

J. G. PATY.

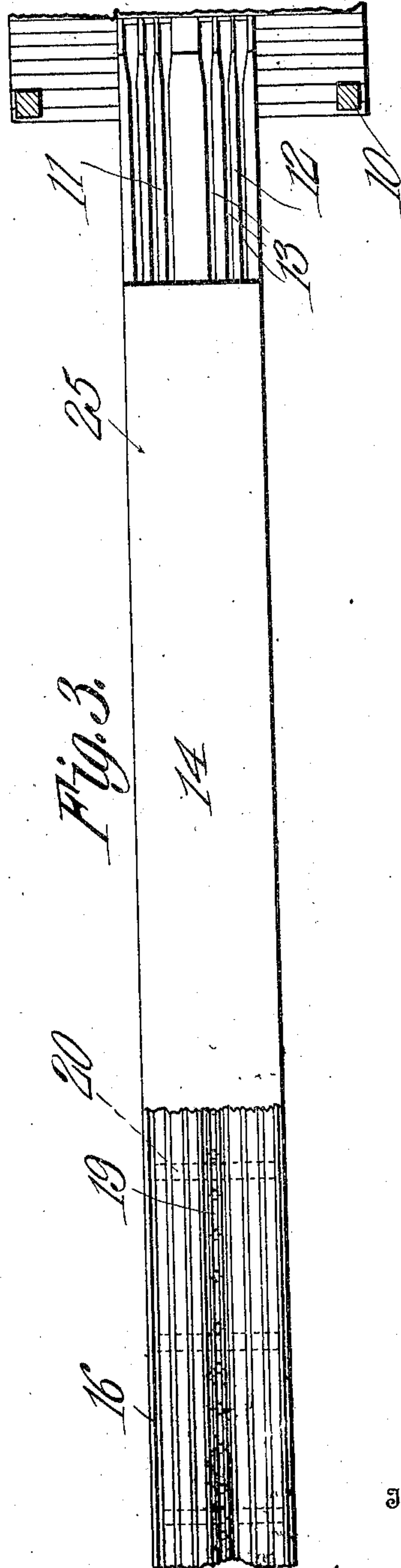
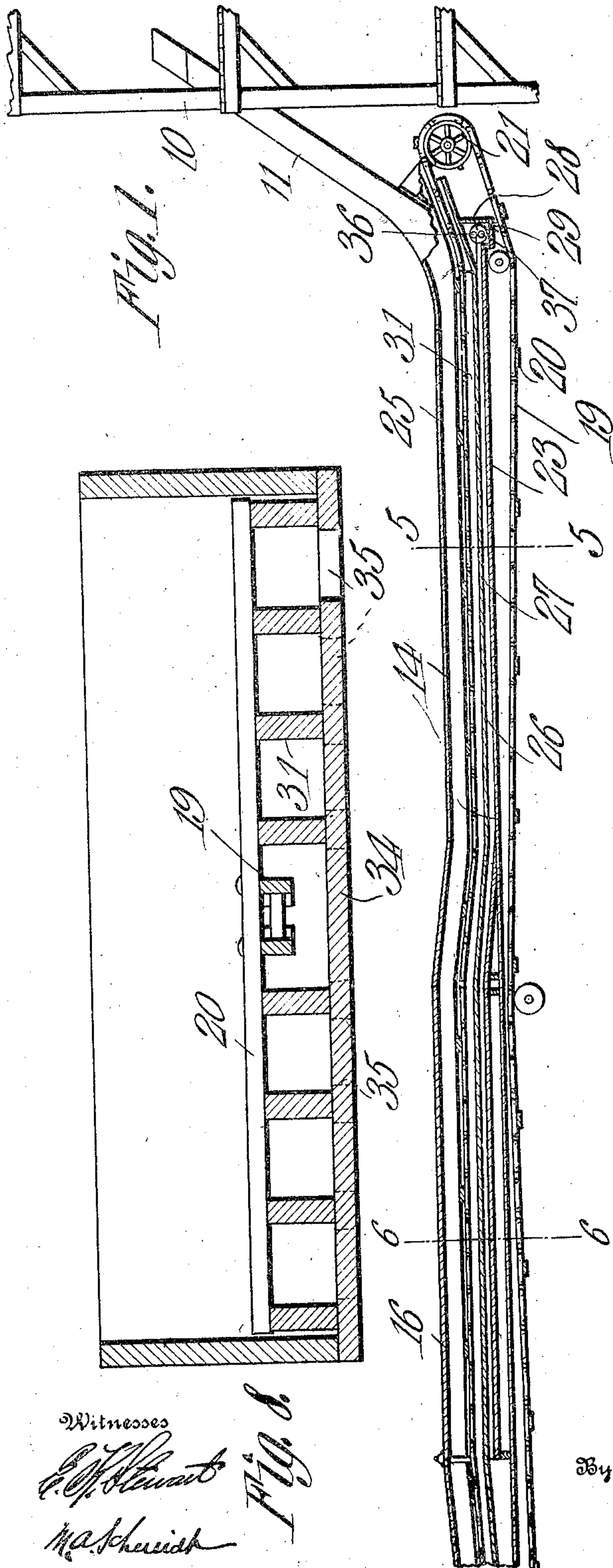
METHOD OF TREATING TIMBER WITH A PRESERVATIVE FLUID.

