E. MIRUS.

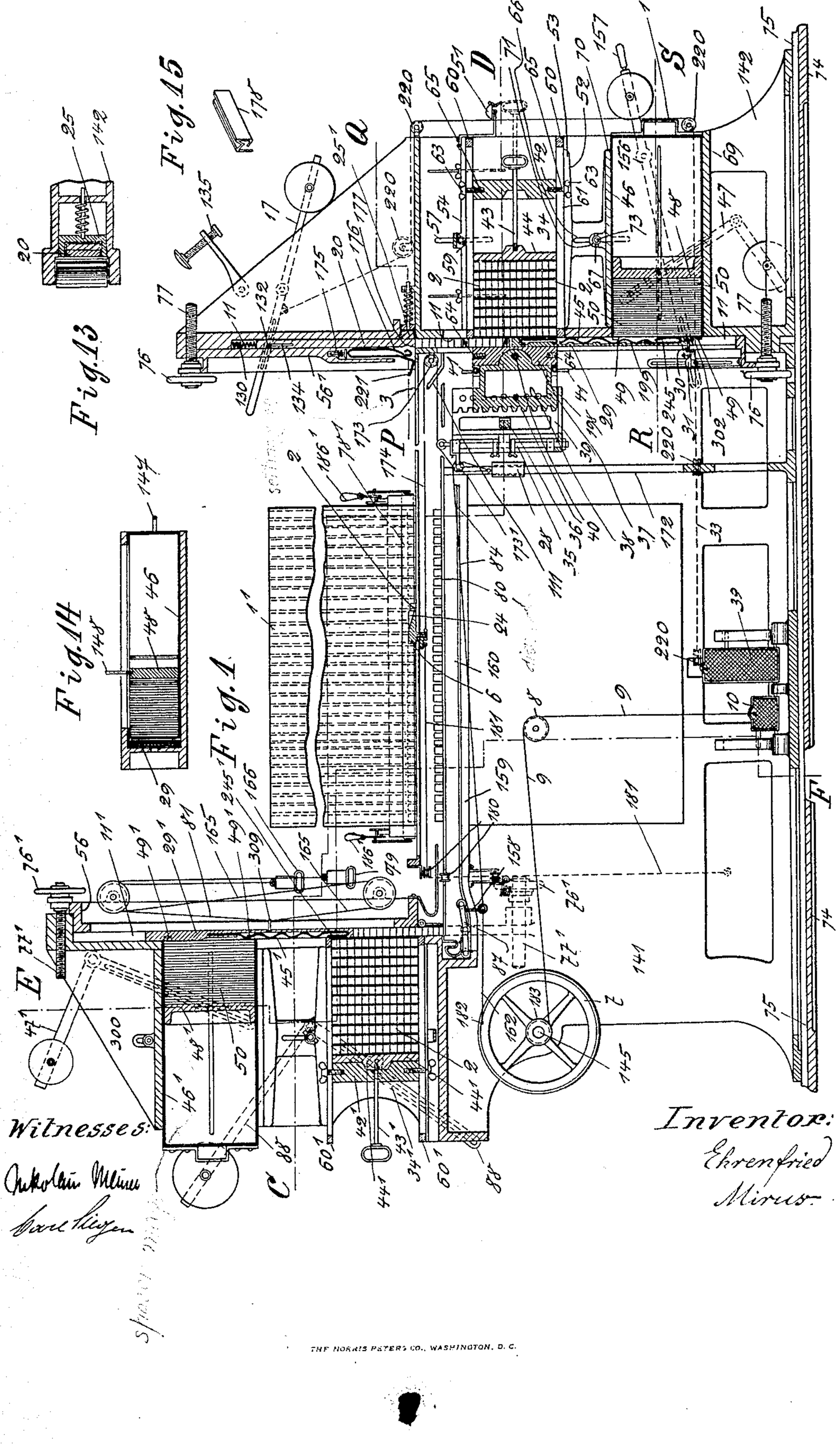
TYPE SETTING AND DISTRIBUTING MACHINE.

APPLICATION FILED AUG. 20, 1907.

913,224.

Patented Feb. 23, 1909.

