

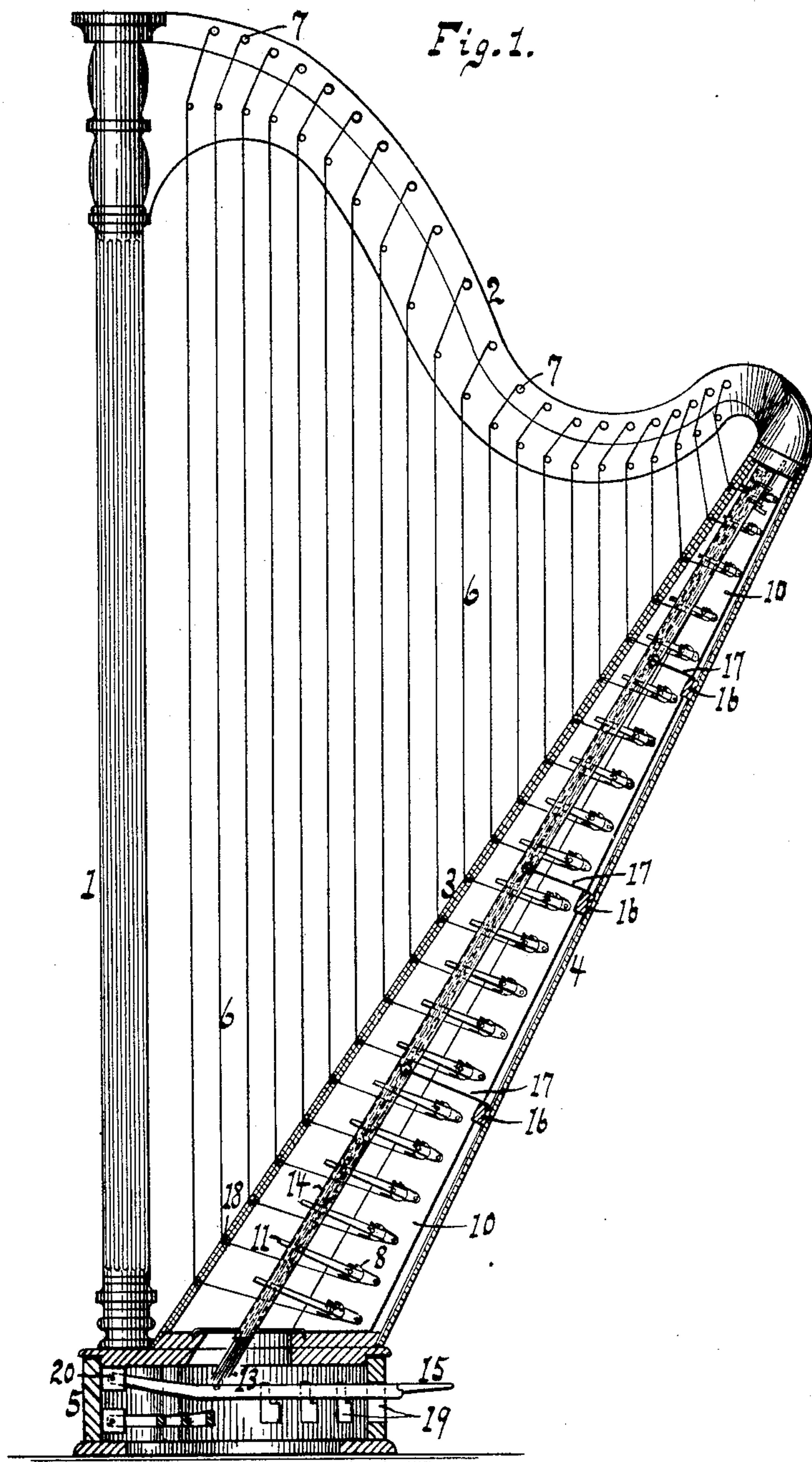
(No Model.)

2 Sheets—Sheet 1.

E. P. STARK.
HARP.

No. 570,826.

