

C. A. GEER.  
 APPARATUS FOR MANUFACTURING LEASE REEDS.  
 APPLICATION FILED JAN. 20, 1906.

930,659.

Patented Aug. 10, 1909.

4 SHEETS—SHEET 1.

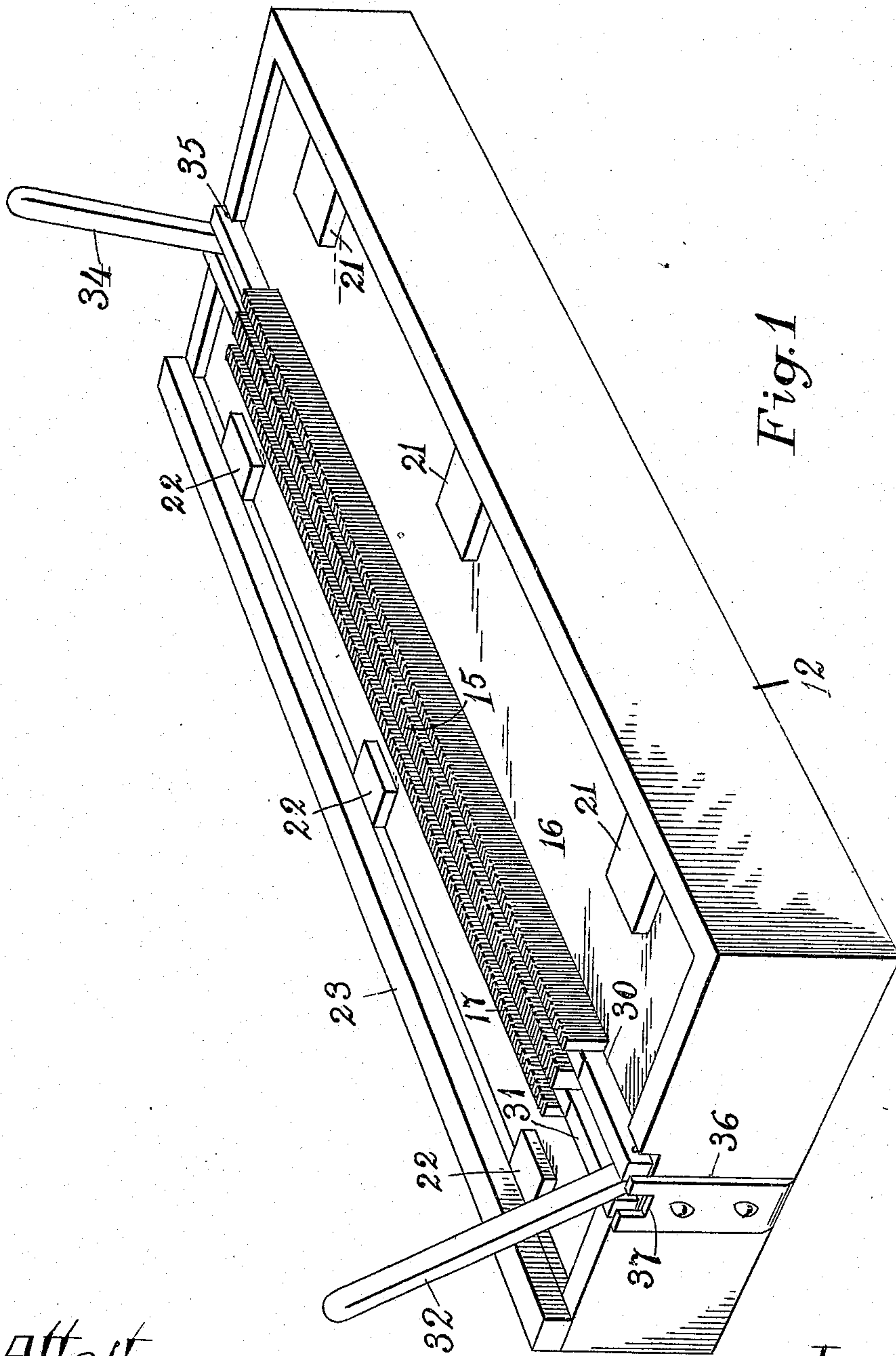


Fig. 1

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Inventor,  
 Charles A. Geer;  
 By A. B. M. Pham,  
 ATT'Y