4 SHEETS—SHEET 1.



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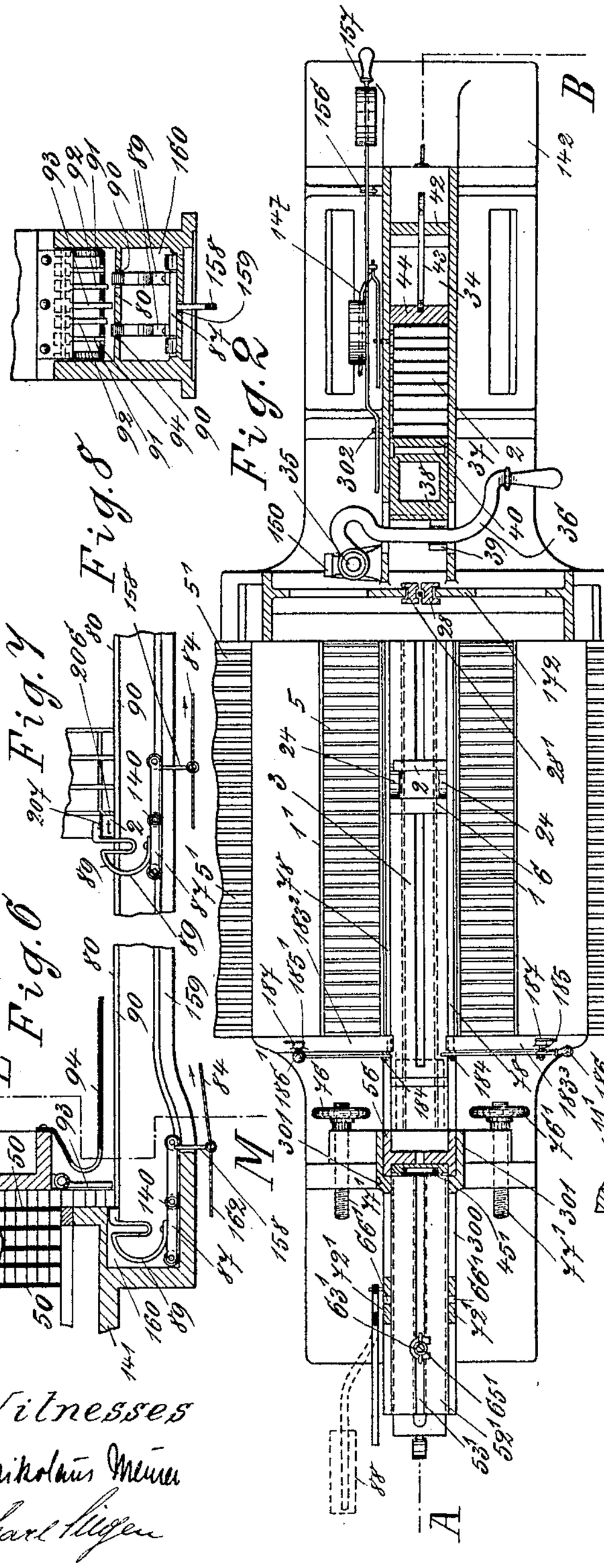

Fig. 2

Fig. 8

Fig. 4

Fig. 6

Fig. 5

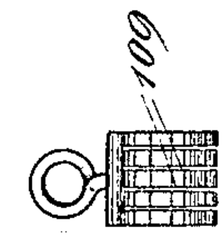

Fig. 12

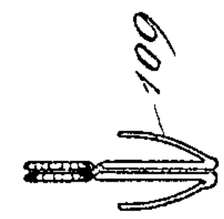

Fig. 11

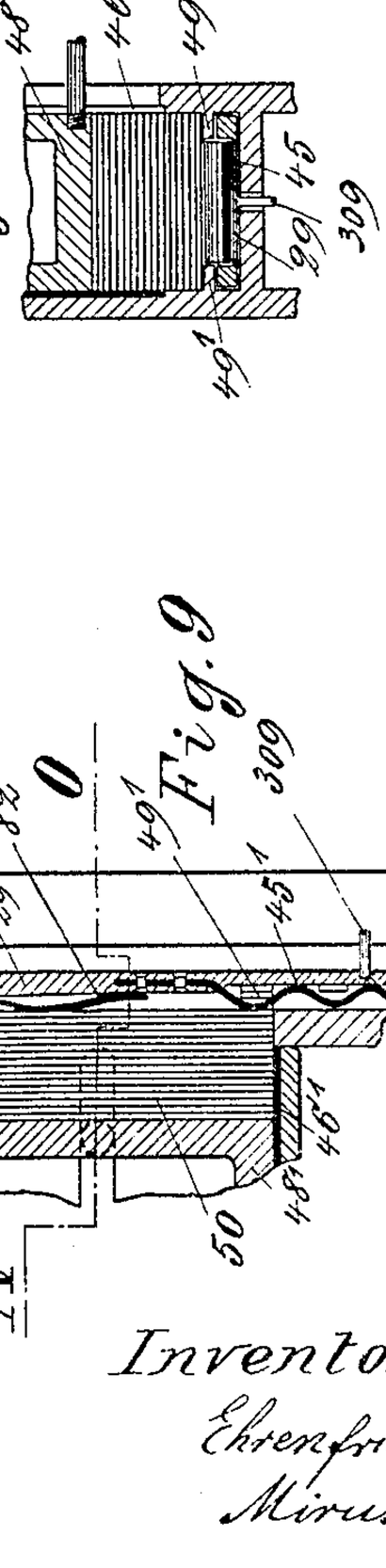

Fig. 10

Fig. 9

Witnesses

Nikolaus Meiner

Carl Sligen

Inventor:

Ehrenfried Mirus.

