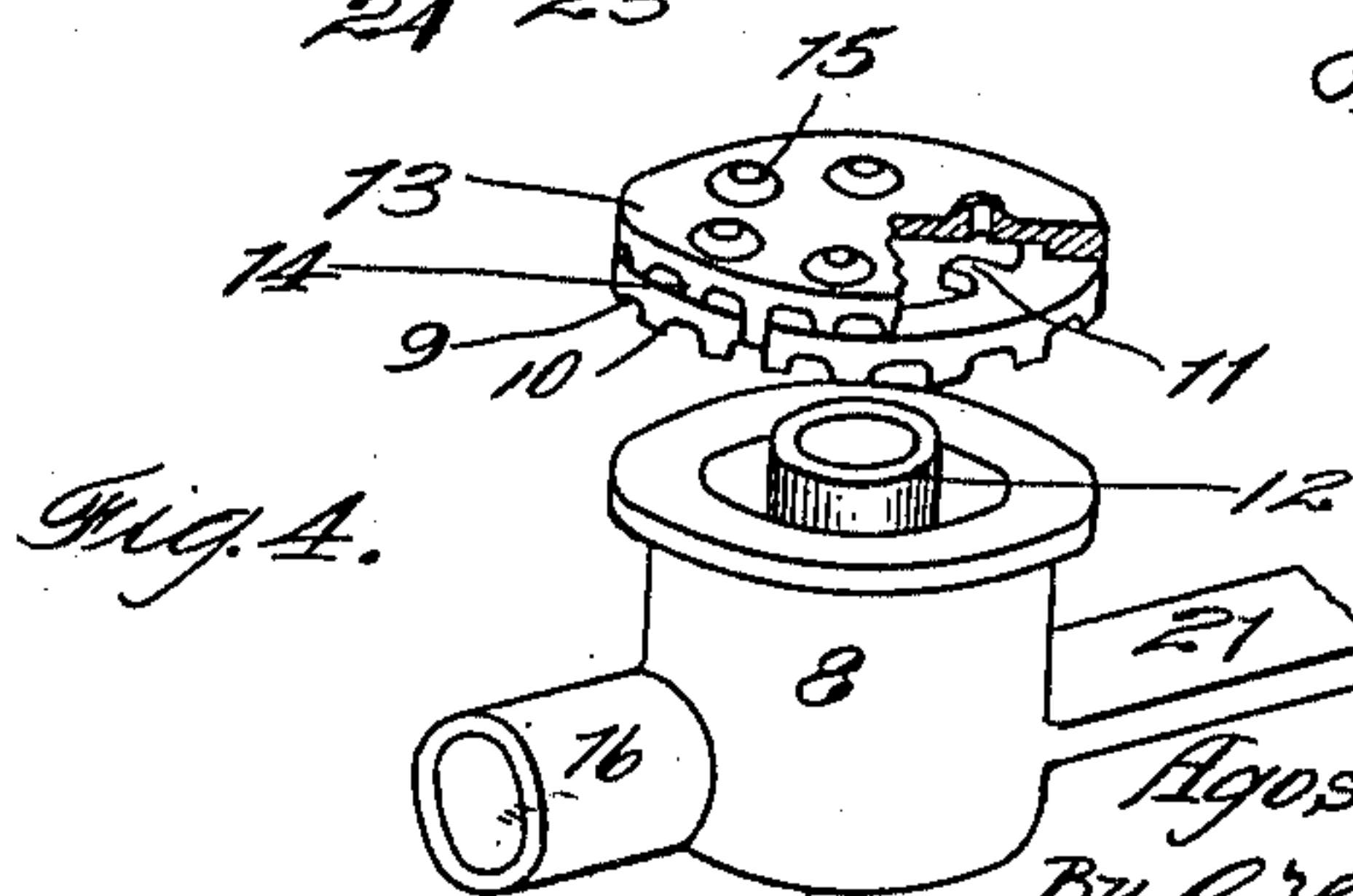
