

No. 860,166.

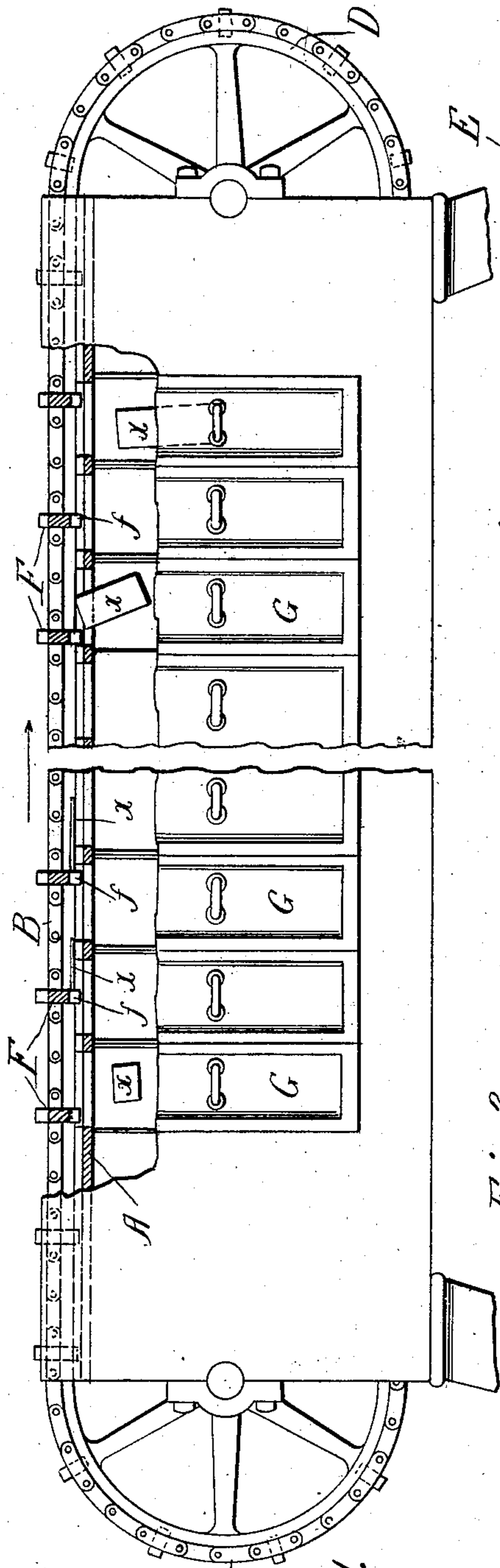
PATENTED JULY 16, 1907.

G. H. WARD.

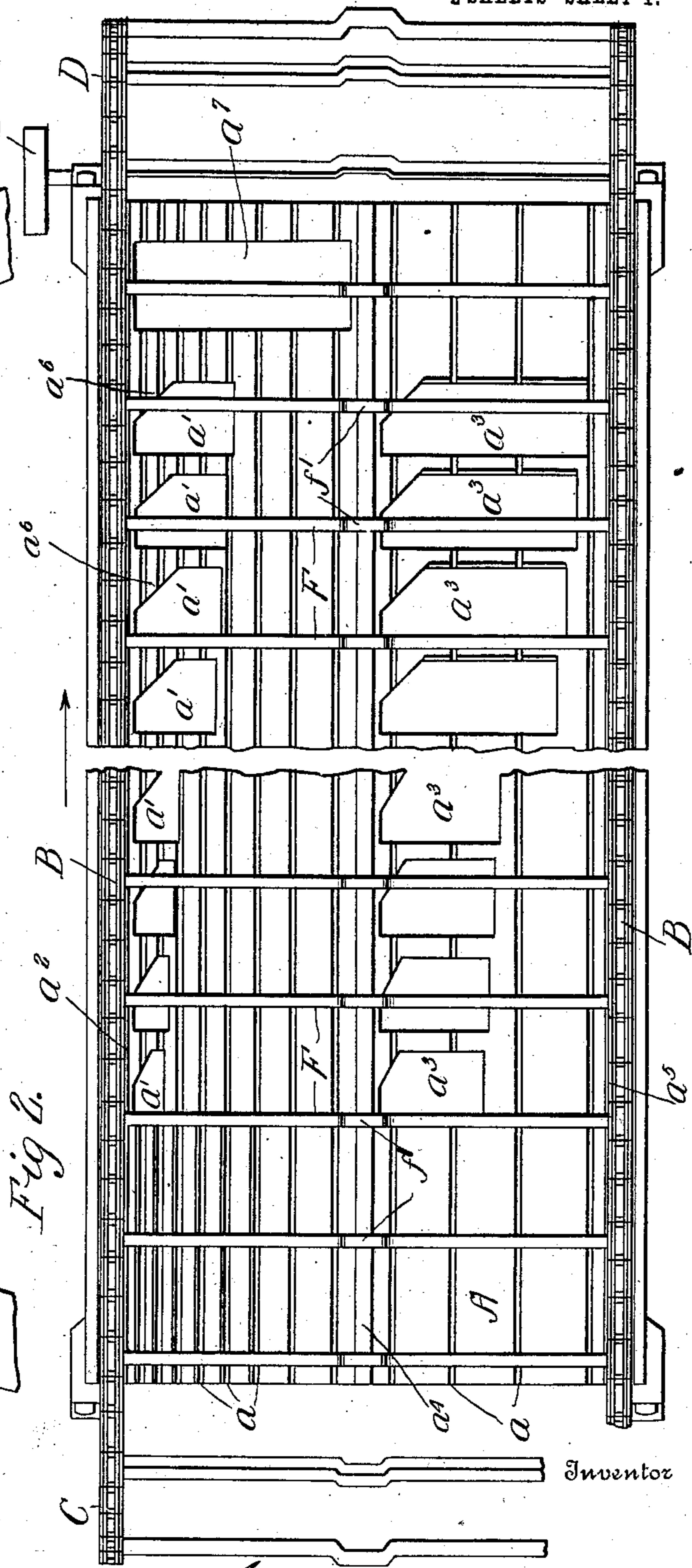
MACHINE FOR DISTRIBUTING PRINTERS' LEADS.

