3. The positioning means of claim 2 wherein means are provided for attaching the lever arm to the plate member at a plurality of lateral positions.

4. In a speed control for a sewing machine motor and the like wherein the motor is movable into and out of position and the speed of the motor is determined by the relative position of a speed control member carried by the motor, positioning means for said speed control member comprising a member operatively attached to said speed control member at all positions of the motor, and a lever means arranged at one side of the path of movement of the motor and positioned to contact said attached member for causing movement thereof only when the motor is in operating position.

5. In a speed control for a motor wherein the motor speed is determined by the relative positions of a speed control member, positioning means for said member comprising an arm operatively connected to said member, a second arm pivotally mounted with one end adjacent to but normally spaced from the free end of said first arm, a plate member pivotally mounted at one end and operatively connected to the end of the second arm that is opposite the first arm, a lever removably attached to said plate member at the end opposite the pivotally mounted end and beyond the connection of the plate member to the second arm, and means for attaching said lever to said plate member at any point in a line extending generally transversely to the line determined by the pivoted mounting of the plate member and the point of connection of the plate member to the second arm.

6. The positioning means of claim 5 wherein said attaching means comprises a transverse slot in the plate member.

7. In a speed control for a sewing machine or the like wherein the motor is mounted on a base member for arcuate movement into and out of operating position, and wherein the motor speed is determined by the relative positions of a speed control member attached to and movable with the motor, positioning means comprising an arm operatively connected to said speed control member and mounted on the motor, said arm extending transversely to the plane of movement of the motor and being movable longitudinally to vary the position of the speed control member, a pivotally mounted second arm located substantially parallel to the plane of movement of the motor and at one side of the path of movement of the motor, said arm having one end adjacent the free end of the first arm but normally out of contact therewith when the motor is in operating position, a link member pivotally attached to the end of the second arm that is opposite the motor and extending substantially parallel to the first arm, a plate member pivotally mounted at one end to which the end of the link member that is opposite the second arm is rotatably attached, said plate member lying substantially at right angles to the plane determined by said second arm and link member and substantially parallel to said link member, a lever arm attached to said plate member at a point beyond the point of attachment of the link member to the plate member, said lever arm lying substantially in the plane of the plate member, means for urging the first arm to a retracted position, and means for urging said second arm, link member and plate member to retracted positions.

8. The positioning means of claim 7 wherein said plate member is provided with a slot at the point of attachment of the lever arm to the plate member, said slot lying substantially transversely to a line determined by the pivotal mounting of the plate member and the point of attachment of the link member to the plate member and said lever arm being provided with a portion engaging said slot for attaching the lever arm to the plate member.

CHARLES H. SPARKLIN.

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Certificate of Correction

Patent No. 2,543,812 March 6, 1951

CHARLES H. SPARKLIN

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 4, line 70, after the word "member" strike out the comma and insert the same after "ends" in line 71;

and that the said Letters Patent should be read as corrected above, so that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 15th day of May, A. D. 1951.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.

