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C. R. BROWER ET AL

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ADJUSTING MEANS FOR THE TANGENT POST OF GAS METERS

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2 Sheets-Sheet 1

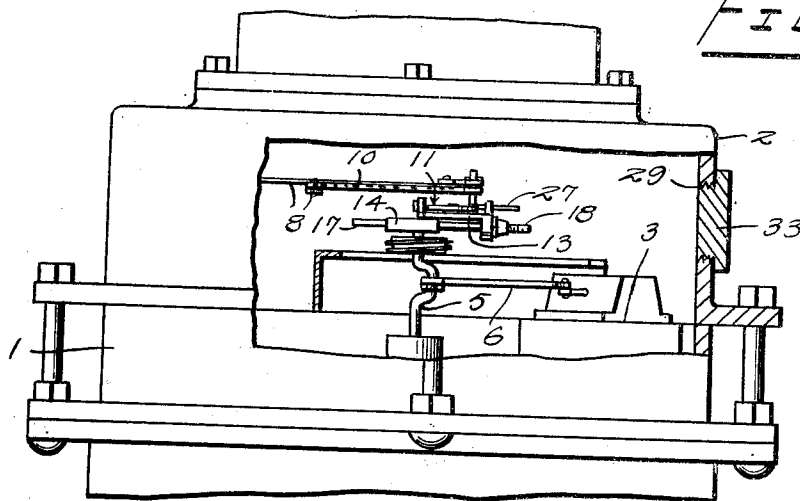
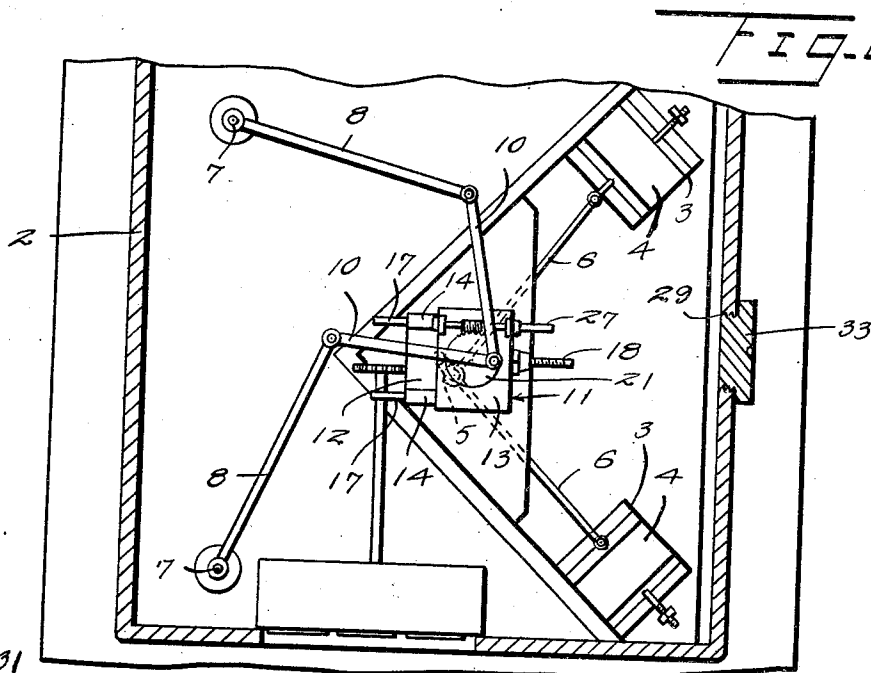
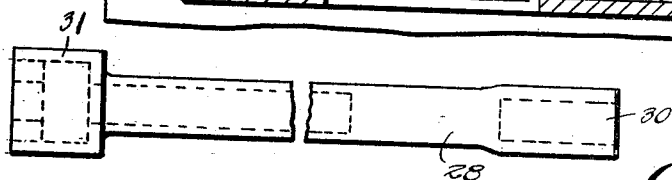


