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E. F. LINKE.

Patented Nov. 27, 1900.

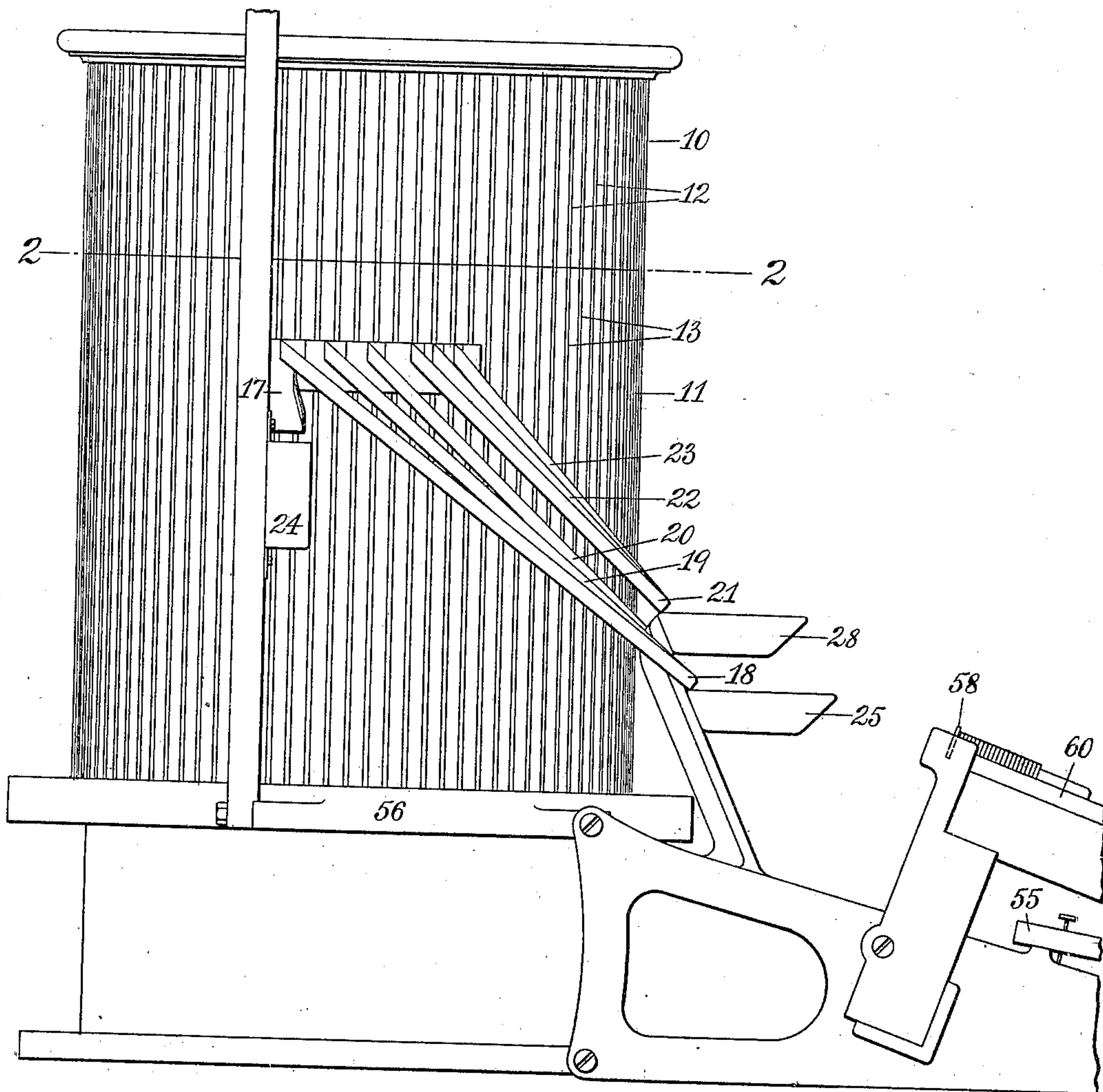
TYPE COMPOSING AND DISTRIBUTING MACHINE.