APPLICATION FILED JAN. 17, 1907.

2 SHEETS--SHEET 1.



Witnesses
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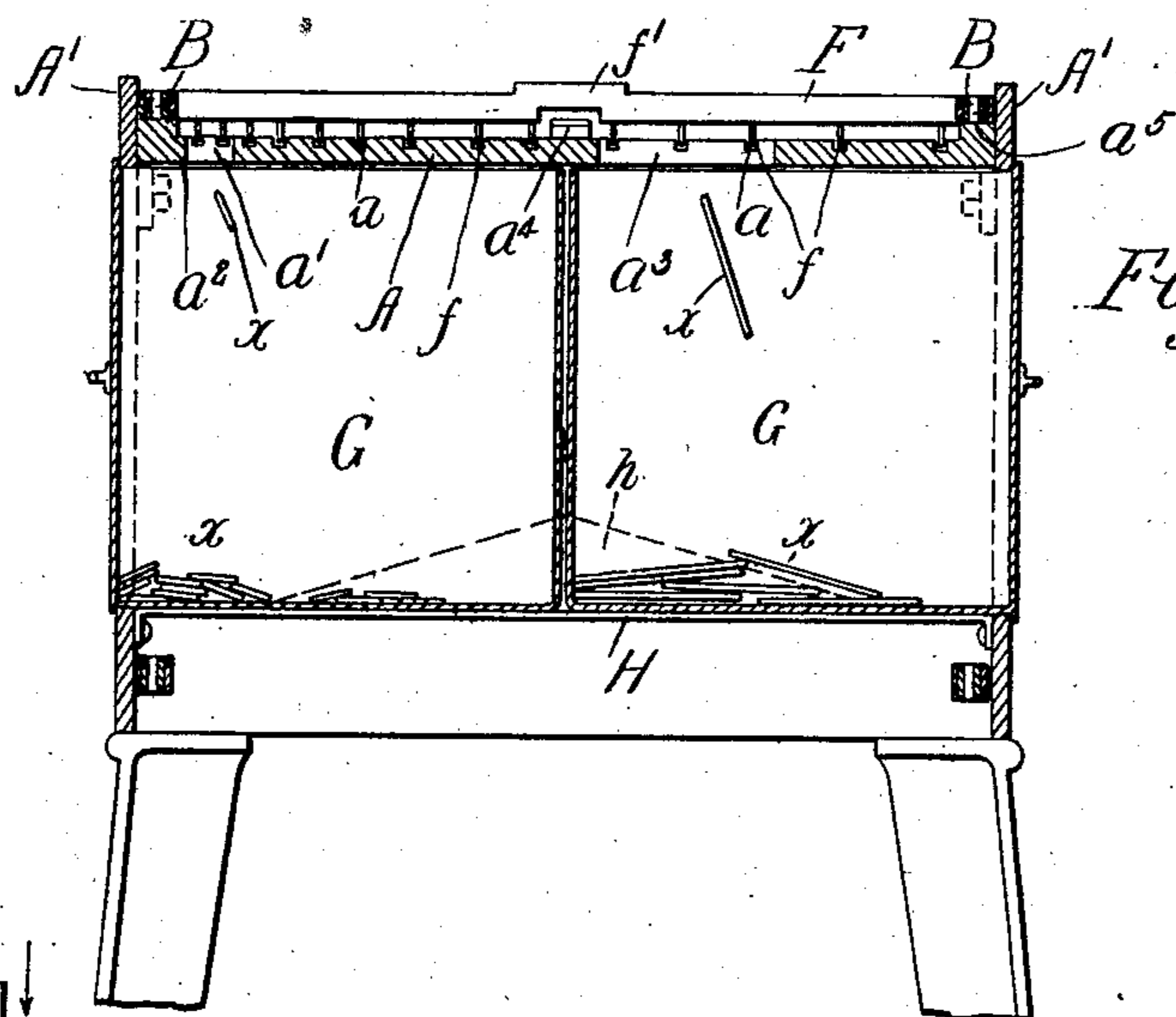


