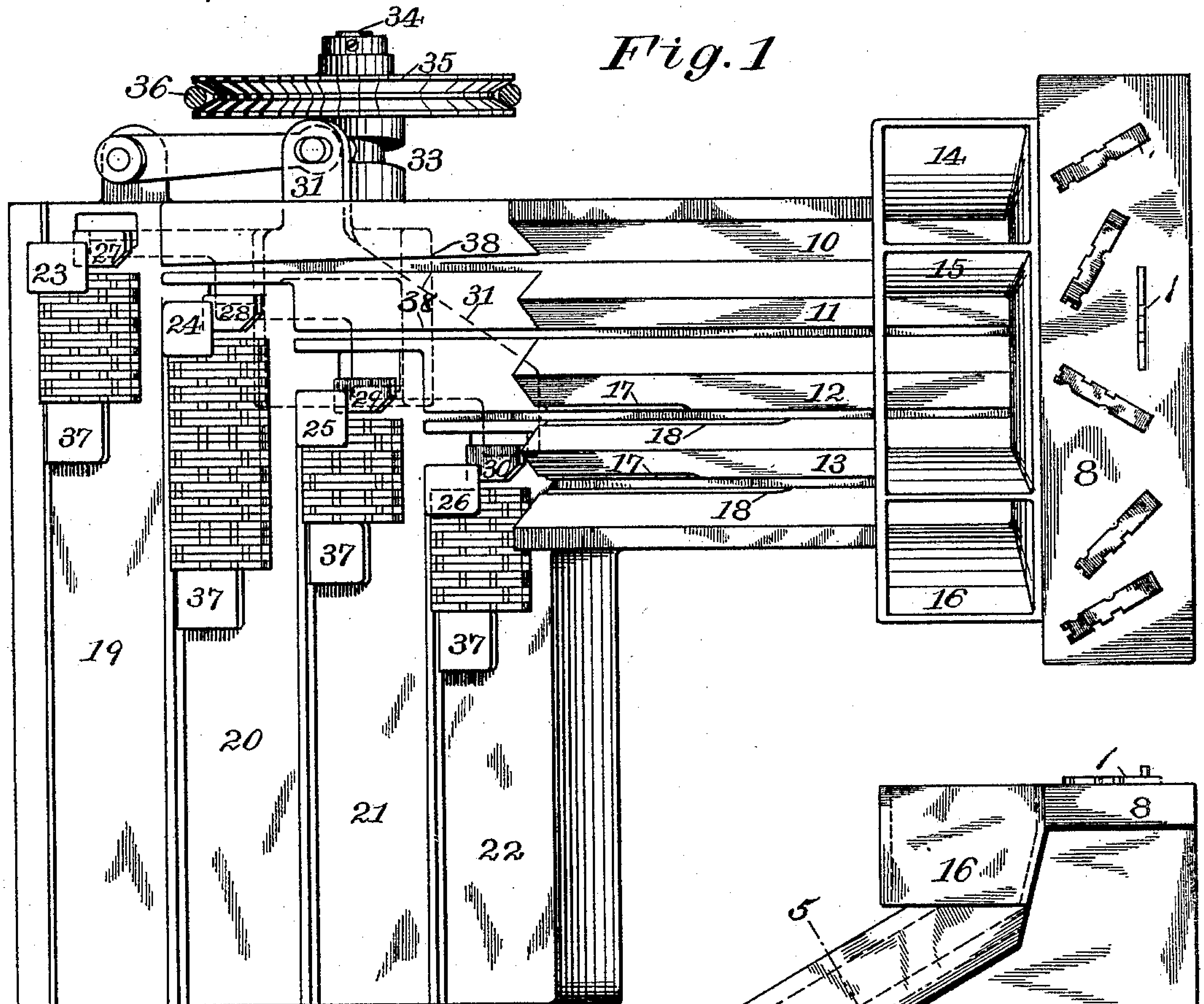
(No Model.) 2 Sheets—Sheet 1.