Patented Nov. 3, 1896.



WITNESSES:

Chas. E. Doeringer.
William Miller

INVENTOR

Ernst Paul Stark.

BY

Hauff & Hauff
ATTORNEYS.

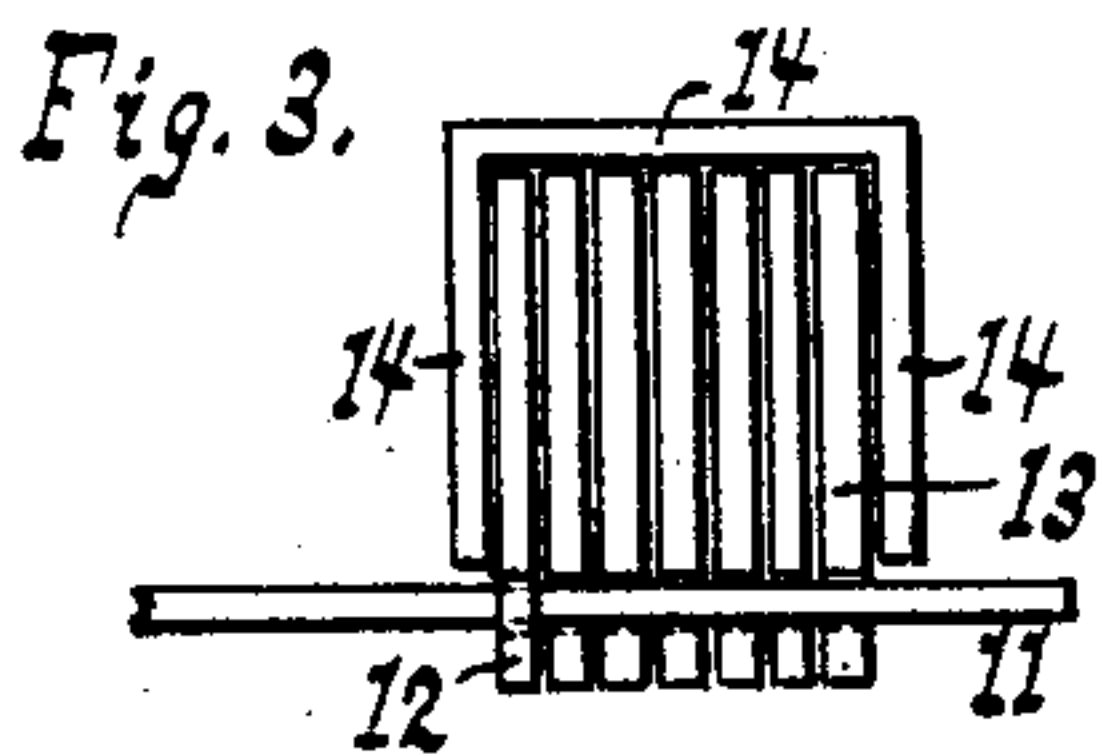