(Application filed Apr. 9, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1



Witnesses:

H. Mallin
Jos. Merritt

Inventor

Emil F. Linke

By *Wm. H. Jones* Atty.

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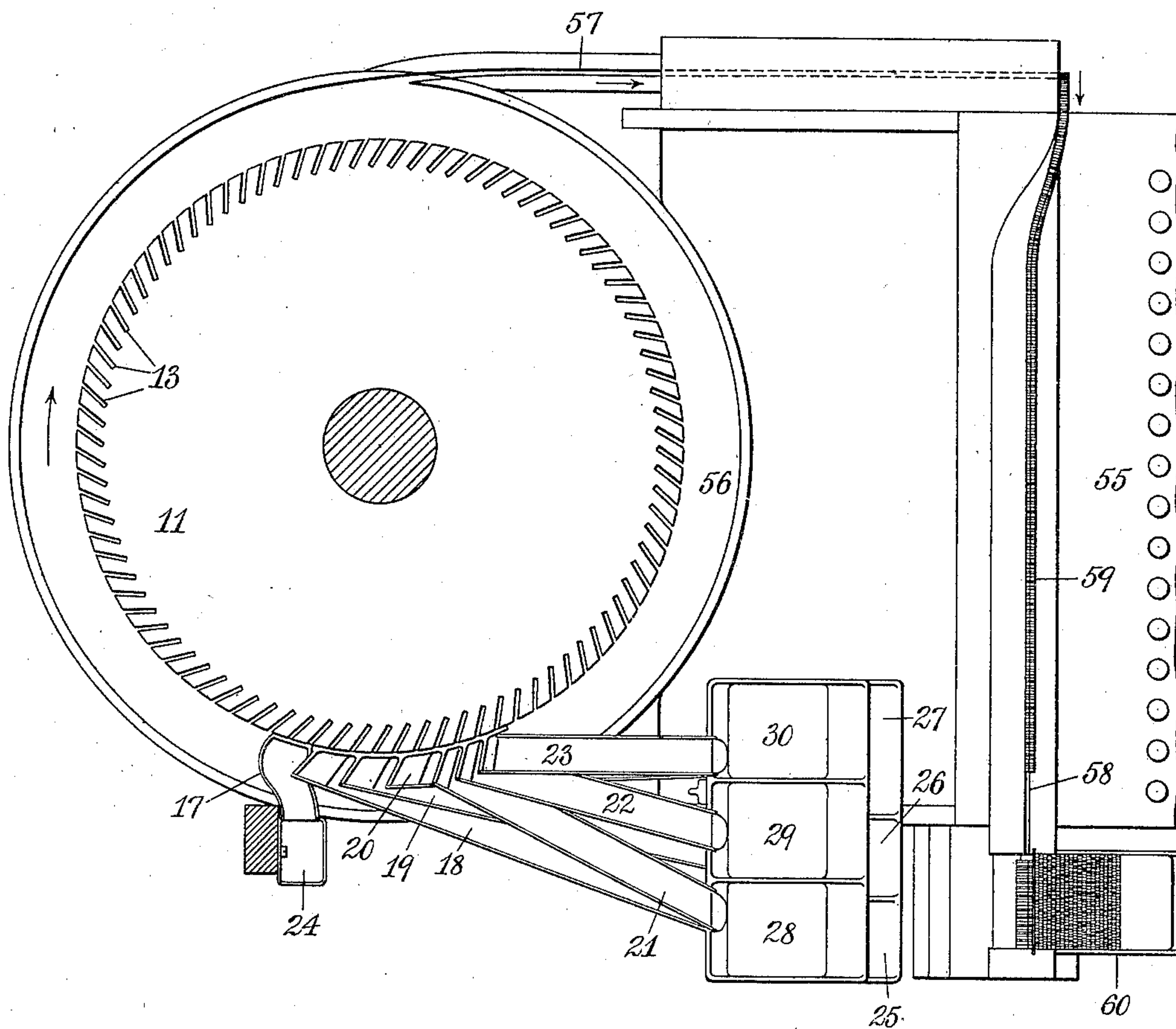
TYPE COMPOSING AND DISTRIBUTING MACHINE.