Fig. 3.

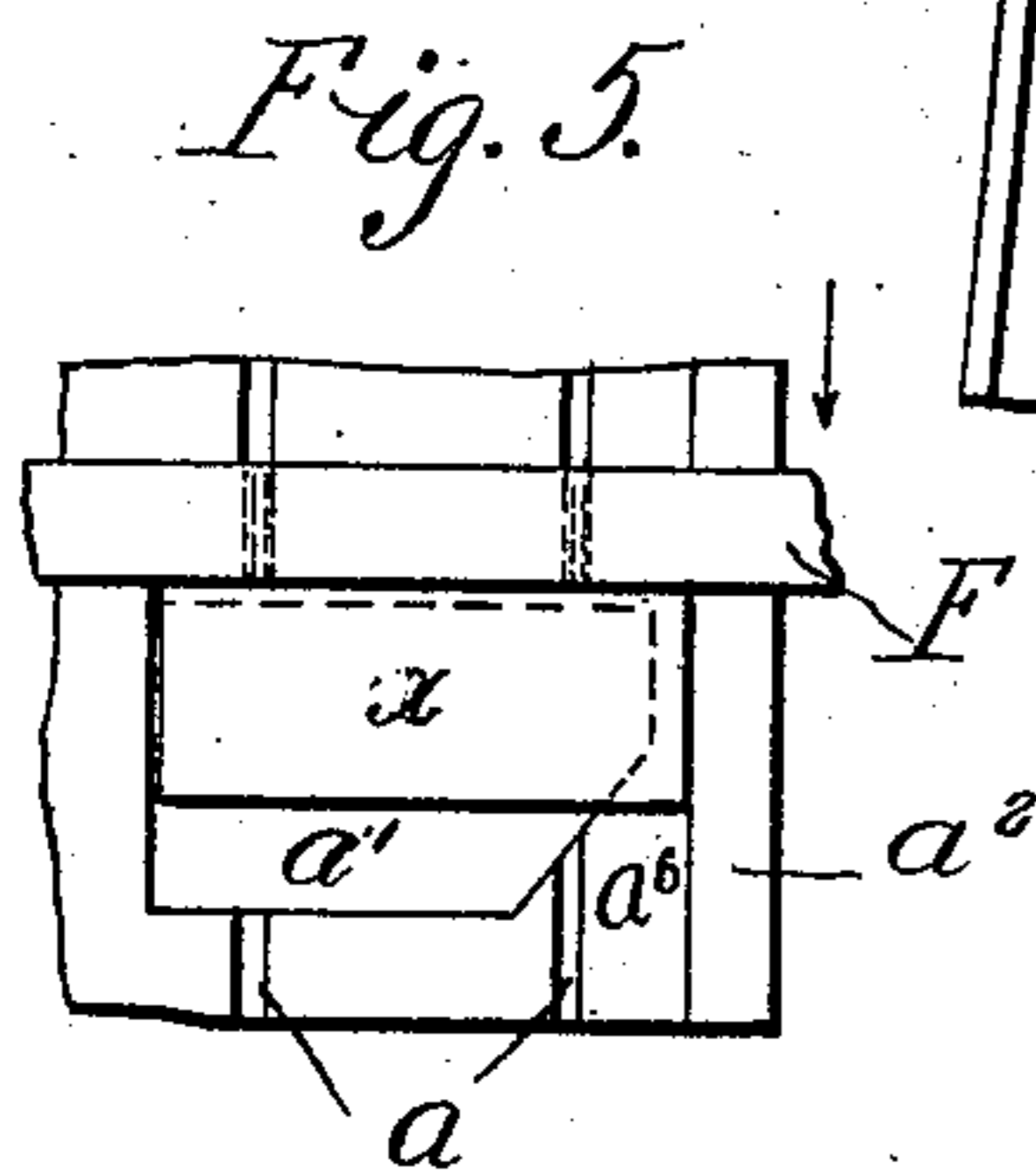


Fig. 5.

