

No. 702,301.

Patented June 10, 1902.

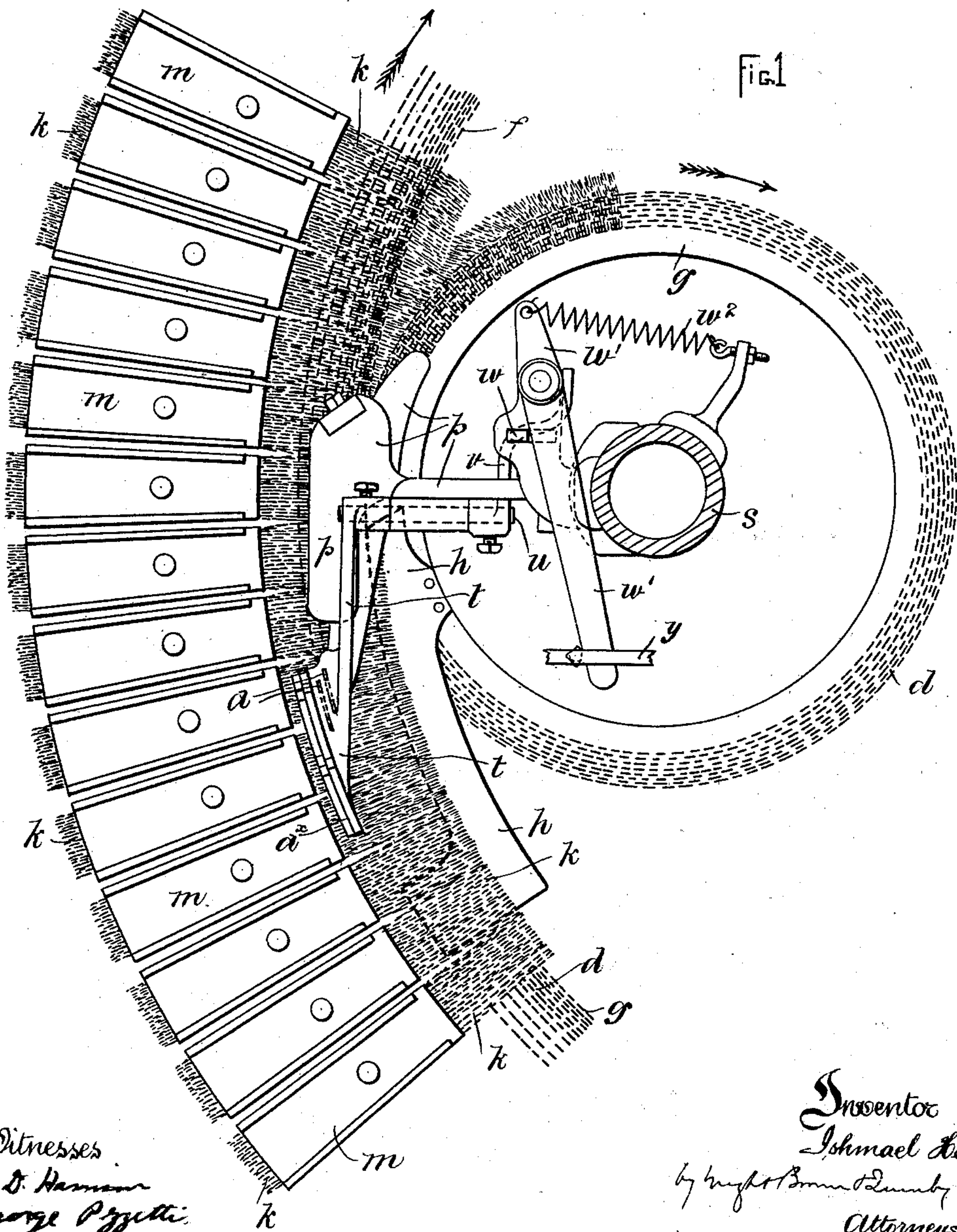
I. HEY.

MACHINE FOR COMBING WOOL, &c.