(Application filed Apr. 9, 1900.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2



Witnesses:

H. Manner
J. Merritt

Inventor

Emil F. Linke

By *Wm H. Jones* Att'y.

E. F. LINKE.

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3 Sheets—Sheet 3.

Fig. 3

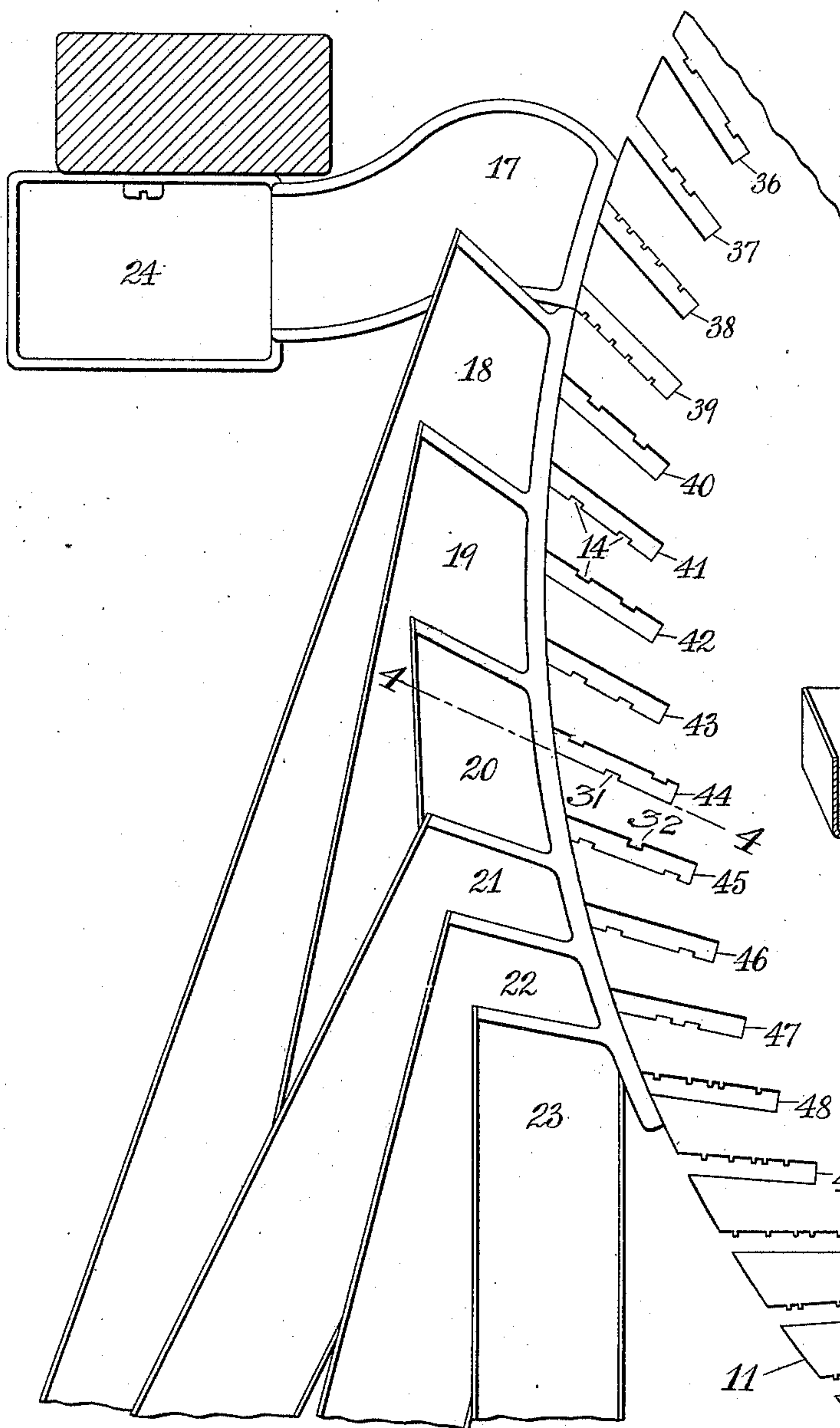
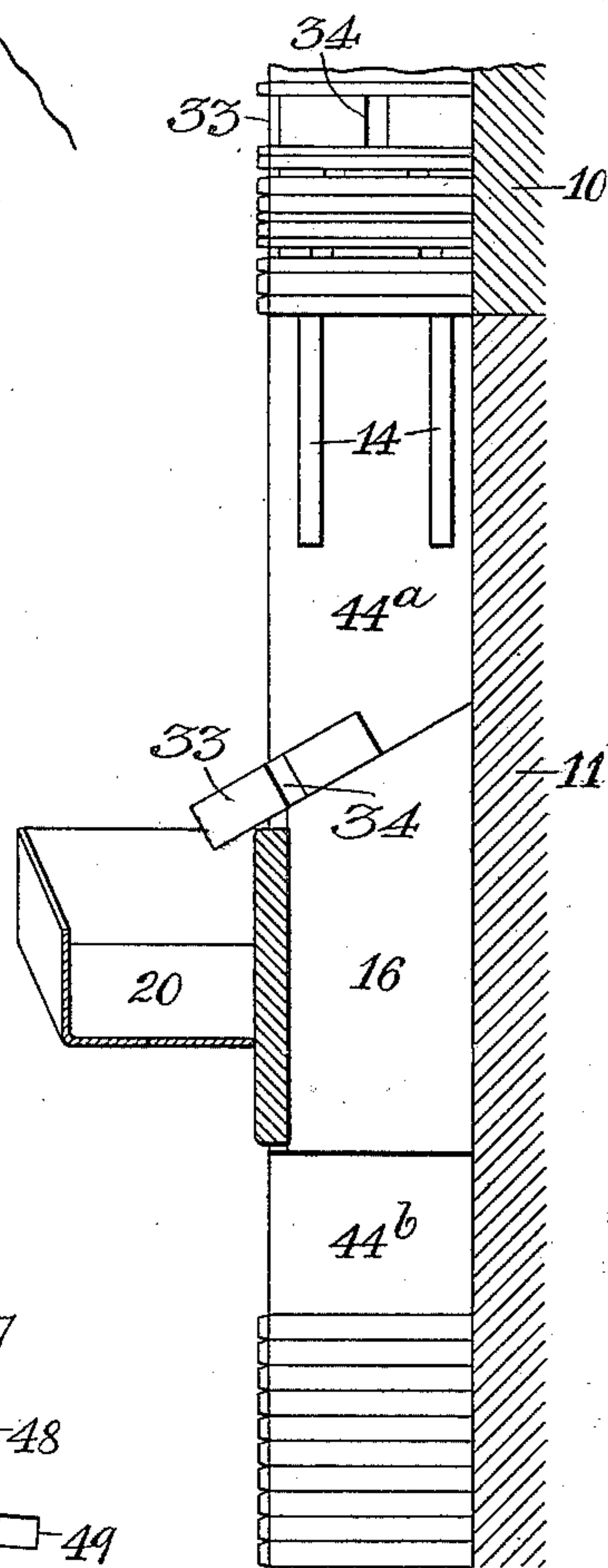


Fig. 4



Witnesses:

H. Mallner
J. H. Hunt

Inventor

Emil F. Linke

By W. H. Honiss. Atty.