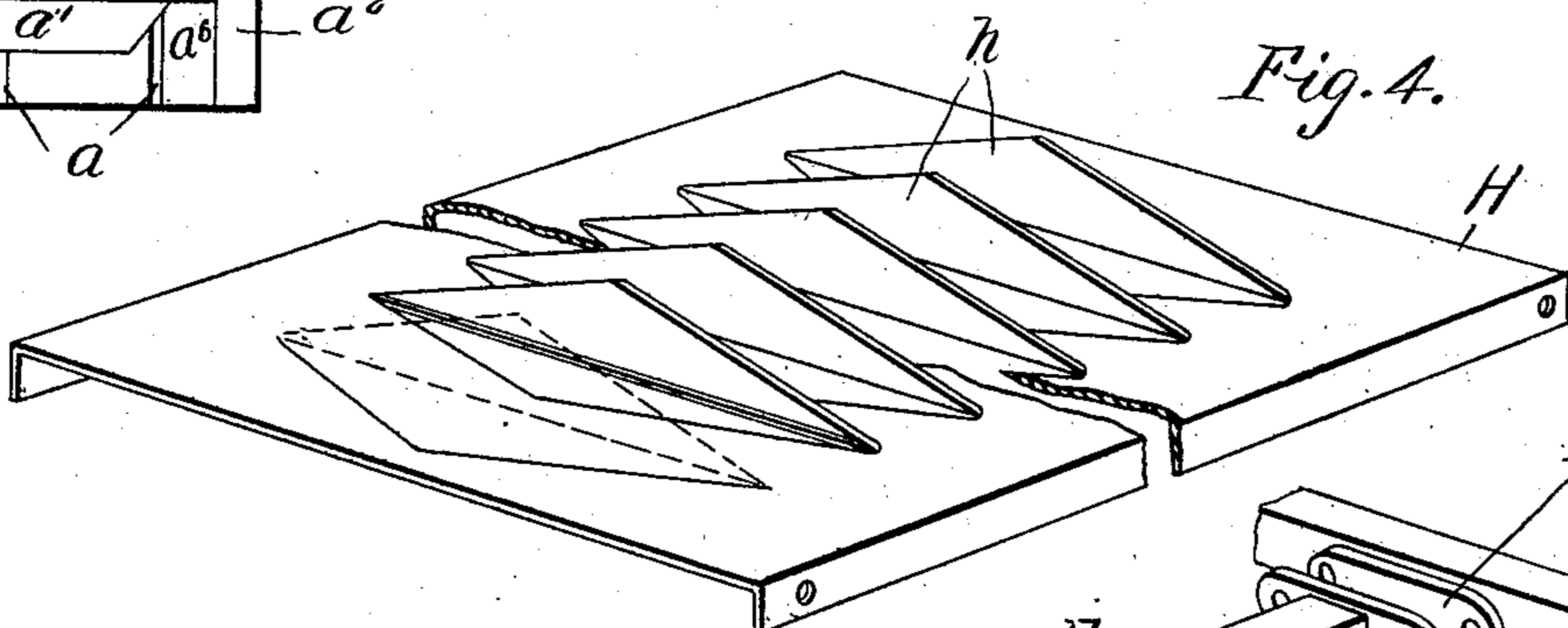


Fig. 4.