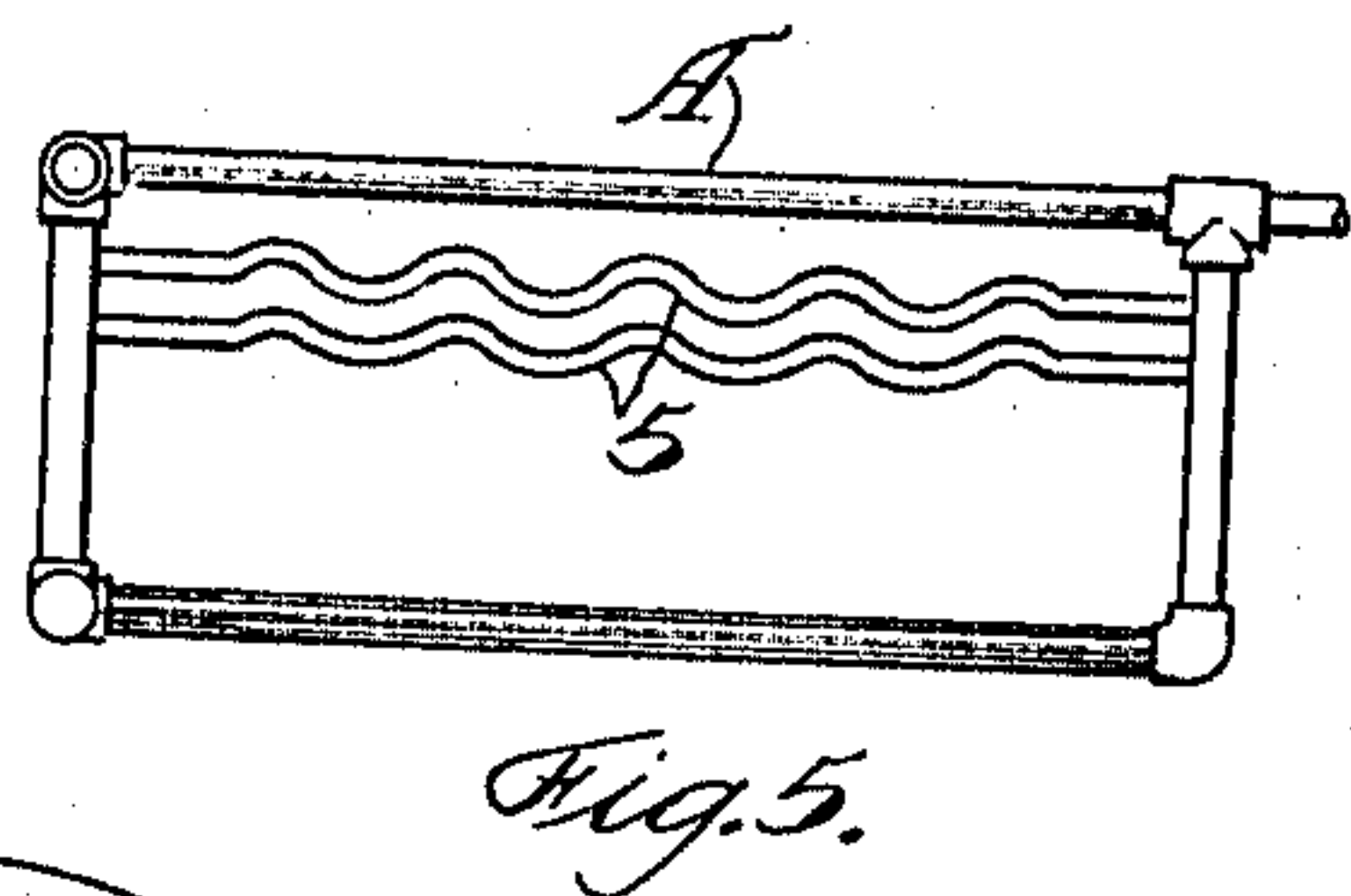
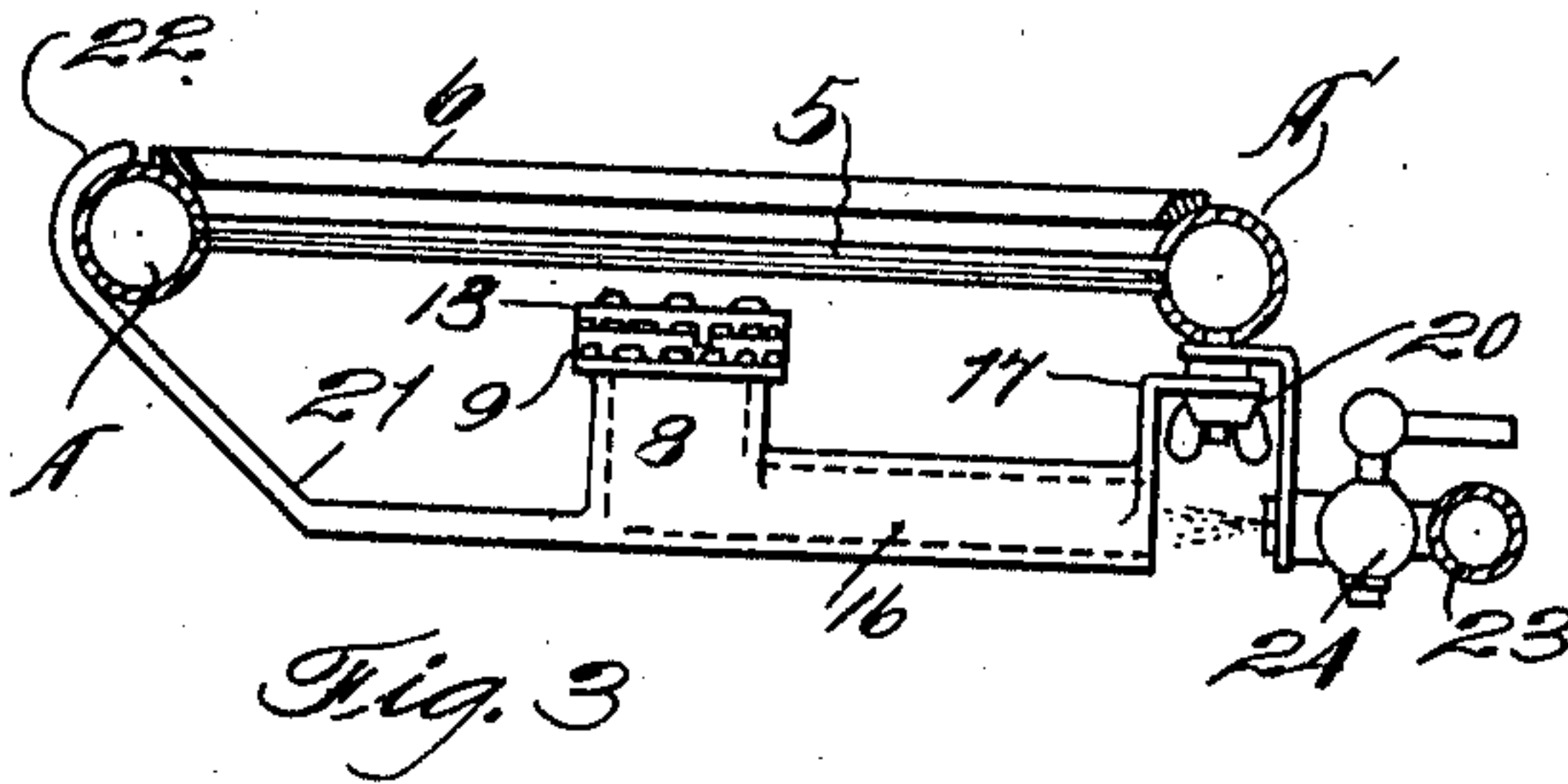