UNITED STATES PATENT OFFICE.

EMIL F. LINKE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE THORNE
TYPE SETTING MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE COMPOSING AND DISTRIBUTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 662,652, dated November 27, 1900.

Application filed April 9, 1900. Serial No. 12,188. (No model.)

To all whom it may concern:

Be it known that I, EMIL F. LINKE, a citizen
of the United States of America, and a resi-
dent of Hartford, county of Hartford, and
5 State of Connecticut, have invented certain
new and useful Improvements in Type Com-
posing and Distributing Machines, of which
the following is a specification.

This invention relates to improvements in
10 type composing and distributing machines,
particularly those in which the composed lines
of type are to be justified by hand.

One of the objects of the invention is to pro-
vide means whereby the spaces, quads, and
15 hyphens required for the hand justifying op-
erations may in the distributing operation be
segregated from the rest of the matter and
then diverted from the respective receiving or
segregating channels into a series of hand-
20 cases arranged in a convenient relation to the
hand of the justifying operator.

Another object is to provide means where-
by the spaces, quads, and hyphens which are
thus required for hand justification and which
25 are also required to be played out by the op-
erator in the regular course of composition
may in the distributing operation be divided
between the regular composing-channels of
the machine and the justifier's cases and may
30 be thus divided in approximately the propor-
tion required by each.

This invention is herein shown in an em-
bodiment which is adapted for use in connec-
tion with a combined type setting and dis-
35 tributing machine of the general construc-
tion shown and described in United States
Letters Patent Nos. 372,186 and 372,187, of
October 25, 1887.

Figure 1 of the drawings is a side view, and
40 Fig. 2 is a plan view, in reduced scale, in sec-
tion taken on the line 2 2 of Fig. 1, showing
enough of the general machine and of my im-
proved devices to enable their relation and
coöperation to be understood. Fig. 3 is a plan
45 view, in a larger scale, showing a segment of
the composing-cylinder and the receiving-
channels with the chutes leading therefrom
to the hand-justifier's cases. Fig. 4 is a side
view in section taken substantially along
50 the line 4 4 of Fig. 3, showing the arrange-
ment whereby the desired spaces after being

distributed from the type-channels of the dis-
tributing-cylinder into the segregating-chan-
nels of the composing-cylinder are diverted
therefrom to the justifier's cases.

In machines of this class the distributing-
cylinder 10 is mounted to rotate above and
concentrically with the stationary composing-
cylinder 11 and is provided with type-chan-
60 nels 12, arranged longitudinally of the cylin-
der and equally spaced around the periphery
thereof. The lower or composing cylinder 11
is provided with similar channels 13, arranged
in a corresponding relation around its pe-
riphery. The lines of type to be distributed 65
are placed in the upper channels 12 of the
cylinder 10, and the latter is caused to rotate
by an intermittent step-by-step movement,
which brings each channel of the upper cyl-
inder successively into coincidence with the 70
channels of the lower cylinder. The upper
ends of the type-channels of the lower cylin-
der 11 are provided with selecting-wards set
in differing combinations in the different
channels, and the different type are nicked 75
in coincidence with this system of wards, so
that the wards of each channel will receive
only those type which are nicked in coinci-
dence therewith. The intermissions in the
rotation of the upper cylinder occur just when 80
the channels in the two cylinders are coinci-
dent, thereby allowing the type which have
arrived at their proper channels to drop there-
in past the wards.