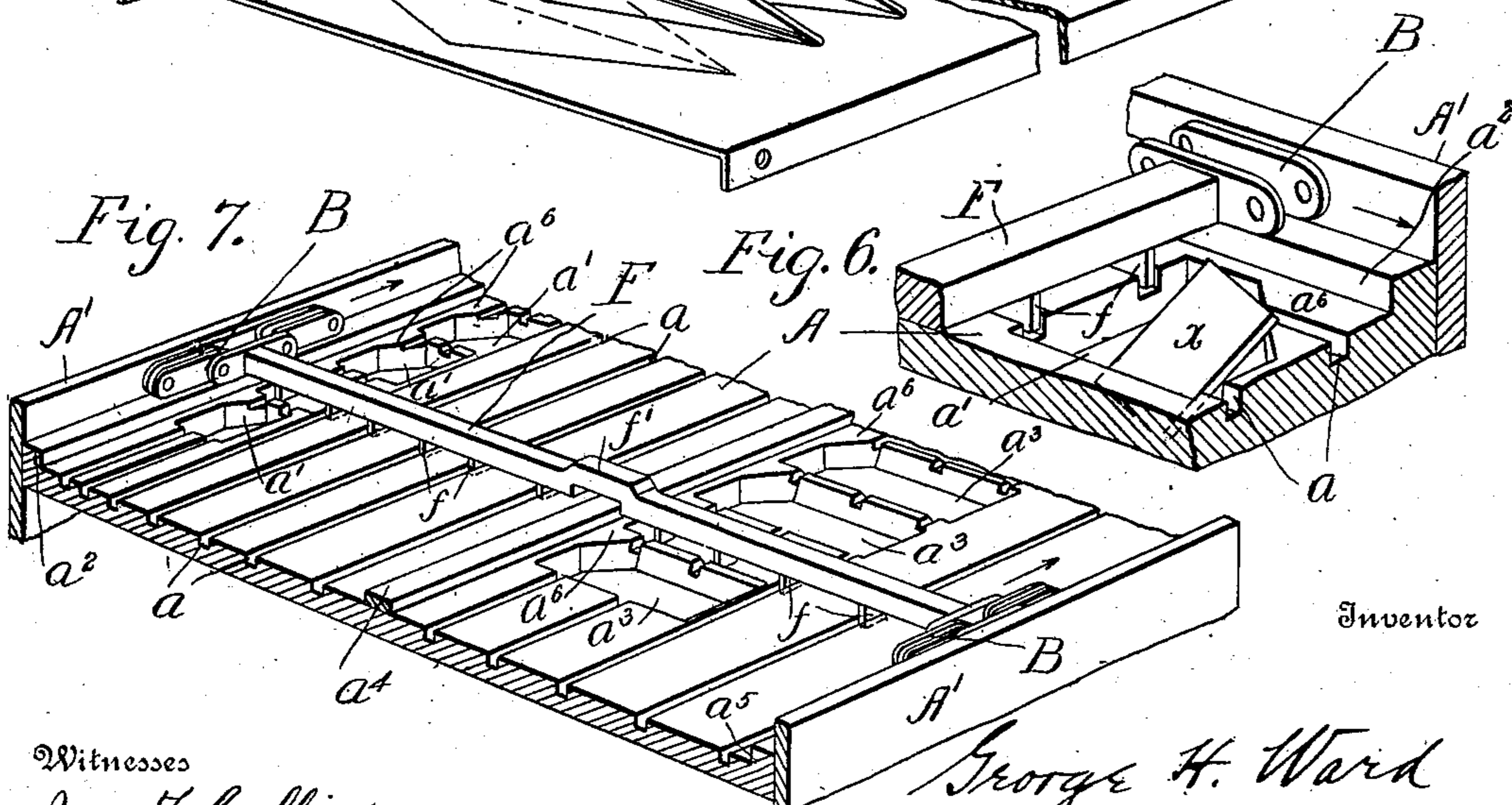


Fig. 7.

Fig. 6.

Inventor

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UNITED STATES PATENT OFFICE.

GEORGE H. WARD, OF NEW YORK, N. Y.

MACHINE FOR DISTRIBUTING PRINTERS' LEADS.

No. 860,166.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed January 17, 1907. Serial No. 352,764.

To all whom it may concern:

Be it known that I, GEORGE H. WARD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Distributing Printers' Leads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 The main object of this invention is to provide a practical machine for mechanically distributing printers' leads, so as to assemble them expeditiously according to their sizes, and thus avoid the tedious practice of separating and classifying the leads by hand.

15 By the term "leads" I refer to the usual thin strips of brass, type-metal or other materials that are commonly employed for spacing or separating lines of type in printing; and said term is also to be construed as covering any articles which the machine is adapted for distributing, such as slugs, rules and wooden or metal reglets.

20 The principle of my machine is to distribute the leads by conveying them over a table or platform having a series of openings or distributing spaces of graduated sizes, intended to admit different sizes of leads, so that each lead of a given size will drop into the particular opening intended therefor, and into a receptacle below, the lead having passed over the preceding smaller openings.

25 As illustrative of the best mode in which I have contemplated applying this principle, one preferred form or embodiment of the invention is illustrated in the accompanying drawings, hereby made a part of this specification; it being understood however that the invention is susceptible of other practical embodiments, and that various modifications may be made in the details of construction and arrangement of parts.