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Fig. 2

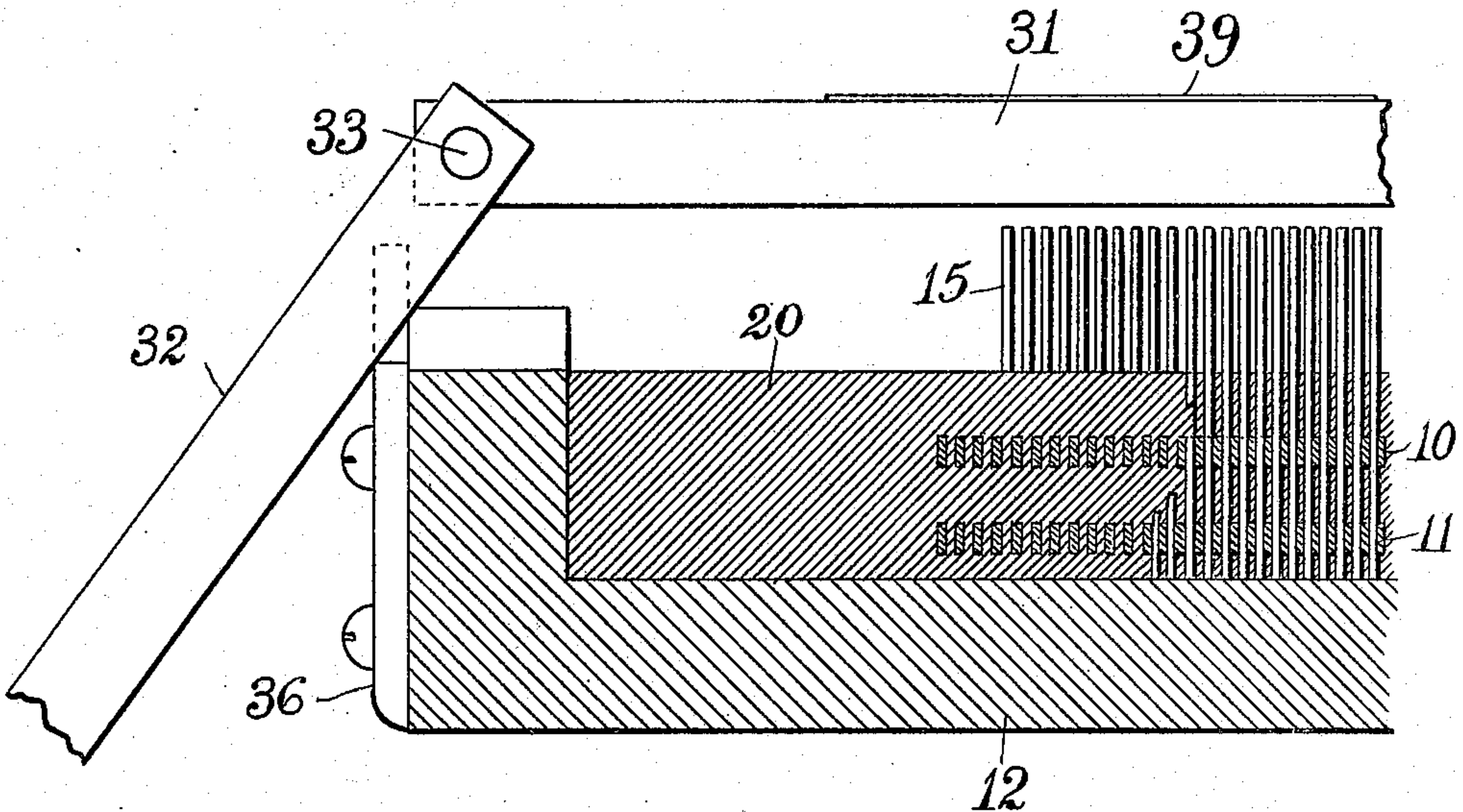
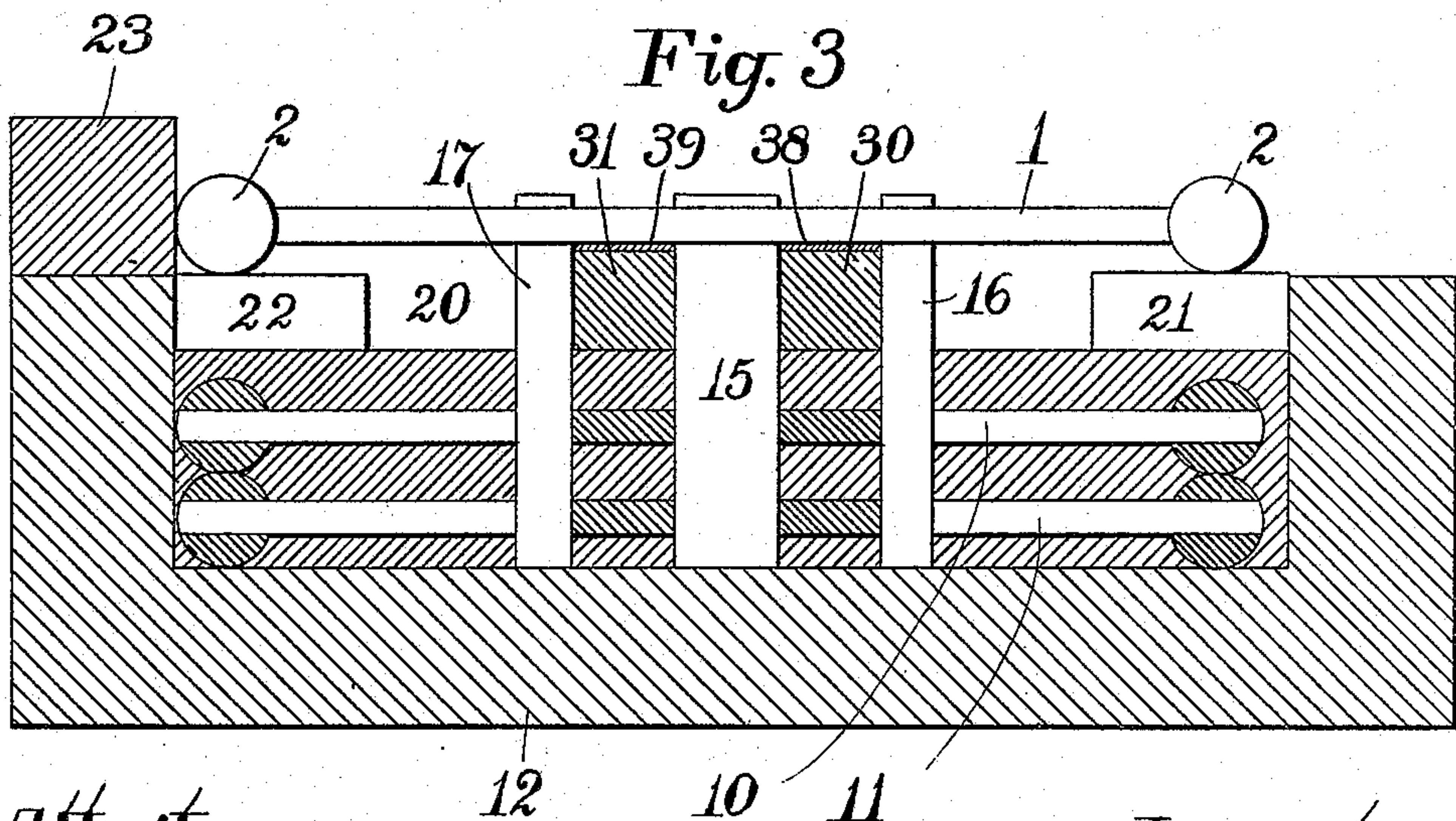