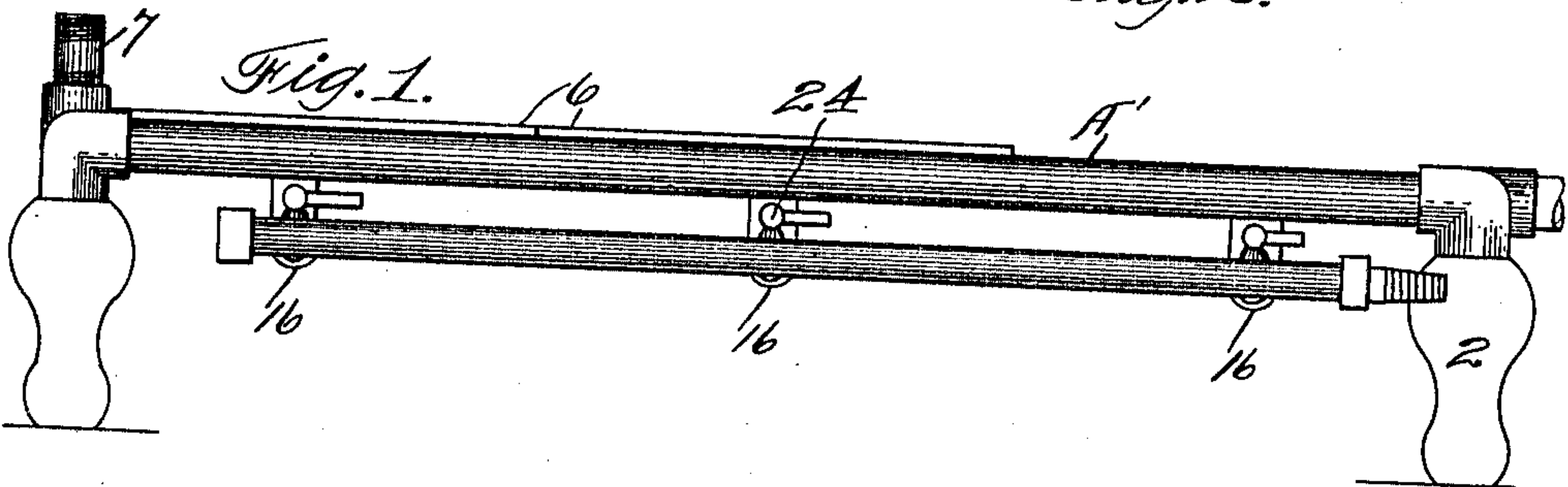