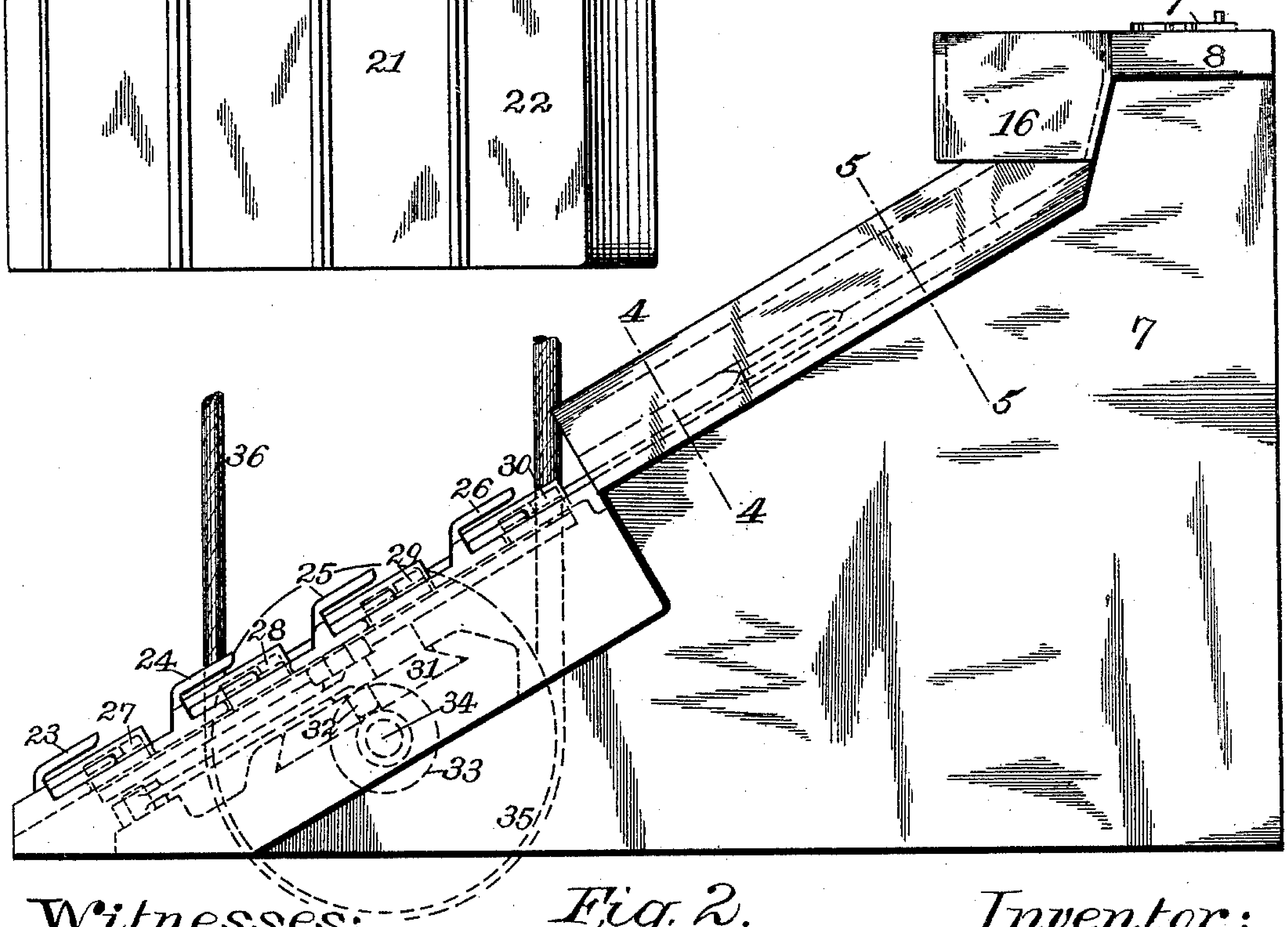
W. A. LORENZ.

TYPE ARRANGER.

No. 467,355. Patented Jan. 19, 1892.

Fig. 1





Witnesses:

T. F. Kehoe.

G. M. Borst

Fig. 2.

