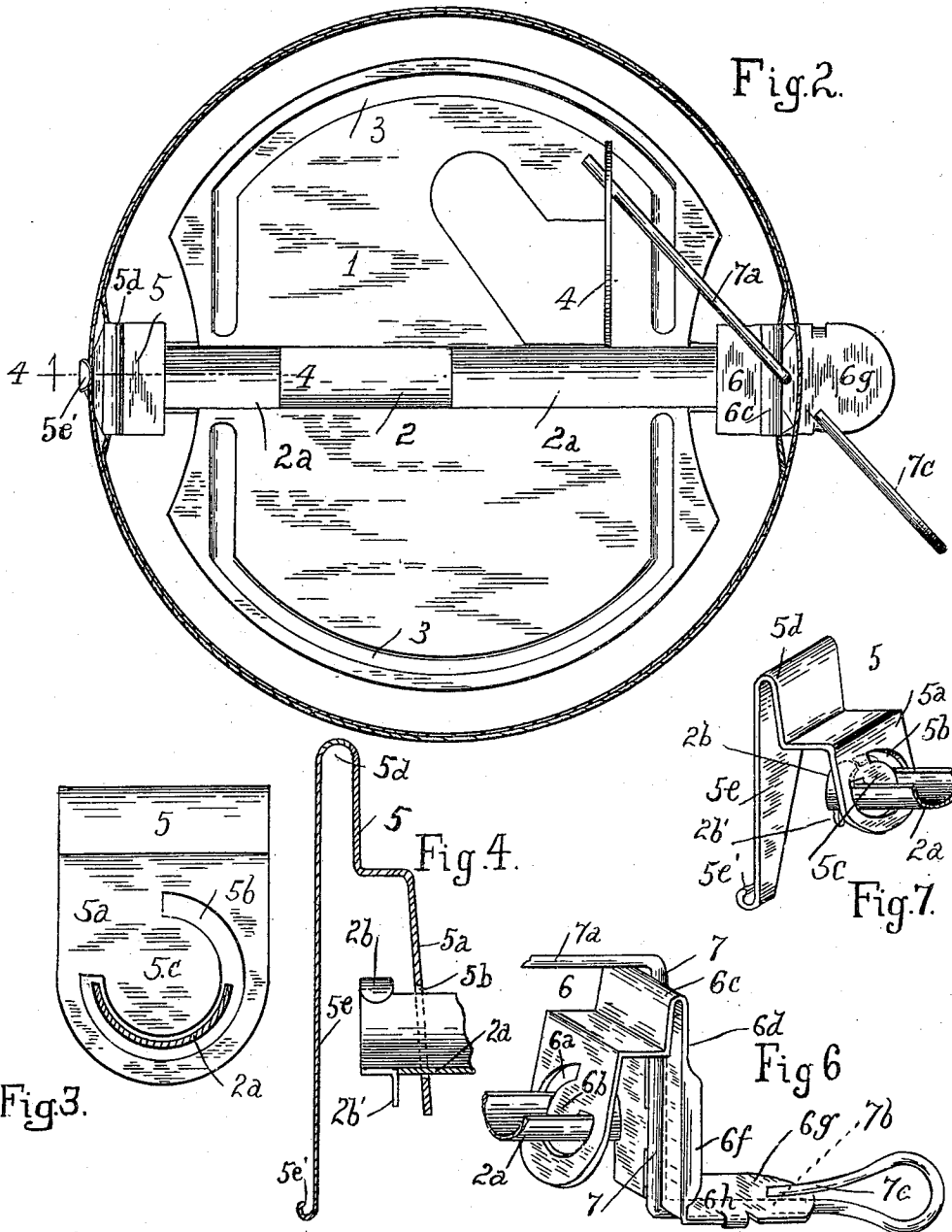
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UNITED STATES PATENT OFFICE.

JOHN C. F. SCHAFER, OF MOUNT PULASKI, ILLINOIS.