Fig. 3



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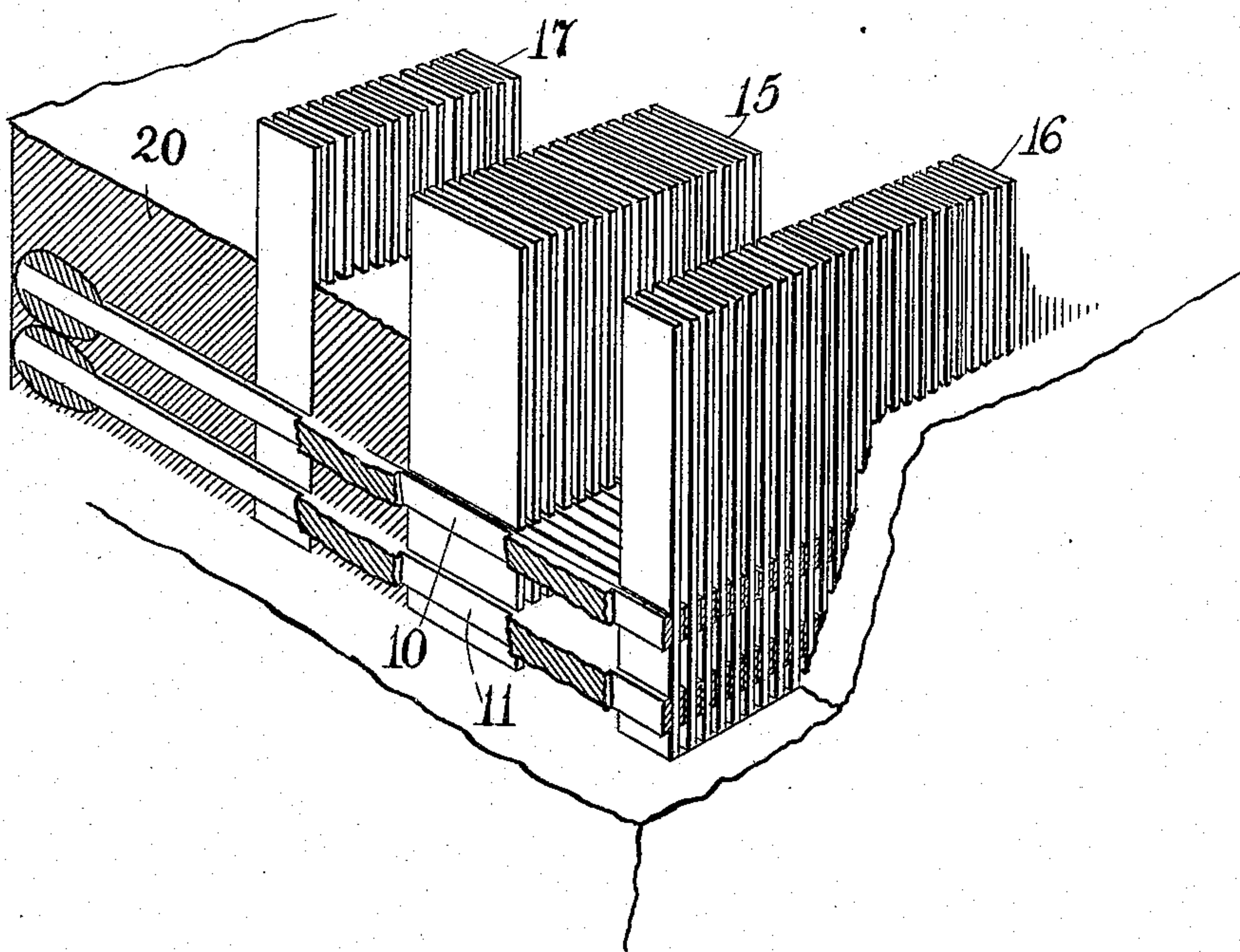
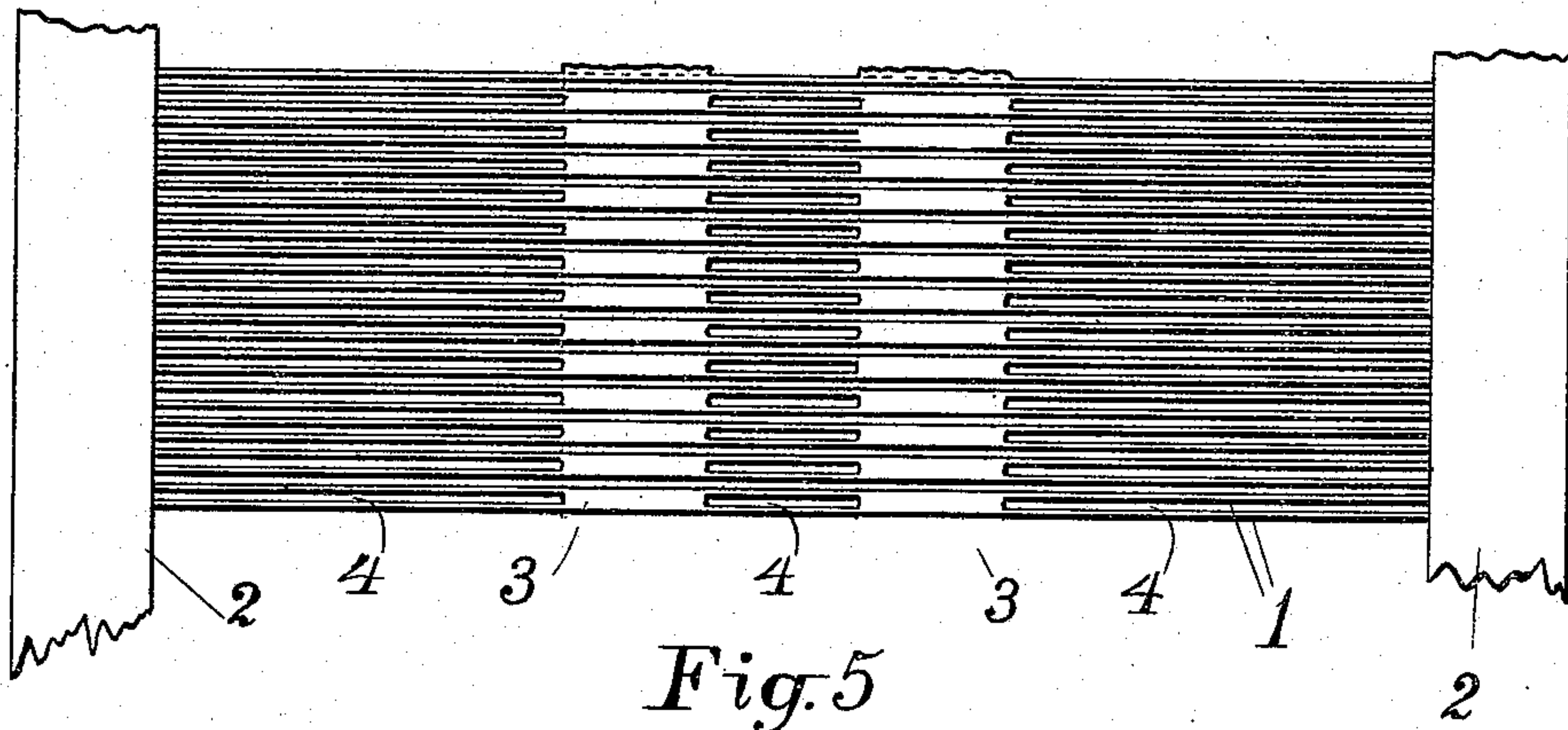


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4 SHEETS—SHEET 3.



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Fig. 4

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4 SHEETS—SHEET 4.

