

(No Model.)

2 Sheets—Sheet 1.

E. KEMPSHALL.

APPARATUS FOR DELIVERING LACING STUDS, &c.

No. 599,904.

Patented Mar. 1, 1898.

FIG. 1.

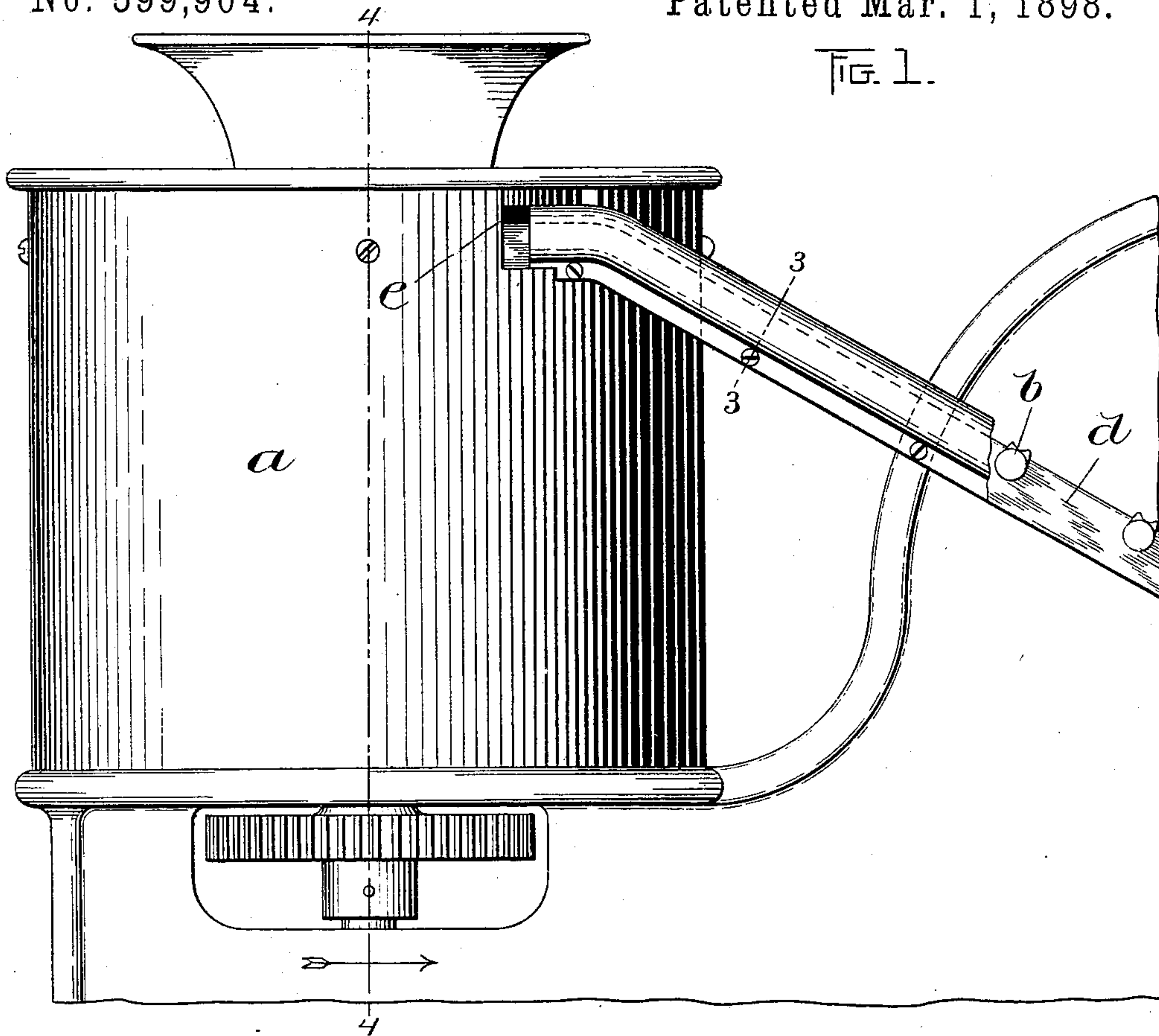


FIG. 2.