The location and arrangement of the chan- 85
nels and their wards of the composing-cylin-
der 11 are best shown in Figs. 3 and 4, the
channels therein shown being indicated by
the numerals 36 to 52, inclusive. The char-
acter and other type which are set only from 90
the keyboard and are therefore not liable to
be reversed in manipulation are contained
in channels warded upon one side, as illus-
trated by the channels 49, 50, 51, and 52;
but the spaces and some of the other type 95
which are handled by the operator in the op-
eration of justifying are, however, liable to
be inverted or reversed, so that when the mat-
ter is again distributed the type thus reversed
would lie with their nicks upon the side of 100
the channel opposite to that ordinarily con-
taining the selecting-wards. Therefore in or-

der to insure proper distribution of these spaces and the characters which are thus liable to be reversed in handling they are each provided with two receiving-channels in the
 5 composing-cylinder, warded upon opposite sides, as in the case of the channels 40 41 and the channels 44 and 45, thereby insuring the distribution of these spaces even when reversed.

10 The channels 44 and 45 for the wide quads are herein shown to be provided with the supporting-wards 31 and 32 in the side of the channel opposite to the regular combination of selecting-wards, the corresponding wide
 15 quads 33 being provided with a corresponding nick 34, made to clear the wards 31 and 32. These channels are employed in connection with the selecting-wards of these channels for supporting both sides of the type
 20 which immediately follow these quads in the distributing operation on account of the increased distance which they fall due to the greater width of these quads. Similar receiving-channels having reversely-arranged
 25 selecting-wards for insuring the distribution of accidentally reversed or inverted spaces form the subject-matter of a prior patent, No. 473,405, and are therefore not herein broadly claimed, being, however, utilized in
 30 coöperation with the devices of this invention to produce the results now sought.

The regular channels 13 in machines of this class extend from top to bottom of the cylinder 11 without interruption, so that the character type which do not require to be diverted from the composing-channel for the purposes herein set forth pass in the ordinary way down through their respective channels and are ejected singly from the lower end
 40 thereof in the composing operation by means of the keyboard. This is illustrated by the channels 36, 37, 49, 50, 51, and 52 of Fig. 3; but in the present invention each of the channels 38 to 48, inclusive, for segregating the spaces
 45 and unassorted type is provided with a switch-block 16, which fits tightly in the channel. The upper surfaces of these switch-blocks 16 are inclined, as shown in Fig. 4, so that the type after falling past the wards 14
 50 slide upon these inclined surfaces of the blocks out of the channels into a series of chutes 18, 19, 20, 21, 22, and 23. The upper ends of these chutes are secured to the composing-cylinder adjacent to the switch-blocks
 55 16 and lead therefrom to a series of open cases 25, 26, 27, 28, 29, and 30, respectively, as shown in Figs. 1 and 2, these cases being arranged and located in a convenient relation to the hand of the justifying operator.
 60 As illustrated in these figures, the location of the cases is adjacent to the keyboard 55, so as to enable the operator of a "one-man" composing-machine to justify his own composition.

65 The chute 17 leads to a pi-box 24 from the pi-distributing channels 38 and 39, which are oppositely warded in accordance with the

combination of nicks employed for the miscellaneous, accidental, and other type, which are not used frequently enough to warrant
 70 the employment of separate distributing-channels.

In cases when, as herein shown, the receiving-channels are long enough to permit it the switch-blocks may divide their respective segregating-channels into upper and lower compartments, (indicated in Fig. 4 by 44^a and 44^b),
 75 the upper compartments being employed for receiving the type or spaces for which they are respectively warded, while the lower compartments are employed for sorted characters, which though infrequently employed must nevertheless be played out by the keyboard
 80 in the composing operation. The lower portions of the segregating-channels 36 to 48, inclusive, below the blocks 16 are or may be thus utilized for receiving a corresponding number of infrequent characters, which are thus distributed into the pi-box 24, as just
 85 described, being sorted and transferred therefrom by hand to these channels, from which they are played out by the operator, as required, each of these short channels being provided with an ejector connected with a
 90 key in the keyboard 55 in the usual way. The choice of the characters thus distributed into the pi-box 24 and transferred thence by hand to these short channels is determined by the requirements of each particular machine and may be varied to any desired extent.
 95 100