Fig. 6

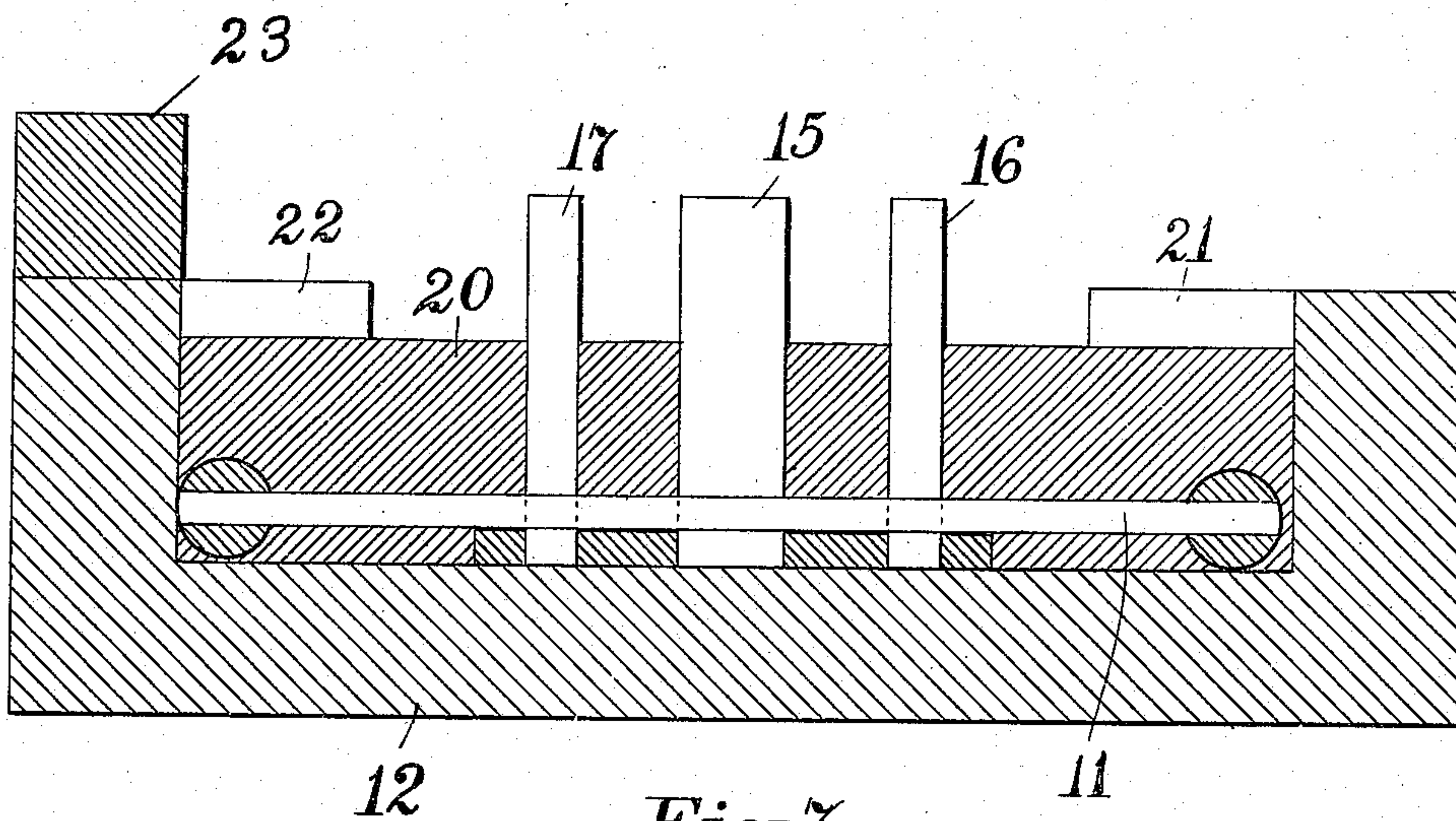