APPLICATION FILED OCT. 28, 1909.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 1.

986,751.



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Fig. 2.

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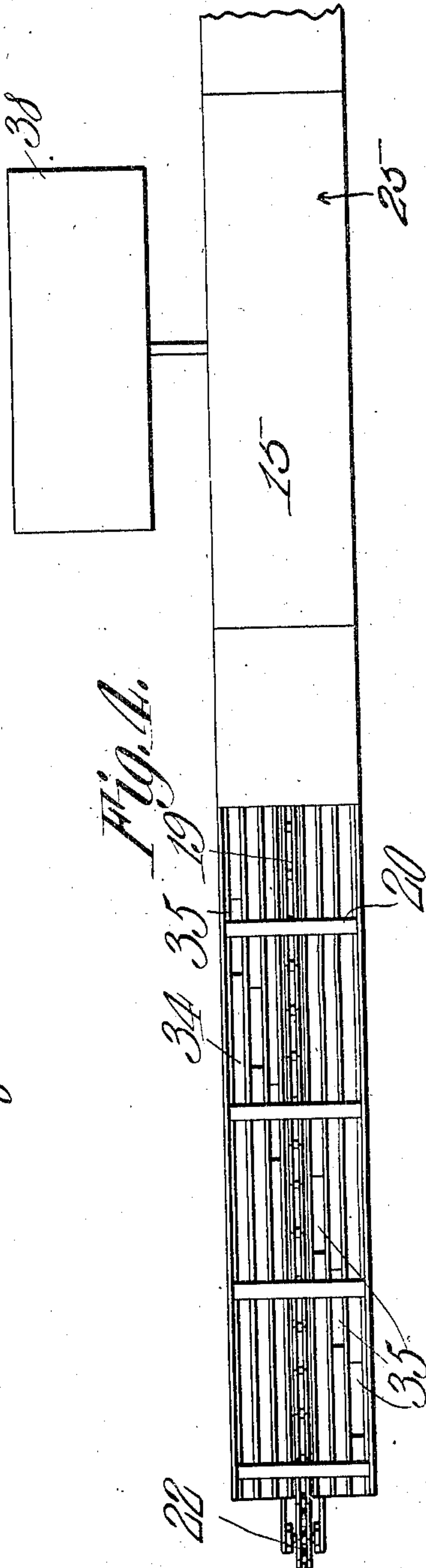