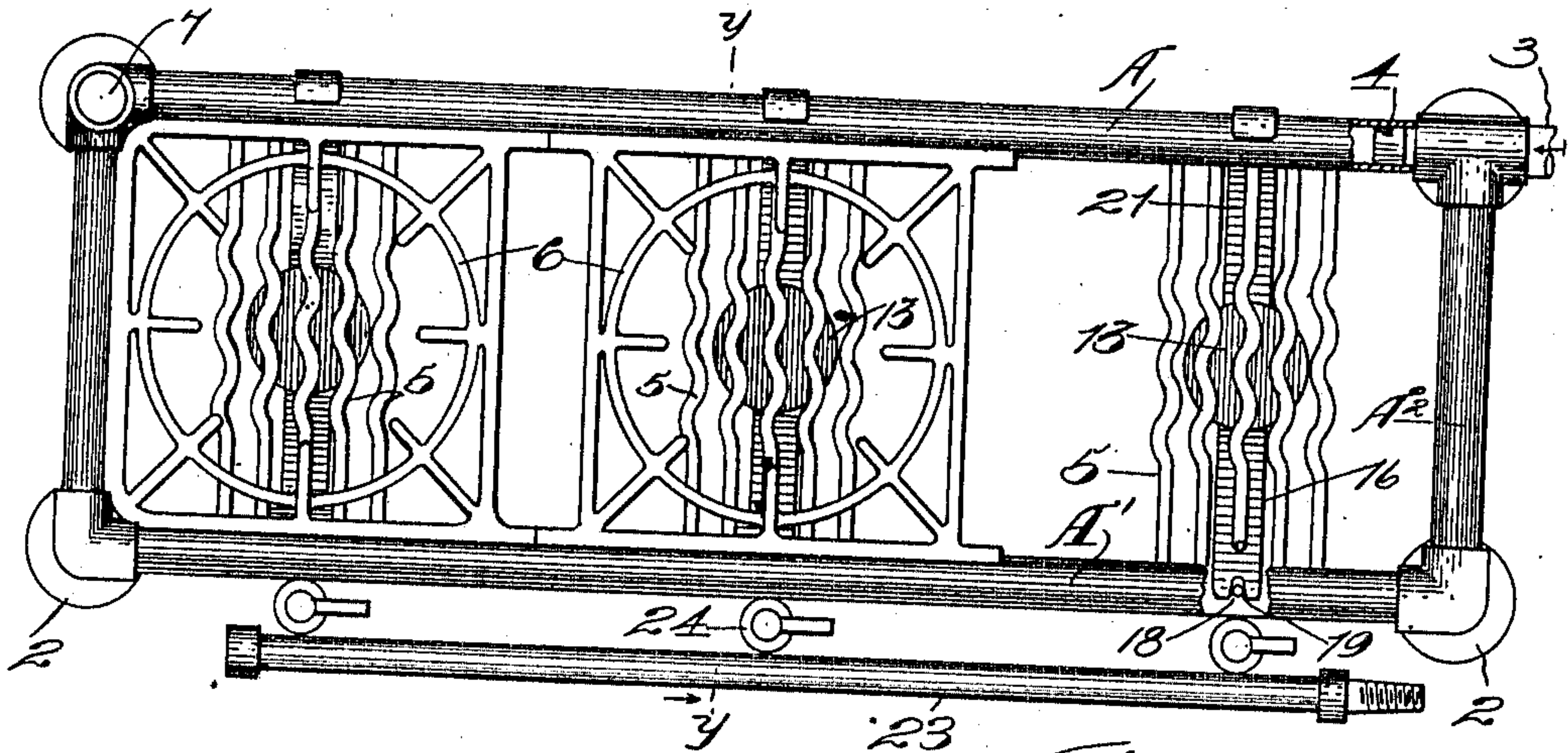