30 Without limiting myself, therefore, to the specific machine herein illustrated, the invention will be fully described by reference to said drawings and then more particularly pointed out in the claims following this description.

35 In said drawings, Figure 1 is a side elevation of the machine, with a portion of the side broken away to reveal the table and carrier above it, the latter being shown in section; this view also representing an intermediate portion of the machine broken away. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a perspective view of a bottom plate which constitutes a support and a separator for the several receptacles into which the leads are distributed. Fig. 5 is a detail enlarged plan view showing one lead about to be pushed over the hole into and through which it will drop. Fig. 6 is a detail enlarged perspective view showing the lead dropping

through said hole. Fig. 7 is a sectional perspective view of a portion of the table and carrier.

The letter A denotes a table, having a number of parallel longitudinal grooves a in its upper surface, and having a series of slots or openings a^1 with alined 60 ends or parallel edges adjacent to a longitudinal abutment, as a rib or shoulder a^2 , at the side of the machine. Said slots or openings a^1 are of graduated sizes, increasing in length from the first and shortest slot at the front of the table, and their aforesaid parallel edges are 65 spaced from the adjacent abutment a^2 only by a narrow ledge or margin. The lengths of the slots or openings are their dimensions across or transverse of the grooves a .

In the present illustration I have shown what I term 70 a "double table"; that is the table A has a medial longitudinal rib or shoulder a^4 , and a second series of openings a^3 arranged similarly to the former, and at the corresponding side of the rib a^4 ; it being noted that both series of slots or openings are arranged at 75 the right-hand sides of the respective longitudinal abutments a^2 and a^4 . If desired, the table can be of increased width and provided with further series of openings, each having a shoulder or abutment preferably at the left-hand side thereof; though two of such 80 series, as shown in the illustrated arrangement, are sufficient for practical service.

Along opposite sides of the table extend endless carrier-chains B, shown supported in or on guideways formed by the ribs or shoulders a^2 and a^5 and by the 85 upper edges of the sides A^1 of the machine. Said carrier-chains pass over and around pairs of sprocket-wheels C and D at the front and rear ends of the machine. Slow motion is imparted to the carrier-chains by any proper means, as by application of power to a 90 pulley E on the shaft or axle of one pair of the sprocket-wheels. The direction of motion is from front to rear of the machine, as indicated by the arrows in the drawings. Between and carried by said chains are cross-bars F, spaced at suitable intervals apart, and 95 having depending projections or fingers, preferably narrow ribs f , which travel in the aforesaid grooves a . In this instance, the cross-bars are made with central yokes f^1 to straddle or bridge the aforesaid medial rib a^4 . As shown, the cross-bars are spaced at intervals 100 corresponding to three links of the sprocket-chains, and each of the sprocket-wheels C D has every third tooth omitted so as to engage only two of the intermediate links of the chains between each adjacent pair of cross-bars. This arrangement allows every third 105 link of the sprocket-chains to serve as the holder for the end of the cross-bar. However, the cross-bars may be spaced at different intervals, and may be attached to the carrier-chains by other means; and, in place of the sprocket-chains, endless belts, cables or 110

other flexible connections may be employed, passing around suitable pulleys, guide-wheels or drums at the opposite ends of the machine, so that such modifications are to be considered as equivalents of the mechanism herein shown.

In operation, the leads to be distributed are placed by hand on the front end of the table, and are shoved endwise against the left-hand abutment a^2 or a^4 , as the case may be. Then, as the cross-bars advance, the depending fingers f thereof, running in the grooves a , engage behind the leads and move them onward until they reach their respective slots or openings, through which the leads drop down into suitable receptacles G below the table; the shorter leads falling through the corresponding sized openings at the front, and the longer ones passing over the smaller openings until they reach the larger openings intended for them. For example, if a lead is short enough to drop through the first slot or opening it will do so; if not, it will pass over said first opening and succeeding openings until it reaches the particular opening which is intended to admit it.