(Application filed Nov. 29, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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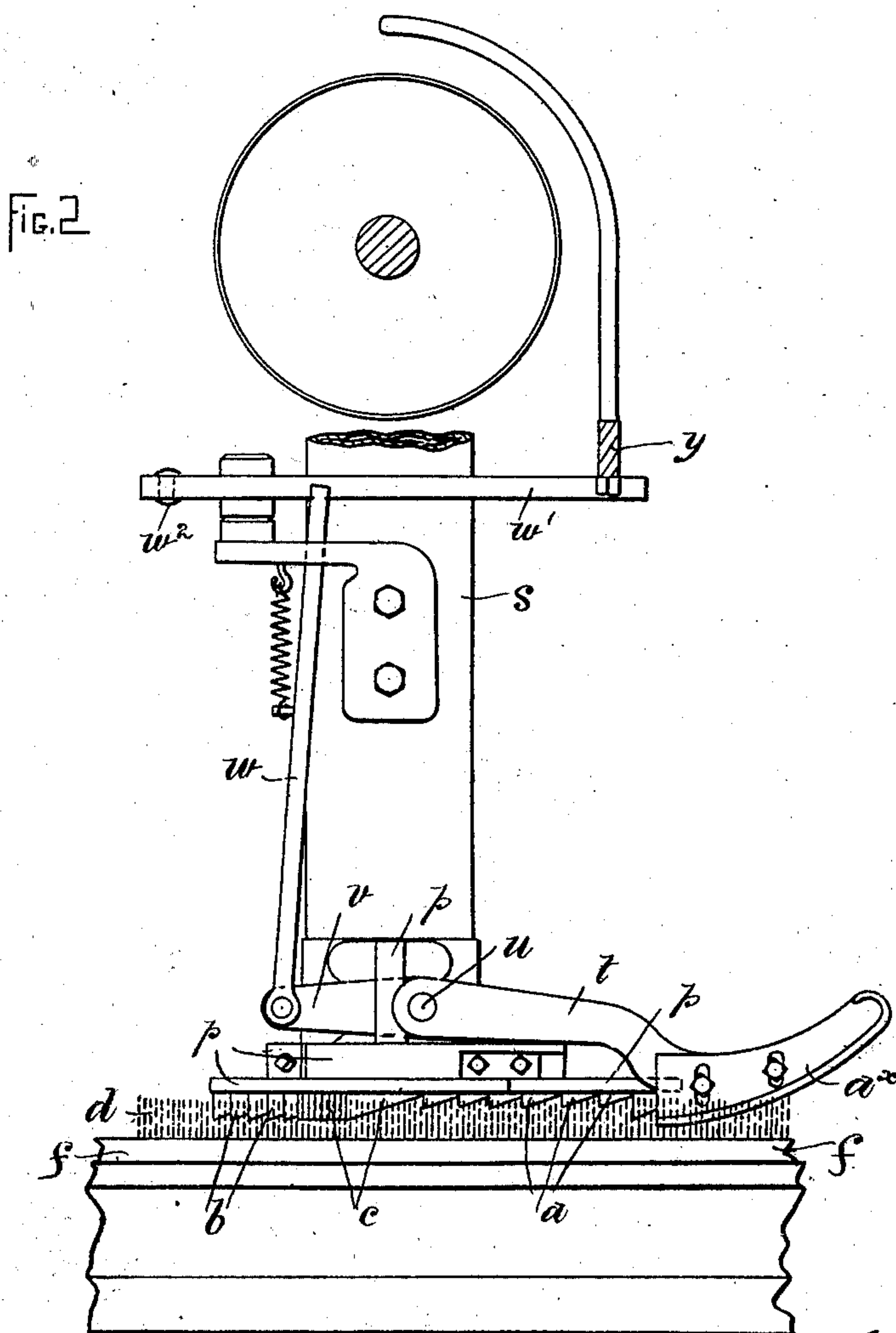
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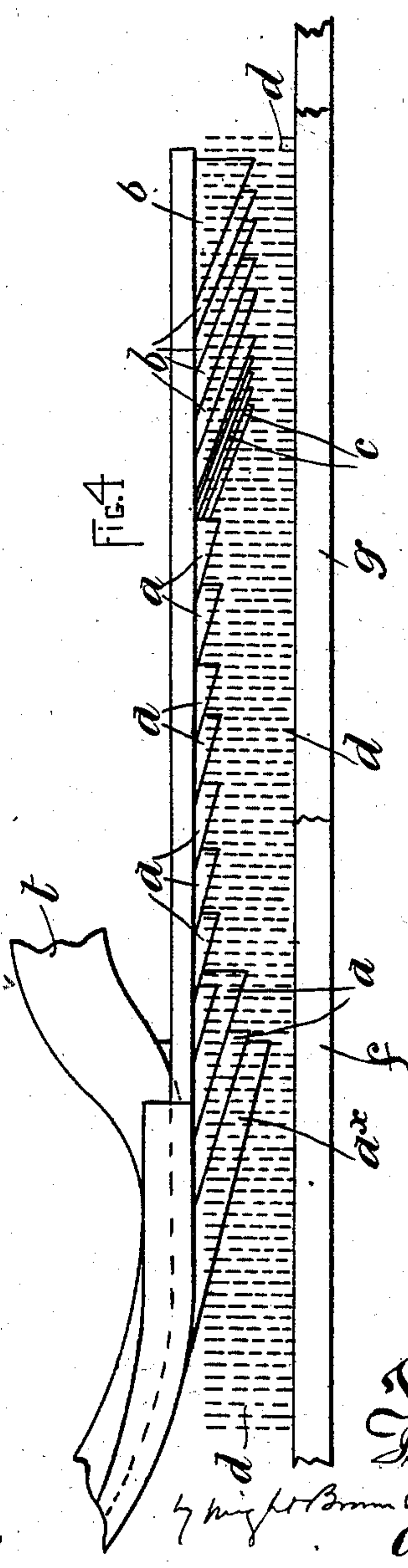
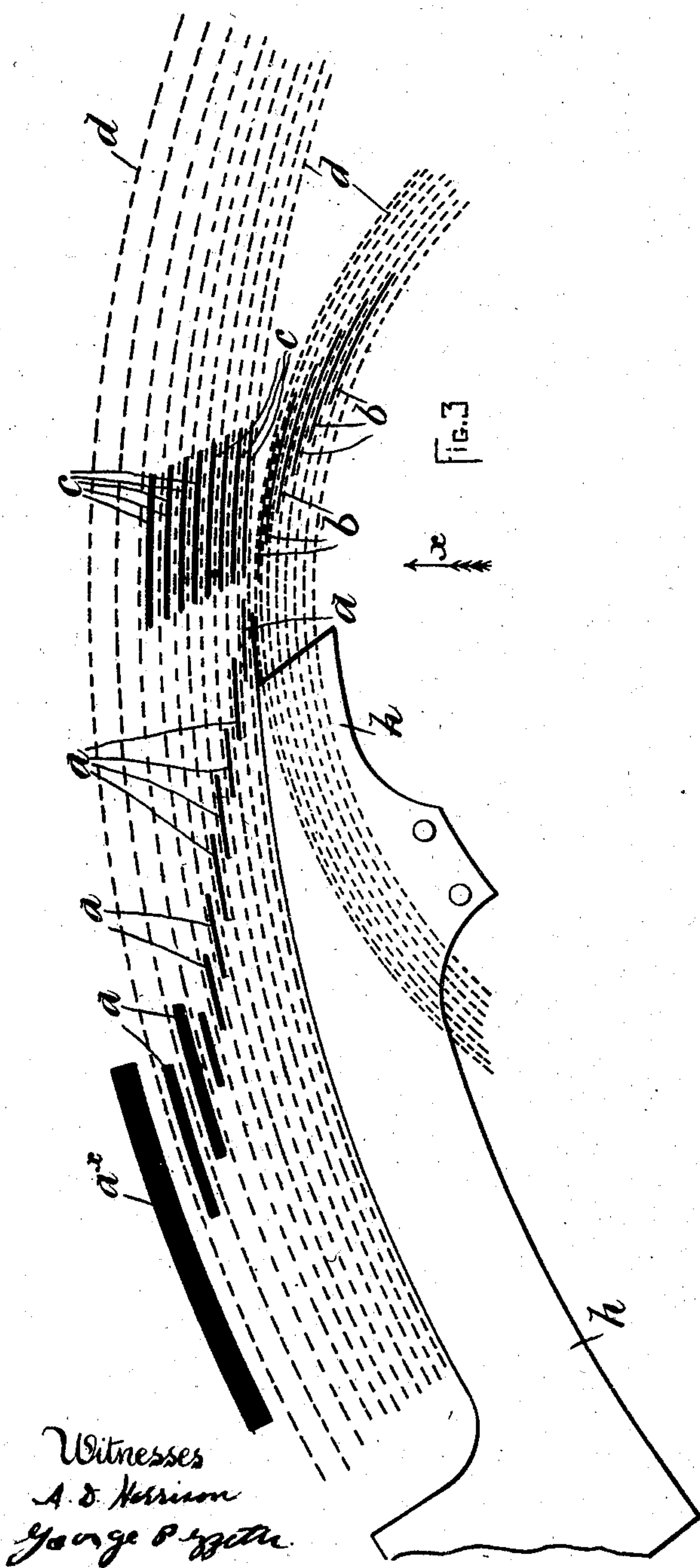
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FIG. 7