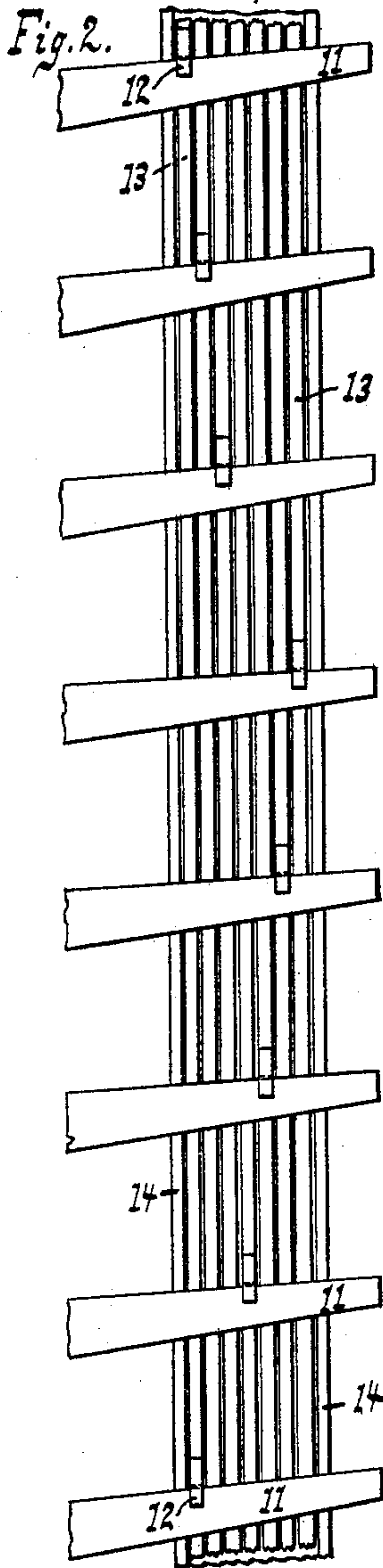
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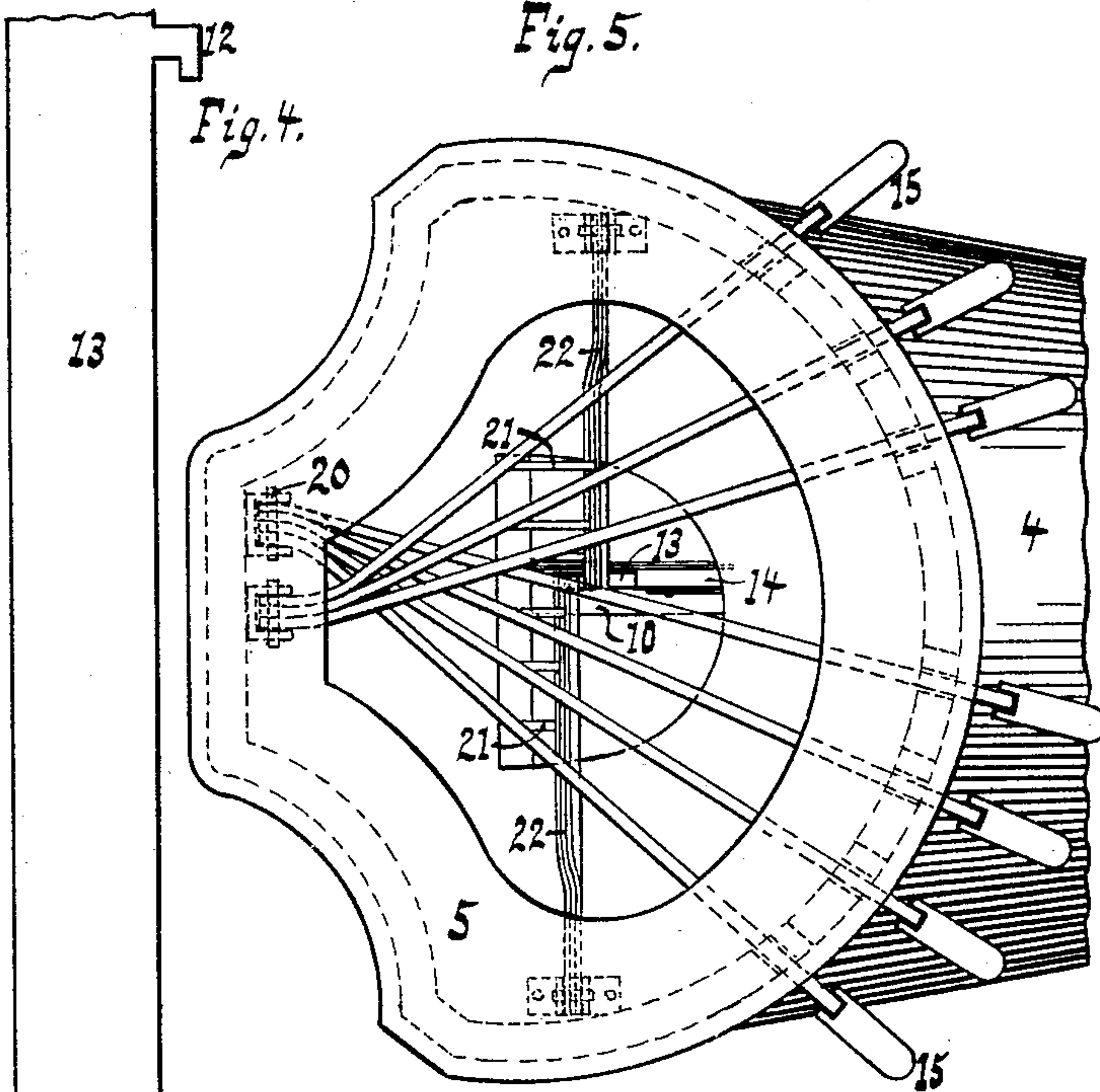