DAMPER.

980,011.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed February 15, 1909. Serial No. 477,951.

To all whom it may concern:

Be it known that I, JOHN C. F. SCHAFER, a citizen of the United States, residing at Mount Pulaski, in the county of Logan and State of Illinois, have invented a new and useful Improvement in Dampers, of which the following is such a full, clear, and exact description as will enable others skilled in the art to make and use my said invention.

This invention relates to dampers of that class which are adapted to be placed on stove-pipes or similar pipes, without perforating the pipes.

This invention is a modification and improvement of the invention set forth in United States Patent #901485 granted to me Oct. 20, 1908, for improvement in dampers.

The purpose of the present invention is to provide a damper plate and appurtenances, made of pressed metal and combining lightness and strength.

A damper embodying my invention is illustrated in the annexed drawings, to which reference is hereby made, and is hereinafter particularly described, and the novel features thereof are recited in the claims.

Similar reference letters, numerals and characters designate like parts in the several views.

Figure 1— is a combined elevation and sectional view showing the damper in place on a stove pipe, the damper plate being shown in elevation in its open or vertical position. Fig. 2— is a top plan of the damper in place on a pipe, the pipe being shown in horizontal section, and the damper plate being shown in plan in its horizontal or closed position. Fig. 3— is an enlarged vertical section on the line 3. 3. of Fig. 1. Fig. 4— is an enlarged vertical section on the line 4. 4. of Fig. 2. Fig. 5— is an enlarged vertical section on the line 5. 5. of Fig. 1. Fig. 6— is an isometric projection, on an enlarged scale, of the right hand bracket as viewed from the left and shows the lever in position on the bracket. Fig. 7— is an enlarged isometric projection of the left hand bracket as viewed from the right. Fig. 8— is an enlarged isometric projection of the right hand bracket as viewed from the right. Fig. 9— is a reduced plan of the blank from which the damper plate is formed.

All of the parts except the lever operat-

ing the damper plate are pressed from sheet metal; and are shaped as shown and described.

In the drawings the elements of the mechanism are designated as follows: A and B are respectively the upper and the lower pipe sections. The pipe section B telescopes within the pipe section A.

1 is the damper plate, having semi-tubular axial, concavo-convex trunnion members 2 and 2^a; the concave face of the member 2 being on the same side with the convex faces of the members 2^a and conversely the concave face of the member 2 being on the same side of the plate with the convex faces of the members 2^a. Concavo-convex segmental ribs 3 pressed in the metal, give rigidity to the plate. A standard 4, having a longitudinal slot 4^a, is pressed from the metal of the plate 1, and preferably stands at right angles to the plate. At the outer ends of the trough-shaped members 2^a are tongues 2^b and 2^{b'} pressed from the metal of the plate.

In forming the damper plate 1, a blank in the flat, of the form shown in Fig. 9 will be punched or cut out of a suitable sheet of metal and will by means of suitable dies, be pressed to form the ribs 3, the standard 4, the concavo-convex central member 2, the concavo-convex trunnions 2^a, and the tongues 2^b and 2^{b'}. A practical advantage of forming the damper plate in this manner is that a minimum quantity of material is used and a light and very rigid plate is produced. The tongues 2^b stand at right angles to the members 2^a and are bent to extend across the trough thereof. The tongues 2^{b'} are bent to extend downwardly at right angles to the members 2^a as shown in Fig. 4. The tongues 2^b and 2^{b'} serve to keep the brackets from sliding endwise off from the members 2^a.