FIG. 7-

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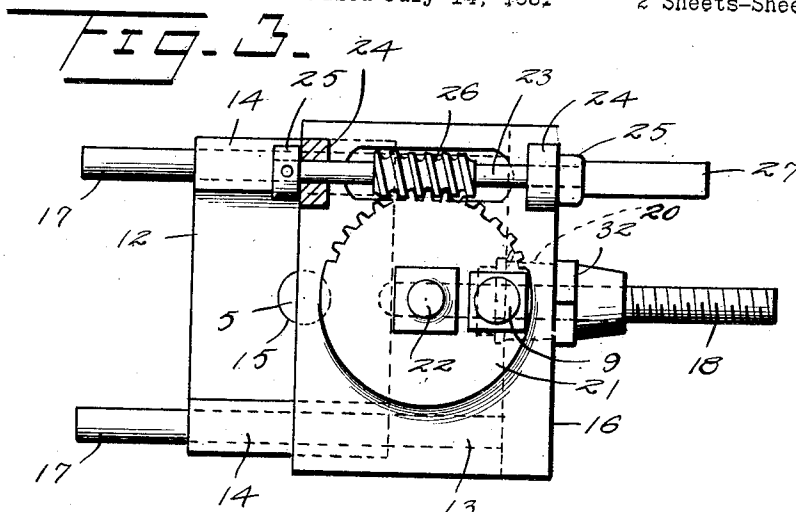
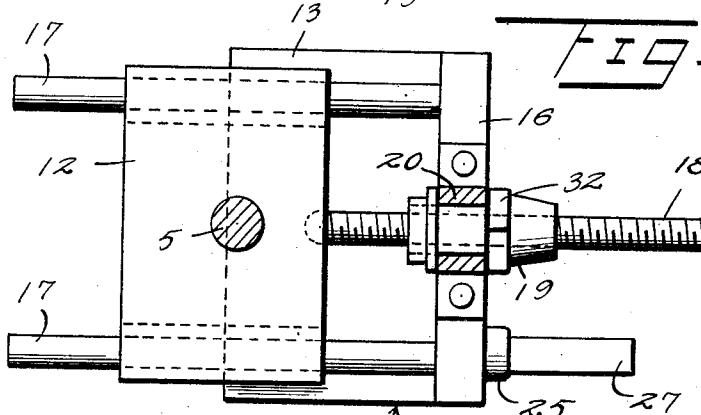
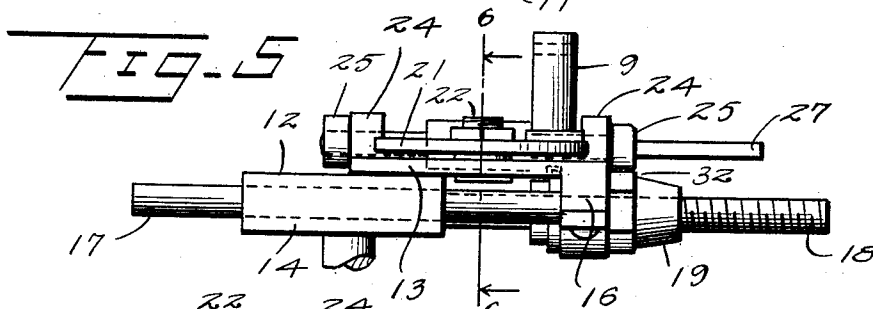
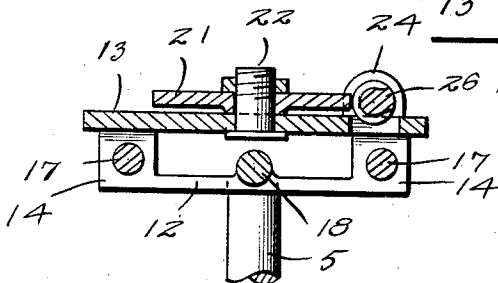
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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ADJUSTING MEANS FOR THE TANGENT POST OF GAS METERS

Application filed July 14, 1931. Serial No. 550,746.

This invention relates to gas meters, and more particularly to the tangent post adjusting means of such meter.

The invention has for one of its objects to provide novel, simple and highly efficient means of the character stated which shall be readily accessible from the exterior of the meter to the end that it will not be necessary to remove the cap of the meter to effect an adjustment of the tangent post.

To attain the foregoing and other objects, the nature of which will appear as the description proceeds, the invention comprehends the provision of tangent post adjusting means which shall embody a tangent arm adjustable as to length and adapted to be fixed to the valve actuating crank shaft of a meter, a tangent post rotatably mounted on the arm, elements through the medium of which the length of the arm may be increased or decreased to vary the radius of the post, and elements through the medium of which the post may be turned with relation to the arm to vary the angular position of the post with relation to the crank shaft, the arm adjusting elements and the post adjusting elements being operable through the medium of a key insertible through a normally closed opening in the cap of the meter.

The invention is hereinafter fully described and claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a view partly in side elevation and partly in vertical section of a gas meter equipped with tangent post adjusting means constructed in accordance with our invention.

Figure 2 is a sectional view taken on a plane extending horizontally through the cap of the meter above the adjusting means.

Figure 3 is a view partly in top plan and partly in horizontal section of the adjusting means.

Figure 4 is a view partly in bottom plan and partly in horizontal section of the adjusting means.

Figure 5 is a view in side elevation of the adjusting means.

Figure 6 is a sectional view taken on the vertical plane indicated by the line 6—6 of Figure 5, and

Figure 7 is a view of the key for the adjusting means.

Referring in detail to the drawings, 1 designates the body, 2 the cap, 3 the valve seats, and 4 the slide valves of a conventional gas meter. 5 designates the valve actuating crank shaft of the meter, the valves 4 being connected to the crank of the shaft by links 6. 7 designates the flag rods, and 8 the flag rod arms of the meter, the arms being connected to the tangent post 9 of the meter by links 10, and the tangent post being connected to the crank shaft 5 through the medium of our tangent post adjusting means.