Some further description as to the sizes of the slots or openings will be necessary. As well known, printers' leads are generally of uniform widths, but vary in lengths, as from forty-eight points for four-pica, to one hundred and fifty-six points for standard newspaper column, or three hundred and seventeen to three hundred and twenty points for double newspaper column. There are of course shorter leads than forty-eight points in length, but they need not be considered for the purposes of the present description. In a series of leads, there is usually a variance of only six points (one-twelfth of an inch) between the lengths of each lead and the lead of next smaller or larger size, up to a lead of thirteen picas, the standard width of newspaper columns, after which the variance in length between the sizes of leads is usually twelve points (one-sixth of an inch). These relatively minute differences in length render the manual distribution of the leads exceedingly tedious. In the present machine, the length of each slot or opening from the abutment a^2 or a^4 is preferably about three points longer than the lead which such opening is intended to admit, this length including the width of the aforesaid narrow ledge between the aligned ends of the slots and the adjacent abutment a^2 . A desirable width for the said ledge would be twelve points. Assuming this width to be twelve points, then the actual length of the first slot or opening would be thirty-nine points; it being understood of course that these dimensions may be varied more or less. The next slot or opening would be six points longer than the first, and so on, each succeeding opening increasing in length by six points throughout the series, up to the opening for thirteen-pica lead, after which each succeeding slot would be twelve points longer than the preceding one. Now, when a lead of forty-eight points length passes to a position over the first opening, one end of said lead being supported on the narrow ledge adjacent to the abutment a^2 , the opposite end of said lead will be unsupported and consequently the lead will drop endwise down through the first slot or opening. In the case of a longer lead, say of sixty points length, the lead will of course pass over the first and second open-

ings, but when it comes to the third opening it will drop endwise therethrough, in the same manner and for the same reason already explained. Thus the several sizes of leads will readily be distributed and classified according to uniform sizes.

All the openings are or may be of substantially the same width, desirably about an inch and a half, or approximately twice the usual width of the leads, thus leaving ample clearance for the leads to drop down through the holes, under the slow motion imparted by the carrier, without danger of binding or catching the leads in the holes. As a further precaution against such possibility, the holes instead of being rectangular are preferably of the form shown in the drawings, leaving a small surface a^6 of the table in the left-hand rear corner of each hole, so arranged that, when a lead approaches the hole into which it is to drop, the advancing edge of the lead will rest upon the surface a^6 before the opposite edge of the lead (engaged by the fingers f) leaves the opposite edge of the hole, as illustrated in Fig. 5. This will cause the lead to tilt in the manner shown in Fig. 6 and drop down through the hole, obviating any probability of the lead being caught between the fingers f and the foremost side of the hole.

The spacing of the grooves a and projections f of the carrier-bars are designed to effect engagement of the leads in such manner as to carry them evenly along the table without chance of turning or canting out of proper position. One groove near the abutment a^2 will of course engage the lead at one side of its middle, while the next adjacent groove is spaced at such distance therefrom as to engage the shortest lead of the series at the opposite side of its middle. The remaining grooves are spaced at gradually increasing distances apart, adapting them to engage the increasing lengths of leads.

Both series of holes a^1 and a^3 may be of corresponding sizes, and either or both series may comprise any desired number of slots or openings of increasing lengths, adequate for distributing the leads of all sizes commonly in use; however, in order to avoid an unsuitable length of table, the series a^3 preferably constitute a continuation of the series a^1 , that is the first hole of series a^3 is the next larger size or six points longer than the last hole of series a^1 . It is more especially for this reason that I have provided the "double table." The operator, in using the machine, would place the smaller leads in the left-hand side, and the longer ones at the right-hand side.

It has been stated that the abutments a^2 and a^4 are arranged at the left-hand sides of the respective series of holes. This is for the convenience of the operator, to enable him to work right-handed and shove the leads to the left, which is the easier mode. But obviously the invention includes also a reverse arrangement, with the abutments arranged at the right-hand sides of the holes, and the latter increasing in length in a direction opposite to that represented.

The receptacles G are shown comprising slide-drawers, of suitable depth, arranged in opposite sides of the machine under the respective holes in the table A . These drawers may be tin or sheet-metal boxes (or they may be constructed of wood or other material,) and they may be appropriately labeled to designate

the sizes of leads which they contain. They are shown supported upon a sheet-metal base-plate H, having triangular flaps or pieces *h* cut therefrom and bent up vertically to provide thin partitions between the adjacent drawers, as shown in Figs. 3 and 4. The purpose of these partitions is to provide side-guides for the respective drawers. The slanting edges of said partitions enable the drawers to be easily inserted between them without catching.

10 If desired, the table A can be arranged inclined or slanting downwardly toward the left-hand side, or toward the abutments a^2 , a^4 , in order to aid in keeping the ends of the leads against said abutments as they are moved along the table.