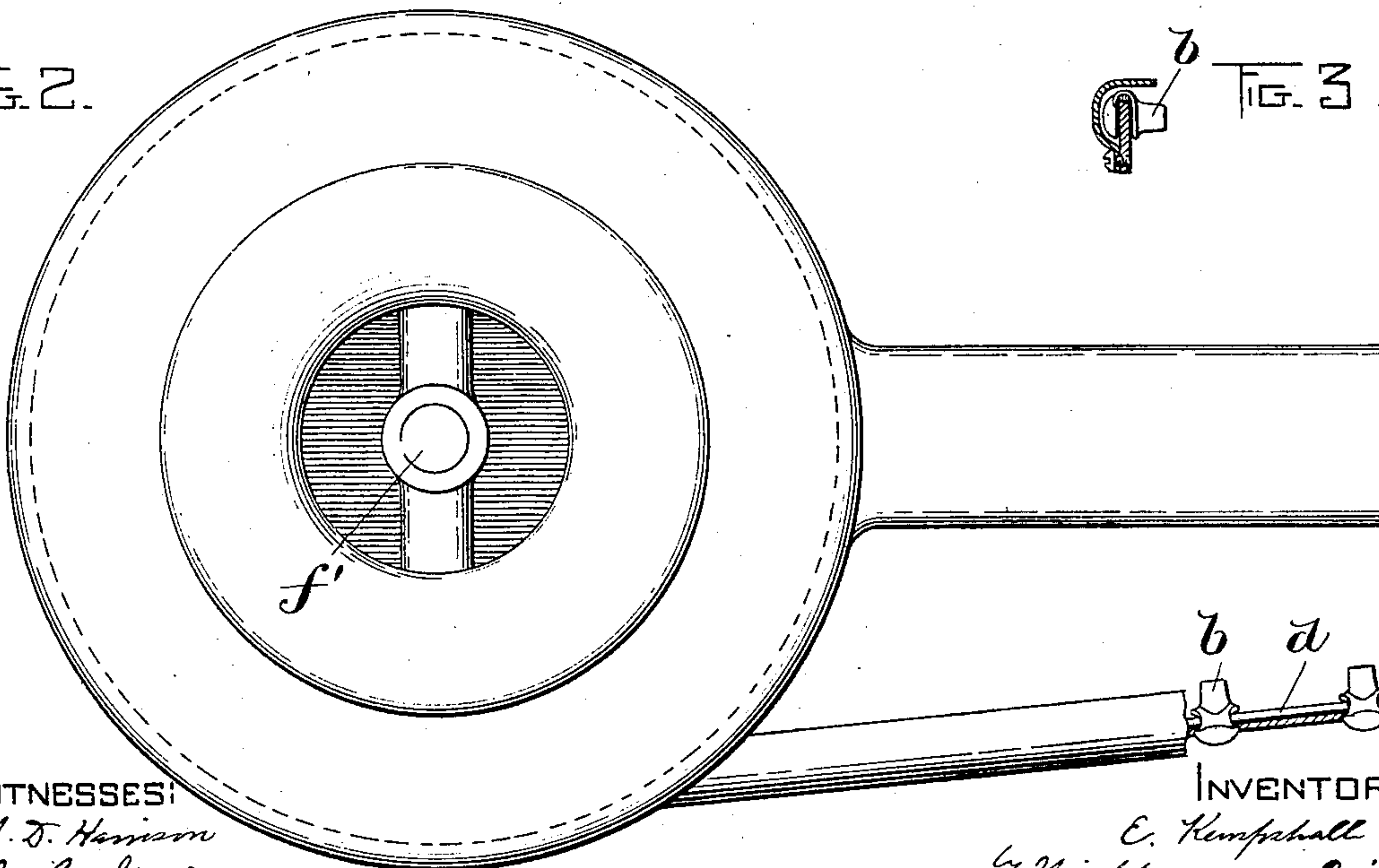


FIG. 3.

WITNESSES:
A. D. Harrison
C. C. Stecher.

INVENTOR:
E. Kempshall
By Wright, Brown & Lindley
Attys.

(No Model.)