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4 SHEETS—SHEET 3.

Fig. 3

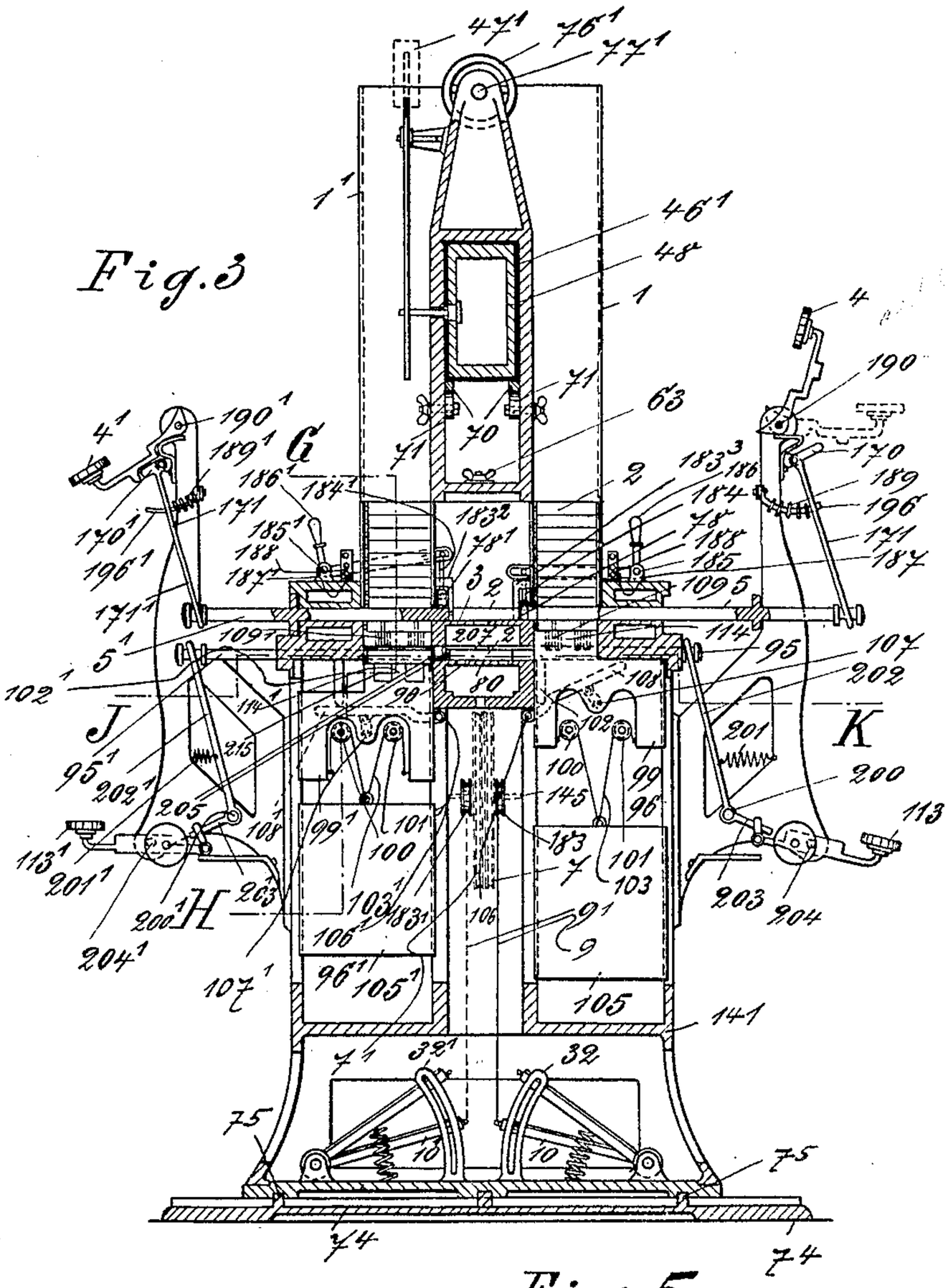


Fig. 4