The arrangement shown in Figs. 1 and 2 is one which adapts machines of this class to be readily controlled by a single operator sitting at the keyboard 55. By means of that keyboard the desired type are played out of the
 105 cylinder 11 on to the rotating disk 56, from which they pass through the raceway 57 to the typeway 58, in which the type stand in proper sequence in a continuous line 59, reaching to, or nearly to, the galley 60. When the typeway is approximately full, the operator separates a stick full of type from the left
 110 hand of the line, justifies it to the required measure, and transfers it to the column in the galley, taking the required spaces, quads, and hyphens from their respective cases 25 to 30. Having thus emptied the typeway 58 to a convenient distance, he resumes composition by the keyboard, thus alternating the
 115 120 composition and justification of the matter.

In the usual methods of machine composition two sizes of spaces are ordinarily played out by the keyboard in the composing operation. One of these, commonly known as the
 125 "chief" space, which may be a three-em or four-em space, is played in at every space between the words. The other, which may be the en quad, is employed at the beginning of indented paragraphs and other blanks
 130 in the composed matter. These spaces are also required for use in the justifying operations. Therefore in the present invention only a portion of them are segregated and

diverted to the justifying-cases. This diverse distribution of the same kind of spaces or type may be accomplished by nicking the type in many different combinations, as may
 5 be required, and providing each combination with a similarly-warded channel located so as to deliver the type when wanted; but where, as in the instances herein illustrated, the same kind of type have to be distributed
 10 in but two different places it is preferably accomplished by the use of two channels reversely warded in the regular combination of each of the type or spaces which are thus to be divided, and in loading the distributing-
 15 channels some of these type are inverted or reversed about in the proportion required for each particular purpose. For example, the channels 36 and 46, as shown in Fig. 3, are reversely warded in the combination of the
 20 chief space. The "reversed" channel 46 is adopted as the segregating-channel for this space and is provided with one of the switch-blocks 16, by means of which the reversed spaces distributed therein are diverted there-
 25 from and slide through the chute 21 into the justifier-case 28. On the other hand, the chief spaces that are not reversed are distributed into the "regular" channel 36, which is not provided with one of the switch-blocks 16, and
 30 hence the spaces pass through to the bottom of the channel and are ejected therefrom in the regular way during the composing operations by means of the keyboard. Similarly the en quads, which are reversed, are distrib-
 35 uted into the segregating-channel 47, are diverted therefrom by its switch-block 16, and slide along the chute 22 into the justifier-case 29. Obviously, therefore, a suitable proportion of the chief spaces and en quads should
 40 be reversed in loading them into the machine to satisfy the requirements of the justifying-section thereof.

It is found that in machine composition the hyphen type are employed almost exclusively
 45 at the ends of lines for indicating the separation of the syllables of those words of each line which must overflow into the next line. Inasmuch as the compositor while playing out the type from the keyboard cannot ordinarily pre-
 50 determine where these separations of a word are to occur, the hyphens therefore cannot be played out by a key, but are almost invariably inserted by hand in the justifying operation. Hence it is considered preferable to divert all
 55 of the hyphen type from the channel into one of the justifying-cases, as 30. The lower part of the hyphen-channel 48 or of any other convenient channel may, however, be utilized for the few of these hyphen type which are required to
 60 be played out by the keyboard, as in compound words and similar infrequent instances, the type for this purpose being transferred by hand from the case 30; or in special cases in which a greater number of these hyphen
 65 type are required to be played out by key a special channel may be provided, warded on

the opposite side to that of the channel 48, so that these type will be divided between the channels in a proportion approximating their relative requirements, as already described in
 70 connection with the chief-space channels 36 and 46 and the en-quad channels 37 and 47.