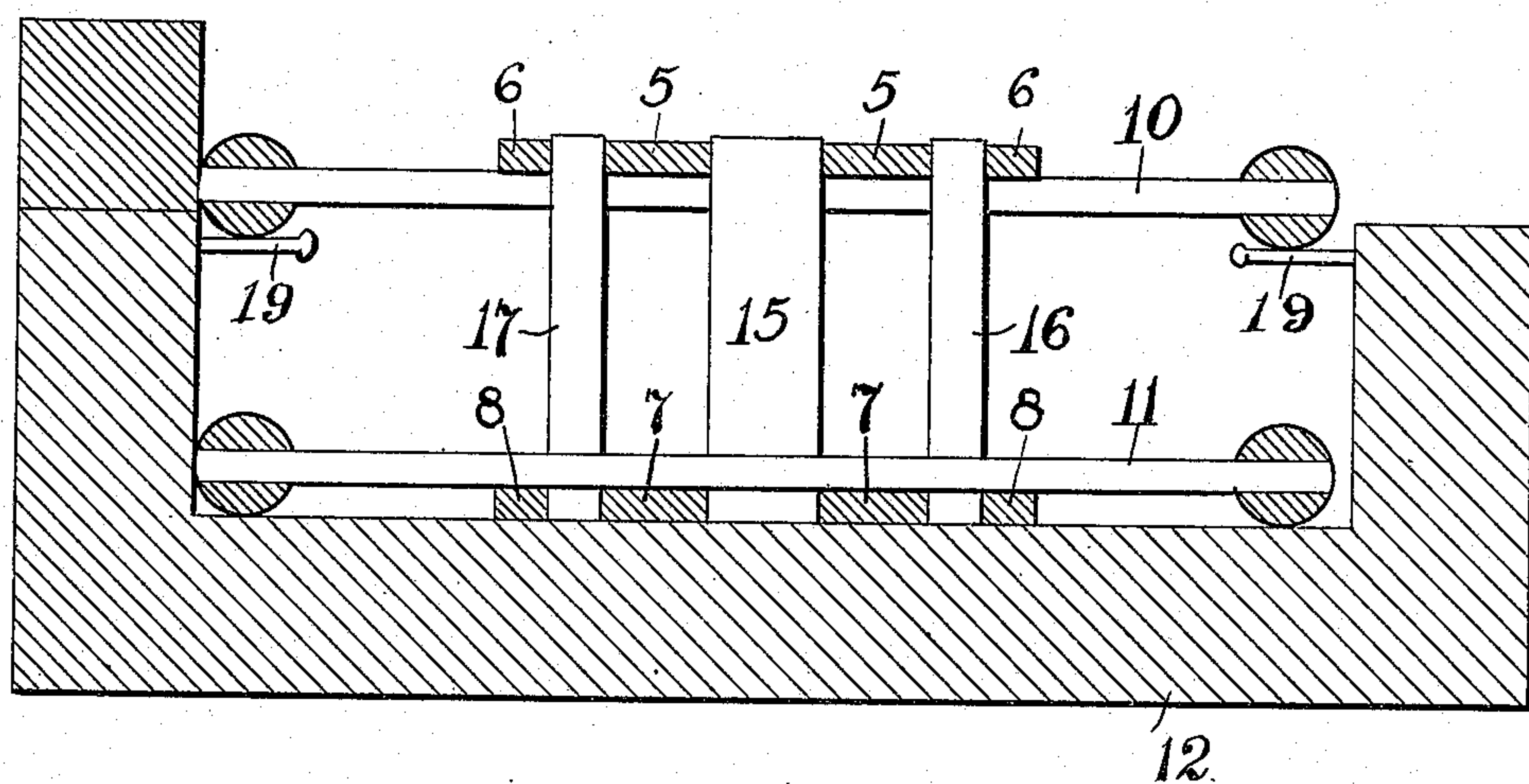