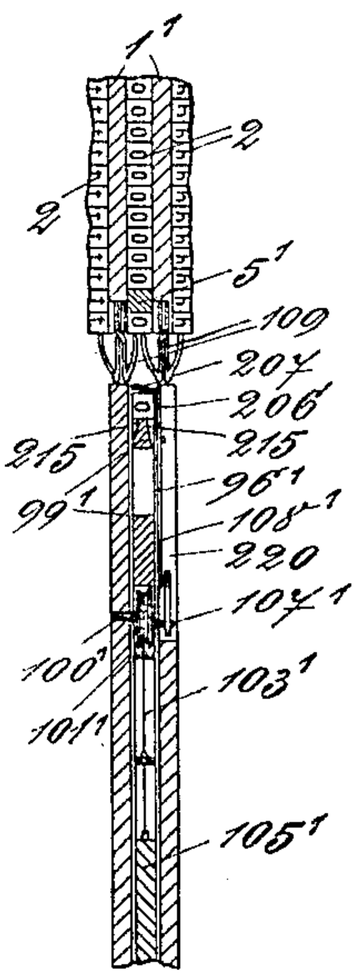
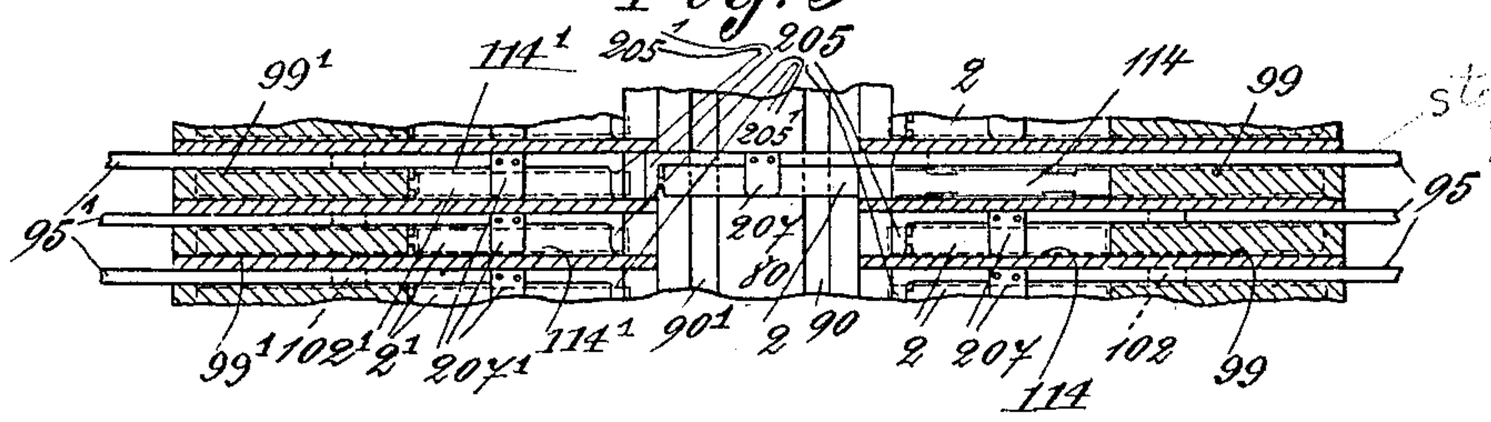


Fig. 5



Witnesses:

Nikolaus Meurer

Paul Ellgen

Inventor:

Ehrenfried Mirus.