2 Sheets—Sheet 2.

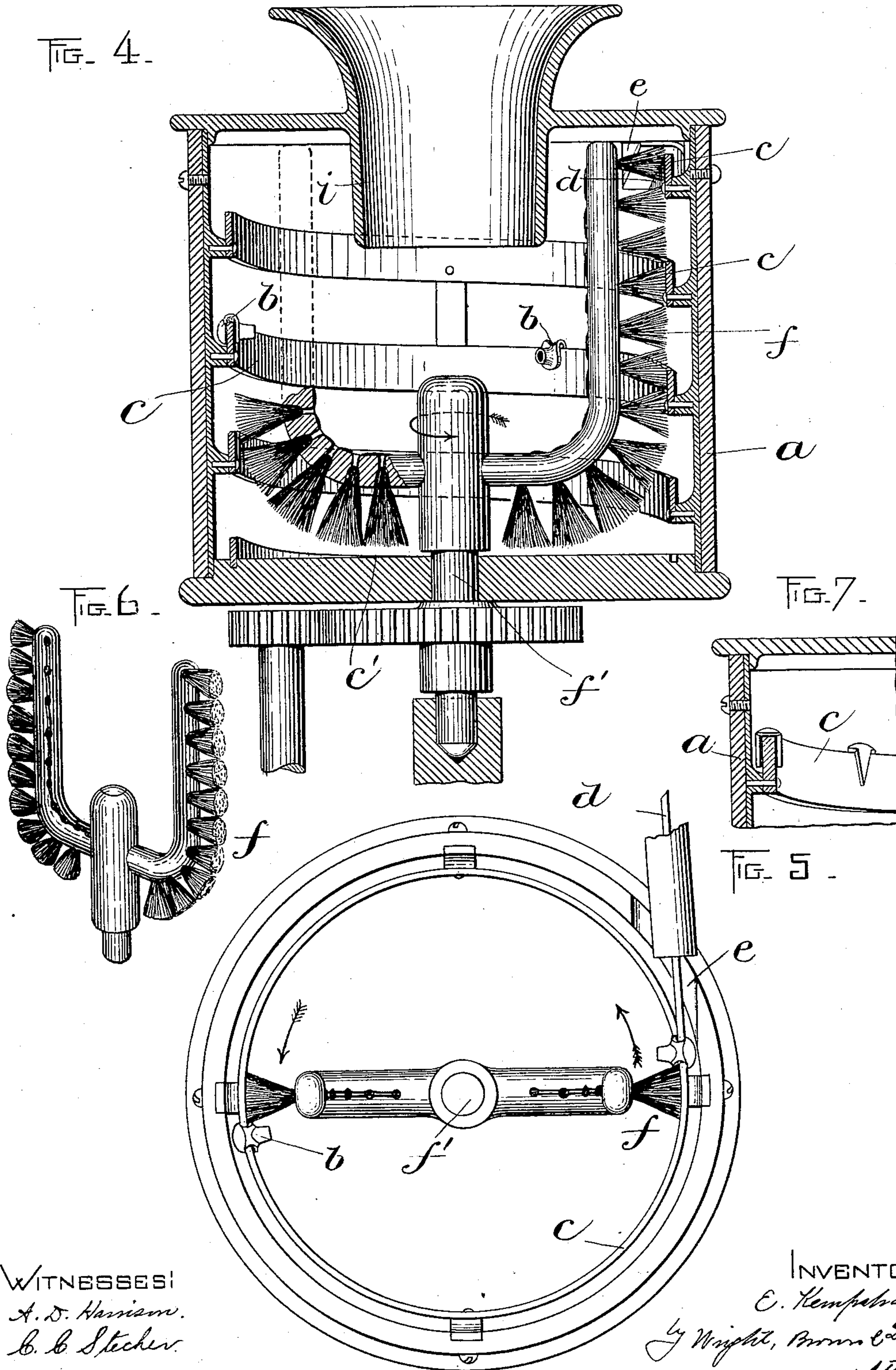
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FIG. 4.



WITNESSES:
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INVENTOR:
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UNITED STATES PATENT OFFICE.

ELEAZER KEMPSHALL, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO
THEOPHILUS KING, TRUSTEE, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR DELIVERING LACING-STUDS, &c.

SPECIFICATION forming part of Letters Patent No. 599,904, dated March 1, 1898.

Application filed May 22, 1897. Serial No. 637,697. (No model.)

To all whom it may concern:

Be it known that I, ELEAZER KEMPSHALL, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain
5 new and useful Improvements in Apparatus for Delivering Lacing-Studs, &c., of which the following is a specification.

This invention relates to means employed in machines for setting lacing-studs and other
10 similar fastening devices, such as rivets, for delivering the fastening devices in a series or procession upon an inclined chute, which guides the fastening devices to the mechanism which attaches the same.

15 The invention has for its object to provide a simple and efficient apparatus for delivering fastening devices of the character specified in such manner as to insure their rapid delivery and to prevent the possibility of
20 clogging and of delivering the fastening devices improperly positioned.

The invention consists in the improvements which I will now proceed to describe and claim.

25 Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a fastener-delivering device embodying my invention. Fig. 2 represents a top plan view of the same. Fig. 3
30 represents a section on line 3 3 of Fig. 1. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 represents a top plan view with the cap or cover of the reservoir removed. Fig. 6 represents a perspective view of the rotary
35 brush or fastener agitating and impelling device. Fig. 7 represents the form of track used for supporting rivets.

The same letters of reference indicate the same parts in all the figures.