A. TOSCO.
WATER HEATING GAS STOVE.
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988,524.

Patented Apr. 4, 1911.



Witnesses:
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his Atty.

UNITED STATES PATENT OFFICE.

AGOSTINO TOSCO, OF SAN FRANCISCO, CALIFORNIA.

WATER-HEATING GAS-STOVE.

988,524.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed April 11, 1910. Serial No. 554,831.

To all whom it may concern:

Be it known that I, AGOSTINO TOSCO, a citizen of Italy, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Water-Heating Gas-Stoves, of which the following is a specification.

My invention relates to improvements in gas stoves, and means connected therewith for heating water.

It consists in the combination of parts and details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a front elevation taken through $x-x$, Fig. 2. Fig. 2 is a plan view with one of the supporting grids removed to show the transverse water-pipes. Fig. 3 is a section taken through $y-y$ of Fig. 2. Fig. 4 is a perspective view of one of the mixing chambers and burners. Fig. 5 is a view with longitudinal heating pipes.

Various devices have been employed for the production of heat from gas, and its utilization for cooking and for heating purposes. My invention comprises improvements in the construction of such apparatus.

As shown in the drawings, A is a rectangular frame formed of water-conducting tubes, this frame being supported upon suitable or convenient legs 2 to raise it sufficiently from the floor or support upon which it stands. Water is admitted into this tubular structure through a suitable connection 3, and a stop at 4 prevents the water flowing along the longitudinal side tube A. Water is thus diverted into the heating tubes A', thence along the opposite side tubes A' until it reaches the point where there are transverse tubes 5. These tubes 5 may be of any suitable construction. I have shown them as bent to form wavy lines across the space between the two side tubes A'—A', and there may be as many of these heating tubes 5 as may be found desirable.

In Fig. 2 I have shown three sets of transverse heating tubes, and in Fig. 5 the tubes are longitudinally disposed, and above these tubes are removable open-work grids or supports 6. These are here shown in the form of rectangular frames adapted to rest upon the side tubes A'—A', and having radial inwardly extending and horizontal arms terminating a sufficient distance from the center to leave open spaces. These arms serve

for the support of vessels for cooking and like purposes, and the central space or opening is located directly above the burners and the central portions of the heating tubes 5 previously named. The grids are so fitted that they can be readily removed or replaced at will.