E. MIRUS.

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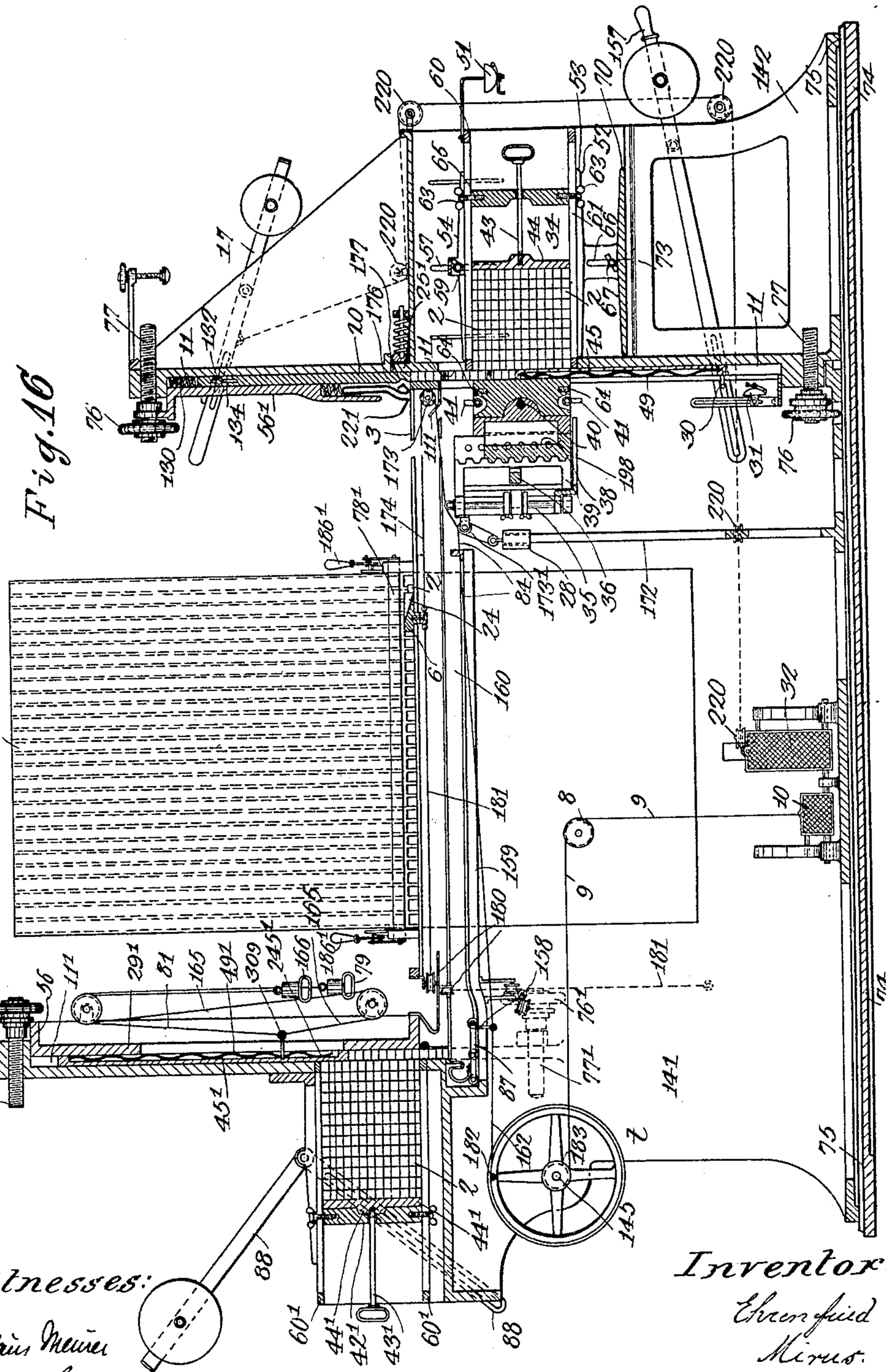
4 SHEETS—SHEET 4.

Fig. 16



Witnesses:

Nicholas Meurer

Carl Lieyen

Inventor:

Ehrenfried Mirus.

UNITED STATES PATENT OFFICE.

EHRENFRIED MIRUS, OF LIEGE, BELGIUM.

TYPE SETTING AND DISTRIBUTING MACHINE.

No. 913,224. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed August 20, 1907. Serial No. 389,598.

To all whom it may concern:

Be it known that I, EHRENFRIED MIRUS, a citizen of the Empire of Germany, residing at Liege, in the Kingdom of Belgium, have invented a new and useful Type Setting and Distributing Machine, of which the following is a specification.

My invention relates to a machine for setting and distributing the types and space lines of interlined compositions.

When simplified the machine may be used for setting and distributing the types of ordinary compositions. When its parts destined for distributing the types and space lines of interlined compositions or for distributing the types of ordinary compositions is omitted, the machine may be used as a simple type setting machine, or when its parts destined for setting the types and space lines of interlined compositions or for setting the types of ordinary compositions is omitted, it may be used as a simple type distributing machine.

In the type setting and distributing machine for interlined compositions a preferably vertical channel each is provided above and below the corresponding race for the type line set or to be distributed and a slide with a stripper is mounted in the vertical channel to move. A galley and a space line magazine are superposed for each machine part and made to communicate with the vertical channel. A key board and a type magazine for each machine part are disposed and are provided with a mechanism for ejecting the various types from the magazine in the case of the setting part of the machine or for stopping and moving the types to the magazine in the case of the distributing part. Devices are provided for moving the column of types in the vertical channel away from or toward the race.

In the setting part of the machine at the commencement of the setting the slide fills up the part of the vertical channel opposite the galley. During the setting this slide is gradually moved away from the race, while the space is being filled up with the types set. A signal device is provided, which is actuated the moment that the line is about to be completed. After the last type or space bar has been introduced, the column of types is moved with the slide away from the race and is placed opposite to the galley. At this moment the slide fills up the other part of the vertical channel and its stripper grips a space line in the space line magazine. The column of types is then pushed into the galley to make way for the slide, which is thereupon returned to its initial position while its stripper takes along with it the space line and pushes it into the galley. In the distributing part of the machine, on the contrary, at the commencement of the distribution the slide occupies its other extreme position, in which it faces the space line magazine. During the distribution the slide is gradually moved towards the race, while the types are taken off the column one after the other and are moved over the race to be distributed to the respective compartments of the magazine. After the last type has been distributed, the slide will face the galley and its stripper will grip the next space line in the galley. At last the slide is returned to its initial position and during this motion its stripper takes along with it the space line and pushes the same into the space line magazine.