Inventor:

William A. Lorenz

by Philipp Phelps & Sawyer

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4

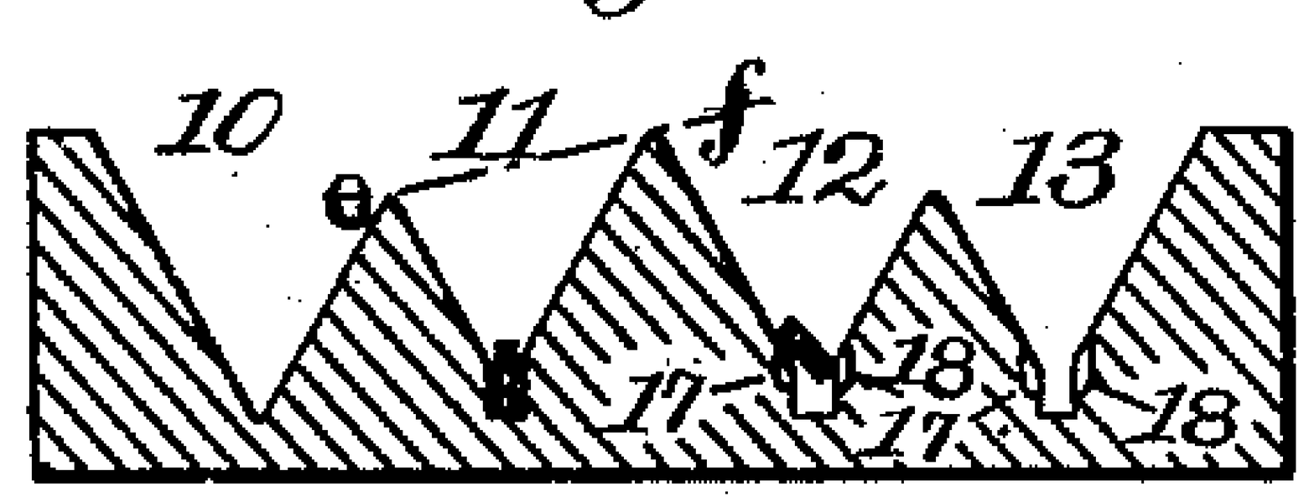
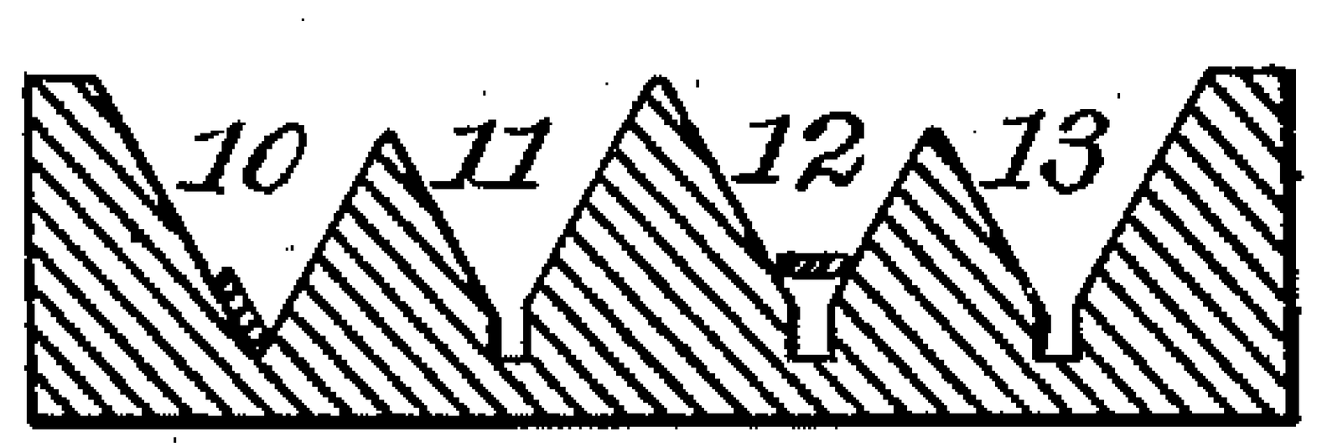