Fig. 7

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# UNITED STATES PATENT OFFICE.

CHARLES A. GEER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE WHITAKER REED COMPANY.

## APPARATUS FOR MANUFACTURING LEASE-REEDS.

No. 930,659.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed January 20, 1906. Serial No. 297,011.

*To all whom it may concern:*

Be it known that I, CHARLES A. GEER, a citizen of the United States, and a resident of Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Apparatus for Manufacturing Lease-Reeds, of which the following is a full, clear, and exact description.

The object of this invention is the construction of apparatus for the expeditious, accurate and economical application of solder to certain parts of the spaces between the dents in lease reeds used in connection with looms.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view of the apparatus embodying my invention. Fig. 2 is a side sectional elevation of a terminal portion of the apparatus. Fig. 3 is a cross section illustrating one way in which the apparatus may be made. Fig. 4 is a perspective sectional view of the same. Fig. 5 is a plan view of a portion of a lease reed. Fig. 6 is a cross sectional view of the apparatus partially complete showing my preferred manner of making it. Fig. 7 is a cross-section of my preferred form of apparatus.

Referring to Fig. 5, it will be seen that a lease reed consists of a multiplicity of small wires or ribbons of metal, 1, usually termed "dents", terminally held by rails or ribs 2; the distance between the dents depending upon the character of the work for which the reed is designed, and each alternate space 4 between the dents being subdivided into five sections. The preferable means for blocking said spaces 4 into the five sections is found to be solder; but the application of such solder I find to be a very difficult, and tedious task; one, moreover, practically impossible of performing with accuracy, owing to the tendency on the part of the melted solder to flow for irregular distances along the spaces by capillary attraction.

The object of this invention is the construction of means for absolutely limiting such irregular flow of the solder, so that the latter can be applied to the plain reeds with a maximum of rapidity and the results be always of the desired accuracy.

My invention for this purpose consists of apparatus carrying appropriate dams capable of preventing the flow of solder wherever

it is not to go, while still permitting it to be applied wherever desired. For such a dam it is of course necessary to use a substance to which the solder will not adhere; and the material which I have discovered to be the best for this purpose is aluminum.

In forming the apparatus, I have devised two different ways of making the apparatus, but will describe my preferred form later.