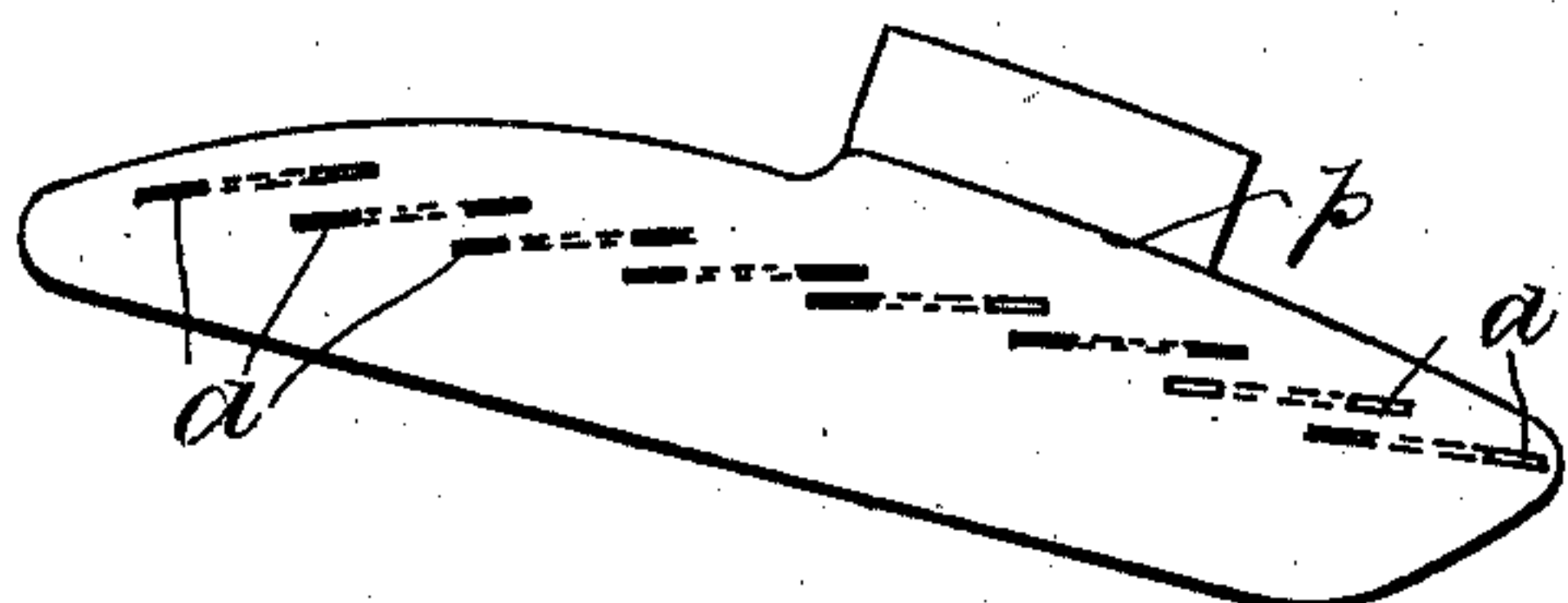


FIG. 9

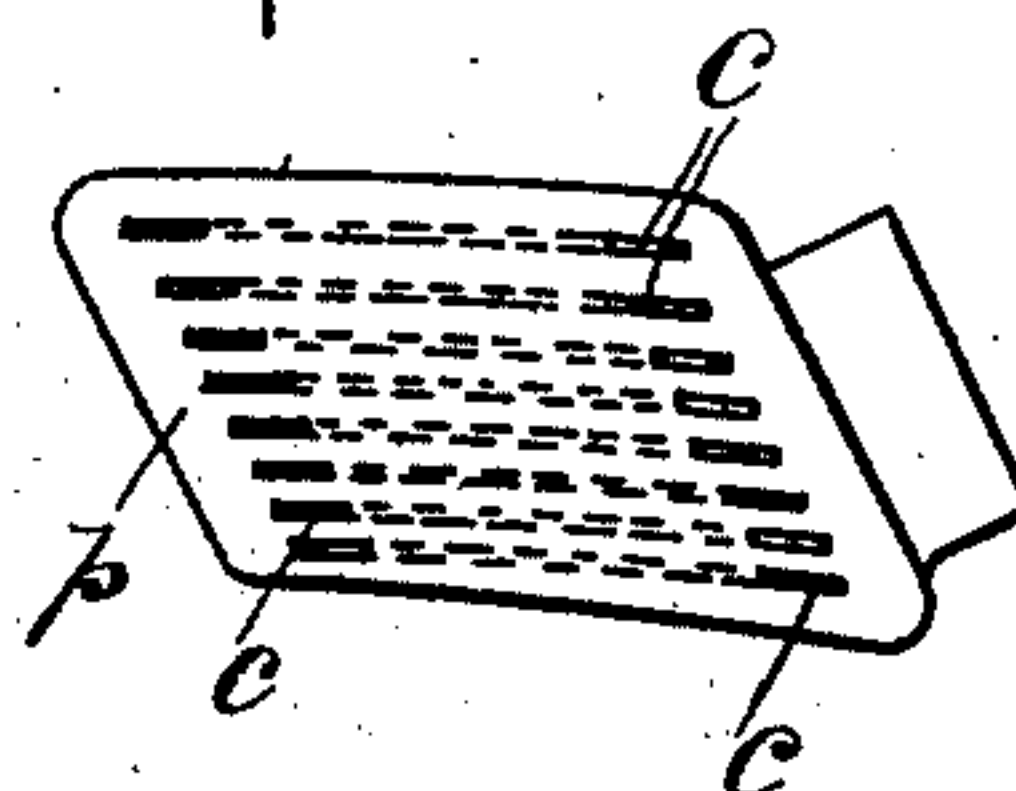


FIG. 8

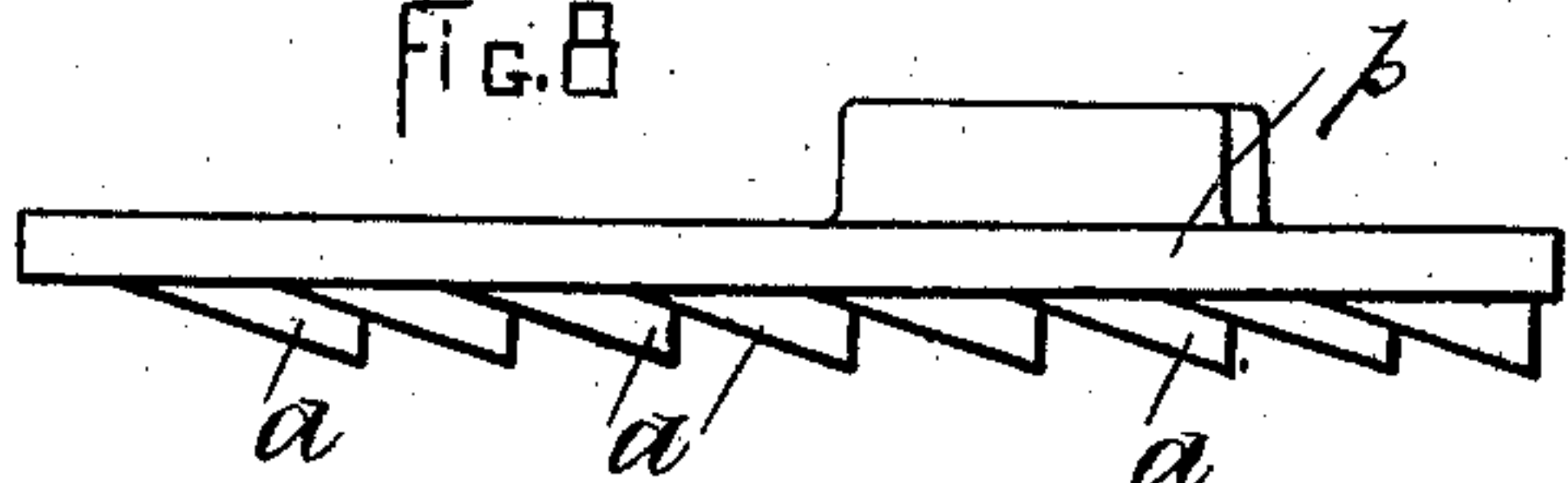


FIG. 10

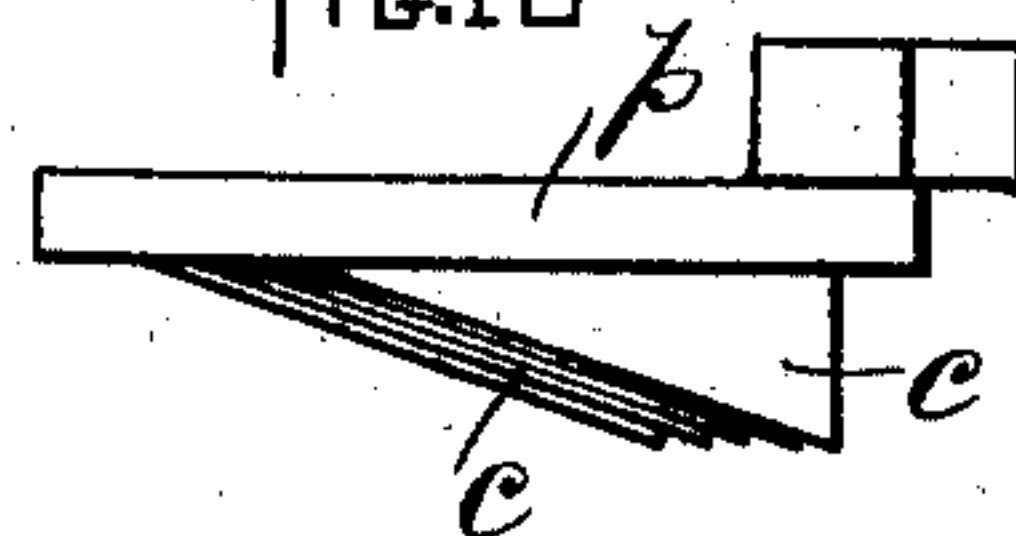


FIG. 11

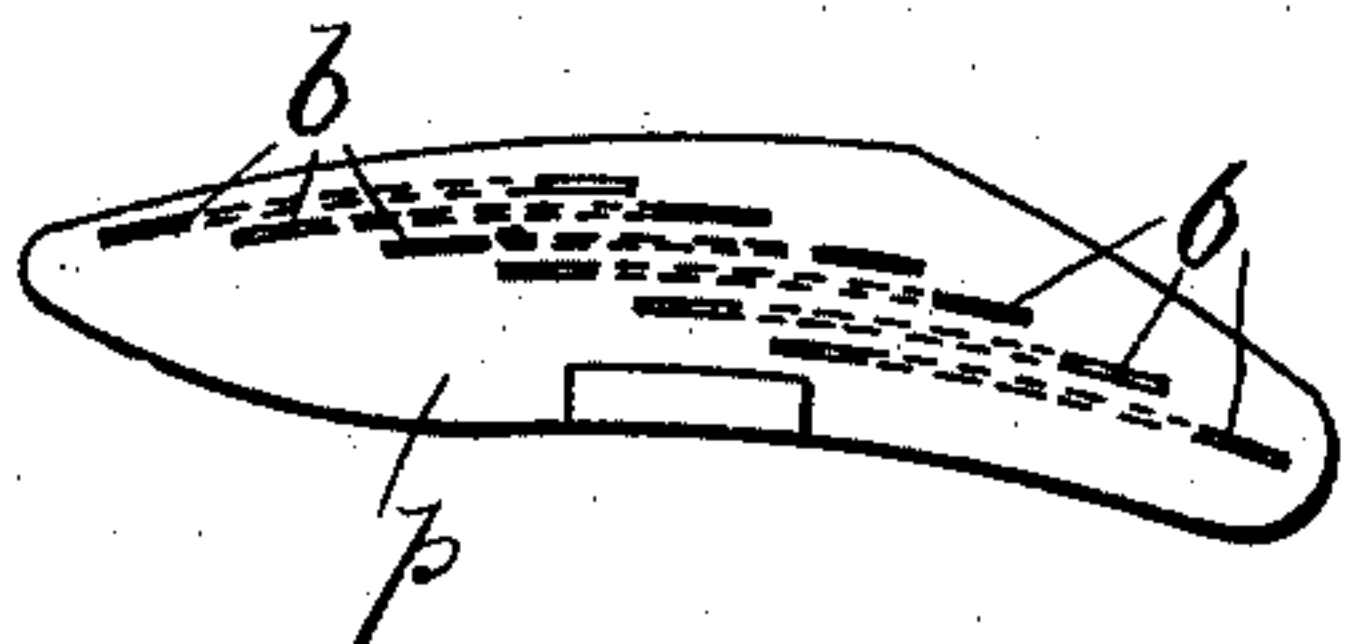


FIG. 13

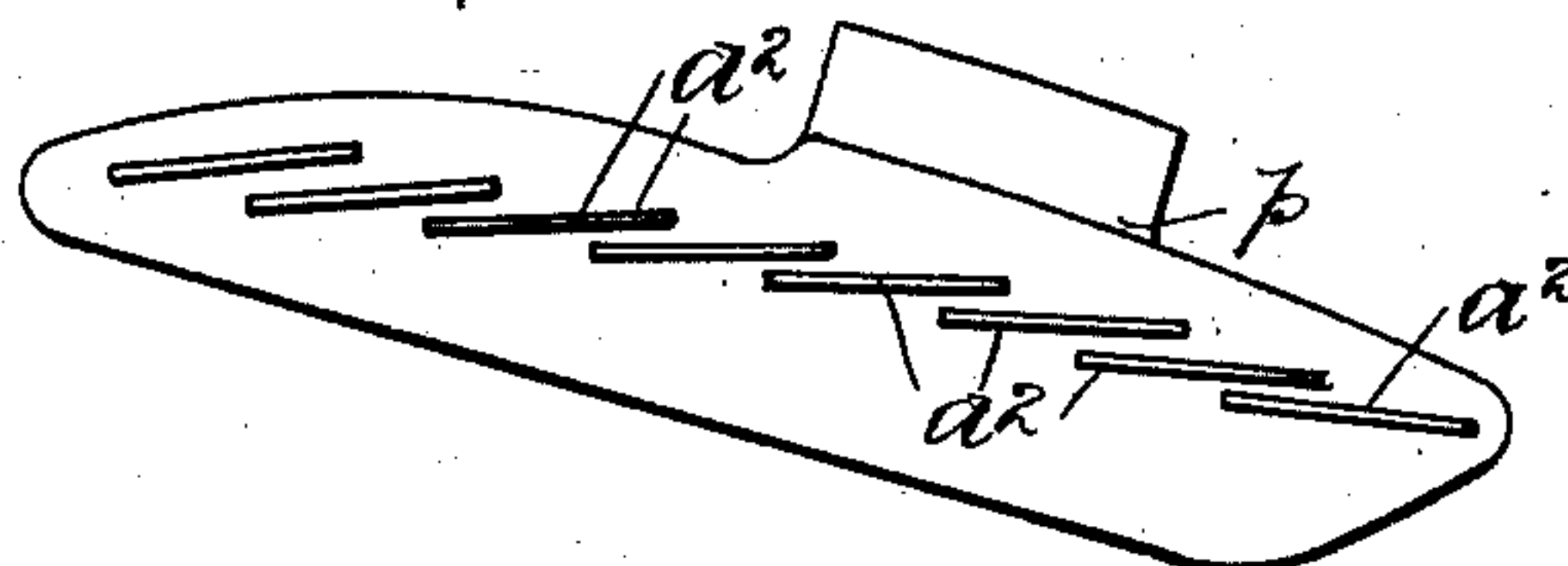


FIG. 12

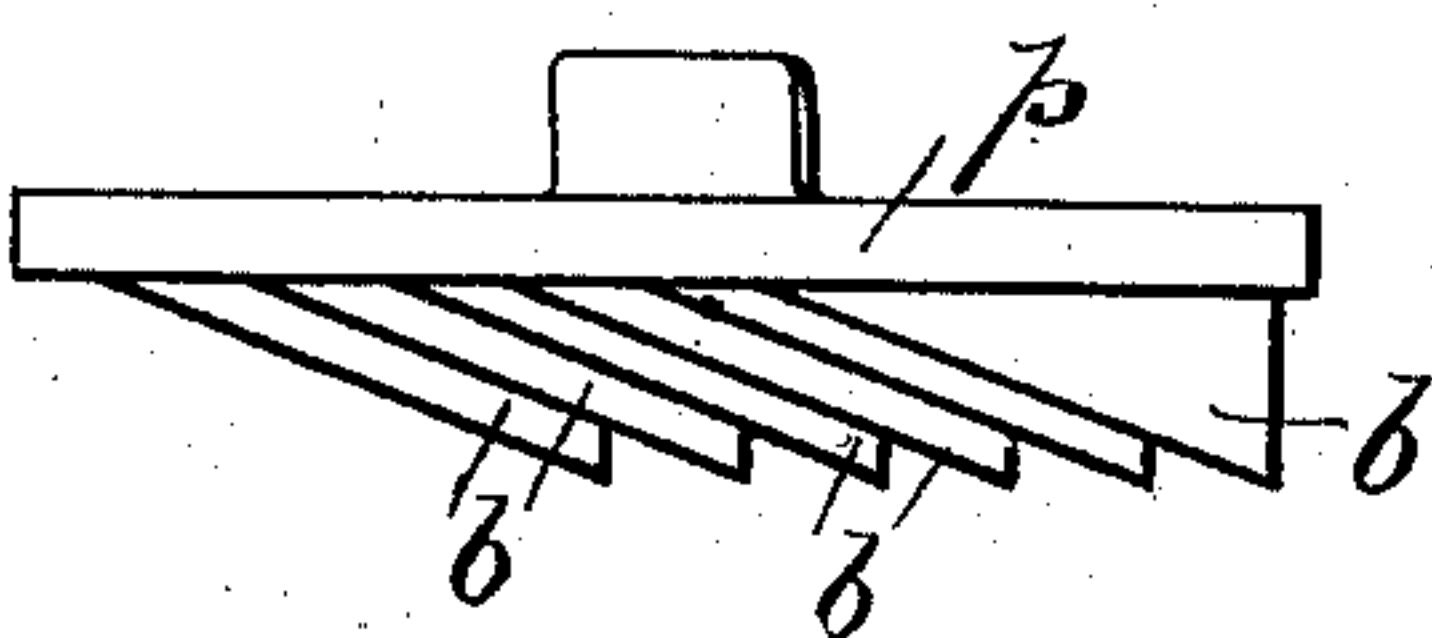


FIG. 14

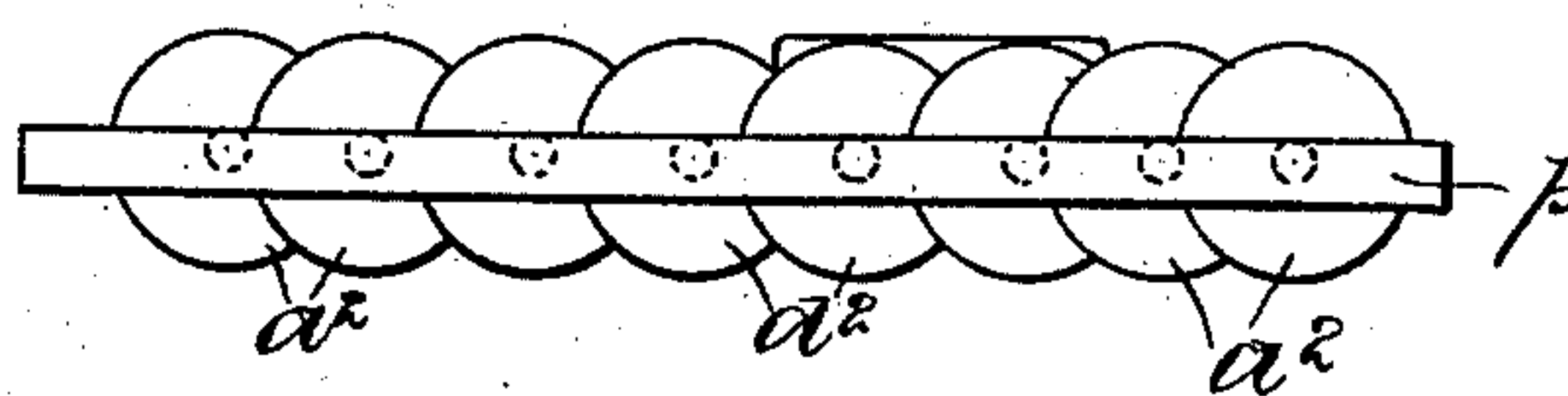


FIG. 5

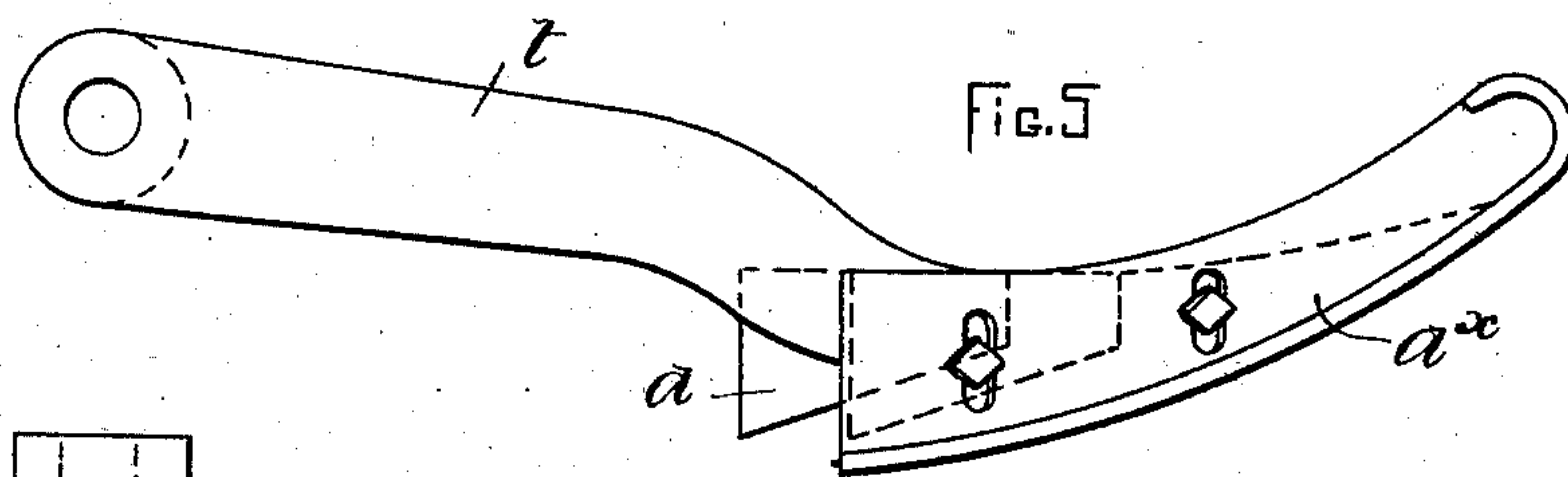
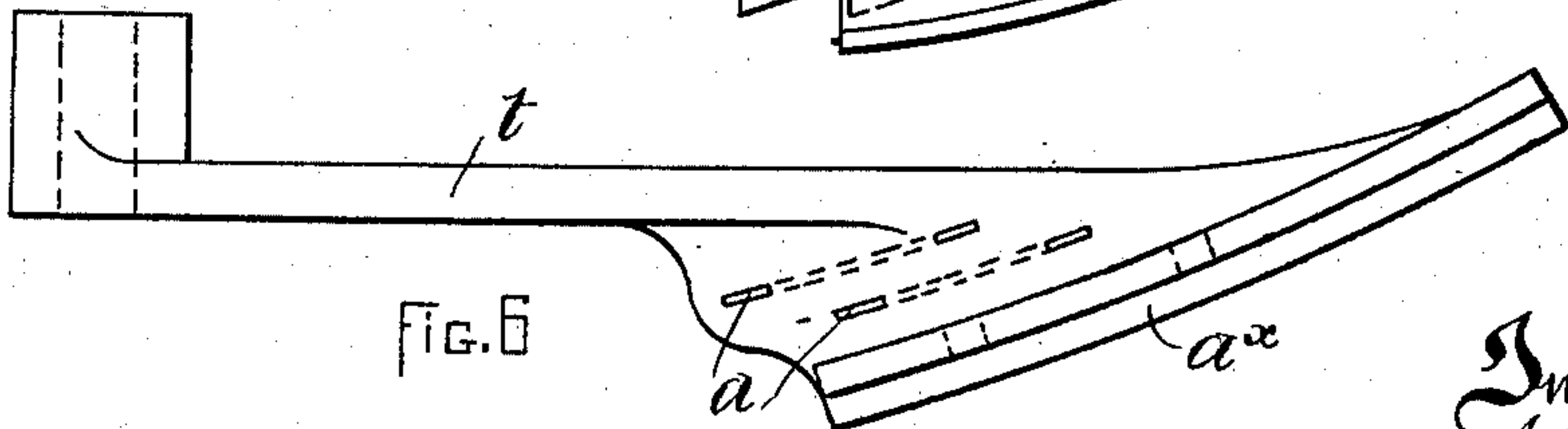


FIG. 6



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UNITED STATES PATENT OFFICE.

ISHMAEL HEY, OF OAKWORTH, ENGLAND.

MACHINE FOR COMBING WOOL, &c.