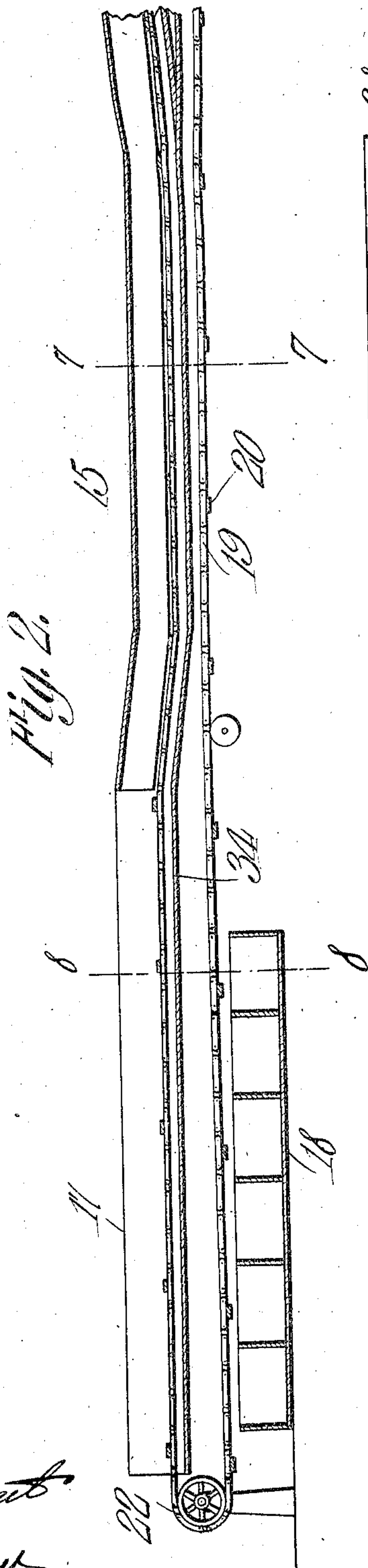
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