Fig. 5



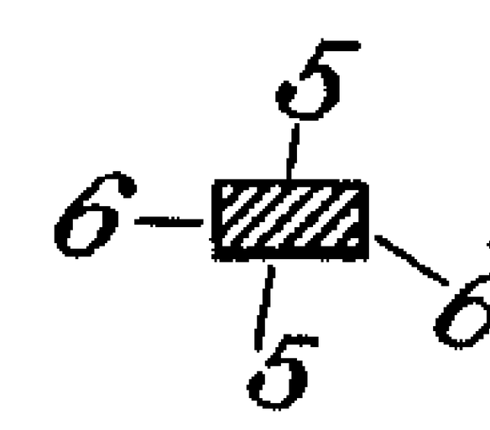


Fig. 6

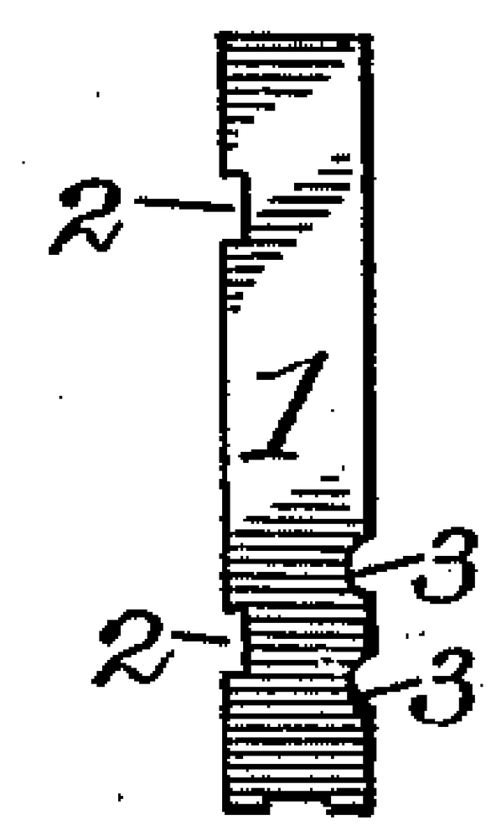
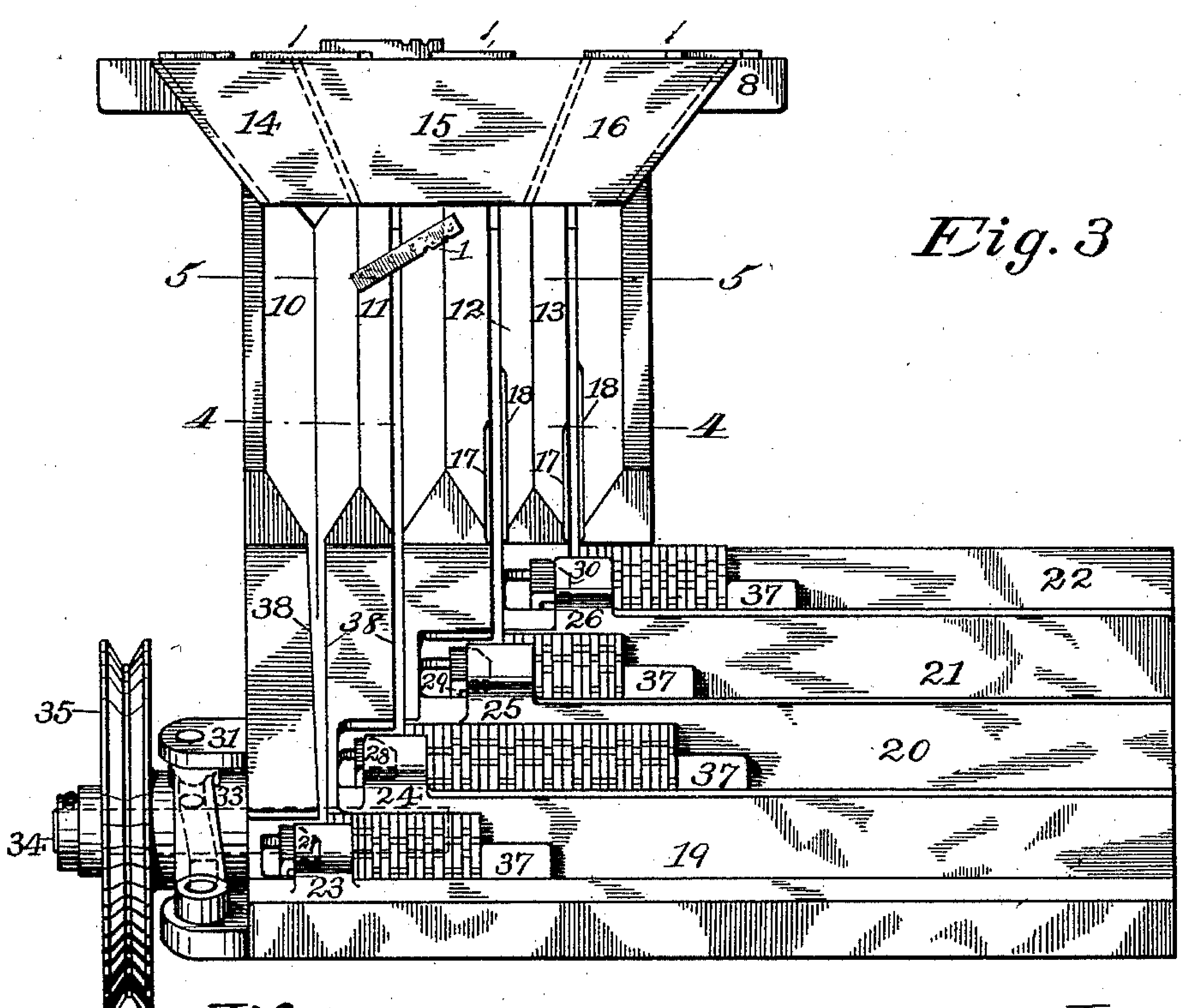


