

(No Model.)

J. R. FLOYD.

LAZY TONGS VALVE OPERATING MECHANISM.

No. 497,871.

Patented May 23, 1893.

Fig. 1.

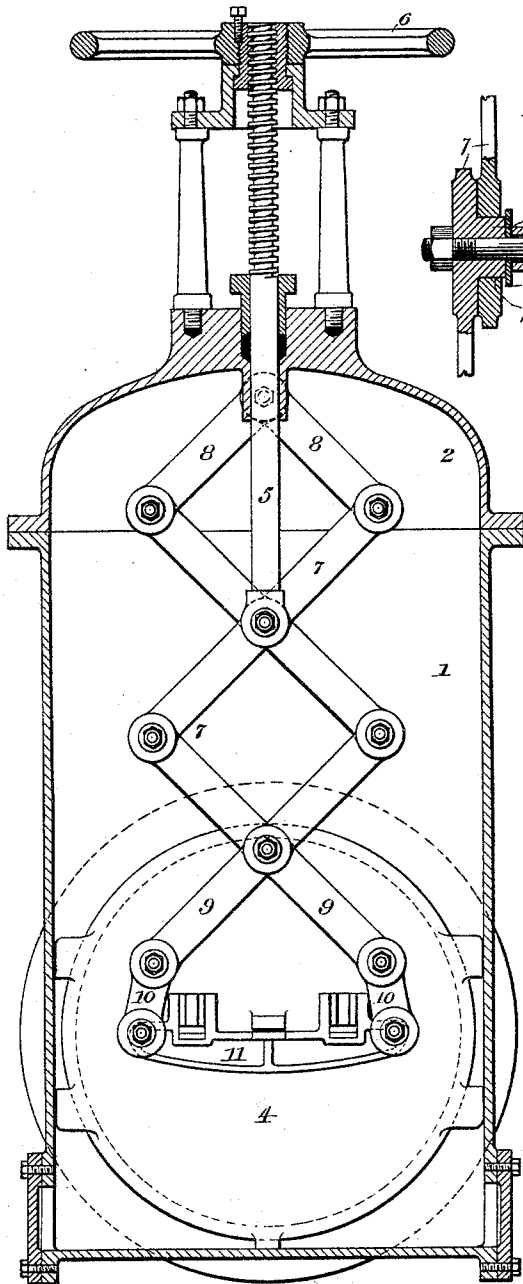


Fig. 2.

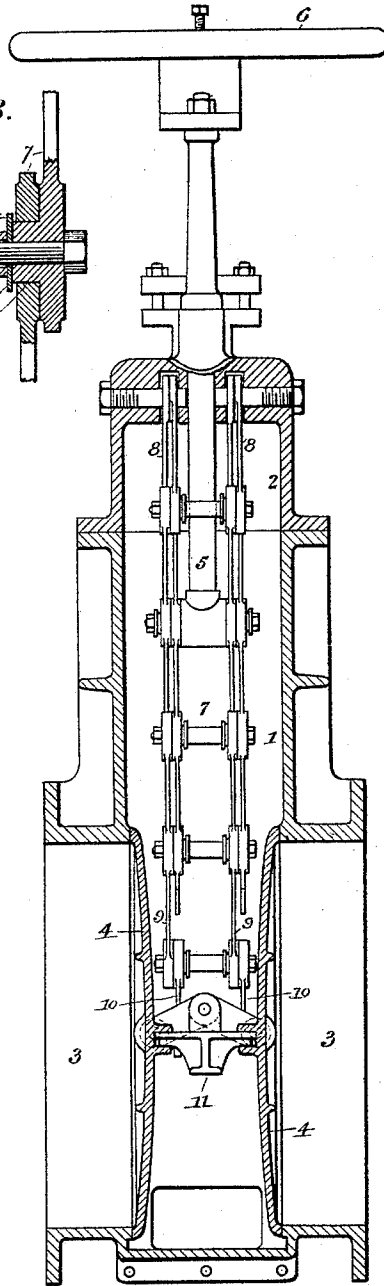
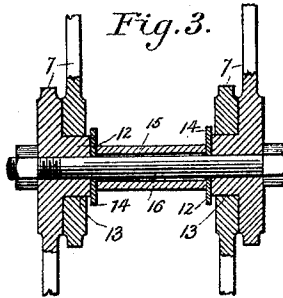


Fig. 3.



Witnesses,
H. N. Elsworth,
Vinton Croombe.

Inventor:
James R. Floyd.
By his Attorneys, *Reinier Goldborough*

UNITED STATES PATENT OFFICE.

JAMES R. FLOYD, OF NEW YORK, N. Y.

LAZY-TONGS VALVE-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 497,871, dated May 23, 1893.

Application filed December 27, 1892. Serial No. 456,402. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. FLOYD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Valve-Operating Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In all sliding gate valves for gas and water mains it is of prime importance that the valve should have a quick and easy movement. Heretofore various modifications of differential screws have generally been employed for this purpose; but, more recently, an arrangement of lazy tongs has been devised, as in the patents issued November 15, 1892, to John W. Ogden, No. 486,263, and Charles L. Rowland, No. 486,219. This arrangement has been found in practice to work well; but, owing to the number of pivotal bars or levers of which the tongs are composed, and the many joints connecting the same together, there is considerable friction and liability to wear at the pivotal points. Moreover, it is essential to the easy working of the tongs that a uniform distance be preserved from center to center of these pivotal points; and, in organizations requiring the employment of a duplex arrangement of tongs, as in the constructions illustrated in the Ogden and Rowland patents above referred to, it is preferable to bind or tie the tongs together at the lever joints, which greatly stiffens the whole arrangement and permits the use of lighter bars in the making up of the tongs.