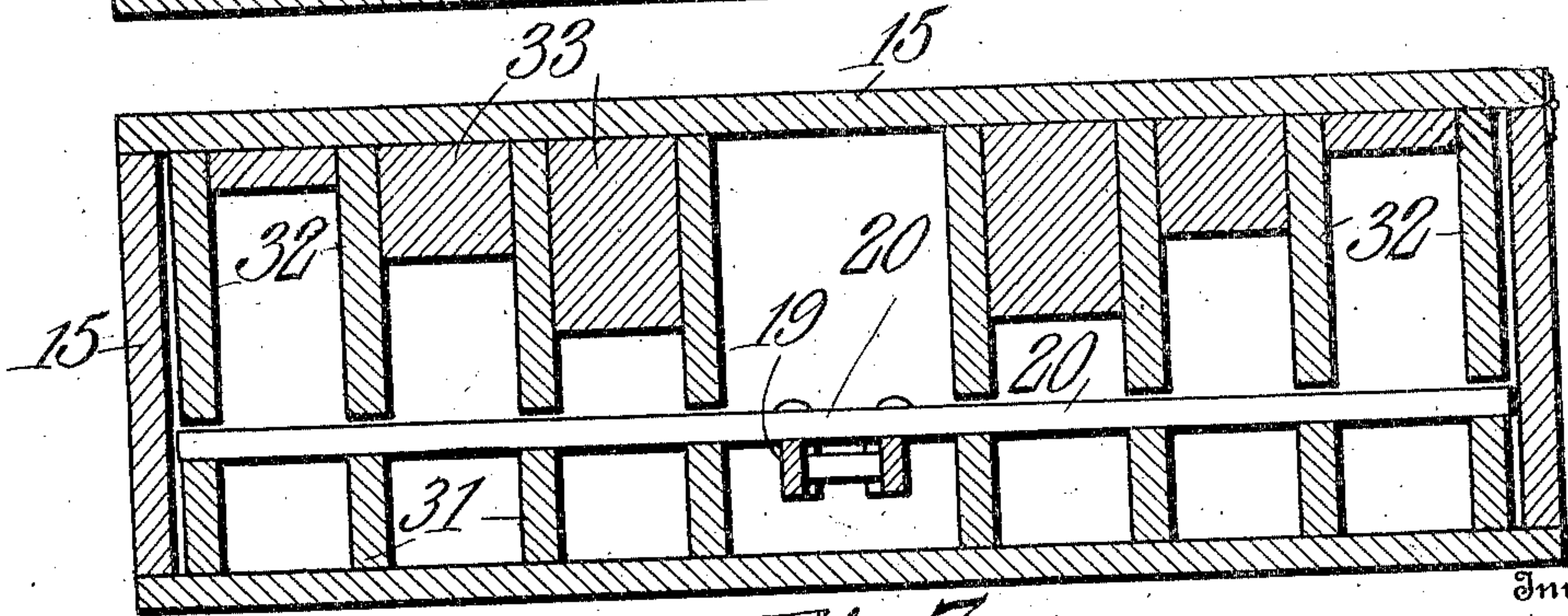
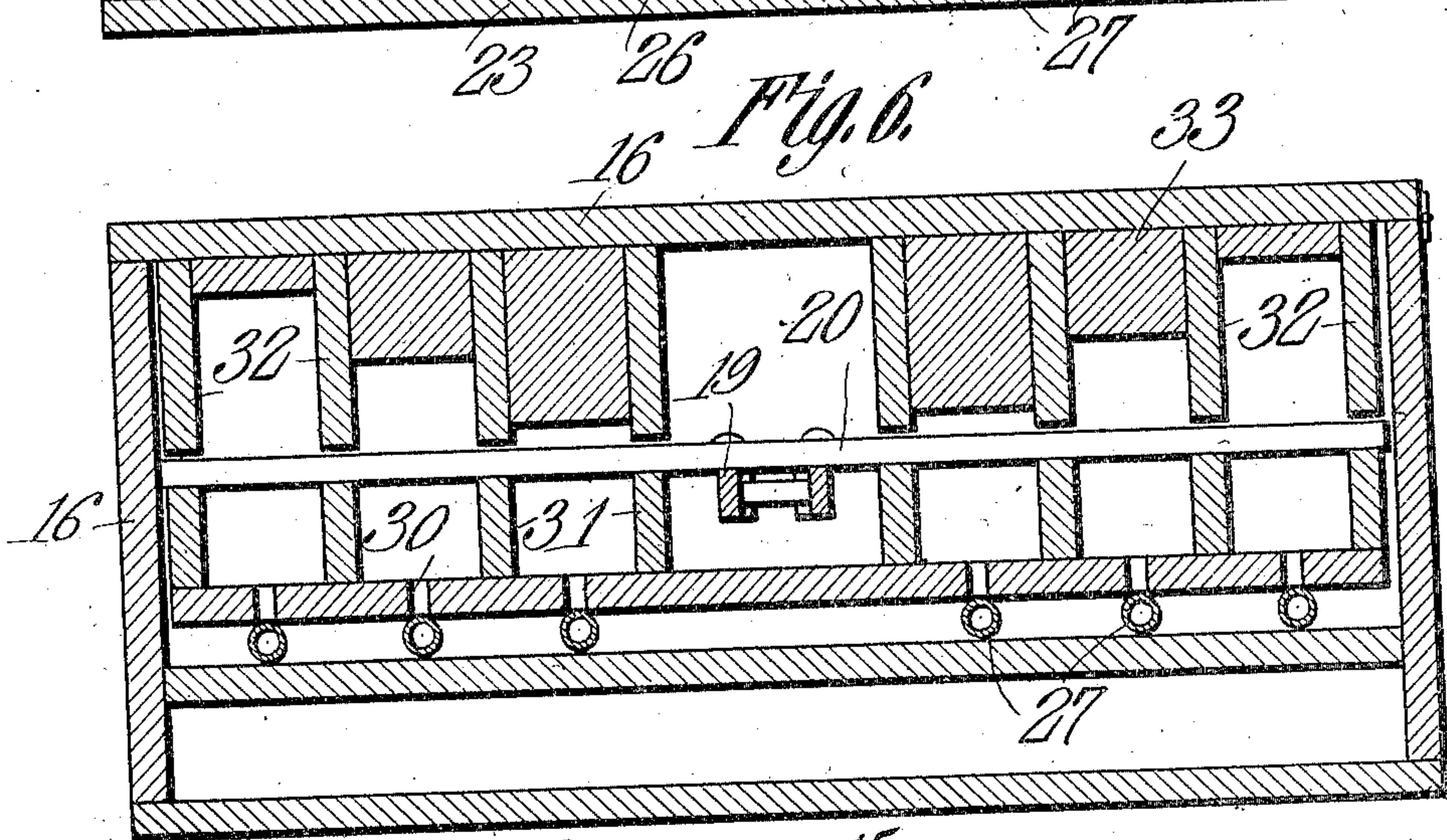
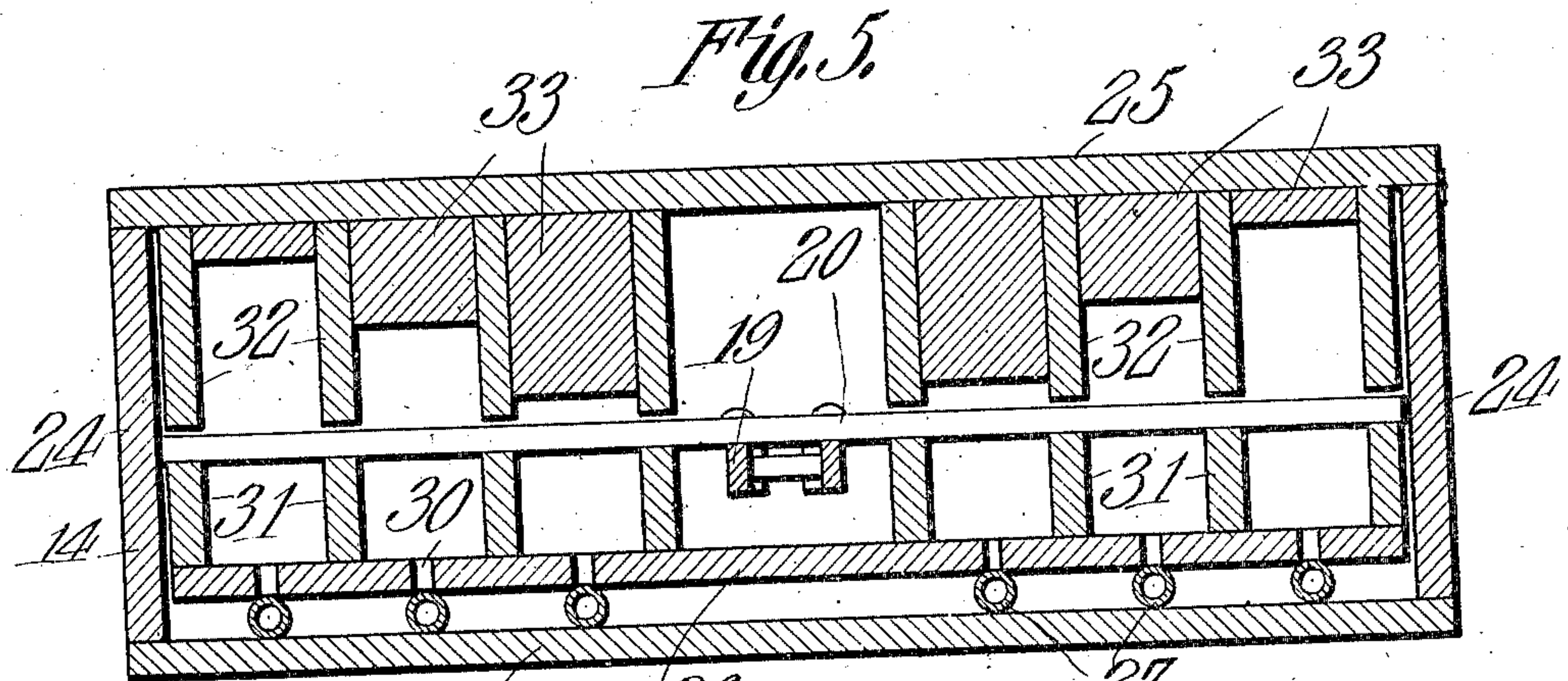
Witnesses