Fig. 7

Fig. 3



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Inventor:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM A. LORENZ, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE THORNE TYPE SETTING MACHINE COMPANY, OF JERSEY CITY, NEW JERSEY.

TYPE-ARRANGER.

SPECIFICATION forming part of Letters Patent No. 467,355, dated January 19, 1892.

Application filed October 30, 1890. Serial No. 369,773. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LORENZ, a citizen of the United States, residing at Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Type-Arrangers, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of machines in which the type are directed through type-conveying grooves in such a manner as to arrange themselves side by side in channels from which they may be afterward removed by hand or fed to a type-setting machine, as desired. The most common use of such type-arrangers is in hand distributing-machines, in which the type are distributed by hand into hoppers corresponding to different letters, from which the type pass through inclined grooves to the channels in which they are arranged.

The object of my invention is to provide an improved construction by which the type will enter and be arranged in the receiving-channels on their edges, my invention consisting, chiefly, in the improved form of the grooves by which the type are turned into the proper position and directed to the receiving-channels.

The invention is especially applicable to the arranging of spaces, although letter-type may also be arranged therewith.

For a full understanding of my invention a detailed description of a machine will now be given, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a side view of the same. Fig. 3 is a front view. Figs. 4 and 5 are sections, respectively, on lines 4 4 and 5 5 of Figs. 2 and 3; and Fig. 6 and 7 are respectively a section and a side view of a type.

The space-type 1, as shown in Fig. 7, has the usual selecting-nicks 2 and foundry-nicks 3, and is shaped in cross-section, with the sides 5 and edges 6, as shown in Fig. 6. The type are to be arranged upon one of their edges 6 with the sides 5 of the adjacent type in contact.

In the machine, 7 is the frame supporting a table 8. (Shown with type thereon.) The table, however, may be omitted and the type thrown directly into the hoppers hereinafter described. The frame supports also a slideway having four inclined type-conveying grooves 10 11 12 13 and a hopper having three divisions 14 15 16, from which the type pass to the type-conveying grooves. All the grooves are V-shaped, so that the type passing into them from the hoppers arrange themselves upon their edges and the bottoms of the grooves may all be of a plain V shape, as shown in groove 10. I prefer, however, to form the V-shaped grooves with rectangular bottoms of sufficient width to support the type edgewise, and this rectangular bottom may form, with the V-shaped groove, the only means for turning the type upon their edges, as shown in groove 11. To assist in turning the type, however, it is preferable to provide the grooves with recesses cut into one or both the side walls at the angle between the V-shaped and rectangular part and extending downward partly into the sides of the rectangular part, as shown at 17 18, in grooves 12 and 13. These recesses will preferably be made on both sides of the groove and extend to different distances lengthwise of the groove, as shown, so that in case the type be carried past the first groove by the impetus of its fall it will be tipped by the second recess.