March 6, 1951

F. J. STOVER

2,543,813

IRON PRECIPITATOR

Filed June 29, 1946

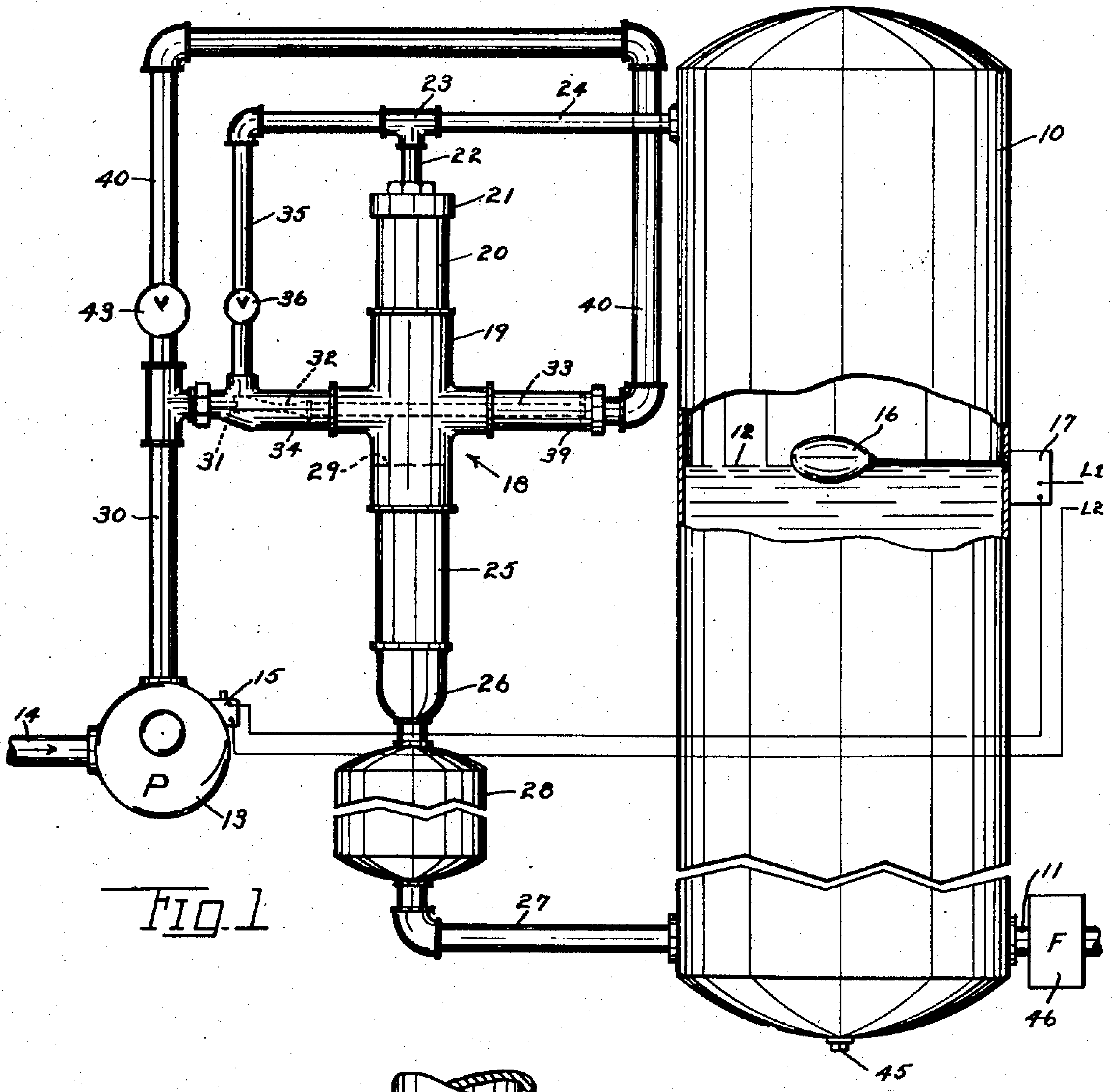

FIG. 1

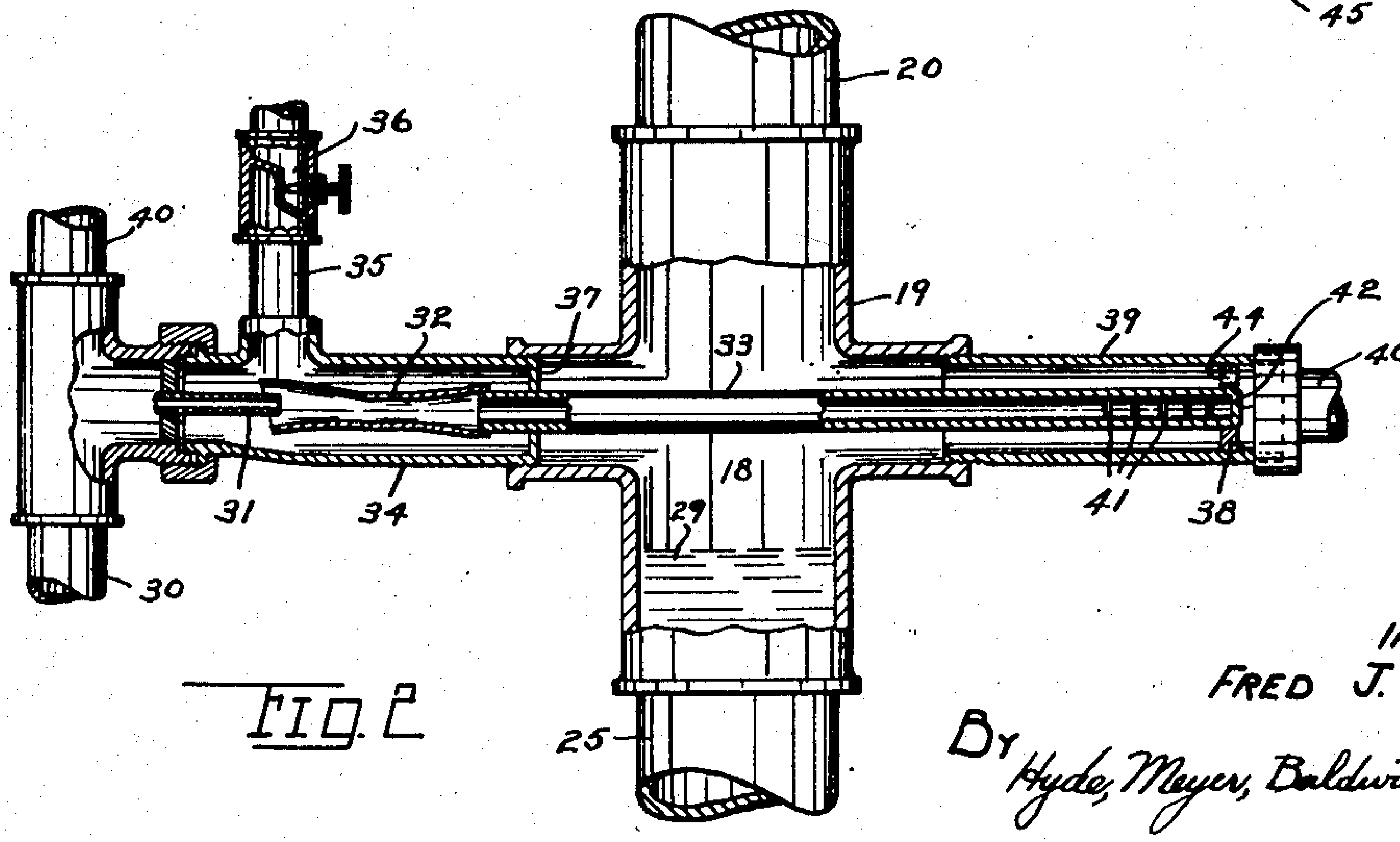

FIG. 2

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Patented Mar. 6, 1951 **2,543,813**

UNITED STATES PATENT OFFICE

2,543,813

IRON PRECIPITATOR

Fred J. Stover, Rocky River, Ohio

Application June 29, 1946, Serial No. 680,477

8 Claims. (Cl. 210—16)

This invention relates to improvements in means for mixing air with water to remove iron or other substances therefrom.

One of the objects of the present invention is to provide novel means for mixing a gas with a liquid such as the specific application of mixing air with a stream of water to precipitate certain iron compounds which are objectionable in a domestic water system.

Another object of the present invention is to provide novel mixing means wherein the untreated stream of water under pressure is fed to an injector arranged to receive air from the upper portion of a tank or reservoir so as to thoroughly mix the air and water prior to its entry into a domestic water system.

Other objects and advantages together with novel arrangements of the specific parts will be apparent from the accompanying drawings and description and the essential features thereof will be set forth in the appended claims.

In the drawings,

Fig. 1 is a somewhat diagrammatic view showing my invention as applied to a domestic water system with a portion of the reservoir in section to more clearly show the construction; while

Fig. 2 is an enlarged view of the central portion of Fig. 1 with parts in central longitudinal section to more clearly show the construction.

While my invention is applicable to many kinds of apparatus where a gas is to be intimately mixed with a liquid, I have chosen to describe the same for specific application to a domestic water system. Many times, the raw water comprises objectionable ingredients such as iron or sulphur compounds which may be largely removed by intimate mixture with air. It is one purpose of the present invention to provide cheap but efficient means for accomplishing this purpose.

In the drawings, a reservoir or tank is indicated at **10** for supplying water to a domestic system connected with the outlet pipe **11**. It is customary in such systems to have water in the reservoir up to a predetermined level such as that indicated at **12**, and the upper portion of the tank is filled with air under pressure so as to carry the water to the various desired portions of the system. The water is supplied by any suitable means, such as the rotary pump indicated at **13** and supplied from a well or other source through the inlet pipe **14**. The pump is supplied with a snifter valve **15** which in the present instance is electrically