In Fig. 2, the water passing through the inlet opening is diverted by the stop 4 through the transverse tube A², thence it passes along the tube A' until it reaches the heating tubes 5 through which it passes into the opposite side tube A', thence along to the farther end where it is delivered into the conduit at 7, through which and suitable connecting pipes it may be delivered to a boiler, or other receptacle for the hot water. As many of these transverse series of tubes may be employed as may be desired, each passing over a heater, and the amount of water thus heated may be increased at will, or the heating tubes may extend lengthwise.

The means for applying heat is through burners consisting of cylindrical chambers 8 located directly beneath the center of the transverse pipes and the grids, and these cylinders have horizontal circular flanges 8' at the top upon which are supported the annular disks 9 having downwardly projecting radial lugs 10 which rest upon the flanges at the tops of the cylinders 8. These disks have inwardly extending arms 11, and a central tubular standard 12 concentric with the cylinder 8, forms a stop against which the inner ends of these arms contact, and which thus maintain the disks 9 in proper position, and the lugs 10 resting upon the surface of the top flange of the cylinder 8, form radial channels through which the gas and air, which are supplied as will be hereafter described, are caused to diverge, and be ignited to form a large circular flame. These disks 9 may be supplemented with other disks 13 having substantially the same diameter, and with lugs 14 projecting downwardly from the lower surface and resting upon the tops of the disks 9, and between the lugs 10 of the lower disk, so that another series of radial discharge openings are produced above those first named, thus greatly increasing the volume of flame. Other openings 15 are made in the top of the upper disk 13 which allow vertical jets of flame to be discharged directly against the tubes 5.

Into one side of the cylindrical chamber 8 opens a pipe 16. This pipe extends outwardly to one side, and just beneath one of the side tubes A. Upon or with this pipe 5 is formed a flange 17 having a central slot as shown at 18, and this slot is adapted to slip over a vertically depending bolt 19, and is secured thereto by a thumb nut 20 turn- 10 able upon the bolt. From the opposite side of the cylindrical chamber 8, an arm 21 extends, being bent upwardly and having a curved end 22 which fits over the opposite tube A, thus allowing the burner to be re- 15 movably supported from the tubular frame-work and directly beneath the nest of water-heating pipes. The ends of the tubes 16 terminate approximately beneath the longitudinal tube A, and the tubes are open.

23 is a gas-conducting pipe extending 20 parallel with the tube A, and at a short distance below and exterior thereto. In this tube are fitted cocks 24, with the open opposite ends directed into the ends of the tubes 16, but at a short distance therefrom, so 25 that a jet of gas delivered through the cocks is carried directly into the open tubes 16, and the draft produced thereby serves to draw in a sufficient proportion of air to provide for a perfect combustion of the gas, 30 with a strong heating flame, and a very perfect combustion of all the gaseous product with little or no soot, or unconsumed vapor.

A structure thus formed is capable of pro- 35 ducing an intense heat, and is extremely serviceable for heating a body of water for

baths or other purposes, in addition to its convenience for cooking.

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

1. A water conducting stove frame com- 40 posed of connected pipes, fittings at the joints, legs attached to said fittings, an inlet and a discharge in the frame, a stopper in one of the pipes to divert the flow of water, 45 burners and means for securing the same to and below the pipes, and groups of wavy, parallel heating tubes connected to the parallel pipes of the frame above the position of the burners. 50

2. The combination in a water heater of a tubular rectangular main frame with a stop adapted to divert the flow of water therein, intermediate parallel connecting 55 pipes having the central portions of a wavy tortuous outline, burners located beneath the wavy portions, said burners having transverse supporting yokes disengageably attached to the main frame and having open 60 air tubes formed therewith, and a gas conducting pipe carried upon the main frame with gas jets directed into the open air tubes.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 65 witnesses.

AGOSTINO TOSCO.

Witnesses:

RAYMOND A. LEONARD,
CHARLES EDELMAN.