As shown in Figs. 4 and 5, the dividing-ridges between the different pairs of grooves are preferably of different heights, the central one being shown as the highest, the varying height of the ridges causing the type to lie with one end lower than the other, as shown by the line *e f* in Fig. 4, so that the lower end of the type will swing around more readily to align the type with the groove than if the ridges were of the same height. The V-shaped grooves are continued at the bottom by rectangular grooves 38 and terminate, respectively, at four channels 19 20 21 22, arranged in step form. Over the end of each channel is placed a guard 23, 24, 25, and 26, under

which the type pass into the channels from the grooves, and column-packers 27, 28, 29, and 30 act upon the type beneath the guards. These packers are carried at one end of a slide 31, moving longitudinally of the type-channels and working in a groove of the frame 7. The other end of the slide 31 carries a pin 32, working in a cam 33 on shaft 34, the shaft being operated by a pulley 35 and belt 36, or in any other suitable manner. This cam reciprocates the slide 31 and the four packers to advance the type-line one step at each rotation of the shaft 34. Holding-slugs 37 support the type in the channels.

The machine shown is intended for use in hand-distribution of type-spaces and is designed simply to arrange the spaces upon one of their edges, it being immaterial whether the spaces are arranged in order with reference to their nicks or not. The machine is shown as adapted to arrange three-em, four-em, and five-em spaces, the center hopper receiving the three-em spaces, and supplying two grooves on account of the larger number of these spaces.

The operation of the machine is as follows: The type or type-spaces as they are picked from the line are thrown directly into the hoppers or upon the table 8 and pushed into the hoppers, which direct them into the V-shaped grooves, by which they will be turned so as to be moved lengthwise down the incline. The V-shaped grooves will also operate to turn the type on their edges, so that they will fall into the rectangular bottoms of the grooves in this position, and thus pass onward to the type-channels under the guards, where the reciprocating packers will advance the type one step and then be retracted to permit the next type to move into position below the guards.

While I have shown my invention as applied to a simple form of machine for the distribution of type-spaces, it is apparent that the machine shown and described constitutes only one form of machine to which my invention may be applied and that the type-grooves, shaped as described and claimed, are of general application in apparatus for arranging type upon the edges, whether in setting or distributing.

What I claim is—

1. In an apparatus for arranging type, a V-shaped type-conveying groove having a rectangular bottom of suitable width to support the type on their edges, substantially as described.

2. In an apparatus for arranging type, a V-shaped type-conveying groove having a rectangular bottom of suitable width to support the type on their edges, one or both of the angles between the V-shaped and rectangular portions being recessed through a portion of its or their length, substantially as described.

3. In an apparatus for arranging type, a V-shaped type-conveying groove having a rectangular bottom of suitable width to support the type on their edges, the angles between the V-shaped and rectangular portions being recessed through different portions of their lengths, substantially as described.

4. The combination, with a V-shaped type-conveying groove by which the type are turned on their edges, of a rectangular groove forming a continuation of the V-shaped groove, a type-channel into which the type pass from the rectangular groove, and a packer for advancing the arranged type in the channel, substantially as described.

5. The combination, with a V-shaped type-conveying groove by which the type are turned on their edges, of a rectangular groove forming a continuation of the V-shaped groove, a type-channel provided with a guard beneath which the type pass from the rectangular groove, and a packer for advancing the arranged type in the channel, substantially as described.

6. The combination, with type-channels for receiving the type side to side, of V-shaped type-conveying grooves for turning the type on their edges, and packers for advancing the arranged type in the channels, substantially as described.

7. In an apparatus for arranging type, a series of V-shaped type-conveying grooves having dividing-ridges varying in height, substantially as described.

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

WILLIAM A. LORENZ.

Witnesses:
ALBERT H. WALKER,
CHAS. W. LORENZ.