In the ways shown in Figs. 2, 3 and 4, two lease reeds 10 and 11 are laid one upon the other at the bottom of a shallow box 12, and strips 16, 15 and 17 of aluminum are inserted therein in the three rows shown in Fig. 3, in the spaces between the dents of said reeds. Then liquid plaster-of-paris or other very fine and fluid cement, is poured into said box to the depth represented after this has set and hardened, and said strips therefore firmly held thereby, the apparatus is ready to be used in the manner hereinafter set forth.

The way in which I prefer to make this apparatus, as shown in Figs. 6 and 7, is to take two plain reeds 10 and 11, and lay the latter 11 on the bottom of said box 12, with four bars or strips 7 and 8 extending from end to end thereof. The aluminum strips 15, 16 and 17 are then inserted between said bars in the spaces between the dents of said reed; and the reed 10 impaled upon said strips near the upper ends of the latter, and suitably supported as upon nails 19 driven into the inner faces of the box-sides; care being taken to have said strips enter the spaces in the reed 10 corresponding to those in the reed 11. Bars 5 and 6 similar to those below (7 and 8), are next laid upon the reed 10, and positioned to accurately hold the strips 15, 16 and 17 in the vertical position represented in Fig. 6. For the particular lease reed taken for illustration, the bars 5 and 7 and the strips 15 are half an inch in width, but any other special type of lease reed would probably be of other dimensions, and said bars and strips would accordingly be of different widths from these. The bars 6 and 8 can be of any suitable width, as can the strips 16 and 17. Liquid plaster-of-paris is now poured into the box 12 to the level shown in Fig. 7; and after it has partially set, care is taken to see that the strips 15, 16 and 17 are not displaced in any way. When fully set and hardened, the reed 10 and bars 5 and 6



are removed; the blocks 21, 22, and the guide rail 23 applied. The apparatus is now ready to be used, with the exception of a device for enabling the completed lease reed to be removed from the aluminum strips, or teeth 15, 16 17. This consists of bars 30, 31 fitted to be applied between the rows of teeth 15 and 16, and 15 and 17, as shown in Fig. 3, and to rest upon the composition surface 20.

When thus supported, there should be slightly more distance between their upper faces and the extremities of the teeth 15, 16, 17 than will allow for the dents 1 of a reed applied as shown in Fig. 3. Upon said bars and snugly filling such space between the latter and the under edges of said dents, as the reed rests upon the blocks 21, 22, are placed plates or ribbons 38, 39 of aluminum. These bars are made vertically removable from between the three rows of teeth by means of the handles 32, 34 pivoted at 33 and 35 respectively between the ends of said bars, as shown in Figs. 1 and 2. These handles rest normally in the notches 27 of the plates 36, but, when their outer extremities are depressed, they act to raise said bars as desired. See Fig. 2. As these bars rise, they force the completed lease reeds vertically upward out of engagement with the strips or teeth 15, 16, 17. The bars 30, 31 being in place, and the aluminum plates or ribbons 38, 39 fully covering the same, a plain reed is placed upon the apparatus, with one rib 2 pressed back against the rail 23, and the said teeth penetrating the spaces and terminating close above the upper edges of the dents. The workman now runs the nose of his soldering iron along each space between the teeth 15 and 16, and the teeth 15 and 17, until the entire reed is completed the bar solder being held against the soldering iron and melted thereby, and so keep up the supply to the nose thereof, in the usual manner. The completed lease reed is then removed as described above, and another plain reed applied.

Inasmuch as the aluminum, by its lack of affinity for solder, forms a dam to the spread of the latter beneath the dents as well as where the solder meets the teeth, the lease reeds will all be formed exactly alike, and each one with the terminations of the soldered spaces accurately in line, as shown in Fig. 5.

Although the teeth 15, 16, 17 could be formed by milling or planing them from a solid bar of aluminum, yet the same could not be used in practice for the reason that the ribs 2 of the reeds are generally of wood, and the expansion of the aluminum would be so great as to bring the teeth far out of true with respect to the spaces in the reeds. But by employing a composition for holding the aluminum teeth which is not affected by variations in temperature, and mounting the

same in a wooden box with its grain running longitudinally and hence also unaffected, I wholly avoid any such difficulties otherwise insurmountable.

I also find it essential to use a wooden box for receiving the plaster-of-paris, rather than a metallic box, for the reason that the plaster has to be so extremely liquid in order to thoroughly penetrate every crevice between the teeth and dents of the reed 11, that, were such box of a non-porous material like metal, there would be a great loss of time in awaiting the perfect solidifying of the fluid mass.

The method of using plain reeds for accurately locating the teeth is also very important, as it would otherwise be practically impossible to group them in perfect alinement with the spaces in the reeds to be soldered.

What I claim as my invention and for which I desire Letters Patent is as follows, to wit:—

1. The herein described apparatus for aiding in the application of solder to reeds in the formation of lease reeds, consisting of a suitable supporting base and a series of teeth rigidly projecting therefrom and disposed to penetrate the spaces between certain dents in such reed and prevent the flow of the melted solder along such spaces; said teeth being provided with a solder-resisting surface.