The left hand bracket 5 is pressed from a single sheet of metal, bent as shown in Fig. 7, and comprises a downwardly extending member 5^a having a segmental slot 5^b accommodating the member 2^a of the damper plate 1 and a disk 5^c concentric with the slot 5^b and adapted to fit in the trough of the member 2^a, so that the disk 5^c will guide the turning of the member 2^a on its axis and the slot 5^b will limit the extent of the turning of the member 2^a. The bracket 5 also has an upwardly extending member 5^a bent to fit

around the upper end of the pipe-section B on which the bracket is placed; and a downwardly extending member 5^e having at its lower end a hook 5^{e'}, to support the outer pipe-section A and prevent it from slipping too far downward on the inner pipe-section. When the parts are assembled, as clearly shown in Fig. 7, the tongues 2^b and 2^{b'} of the member 2^a prevent the bracket from sliding off from the end of said member.

The right hand bracket 6 is pressed from a single sheet of metal and has a segmental slot 6^a accommodating the right hand member 2^a of the damper plate; a disk 6^b concentric with the slot 6^a and adapted to fit in the trough of the right hand member 2^a; an upwardly extending member having a curved part 6^c adapted to fit over the upper end of the inner pipe-section B; and a downwardly extending member 6^d fitting between the telescoping pipe-section with which the bracket is connected, and having a central semitubular member 6^e accommodating the vertical stem of the lever operating the damper plate and also having laterally extending flanges 6^f, bearing against the inner surface of the outer pipe section to prevent slipping and sidewise movement of the bracket between the pipe sections. The bracket 6 also has an integral horizontal member 6^g supporting the handle 7^c of the lever operating the damper plate, and downwardly extending integral lugs 6^h, adapted to limit the oscillating movement of the handle 7^c. The lever operating the damper plate comprises a vertical stem 7, fitted to turn in the member 6^e of the bracket 6; a finger 7^a fitting in the slot 4^a of the standard 4; a horizontal member 7^b extending under the horizontal member 6^g of the bracket 6 and bent back on itself to form a handle 7^c, with its free end resting on top of the bracket-member 6^g, so that the bracket member being located between the members 7^b and 7^c of the lever, will prevent upward or downward movement of the lever, and the downwardly projecting lugs 6^h on the bracket-member will limit the scope of the oscillations of the lever.

In assembling the parts the bracket 5 will be slipped onto the left hand trunnion member 2^a of the damper plate, and the tongues 2^b will be turned inward and the tongue 2^{b'} will be turned downward into the position shown in Fig. 4, to keep the bracket from sliding off the member 2^a; the bracket 6 will in like manner be placed on the right hand trunnion member 2^a, and the tongues 2^b and 2^{b'} will be bent as described to keep the bracket 6 on the right hand member 2^a, the lever before bending, will then be inserted through the member 6^e of the bracket 6 and its upper part will be bent at right angles to form the finger 7^a, entering the slot 4^a in the standard 4, and the lower part of the lever

will be bent at right angles to its vertical part 7 to underlie the horizontal member 6^g of the bracket 6 and will be bent back on itself to form the handle 7^c, with its free end lying on top of the member 6^g, and the fingers 7^a will then be inserted in the slot 4^a of the standard 4. The brackets 5 and 6 will then be placed on the upper end of the pipe section B with the curved parts 5^d and 6^c resting on the upper edge of the pipe section, the brackets being diametrically opposite to each other; and the upper pipe-section will then be placed around the lower pipe section so that the lower end of the pipe section will be supported in the hook 5^{e'} of the bracket 5 and on the horizontal member 6^g of the bracket 6, and the inner wall of the pipe section A will bear against the members 6^f of the bracket 6, and hold the bracket firmly so as to prevent lateral displacement thereof.

In Fig. 1 the damper plate is shown in its vertical or open position and in order to move the damper plate to its horizontal or closed position it is only necessary to move the handle 7^c either to the right or the left, until the horizontal part 7^b of the lever stops against one of the lugs 6^h. The moving of the handle 7^c moves the finger 7^a to cause the damper plate 1 to turn on its trunnions which are mounted on the members of the brackets 5 and 6; and if by any chance the member 7^b does not stop against the finger 6^h when the handle 7^c is moved as described, the upper edges of the trunnions will strike against the metal at the ends of the slots 5^b and 6^a, and will prevent excessive turning of the damper plate; and the members 5^c and 6^b fitting in the troughs of the trunnions will cause the plate to turn truly on its axis.