controlled responsive to the float **16** in the tank **10**. The arrangement is such that when the float **16** rises beyond a predetermined level the float arm **16***a* actuates a switch, not shown, in the box **17** so that electricity is supplied from the source L**1**, L2 to the electrically operated snifter valve **15** to open the valve and admit air with the incoming water passing through pump **13**. This increases the supply of air in the upper portion of reservoir **10** until float **16** is lowered, whereupon the switch in the box **17** is opened and the snifter valve **15** is closed.

Means, not shown, of any conventional variety is utilized to control the operation of pump **13** in response to the demand for water in the system. This phase of pump control does not enter into the present invention.

A mixing chamber **18** is provided, and I have shown a special construction which gives a cheap but efficient device. The pipe cross **19** is arranged with vertically and horizontally extending arms for purposes presently disclosed. In the upper vertical arm is threaded a nipple **20** which is closed by means of a cap **21** and connected by pipe **22**, T **23**, and pipe **24** with the upper portion of reservoir **10**. The lower arm of the cross is connected by nipple **25**, and reducer **26** with pipe **27**, communicating with the lower portion of reservoir **10**. If desired, a tank **28** may be provided in pipe **27** to retain the water long enough for the iron compounds to precipitate out of the incoming water stream. Obviously, because of the equalization pipes **24** and **27**, the water level in the mixing chamber will be at **29**, on a horizontal level with that indicated at **12**. The upper portion of the mixing chamber is filled with air in communication with the upper portion of reservoir **10**.

The stream of raw water discharged by the pump through line **30** is led through a jet **31** to an injector **32** which has a discharge tube **33** extending through the horizontal arms of the cross **19**. The housing **34** around the injector is connected by pipe **35** with the T **23** so as to supply air to the injector. A control valve **36** is provided, and this is preferably a needle valve for a purpose later described. A partition **37** provides a wall between the housing **34** and the mixing chamber. It also supports one end of tube **33**. The other end of this tube is supported by a spider **38** in the nipple **39** which is threaded into the right-hand arm of the cross **19**. A pipe connection at **40** is provided for a purpose later explained.

To provide intimate mixing of the water and air passing through tube **33**, the wall of the tube is perforated preferably by means of a plurality of narrow slits **41** which may extend along any