2. The apparatus for the purpose described, consisting of a suitable support and a series of aluminum teeth rigidly projecting therefrom, and disposed to penetrate the spaces between certain dents, and prevent the flow of melted solder beyond certain limits.

3. The apparatus for the purpose described, consisting of a non-expansible base and a series of solder-resisting teeth rigidly projecting therefrom, and disposed to penetrate the spaces between certain dents in a reed applied thereto.

4. The apparatus for the purpose described, consisting of a box, a non-expansible composition in said box, and a series of solder-resisting teeth projecting from and held by said composition; said teeth being disposed to enter the spaces between certain dents of a reed applied thereto.

5. The apparatus for the purpose described, consisting of a wooden box, plaster-of-paris in said box, and a series of solder-resisting teeth projecting from and held by said plaster, and disposed to enter the spaces between certain dents of a reed applied thereto.

6. The apparatus for the purpose described, consisting of a box, one or more reeds within said box, solder-resisting teeth penetrating said reeds and located thereby, and plaster-of-paris enveloping the lower parts of said teeth and rigidly holding the same.

7. The apparatus for the purpose de-



scribed, consisting of a box, a reed resting on the bottom of said box, solder-resisting teeth penetrating alternate spaces between the dents of said reed, and arranged in rows, a suitably supported reed penetrated by the upper ends of said teeth, and liquid plaster-of-paris poured into said box and enveloping the lower parts of said teeth and the first-named reed.

8. The apparatus for the purpose described, consisting of a base, a series of solder-resisting teeth arranged in three rows and disposed to enter the spaces between certain dents of a reed applied thereto, two bars located between said rows, and having their upper surfaces solder-resisting, and means for forcing said bars vertically upward and thereby removing the lease reed made thereon.

9. The apparatus for the purpose described, consisting of a base, a series of solder-resisting teeth projecting therefrom in rows arranged longitudinally of said base, bars lying between the said rows, handles pivoted to the ends of said bars, and fulcrums at the ends of said base for said handles.

10. The apparatus for the purpose described, consisting of a base, a series of solder-resisting teeth rising from said base and disposed to enter the spaces between certain dents of a reed applied thereto means for supporting such reed, and a back-rail for accurately locating such reed on the apparatus.

11. The apparatus for the purpose described, consisting of an elongated shallow box nearly filled with a rigid substance, three rows of solder-resisting teeth rising from the latter,—said rows extending longitudinally of said box,—two metal bars fitted between said rows and having their upper surfaces made solder-resisting, handles pivoted between the extremities of said bars, and notched plates fixed to the ends of said box and disposed to serve as fulcrums for said handles.

12. The apparatus for the purpose described, consisting of an elongated shallow box nearly filled with a rigid substance, three rows of solder-resisting teeth rising from the latter,—said rows extending longitudinally of said box,—two metal bars fitted between said rows and having their upper surfaces made solder-resisting, handles pivoted between the extremities of said bars, fulcrums for said handles, a back-rail for positioning a reed horizontally on the apparatus, and blocks for supporting such reed at the proper height.

13. In an apparatus for making lease reeds, a base and center and side bars projecting up therefrom and spaced so that a

loom reed can be placed thereon to form pockets for the insertion of separating blocks.

14. In an apparatus for making lease reeds, a base, a loom reed secured in the base, center and side bars projecting up from the loom reed, the loom reed acting to space the center and side bars.

15. In an apparatus for making lease reeds, a box, a loom reed placed therein, center and side bars projecting up therefrom, and a hardening plastic material holding the parts in position in the box.

16. In an apparatus for making lease reeds, a base and rows of aluminum center and side bars projecting therefrom.

17. In an apparatus for making lease reeds, a box having positioning ribs, a loom reed placed thereon, center and side bars projecting up from the loom reed, and a compound holding these parts in position in the box.

18. In an apparatus for making lease reeds, a box having longitudinal ribs, a loom reed placed upon the ribs, center and side bars projecting up from the loom reed, and a compound in said box holding the parts in position.

19. In an apparatus for making lease reeds, a base, center and side bars projecting up from the same, and separating bars placed between the center and side bars.

20. In an apparatus for making lease reeds, a base, aluminum center and side bars projecting therefrom, and aluminum separating bars placed between the center and side bars.

21. In an apparatus for making lease reeds, a base, center and side bars projecting up from the same, separating bars placed between the center and side bars, and handles pivoted to the separating bars.

22. In an apparatus for making lease reeds, a base, center and side bars projecting up from the same, separating bars placed between the center and side bars, handles pivoted to the ends of the separating bars, and notched pieces secured to the base into which the handles fit.

23. In an apparatus for making lease reeds, the combination of a series of bars for entering the spaces between the steel bars of a loom reed and holding them accurately in position, and a hardening plastic material holding said bars in position.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 10th day of January, 1906.

CHARLES A. GEER.

Witnesses:

EDWIN W. BROWN,  
A. B. UPHAM.