The tangent post adjusting means comprises an arm 11 which consists of sections 12 and 13 adjustably connected together to the end that the length of the post may be varied. The arm section 12 which is of elongated rectangular formation in plan, is secured at a point centrally between its ends to the upper end of the crank shaft 5, and is terminally provided with guides 14 which are arranged in parallel relation and located at diametrically opposite sides of the crank shaft. The arm section 12 is provided with an opening 15 for the reception of the upper end of the crank shaft 5, and it may be welded or soldered to the crank shaft. The arm section 13 which is also of elongated rectangular formation in plan, and arranged in a plane above the plane of the arm section 12 is provided at its outer longitudinal edge with a downwardly extending flange or rib 16. Rods 17 are mounted in the guides 14 of the arm section 12 and fixed to the flange 16, are slidably mounted in the guides 14 to support this arm section for adjustment toward and away from the arm section 12, the adjustment of the arm section 13 toward the arm section 12 decreasing the length of the tangent arm 11, and the adjustment of the arm section 13 away from the arm section 12 increasing the length of the tangent arm. A screw 18 which is fixed to the arm section 12 and passes through the flange 16 of the arm section 13, and a nut 19 which is mounted upon the rod and which is swivelly connected, as at 20, to the flange, provide means through the medium of which the rod section

13 may be adjusted with relation to the rod section 12.

A worm gear 21 is rotatably mounted at its center, as at 22, upon the arm section 13.

5 The tangent post 9 is fixed to and extends upwardly from the gear 21, and it is located on the gear at a point rearwardly beyond the axis 22 of the gear. A shaft 23 located at the upper side of the arm section 13 and in a vertical plane parallel to the vertical plane in which the screw 18 is located, is journaled in bearings 24 fixed to this arm section. Collars 25 fixed to the shaft 23 and contacting with the bearings 24, hold the shaft against endwise movement. The shaft 23 is provided with a worm 26 which engages the worm gear 21. A shaft 23 provided with an end portion 27 of angular formation in cross section to permit it to be turned through the medium of a key 28 which is adapted to be inserted through an opening 29 in the metal cap 2. The key 28 is provided at one end with a socket 30 for the reception of the angular end of the shaft 23. The nut 19 is also adapted to be turned through the medium of the key 28 which is provided in its other end with a socket 31 for the reception of the angular portion 32 of the nut. The cap opening 29 is normally closed by a plug 33. From the foregoing description, taken in connection with the accompanying drawings, it should be apparent that the radius of the tangent post 9 may be varied by varying the position of the arm 12, that the angular position of the tangent post with relation to the crank shaft 5 may be varied by turning the gear 21, and that any adjustment of the radius and angular position of the tangent post necessary to bring about the proper action of the valves 4 may be made.

When it is desired to adjust the tangent post 9 it is only necessary to remove the plug 33 from the cap 2, insert the key through the opening 29, and engage the key with the nut 19 of the shaft 23. The angular portion of the nut 19 and the angular end of the shaft 23 are located in spaced parallel relation directly opposite the opening 33, and in view thereof the key may be readily engaged with either of these parts.

While we have described the principle of our invention, together with the structure which we now consider the preferred embodiment thereof, it is to be understood that the structure shown is merely illustrative and that such changes may be made, when desired, as fall within the scope of the invention as claimed.

What is claimed is:—

60 1. In a gas meter, a valve actuating crank shaft, a tangent arm section secured to the shaft, a second tangent arm section carried by said first section for adjustment toward and away from the shaft, means for adjusting said second section, a tangent post mounted

upon said second section for adjustment therewith to vary the radius of the tangent post and for adjustment thereon to vary its angular position with relation to the shaft, and means for adjusting the position of the post on said second section, said latter means being disposed in parallel relation to said first adjusting means.

2. In a gas meter, a valve actuating crank shaft, a tangent arm section fixed to the shaft, a second tangent arm section carried by said first section for adjustment toward and away from the shaft, means for adjusting said second section, a member rotatably mounted upon said second section, a tangent post carried by said member, and means for turning said member, said latter means being disposed in parallel relation to said adjusting means.

3. In a gas meter, a valve actuating crank shaft, a tangent arm section fixed to the shaft, guides carried by said section, a second tangent arm section, rods carried by said second section and passing through the guides to connect said second section to said first section for adjustment thereon with relation to the shaft, a threaded rod carried by said first section, a nut swivelled on said second section and engaging the rod, a tangent post carried by said second section for adjustment therewith toward and away from the shaft and for adjustment thereon to vary its angular position with relation to the shaft, and means for adjusting the post angularly relative to the shaft, said latter means being disposed in parallel relation to the rod.

4. In a gas meter, a valve actuating crank shaft, a tangent arm section fixed to the shaft, guides carried by said section, a second tangent arm section, rods carried by said second section and passing through the guides to connect said second section to said first section for adjustment thereon with relation to the shaft, a threaded rod carried by said first section, a nut swivelled on said second section and engaging the rod, a worm gear rotatably mounted upon said second section, a tangent post carried by the worm gear, and a worm journaled on said second section and engaged with the gear, said worm having the axis thereof parallel with said rod.

In testimony whereof we hereunto affix our signatures.

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