My invention has for its object to improve the construction of these lazy tongs devices; and it consists in the construction and manner of connecting the levers, bars, or other members, of the tongs as hereinafter illustrated and described and more particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figures 1 and 2 are central vertical sections on planes at right angles to each other of a valve casing and gate operating mechanism embodying my improvements. Fig. 3 is a detail sectional view of one of the joints between the levers composing

the lazy tongs, showing my improvement specifically.

Referring to the views, the numeral 1 denotes the body, and 2 the dome of the casing.

3, 3 indicate nozzle-like projections adapted to receive the end of the main-pipe sections.

4, 4 are the sliding valves or gates, and 5 denotes the valve stem, which is threaded and projects upward through the dome of the casing, where a hand operating wheel 6 is located, by means of which the stem is raised and lowered to operate the valves, all in the usual manner.

The numeral 7 indicates the arms, bars, or levers composing the lazy tongs. These arms are pivoted together at their extremities, and crossed and again pivotally connected at the center, as clearly shown in Fig. 1 and as usual in lazy tongs. The two arms 8 forming the upper end of the lazy tongs are preferably pivoted to a fixed point or points in the hood or dome, and the corresponding arms 9 forming the opposite end of the tongs are preferably connected to the valves by short links 10 and a tie-bar 11, as clearly indicated in Figs. 1 and 2. There are two sets of these lazy tongs arms or levers forming a duplex arrangement of lazy tongs one for each valve, and they are spaced apart, as shown in Fig. 2, so as to permit the valve stem 5 which is connected to the tongs midway of their length to work easily between them.

As thus far described the construction herein illustrated is not new with me, and forms no part of my invention, which relates to the construction of the lazy tongs rather than to the manner of connecting the same to the gates or the hood.

Referring now more particularly to Fig. 3 the numeral 12 indicates cylindrical bosses, preferably cast integrally with the arms or bars 7, though they may be separately formed and otherwise secured to the bars if desired. These bosses are preferably formed on the outer bars only, and are located at or near the extremities of the same, and are best formed on the inner sides of the bars, so that when sets of bars are used, as in the duplex arrangement of lazy tongs herein illustrated, those on one bar will project toward and in line with those on the opposite bar. The companion bars are formed with large circular openings

13, there being one of these openings at each end at a point corresponding exactly to that of the boss on the other bar. As shown in Fig. 3 the length of the bosses is slightly in excess of the thickness of the inner bars. The object of this arrangement is to permit washers or nuts 14 to be jammed against the ends of the bosses to prevent the separation of the arms and yet to permit of a perfectly free pivotal movement of the arms without friction from the washers. As the best means for securing these parts together in the duplex arrangement of tongs, I have devised the following. The numeral 15 indicates a sleeve of the proper length to space the sets of tongs the required distance apart. The ends of the outer bars and the bosses are perforated in line with the axes of the bosses for the reception of a bolt 16 by means of which the co-operating arms of each set are secured together and the corresponding pairs of the two sets of bars are tied together so as to form one series of duplex lazy tongs. In assembling the parts the inner arms are fitted over the bosses. A bolt is then passed through the perforation in the boss and a washer slipped over the bolt. The sleeve 15 is then slipped over the bolt with its end against the washer, when another washer is put on, and the end of the bolt finally passed through the perforated boss of the arm on the opposite set. A nut is then screwed up tight on the end of the bolt, and the whole arrangement is firmly and securely tied together.

35 The advantages of my improvement over the joints heretofore known and illustrated, for example, in the Rowland patent, will be obvious to those skilled in the art, inasmuch as no specially formed bolts are required, and that in the manufacture of the tongs it is easier to maintain a uniform distance from center to center of the axes of the pivotal joints. The rigidity of the system of levers is also enhanced, and the wear and tear on

the bars lessened, by reason of the increased area of bearing surface at the pivots.

Having thus described the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lazy tongs valve operating mechanism, the combination substantially as hereinbefore described, of arms or bars provided with cylindrical bosses, companion arms or bars provided with circular openings fitting over the bosses, washers abutting against the ends of the bosses to prevent the separation of the arms and bolts passing through the bosses and washers.

2. In a lazy tongs valve operating mechanism, the combination substantially as hereinbefore described, of a pair of arms or bars provided at opposite ends with cylindrical bosses, a pair of companion arms or bars provided at their opposite ends with circular openings fitting over the bosses, washers abutting against the ends of the bosses, and a bolt passing through the bosses and washers and securing the pairs of arms together.

3. In a lazy tongs valve operating mechanism, the combination substantially as hereinbefore described, of a pair of outer arms or bars provided at opposite ends with inwardly projecting cylindrical bosses, a pair of inner companion arms or bars provided at their opposite ends with circular openings fitting over the bosses, washers abutting against the ends of the bosses, a bolt passing through the bosses and washers and securing the pairs of arms together, and a sleeve encircling the bolt between the arms and holding the washers in place.

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

JAMES R. FLOYD.

Witnesses:

THOMAS ENNIS,
THOS. F. FARLEY.