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UNITED STATES PATENT OFFICE.

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METHOD OF TREATING TIMBER WITH A PRESERVATIVE FLUID.

986,751.

Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed October 28, 1909. Serial No. 525,127.

To all whom it may concern:

Be it known that I, JOHN G. PATY, a citizen of the United States, residing at Shreveport, in the parish of Caddo and State of Louisiana, have invented a new and useful Method of Treating Timber with a Preservative Fluid, of which the following is a specification.

This invention relates to a method of saturating timber with a preservative fluid, such as, for instance, creosote, for the purpose of preventing decay, the invention being designed more particularly for the treatment of shingles.

It is the object of the invention to so prepare or treat the shingle prior to its being immersed in the preservative fluid, that a rapid and thorough penetration is effected.

The apparatus by means of which the method is practiced is illustrated in the accompanying drawing forming a part of this specification, in which drawings,

Figure 1 is a longitudinal section of a portion of the apparatus and, Fig. 2 is a similar view of the remainder thereof, the two views being placed on separate sheets by reason of the lack of room on one sheet to properly show the entire apparatus thereon. Figs. 3 and 4 are plan views of the parts shown in the preceding views, partly broken away. Fig. 5 is a transverse section on the line 5—5 of Fig. 1. Fig. 6 is a transverse section on the line 6—6 of Fig. 2. Fig. 7 is a transverse section on the line 7—7 of Fig. 2. Fig. 8 is a transverse section on the line 8—8 of Fig. 2.

Referring more particularly to the drawings, there is shown diagrammatically at 10 a shingle mill, from the upper floor of which extends, at a suitable inclination, a chute 11, leading to a runway in which the shingles to be treated are conveyed to the various parts of the apparatus. The chute is divided by partitions 12 into a plurality of passages 13 of different depths, to receive shingles of different dimensions and grades. In the present instance, six passages are shown to receive two different grades of shingles in three different dimensions. However, the invention is not limited to this arrangement, and it may be varied to meet the demands of the trade.

The runway comprises an elongated casing having two depressed portions, forming vats 14 and 15, between which vats is an elevated portion forming a drying cham-

ber 16. The vat 14 contains a heating medium, such as boiling water, and the vat 15 contains a supply of creosote or some other preservative mixture. If the shingles are also to be stained, a suitable coloring matter will be added to the mixture. Beyond the vat 15, the runway is again elevated, as indicated at 17, and is constructed to distribute the finished shingle. A series of receiving bins 18 are located under this end of the runway.

The shingles are carried through the vats 14 and 15 and the distributing terminal by an endless conveyer comprising a chain 19, carrying cross arms 20 at regular intervals, said arms projecting from opposite sides of the chain. The chain travels over sprocket wheels 21 and 22 located at the respective ends of the runway, and it is driven from any suitable source of power. The chain is also provided with guide sprockets or pulleys.

The vat 14 is located at the entrance of the runway, and it comprises a bottom 23, side walls 24, and a removable top 25, the latter being hinged or otherwise connected to one of the side walls so that it may be swung open to obtain access to the vat. The vat is entered at one end by the passages 13, and at its opposite end is located the drying chamber 16. The vat 14 contains a false bottom 26 which is spaced a short distance from the bottom 23, and between said bottoms are laid steam pipes 27 extending in the direction of the length of the vat from a header 28 mounted transversely in a depression 29 at the inlet end of the vat. The false bottom 26 is slightly spaced from the side walls 24, and it is also perforated as indicated at 30, and on said bottoms are also mounted upstanding partitions 31 extending in the direction of the length of the vat. The top 25 carries partitions 32 which are in alinement with partitions 31, and separated or spaced therefrom by the thickness of the cross arms 20 of the conveyer. These partitions divide the vat into a series of passages corresponding in number to the number of passages 13, and communicating therewith at the entrance of the vat. A central passage for the chain is also provided. The cross arms 20 slide along the top edges of the partitions 31. The spaces between the partitions 32 are partly filled in by strips 33, so as to reduce the height thereof to correspond to the differ-

ent widths of shingles. It may be here stated that the shingles are dragged through the passages standing up on one of their edges, and spaced from each other the distance between the cross arms 20. The passages are to be entirely filled with water so that the shingles will be completely submerged as they are dragged therethrough by the conveyer cross arms, and as the shingles are of different widths, the height of the passages is varied by the strips 33 to correspond to the different widths of the shingles. The width of the passages is uniform, and their height is slightly greater than the width of the shingles, so that it will be impossible for the latter to turn over or fail to follow the passages.