The members 2 and 2^a of the damper plate 1 serve not only to strengthen the plate axially but also serve to prevent warping of the damper plate.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A damper bracket comprising in an integral structure an arched central part adapted to support the bracket on one end of an inside pipe-section, an inner member adapted to support one end of an oscillative damper plate, and an outer member having laterally extending flanges adapted to engage the inner surface of an outside pipe-section to prevent lateral movement of the bracket between the connected outside and inside pipe-sections.

2. A damper-plate comprising in an integral structure of pressed metal, an approximately circular body, a slotted standard and concavo-convex trunnions having oppositely projecting tongues adapted to be spread to prevent displacement of the damper plate; in combination with brackets

adapted to support the damper plate on an inside pipe-section; and damper-turning means mounted on one of the brackets and extending through the slot in the standard of the damper plate.

3. The combination of a damper plate having a slotted standard and trough shaped trunnions, a bracket adapted to be supported on the end of a pipe section and having a segmental slot accommodating one trunnion of said damper plate and limiting the turning thereof and also having a disk fitting in the trough of said trunnion to guide the turning thereof; a complemental bracket adapted to fit on the upper end of a pipe section and having a segmental slot adapted to accommodate the other trunnion of the same damper plate and limiting the turning thereof, a member having a vertical bearing adapted to accommodate the vertical member of a lever, operating the damper plate and a member adapted to support the operating lever and having lugs adapted to limit the lateral movement of the horizontal member of the same lever; and an operating lever having a vertical member turning in the vertical bearing on said last named bracket, a horizontal member adapted to engage with the stops on the horizontal member of the same bracket and a second horizontal member adapted to fit in the slot of the standard of said damper-plate, to operate the damper-plate.

4. The combination of a damper-plate having trough-shaped trunnions provided with oppositely extending tongues, brackets adapted to rest on the end of a pipe-section and having members supporting said damper-plate and provided with segmental slots accommodating the trunnions of said damper plate and limiting the rotation thereof, and disks fitting in the troughs of said trunnions to guide the rotation thereof, the tongues of the trunnions of said damper plate being adapted to engage with the members of the brackets supporting the damper plate to prevent the withdrawal of the trunnions of said damper-plate from the seg-

mental slots in the members of the brackets supporting said damper plate.

5. In combination with an upper pipe-section and a lower pipe-section telescoping within the upper pipe-section; a bracket having an arched central member adapted to fit on the upper end of said lower pipe-section, an inner member extending downwardly within the lower pipe-section and adapted to support one trunnion of a damper plate, an outer member extending downwardly between the walls of the telescoping pipe-sections and provided with a vertical bearing, also provided with flanges projecting beyond said bearing and adapted to engage the inner surface of the upper pipe-section; and a damper-operating lever adapted to turn in the vertical bearing on said bracket.

6. The combination of a bracket provided with a central member adapted to hook onto the end of a pipe section, a first downwardly extending member adapted to support the trunnion of a damper-plate, a second downwardly extending member adapted to fit between telescoping pipe-sections and having a bearing adapted to accommodate the vertical member of a bent lever, a lateral member extending outwardly from said second downwardly extending member and having projecting lugs; and a bent lever provided with a laterally extending member situated under the lateral member of said bracket and bent back on itself to form a handle with its free end on the upper surface of the lateral member of said bracket, a central member adapted to turn in the bearing on the second downwardly extending member of said bracket and a second lateral member adapted to operate a damper plate.

In witness whereof I have hereunto signed my name at Mount Pulaski, Illinois, this 28th day of January, 1909.

JOHN C. F. SCHAFER.

Witnesses:

WILL B. JENNER,
WALTER A. SCHAFER.