40 In the drawings, *a* represents a reservoir adapted to contain a mass of fastening devices *b*, such as lacing-hooks, said reservoir being preferably of cylindrical form. *c* represents a helical track, the convolutions of
45 which are substantially parallel with the inner wall of the reservoir, the track being at such distance from the inner wall of the reservoir that the space between the outer sides of the convolutions of the track and the inner
50 wall of the reservoir is not sufficient to receive any but a predetermined part of the

fastening device. For instance, when the apparatus is constructed for delivering lacing-hooks the space between the track and the inner wall of the reservoir is sufficient to receive the head of the hook, as indicated in
55 Fig. 4, but is not of sufficient width to receive the shank or attaching portion of the hook. The lower end of the track is preferably flush with the bottom of the reservoir, as shown at
60 *c'* in Fig. 4, its upper end being flush with and forming a practical continuation of the downwardly-inclined track *d*, which forms the guiding portion of the chute which delivers the fastening devices to the setting or at-
65 taching mechanism.

The reservoir is provided with an orifice *e*, through which the guide *d* passes. Within the reservoir is a rotary feeding device adapted not only to stir or agitate the mass of lac-
70 ing-hooks and distribute them, so that they will be deposited in comparatively large numbers on the helical track in the position shown in Fig. 4, but also to force said hooks upwardly along the inclined track until they reach the
75 upper end of the guide *d* and slide down the latter by gravitation. The said feeding device is preferably a brush *f*, mounted on a rotary shaft *f'*, which is concentric with the helical track, the brush being composed of tufts
80 of bristles or other suitable yielding material, and an arm supporting the said material and affixed to the shaft *f'*. I have here shown a duplex brush formed to act on the track at two series of points simultaneously. 85

The feeding device is rotated in the direction indicated by the arrows in Figs. 4 and 5, preferably at a rapid rate, and is thus caused to force the lacing-hooks outwardly against the helical track, which presents an elongated
90 bearing or support adapted to engage a large number of hooks simultaneously. The hooks that assume the position indicated in Figs. 4 and 5 lodge upon the track and are swept along by the feeding device and follow the
95 ascending convolutions until they reach the upper end of the guide *d*, when they are caused to slide down said guide by gravitation. The yielding brush material revolving horizontally or in a direction at right angles with the
100 axis of the helical track tends to press the necks of the hooks closely against the inclined

edge of the track while feeding them upward, thus preventing liability of the hooks jumping the track. The hooks that do not bestride the track in the position shown find no lodg-
 5 ment on the track and fall back into the reservoir. In case the raceway *d* becomes filled with hooks, so that no more can slide onto it, the hooks that accumulate on the portion of the raceway that is within the reservoir are
 10 swept off by the brush material and fall within the reservoir without injury either to the hooks or to the feeding device.

The top of the reservoir is provided with a supply-orifice surrounded by a flange *i*, which
 15 projects into the reservoir below the upper end of the raceway *d* to prevent the hooks that may be swept from the raceway, as above described, from escaping through said supply-orifice.

20 It will be seen that the helical track enables a flexible feeding device to be employed, so that there is no liability of scratching or marring the articles delivered. This is particularly important when said articles are
 25 composed of or surfaced with celluloid and are, for example, the improved lacing-hooks shown in Letters Patent No. 579,112, granted to me March 16, 1897.

The term "helical" implies a plurality of
 30 convolutions and therefore an ample length of track within the reservoir for the reception of the lacing-hooks to insure the delivery of hooks to the chute *d* at a rate equal to any possible demand.

35 Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use,
 40 what I claim, and desire to secure by Letters Patent, is—

1. A delivering apparatus of the character specified, comprising a reservoir, a fixed helical track inclined upwardly from the bottom
 45 of the reservoir to the upper portion thereof,

and means for impelling articles such as lacing-hooks from the lower to the upper end of said track.

2. A delivering apparatus of the character specified, comprising a reservoir, an inclined
 50 chute or guide extending outwardly from the upper portion of the reservoir, a fixed helical track inclined upwardly from the bottom of the reservoir to the upper end of the inclined chute, and means for impelling articles such
 55 as lacing-hooks from the lower to the upper end of said track.

3. A delivering apparatus of the character specified, comprising a reservoir, an inclined
 60 chute or guide extending outwardly from the upper portion of the reservoir, a fixed helical track inclined upwardly from the bottom of the reservoir to the upper end of the inclined chute, and a brush located within the helical track and rotated in a plane substantially at
 65 a right angle with the axis of the helix, whereby the brush is caused to impel articles such as lacing-hooks along the track and to press said articles against the track.

4. A delivering apparatus of the character
 70 specified, comprising a reservoir, an inclined chute or guide extending outwardly from the upper portion of the reservoir, a fixed helical track inclined upwardly from the bottom of the reservoir to the upper end of the inclined
 75 chute and having a substantially vertical axis, and a brush mounted on a shaft which is parallel with said axis, said brush being arranged to extend across the convolutions of the helix and impel articles such as lacing-
 80 hooks across the same.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of May, A. D. 1897.

ELEAZER KEMPSHALL.

Witnesses:

A. D. HARRISON,
 H. L. ROBBINS.