By spacing the false bottom 26 at its longitudinal edges from the side walls 24 of the vat, and providing said bottom with perforations, the water is permitted to flow freely around the steam pipes 27, to be heated thereby.

The structure of the drying chamber 16, and the vat 15, is the same as that of the vat 14, the passages in which the shingles travel, being continued therethrough by continuing the partitions 31 and 32. The steam pipes 27 are shown as extending to the end of the drying chamber, but if desired may be continued into the vat 15.

The floor 34 of the distributing terminal of the runway contains a series of graduated openings 35, through which the finished shingles drop into the respective bins 18, a bin being provided for each kind of shingles. The floor 34 is a continuation of the false bottom 26, and the partitions 31 are continued along said floor, thus forming a continuation of the passages through which the shingles travel. The openings 35 are located between the partition, each shingle passage having an opening, and said openings are so located that the shingles drop into the proper bins. In their passage along the floor 34, the conveyer cross arms 20 are dragged along the top edges of the partitions.

The vats 14 and 15 are on the same level, but the drying chamber is located in a higher plane. This arrangement elevates the outer ends of the steam pipes 27, and thus insures the return of condensed steam to the header 28. The latter has an inlet 36 for live steam and an outlet for condensed steam, the latter leading to the vat 14, whereby the same is supplied with water.

At 38 is indicated a tank containing a supply of creosote or other preservative fluid. This tank is located near the vat 15, and its bottom is on a level therewith, so that the vat may be kept supplied by a float valve.

In operation, the shingles to be treated are placed edgewise in the proper passages

13 of the chute 11, and are carried down the same by gravity, and then pass edgewise into the passages of the runway, through which they are carried by the endless conveyer. The conveyer carries the shingles in this position through the vat 14, then through the drying chamber 16, next through the vat 15, and finally to the floor 34 from which they drop into the bins 18. As already stated the vat 14 contains boiling water in which the shingles are heated rapidly to a very high degree. The heat expands the air in the cellular and intercellular spaces in the wood, and expels or drives out the sap. The shingles next pass into the drying chamber which is kept heated to a high degree by the steam pipes 27. By this heat, the air in the cells of the wood is further heated, and expanded, and all the sap is driven to the surface, and vaporized. This drying process continues for a few minutes, when the shingle has lost most of its sap and water, and when at its maximum heat, it is plunged or submerged in the cool preservative fluid contained in the vat 15, which causes the air in the cellular and intercellular spaces of the wood to quickly contract, thereby forming a vacuum into which the preservative fluid is forced by the atmospheric pressure. The shingles are next taken up by the conveyer and carried to the floor 34, and deposited in the receiving bins 18 according to grades and sizes.

A shingle treated as herein described needs only a short period of exposure to obtain a complete and thorough penetration, whereas cold shingles submerged in boiling preservative fluids receive only a surface penetration, although they are exposed for a much longer period. Carrying the shingles singly on their edges, equally exposes every part of their surface to the heating and drying processes, and prevents warping, as well as sticking together, which would prevent the entry of the preservative fluid, as is frequently the case when the shingles are carried flat.

The time of passage of the shingles through the apparatus can be regulated by the length of the several compartments, and by the speed of the conveyer. The apparatus may have many or few passages, according to the number of grades and dimensions of the shingles to be treated.

The apparatus may also be employed for drying shingles only if creosoting is not desired, by leaving out the vat 15.

The false bottom 26 will be made removable so that access to the steam pipes 27, for the purpose of repair or otherwise, may be readily had.

The preferred embodiment of the apparatus has been shown and described herein, but it will be evident that various minor

changes and modifications in the structural details thereof may be resorted to, without a departure from the invention, and no limitations are implied except as indicated in the appended claim.

What is claimed is:

The method of treating timber with a preservative fluid, consisting of submitting the timber to the action of boiling water, then drying the timber with heat, and

finally immersing the dried and heated timber in a cool oily preservative fluid under substantially atmospheric pressure.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN G. PATY.

Witnesses:

S. L. HEROLD,
J. C. PUGH.