15 In Fig. 2, the first six of the grooves *a* are shown rounded or beveled at their left-hand edges, or the edges toward the abutment a^2 , the beveled or rounded sides of the grooves extending from the front end of the table to the first slot or opening a^1 . It may be desirable to form the grooves in this way, at the front left-hand portion of the table, so as to make sure that the leads can be easily shoved endwise against the abutment a^2 without catching or binding in the grooves, as might sometimes occur if the leads were carelessly placed on the table, or if the leads were warped, bent or broken at the end. The larger slots or openings a^3 , of the series at the right-hand of the table, may preferably have their rear edges beveled or rounded, so that when feeding long leads made of type-metal or other material which is not perfectly rigid, tending to cause the lead to sag, there will be less liability of such a sagging lead becoming bound or caught in the holes. It may be added that it is not essential to have any separating walls between adjacent slots or openings of the series a' or the series a^3 .

At the far or rear end of the left-hand portion of the table, a large opening a^7 is or may be provided for any lead to drop through which may be too long for admission into the openings a^1 and which may have been inadvertently fed into the left-hand side of the machine. A suitable receptacle or "pi box" placed under the table may receive any leads dropping through the opening a^7 , and the leads collected in such box may be taken out and fed in the right-hand side of the machine. In the case of a longer machine, having the whole series of openings arranged in a line or successively behind one another, there would of course be no necessity for this escape opening a^7 .

I claim as my invention, and desire to secure by Letters Patent:

1. A machine for distributing printers' leads having, in combination, a table provided with a series of openings of different lengths to receive different lengths of leads, said openings having substantially aligned corresponding margins at one side, said table having a supporting surface in advance of said openings upon which leads to be distributed can be placed, means for moving the leads placed on said surface over the table, and means for effecting alignment of corresponding ends of the leads adjacent to the aligned margins of the openings but supported on the contiguous surface of the table.

2. A machine for distributing printers' leads having, in combination, a table provided with longitudinal grooves

and a series of openings of different sizes, and a carrier having fingers which travel in said grooves, whereby leads placed upon said table will be moved by said fingers and carried over said openings, causing certain sized leads to drop in the respective openings therefor.

3. A machine for distributing printers' leads having, in combination, a table provided with a longitudinal abutment and having a series of graduated slots or openings arranged with parallel edges near said abutment, said slots or openings increasing in length from said abutment, said table having a series of longitudinal grooves, and means traveling in said grooves for engaging and moving the leads over the table.

4. A machine for distributing printers' leads having, in combination, a table provided with parallel longitudinal abutments and having series of graduated openings beside said abutments, each series of openings having substantially aligned edges near the respective abutment, and the openings of both series increasing in length from such abutments, and means for conveying leads along said table adjacent to said abutments.

5. A machine for distributing printers' leads having, in combination, a table, endless carrier-chains or the like at opposite sides thereof and spaced cross-bars carried thereby, said cross-bars having depending spaced fingers for engaging leads placed on said table, means for guiding said leads, and said table having a series of graduated openings therein arranged to receive different sizes of leads.

6. In a machine for distributing printers' leads, the combination of a table and means for moving leads along or over the same, said table having a series of slots or openings with substantially aligned edges at one side and of graduated lengths from said edges, and said openings provided with the tilting surfaces a^6 in the corners next said aligned edges and next the edges of said openings last approached by the leads in passing thereafter, said surfaces being arranged to support the advancing leads before they leave the opposite edge of said openings.

7. In a lead-distributing machine wherein the leads are moved over a table and dropped through openings therein, the combination of the table, and an endless carrier comprising parallel sprocket-chains running longitudinally of the table and carrying spaced cross-bars for moving the leads, sprocket-wheels on and around which said chains run, said sprocket-wheels having teeth omitted at intervals, and the cross-bars being spaced at intervals corresponding to the intervals between omitted teeth, whereby the links of the sprocket-chains constitute holders for the cross-bars intermediate those links which are engaged by the teeth of the sprocket-wheels.

8. In a lead-distributing machine, the combination with the table having an intermediate rib and distributing openings arranged at opposite sides thereof, and a carrier for moving leads along said table having spaced cross-bars provided with intermediate yokes straddling or bridging said rib.

9. In a lead-distributing machine, the combination of a table having a plurality of series of openings each of successively increasing lengths, the second series being a continuation of the first, and means for conveying leads along the table.

10. In a lead-distributing machine, the combination of a table having distributing openings of different sizes, means for conveying leads along the table, and a series of drawers arranged under the respective openings, and a sheet-metal base-plate supporting said drawers and having flaps cut therefrom and bent up vertically to provide partitions between the drawers.

In testimony whereof I affix my signature, in presence of two witnesses.

GEORGE H. WARD.

Witnesses:

OSGOOD H. DOWELL,
EDWARD R. WITMAN.