Other features of the machine will be fully explained later on and pointed out in the claims.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through a combined type setting and distributing machine for interlined compositions on the line A—B in Fig. 2, Fig. 2 is a horizontal section through the same on the broken line C—D in Fig. 1, parts of the two opposite key boards being broken away, Fig. 3 is a vertical cross section through the same on the broken line E—F in Fig. 1, Fig. 4 is a vertical longitudinal section on an enlarged scale through the broken line G—H in Fig. 3, Fig. 5 is a horizontal section on an enlarged scale through the broken line J—K in Fig. 3, Fig. 6 is a part out of Fig. 1 on an enlarged scale and shows the distributing channel and race with the carriage in its extreme left position, Fig. 7 is another part out of Fig. 1 on an enlarged scale and shows an intermediate part of the distributing race with the carriage, Fig. 8 is a vertical cross section through the broken line L—M in Fig. 6, Fig. 9 is a part out of Fig. 1 on an enlarged scale and shows parts of the space line magazine and the vertical channel, Fig. 10 is a horizontal section through the broken line N—O in Fig. 9, Fig. 11 is an elevation of a yielding type line support, Fig. 12 is a side view of the same, Fig.

13 is a horizontal section through the line P—Q in Fig. 1, Fig. 14 is a horizontal section through the line R—S in Fig. 1, Fig. 15 is a perspective view of a compressible space bar, and Fig. 16 is similar to Fig. 1, only that the space line magazines are omitted, so that the machine illustrated is suitable for ordinary compositions.

Similar characters of reference refer to similar parts throughout the several views.

Figs. 1 to 15 show a combined type setting and distributing machine for interlined compositions. On the base plate 74 a standard 141 is fastened, while another standard 142 is made thereon shiftable by means of two screw spindles 77, 77 and two hand-wheels 76, 76, it being guided by two rails 75, 75. The two standards 141 and 142 leave between them a vertical channel 11 above and beneath the setting race 3 for the setting part of the machine. The left standard 141 in Fig. 1 may be cast in one piece with an upper structure 300 for the distributing part of the machine. Between the right vertical surface of the structure 300 and an adjustable frame 56 also a vertical channel 11^1 is formed above the distributing race 80 (on the top of the standard 141). The said frame 56 can be horizontally shifted by means of screw spindles 77^1, 77^1 and hand-wheels 76^1, 76^1 in a similar manner to the standard 142. The upper structure 300 may be cast in one piece with two parallel vertical flanges 301, 301 (Fig. 2), which come in contact with corresponding flanges of the frame 56. In a similar manner the right standard 142 is provided with two vertical flanges for closing the right channel 11 on the front and the rear. In each of the two vertical channels 11 and 11^1 a slide 29 or 29^1 is disposed, which is below the setting race 3 and above the distributing race 80 respectively. The shiftable standard 142 is made in one piece with a horizontal galley 34 and the casing 69 for a horizontal space line magazine 46. Both the galley 34 and the casing 69 are superposed and are open on their upper sides and communicate with the lower part of the vertical channel 11. The bottom 52 of the galley 34 is provided with a longitudinal slot 53, which extends over its whole length. The galley 34 is on the upper side closed by a movable top 54, which can be vertically adjusted by means of two screws 59 with winged nuts, these two screws engaging in two opposite vertical slots 57 in the standard 142 (see Fig. 1). The movable top 54 is divided into halves by a longitudinal slot. On the bottom 52 a plate 60 is placed, which is provided with a longitudinal slot 61. This slot 61 does not extend over the whole length of the plate 60 (see Fig. 1) and is made narrower than the slot 53 of the bottom 52. On the slotted plate 60 two vertical plates 42 and 44 are placed, of which the one 42 can be rigidly connected with the bottom 52 by means of a stud 65, a winged nut 63 and a washer (not shown). This washer is so cut out, see the washer beneath the winged nut 63^1 in Fig. 2 on the left, that it can be inserted between the nut 63 and the bottom 52 and also withdrawn. If the winged nut 63 is loosened and the washer is withdrawn, the former can engage in the slot of the bottom 52, in other words it can be so much screwed upwards until it bears against the slotted plate 60. By screwing home this winged nut 63 the vertical plate 42 can be rigidly connected with the slotted plate 60, so that the three parts 42, 44 and 60 can be withdrawn from the galley 34 and also introduced into the latter. Between the movable top 54 of the galley 34 and the two vertical plates 42 and 44 another slotted plate 60 is inserted, which is constructed exactly the same as the first one described. It will be seen, that the vertical plate 42 can be rigidly connected either with the upper slotted plate 60 or with the top 54 by means of a stud 65, a winged nut 63 and a slotted washer in a similar manner as described above with reference to the lower slotted plate 60 and the bottom 53. The vertical plate 42 serves for connecting the two slotted plates 60, 60 together and also as a guide for a spindle 43, by means of which the other vertical plate 44 can be horizontally shifted from without, the spindle 43 being provided with the handle shown. The height of the two vertical plates 42 and 44 is like the length of the lines of the composition and their width is slightly larger than the height of the types 2, the latter being placed across. The space between the vertical plate 44, the slide 29 in the vertical channel 11 and the two slotted plates 60, 60 is to be filled with the interlined composition, as is clearly shown in Fig. 1. It will be understood, that at the commencement of the setting the pressing plate 44 is pushed inwards by means of its spindle 43 and handle, until the pressing plate 44 is nearly in contact with the slide 29. During the operation of the machine and in a manner hereinafter to be described the lines of types and the space lines of the interlined composition are gradually introduced into the galley 34, so that the pressing plate 44 is successively shifted to the right in Fig. 1, until it bears against the supporting plate 42. It is also obvious, that for another length of the lines of the composition the movable top 54 of the galley 34 requires to be shifted and adjusted in the manner described, while the two vertical plates 42 and 44 require to be replaced by other plates. The supporting plate 42 can be horizontally adjusted in accordance with the required height of the interlined composition. Preferably a signal device 51 of any known and approved construction is adjustably connected