As hereinbefore stated, the characters and other type which are both composed and distributed by the machine and are not han-
 75 dled by the fingers of the operator will pass repeatedly through the composing and distributing sections of the machine without becoming reversed or inverted, and will therefore never be diverted to the justifying-section of the machine; but the spaces, hyphens,
 80 and similar type which are handled by the operator in spacing and justifying the lines of type are liable to be turned back, so as to be thereafter distributed into the oppositely-
 85 warded channels of the machine. Hence the constant tendency of the type thus handled would be to revert to the composing-section and to remain there. Therefore the justifying operator should in handling these re-
 90 versed spaces accustom himself to inserting them in the line in their reversed position. Otherwise these spaces and type will gradually revert to their regularly-warded chan-
 95 nels, thus diminishing the spaces available for the justifying-section of the machine. The operator may, however, take advantage of this reverte tendency of the type by re-
 100 versing or inverting some of those spaces or hyphens which may be distributed in the justifier's case in excess of the requirements of that section, thereby diverting to the composing-section of the machine a larger proportion of these type.

The type and spaces employed in machine
 105 composition are ordinarily nicked in symmetrical combinations, so that they may be turned end for end and yet coincide with the selecting-wards of their respective channels. Obviously, therefore, the nicks of these type
 110 may be brought adjacent to either wall of the respective channels either by turning the type over in its vertical plane without turning it end for end or by turning it end for
 115 end in its horizontal plane without turning it over. Hence the use herein of the terms "reversed" and "inverted," both being, however, intended to denominate those movements of the type whereby their nicks are
 120 changed from one side to the other of the receiving-channels.

From the foregoing description it will be obvious that this invention is adapted to the distributing and segregating not only of the
 125 usual justifying-spaces, but also of the hyphen and any other character type that may be required for justifying or for any other purpose; but in order to avoid confusion of terms in the description of this embodiment of the invention the spaces, quads, hyphens,
 130 and other type which are or may be diverted to the hand-cases are herein designated as

"spaces" or "justifying-spaces," it being understood, however, that any of the other "type," as thus broadly designated herein, may similarly be divided and diverted from the regular channels of the machine.

I claim as my invention—

1. In combination with a type-distributing machine and with a stick or typeway for composed lines of type, a segregating-channel for the justifying-spaces, a case therefor, located adjacent to the stick or typeway and means for diverting the said spaces from the segregating-channel to the case.

2. In combination with a type-distributing machine, a series of channels for segregating and assorting the justifying-spaces, a series of cases for containing the assorted spaces and means for diverting the said spaces from their respective channels and for guiding them to their respective cases.

3. In a type composing and distributing machine, the combination of a series of channels for segregating and assorting the justifying-spaces, a series of cases for containing the assorted spaces, located adjacent to the typeway of the composing-machine and means for diverting the said spaces from their respective channels and guiding them to their respective cases.

4. In a type composing and distributing machine, the combination of a series of channels for selecting and segregating the justifying-spaces from the distributing-matter, a series of hand-cases for containing the assorted spaces, arranged in convenient relation to the typeway of the composing-machine, and a se-

ries of switch-blocks and chutes leading from the said channels to their respective cases.

5. In a type composing and distributing machine, the combination of two channels warded upon opposite sides for the distribution of reversed or inverted spaces, with means for diverting from one of the channels the spaces distributed therein.

6. In a type composing and distributing machine, the combination of two channels for the same sort of type or spaces, having their selecting devices upon opposite sides of the channels, with means for diverting from one of the channels the type or spaces distributed therein.

7. In a type composing and distributing machine of the class specified, the combination of two receiving-channels reversely warded in the same combination, with means for diverting from one of the channels the spaces distributed therein for the purpose specified.

8. In a type composing and distributing machine of the class specified, the combination of two receiving-channels reversely warded in the same combination for receiving reversed or inverted type, a hand-justifying case, located adjacent to the typeway of the composing-machine, and means for diverting from one of the channels to the case the spaces received therein.

Signed at Hartford, Connecticut, this 4th day of April, 1900.

EMIL F. LINKE.

Witnesses:

WM. H. HONISS,
JOSEPH MERRITT.