SPECIFICATION forming part of Letters Patent No. 702,301, dated June 10, 1902.

Application filed November 29, 1901. Serial No. 84,018. (No model.)

To all whom it may concern:

Be it known that I, ISHMAEL HEY, a subject of the King of Great Britain, and a resident of Lower Laithe, Oakworth, near Keighley, in the county of York, England, have invented certain new and useful Improvements in Machines for Combing Wool and other Fibrous Substances, of which the following is a specification.

10 This invention relates to machines for combing wool and other fibrous substances of the class usually styled "Noble's combs," wherein one circular comb runs or operates in contiguity with another to comb the fibers under treatment; and my said invention consists in the application to these machines of means whereby the fibrous substances are supplied to and forced down into the interstices intervening between the teeth of said combs without necessitating the employment of reciprocating brushes or other devices which quickly deteriorate by use, and this object is attained by forming or constructing these devices as illustrated by the accompanying sheets of drawings, in which—

Figure 1 is a plan of one side of a combing-machine, showing one of the small combs which operates in contiguity with the larger one, a similar small comb being arranged to operate at the opposite side of said larger comb in the well-known manner, while mounted in proximity therewith are my improved devices. Fig. 2 is a side elevation of parts illustrated by Fig. 1. Fig. 3 is a plan of portions of said combs and illustrates by thickened lines the positions of my improved parts relatively with the rows of pins or teeth of said combs. Fig. 4 is a side elevation, as seen in the direction indicated by the arrow α , of parts shown by Fig. 3. The teeth of the combs are indicated by broken lines. Figs. 5 and 6 are side and top views, respectively, of a lever and parts for operating in connection with the outer rows of pins or teeth on the large comb. Figs. 7 and 8 are plan and elevation, respectively, of certain of my improved parts shown in detail. Figs. 9, 10, and 11, 12 are similar views to Figs. 7 and 8, respectively, but illustrate others of my improved parts. Figs. 13 and 14 are also similar views to Figs. 7 and 8, respectively, but illustrate a modification thereof, for certain

purposes hereinafter described. Figs. 3 to 14, inclusive, are drawn to an enlarged scale as compared with Figs. 1 and 2.

Similar letters of reference indicate similar parts throughout the several views.