with say the upper slotted plate 60 and the handle of the spindle 43 is adapted to actuate the signal device 51 at the moment that the last but one line and the respective space line have been introduced into the galley 34.

The lower casing 69 is on its upper side closed by a movable top 70, which can be vertically adjusted by means of two screws 73 and winged nuts 67. These screws 73 are disposed in two ears 71, 71 of the top 70 and engage in vertical slots 66 in the side walls of the standard 142. The space line magazine 46 is open on the left in Fig. 1 and is provided on the right with a handle 147, by means of which it can be introduced into the casing 69. A pressing plate 48 is mounted in the space line magazine 46 to horizontally move and is provided with a pin 148 (Fig. 14), which passes to without through horizontal slots in the magazine 46 and in the one side wall of the standard 142 and engages in a slotted arm of a weighted lever 47. In the vertical channel 11 four projections 49, 49 (see Fig. 1 and similar to 49^1, 49^1 in Fig. 10) are provided against which the pressing plate 48 with the space lines 50, 50 is constantly pressed by the weight on the lever 47. Thus the first space line 50 in contact with the four projections 49, 49 is prevented by the friction from dropping in the vertical channel 11. On the slide 29 a corrugated spring 45 is provided which bears on the standard 142. The lower end of this spring 45 is bent (see Fig. 1), to form a stripper 245, which is adapted to snap under the first space line 50 on the slide 29 being moved downwards and to take along with it the said space line 50 on the slide 29 being moved upwards. The slide 29 is on its two side edges provided with cuts (similar to Fig. 10), through which the projections 49, 49 can pass during the motion of the slide 29. It is evident, that the inside height of the space line magazine 46 requires to be equal to the length of the lines in the composition, in other words equal to the height of the two vertical plates 42 and 44 in the galley 34, while the inside width of the space line magazine 46 is made slightly larger than the height of the space lines 50, 50 but smaller than the length of the types 2, 2. For other lengths of the lines and consequently also of the space lines the space line magazine 46 will require to be replaced by other ones, while the movable top 70 requires to be shifted vertically and readjusted.

The slide 29 is provided with a pin 30, which passes through a vertical slot 199 in the standard 141 and is adapted to actuate a signal device 31 of any known and approved construction, that can be vertically adjusted on the standard. This signal device 31 is to ring shortly before the line of types is completed, so as to call the attention of the operator. The slide 29 is made so high, that on its lower edge coming in contact with the bottom of the vertical channel 11 its upper edge will be on the same level as the upper face of the lower slotted plate 60. In this position the elastic stripper 245 is arranged to snap under the first space line 50, as explained above.