Fig. 6.

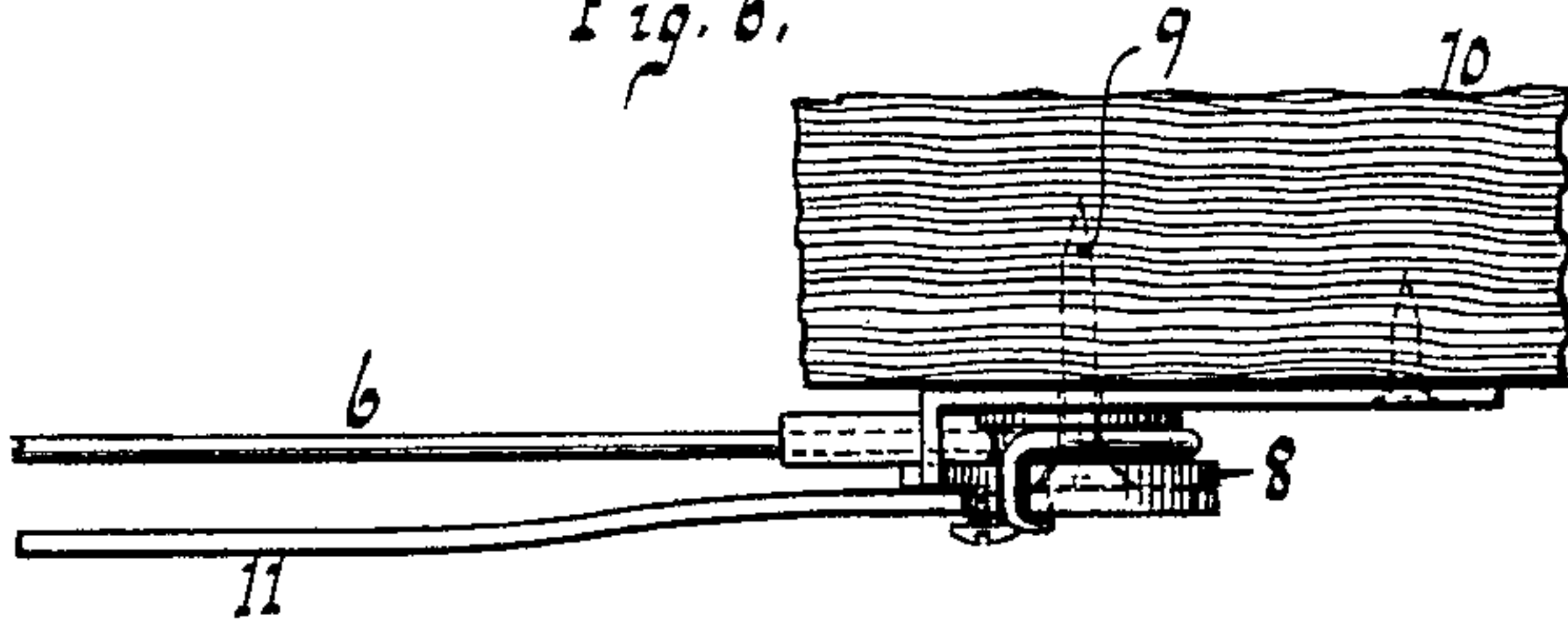
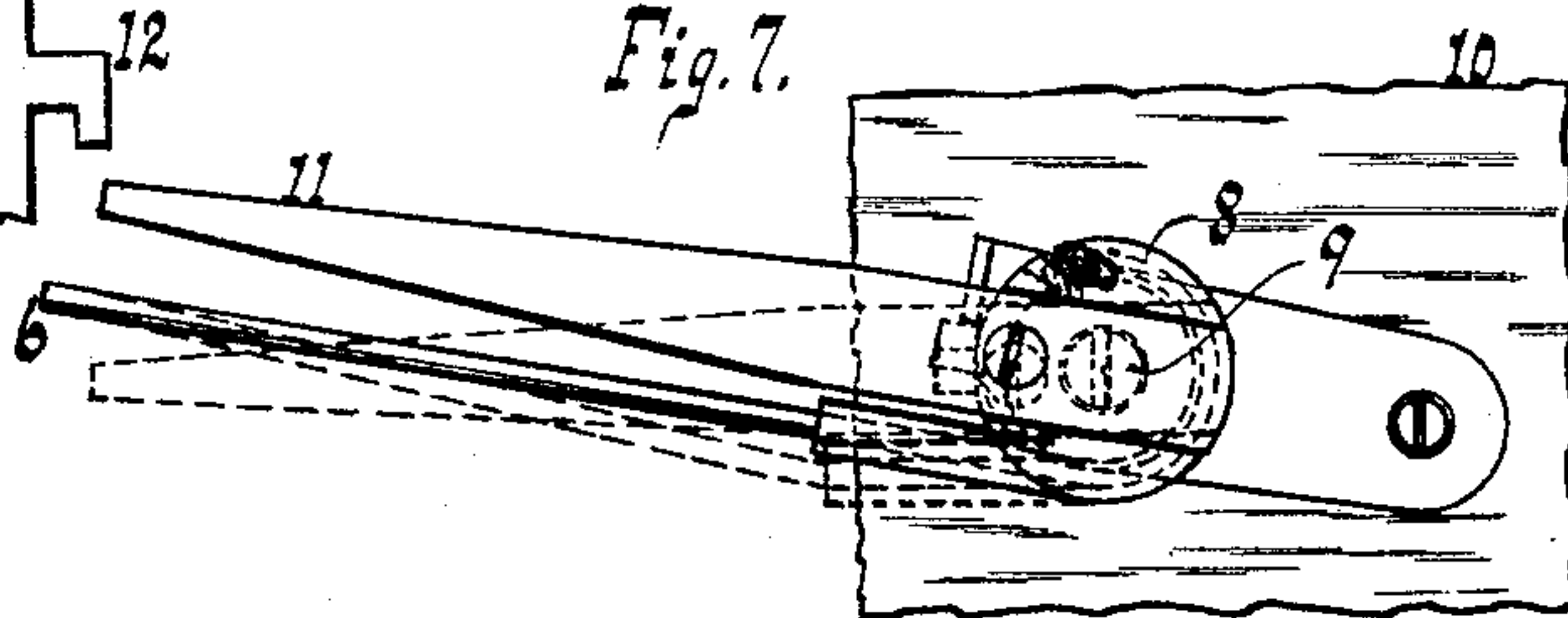


Fig. 7.



INVENTOR

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UNITED STATES PATENT OFFICE.

ERNST PAUL STARK, OF MARKNEUKIRCHEN, GERMANY.

HARP.

SPECIFICATION forming part of Letters Patent No. 570,826, dated November 3, 1896.

Application filed July 30, 1896. Serial No. 601,072. (No model.)

To all whom it may concern:

Be it known that I, ERNST PAUL STARK, a citizen of the German Empire, residing at Markneukirchen, in the Kingdom of Saxony and German Empire, have invented new and useful Improvements in Harps, of which the following is a specification.