In carrying my invention into effect I arrange series of blades a , b , and c , having their lower edges at an angle to the horizontal plane and to the teeth d of the combs f g , as shown by Fig. 4, and these blades I mount between and in proximity with the rows of teeth d , so that the blades a in the outer or larger comb f may occupy positions therein relatively with each other, as shown by Fig. 3—that is to say, those of said series of blades a which occupy positions more nearly approaching the outer edge of the circular comb f are placed or mounted in advance of those approaching the inner edge of same, the series of blades b being similarly mounted to intervene between the several rows of teeth d of the small circular comb g , while the series of blades c are mounted in the larger comb f in the positions shown by Fig. 3 for the purpose hereinafter described. All the series of blades a , b , and c are held or secured by the stationary bearings p , fixed upon the pillar s , forming part of the machine's framework, as is well understood.

The outermost blade a^x is mounted on the outside of the outermost row of teeth d , and the guard-plate h is shaped so that as the wool or fibrous substance k is brought by the feed-boxes m over the top of same in the well-known manner to be fed to the comb f it is first brought into contact with this blade a^x , which as it passes beneath presses it down into the interstices intervening between the outermost row of teeth d , so that these are thus enabled to carry it (said wool) with them and force it beneath the next blade, which will press it down into the interstices of the next row of teeth, and so the successive actions of the blades and teeth are continued until the wool is brought under the actions of the series of blades b , which press it into the interstices of the teeth d in the adjoining circle g in the same manner as is described in connection with the blades a .

The actions of the blades a are arranged to be such as only to press the wool sufficiently into the teeth d to enable them to carry or

force it along with them, while to effect its movement to the proper depth therein the series of blades *c* are employed and made of sufficient dimensions to effect this result.

5 The employment of the two series of blades *a c* for effecting the placing of the wool into the comb *f* is to enable this to be performed and yet to keep said wool straight and from being creased, as would be the case if it were

10 pressed to the proper depth at one operation, while the blades *b* may press it to the proper depth into the comb *g* without causing any such creases, for the reason that less wool has thus to be acted upon at this part. As is

15 shown by Fig. 3, the last blade of the series *a* to act upon the wool is mounted in position on the comb *f*, so that while it presses such wool upon the last row of teeth *d* in said comb *f* it also presses it into the first row on the

20 comb *g* in order to enable these to carry it beneath their first blade as desired. This arrangement of the teeth of the several series causes the fibers to be depressed gradually into the combs, the first blades of the series

25 *a* first acting on the fibers adjacent to the boxes *m* and then the smaller blades of the series *a* partially depressing the outer ends of the fibers, and then the blades of the series *c* and *b* fully depressing the outer ends

30 of the fibers between the teeth or pins of the combs *f* and *g*, respectively.

The outermost blade *a*^x, as well as the next two adjoining it, are mounted upon the lever-arm *t*, which is secured to the shaft *u*,

35 mounted to swivel on the bearings *p*, so that by the lever *v*, secured to said shaft *u* and carrying the sliding catch *w*, which in an ordinary way holds the lever *w'* against the force of the spring *w*², it (said lever-arm *t*)

40 may when raised release the lever *w'* to enable this latter to cause the belt-guide *y* to move and bring the driving-belt from the fast to the loose pulley, from which it will be seen that should any substance be supplied or

45 passed beneath the blade *a*^x and the others carried by said lever *t* that could not be forced down by them upon the teeth *d* would cause a stoppage of the machine by raising such lever *t* to release the lever *w'*, above described.

50 The guard-plate *h* is cut away so that the wool may be brought beneath the inclined blades *a* and into contact with the teeth *d* of the comb *f* prior to the point of tangential contact of the combs *f g*, yet said guard-plate

55 *h* is continued or extended to cover the smaller comb *g* at the part prior to the said point of contact. Thus the wool is prevented from entering the interstices of the teeth in said comb *g* until the proper part is reached, so that all

60 the extending ends of the fibrous substances being treated, which reach beyond the teeth in the comb *f*, are received by the comb *g* without any part thereof being forced down between the two sets of teeth in said combs *f g*

to any extent that might prevent same from 65 being properly combed or treated.

For treating certain classes of fibrous substances, such as coarse wool or mohair, I find that instead of the blades *a* being stationary they may be displaced by a series of rotary 70 disks *a*², as shown by Figs. 13 and 14, in which case peripheries of such disks may be slightly serrated and by the movements of the fibrous substances beneath them rotate to force same down upon the pins as desired. 75

Having thus described the nature and object of my invention, what I claim is—

1. A combing-machine comprising in its construction a comb and a series of inclined blades of varying length, the shorter ones being 80 mounted to depress the fibers into the comb after the action of the longer blades and at points nearer the outer or free ends of the fibers.

2. A combing-machine comprising in its 85 construction an outer comb and an inner comb, and a series of inclined blades of varying length, the shorter ones being mounted to depress the fibers into the comb after the action of the longer blades and at points 90 nearer the outer or free ends of the fibers.

3. In combing machinery of the class described, circular combs mounted to rotate in contiguity with each other, fiber-depressing blades of varying length mounted in positions 95 relatively with the several rows of teeth to gradually and successively depress the fibers into said combs, and a guard-plate cut away to allow the fibrous substances to be brought into contact with the comb arranged first to 100 receive it and extended at the proper part to also allow the fiber to be brought into contact with the teeth of the next or succeeding comb substantially as herein specified.

4. In combing machinery of the class described, the combination with circular combs 105 mounted to rotate in contiguity with each other, of fiber-depressing blades of varying length mounted to gradually and successively force the fibrous substances upon the teeth of 110 the combs, and lever-arms and connections for releasing the power from the machine.

5. A combing-machine comprising in its construction circular combs operative in contiguity with each other and a series of fiber- 115 depressors mounted and relatively arranged to gradually and successively depress the fibers into the combs, said depressors first acting on the fibers at points distant from their free ends and then at points nearer the outer 120 ends of the fibers, substantially as and for the purpose described.

In testimony whereof I have affixed my signature in presence of two witnesses.

ISHMAEL HEY.

Witnesses:

JOHN WHITEHEAD,
JAMES EDWIN WOOD.