The object of this invention is to obtain a simple and effective pedal mechanism and also to avoid the formation or occurrence of harsh tones in a harp; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a harp. Fig. 2 is a detail view of rods or slides. Fig. 3 is a plan view of Fig. 2. Fig. 4 is a side elevation of a rod or slide. Fig. 5 is an inverted plan view of the harp. Fig. 6 is a detail side elevation of a string tightening or stretching lever. Fig. 7 is a plan view of the same.

The harp-frame is shown at 1 2 3. The frame side 3 with back 4 forms a closure for the chamber or space extending along such side. The base or foot is shown at 5. The strings 6 are secured to the tuning-pins 7 at frame side 2, and said strings extend through perforations in side 3 into the chamber.

The string ends in the chamber are each wound about or secured to a pulley 8, having its bearing or pivot 9 supported by a carrier or strip 10. The pulleys 8 form fulcrum parts for levers 11, extended under or engaged by hooks 12 on slides or rods 13. These slides 13 are formed as narrow strips or plates occupying comparatively small space when placed alongside one another in guide 14, Fig. 3.

The slides are engaged by pedals 15, and a depression of a pedal will move a slide 13 to swing a lever or set of levers 11 and rotate the corresponding pulleys 8, so that the tension of the corresponding strings is increased or the strings are stretched, as for raising the pitch half a tone. By having a suitable number of slides 13 and having one slide or its hooks 12 engaging, for example, the levers 11 connecting with A-strings, all such strings of the instrument can be suitably tightened or stretched. Similarly slides 13 can be ar-

ranged for stretching the B-strings, C-strings, and other strings of the harp.

The carrier 10 and guide 14 are supported clear of or to a great extent out of contact with the chamber or casement sides 3 and 4. The carrier 10 is shown secured to blocks or ribs 16, Fig. 1, interposed between the carrier and chamber side 4, and the guide 14 is shown steadied by braces or arms 17. The stretching of the strings is eased or chafing of the strings is avoided by leading the strings about pulleys or rollers 18, Fig. 1, as said strings bend or pass into the space between the walls or sides 3 4. By having the carrier 10 and guide 14 clear the sides 3 and 4 the vibration or efficiency of these sides as regards the sounding of the harp is not affected.

The pedals 15 extend out of base or foot 5 through suitably-shouldered apertures 19, so that a depressed lever when moved laterally to come under or engage such shoulder will be held depressed to maintain the raised pitch of a certain string or strings as long as desired.

The levers are fulcrumed in the base 5 at 20 and connect with slides 13 in any suitable way, as by links 21 and levers 22.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a harp, the combination with a carrier supported in the harp-casing, of a lever fulcrumed at one end on said carrier, a fixed pulley on the fulcrumed end of said lever and connected to one end of the harp-string, a slide engaging the free end of said lever, and a pedal for actuating said slide, substantially as described.

2. In a harp, the combination with a carrier supported in the harp-casing, of a series of levers each fulcrumed at one end on said carrier, a fixed pulley on the fulcrumed end of each of said levers, a series of slides each engaging the free end of one of said levers, and a plurality of pedals, one for each slide, for actuating the slides, one end of each of the harp-strings being connected to one of said pulleys, substantially as described.

3. In a harp, the combination with a carrier supported in the harp-casing, of a series of levers fulcrumed near one end on said carrier, a fixed pulley on the fulcrumed end of

each lever, a series of slides each provided with a projection engaging the free end of one of said levers, and a plurality of pedals, one for each slide, for actuating the slides, 5 one end of each of the harp-strings being connected to one of said pulleys, substantially as described.

4. A harp having its casement provided with a string tightening or stretching rod or 10 slide, a lever actuated by the slide and connected to a string, a guide for the rod, and a

carrier for the fulcrum, said guide and carrier being supported or mounted in the casement clear or out of contact with the latter substantially as described. 15

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

ERNST PAUL STARK.

Witnesses:

A. LIES,
GUSTAV GEIPAL.