On the standard 141 near the race 3 a suitable support 150 (Fig. 2) is fastened, in which a vertical shaft 35 is secured. Fastened on the support 150 is an arm 198 (Fig. 1), on which a high slide 39 is horizontally guided in the central plane of the galley 34. This slide 39 is provided with a vertical slot, through which a bent handle 36 passes. The latter is turnable on the shaft 35 and can be vertically adujsted on the same by means of two loose collars and set-screws. The slide 39 is moreover provided on the right side in Fig. 1 with a vertical rack and a vertical row of holes. A block 38 of the same height and width as the two vertical plates 42 and 44 in the galley 34 is provided on the left side in Fig. 1 with a vertical rack and a cross hole for a bolt 40, and on the right side with a projection of semicircular section and with a cross hole for another bolt 40, and on the front and rear with four turnable stops 41, 41. The rack of the block 38 can engage in that of the slide 39, so that both parts can be rigidly connected by means of a bolt 40. A pressing block 37 of the same height and width as the two plates 42 and 44 and provided with a recess for the projection of the block 38 can be rigidly connected with the latter by means of the second bolt 40. The pressing block 37 serves for pressing the composed type line into the galley 34, the handle 36 being for this purpose turned to the right. The turnable stops 41, 41 are adapted to strike against projections (not shown) on the standard 141 and serve for limiting the motion of the pressing block 37, which latter is required to push the composition each time through a distance equal to the height of a type line and a space line. When the upper stops 41, 41 are turned downwards and the lower stops 41, 41 upwards, they will not strike the projections of the standard 141, so that the handle 36 can be further turned to the right to push the interlined composition into the galley 34. The pressing block 37 is provided with two screw-threaded holes 64, 64, in which studs similar to 65, 65 and provided with winged heads can engage. These holes 64, 64 will be referred to later on.

The structure 300 on the left in Fig. 1 contains a galley 34^1 and a space line magazine 46^1 for the distributing part of the machine. This galley 34^1 and this space line magazine 46^1 are constructed substantially the same as those of the setting part of the machine above described, only that they are turned with their tops downwards as is clearly shown. For this reason the several parts correspond-

ing with those of the setting part are denoted by the same characters of reference as the latter, only that the index 1 is added.

The slide 29 on the right in Fig. 1 is at its lower end provided with a pin 302 (see Fig. 2) which passes through a vertical slot in the standards 141 and 142 to without and engages in the slot of the slotted left arm of a weighted lever 157 which latter is mounted on a pin 156 to rock. The weight of the lever 157 serves for outbalancing the slide 29 and pressing it upwards. In the channel 11 above the setting race 3 a pressing slide 20 is mounted to move up and down, while a cover 56^1 serves for closing the channel 11 and guiding the slide 20. The latter is provided with a vertical slot 134, in which a horizontal pin 132 is guided. This pin 132 engages in the slots of the slotted left arms of two weighted levers 17 and is thereby pressed upwards against the top of the vertical slot 134. A helical spring 130 inserted between the upper end of the channel 11 and that of the pressing slide 20 is so adjusted as to place the lower end face of the slide 20 on the same level as the setting race 3, the slide 29 being at the same time pressed upwards against the lower face of the pressing slide 20. On the bottom of the standard 141 are disposed four spring - pressed pedals 10, 32, 10^1 and 32^1 in pairs, of which one pair 10, 32 is destined for the operator sitting at the front of the machine and the other pair is destined for the operator sitting at the rear. The two pedals 32, 32^1 are connected with the slotted arms of the two weighted levers 17 by means of cords 33 running over suitable guiding pulleys 220, 220, so that either pedal 32 can be depressed for actuating the weighted lever 17 and thereby moving the pressing slide 20 downwards. An adjustable stop 135 serves for limiting the downward motion of the pressing slide 20. The cord 33 is in any known manner made adjustable in length, so that it can be extended for long type lines to be set or distributed and shortened for short type lines.

The setting race 3 is provided with a longitudinal slot (Fig. 2), in which the lower projection of an operating slide 6 is guided. This projection can be connected with a counterweight 28 or 28^1 by means of a cord 174 or the like which passes over suitable guiding pulleys 173, 173. There are two counterweights 28, 28^1 (Fig. 2), which may be guided in suitable slots of the partition 172 of the standard 141 or otherwise. The said projection of the operating slide 6 can be moreover connected by means of a cord 181 passing over guiding pulleys 180, 180 with the hook 182 on the periphery of either of two large pulleys 7, 7^1 which are mounted on a pin 145 to turn and are each rigidly connected with a small pulley 183 or 183^1. In Fig. 1 the free end of the cord 181 is shown as hanging down, it being disconnected from the pulley 7. The two small pulleys 183, 183^1 are connected with the two pedals 10, 10^1 by means of cords 9, 9^1 passing over guiding pulleys 8. All the four pedals 10, 32, 10^1, 32^1 are normally pressed into their upper extreme positions by their springs, so that the operating slide 6 under the action of the respective counterweight 28 or 28^1 occupies its extreme position on the right in Fig. 1 and bears on the pressing slide 20, while the latter occupies its normal position shown.

The cover 56^1 is provided with a recess, in which a bent leaf spring 176 is located. This spring is downwardly pressed by a helical spring 175 and has the shape of an inverted U. Its internal lower end is so bent as to form a nose which can engage in a recess 177 of triangular cross section provided in the pressing slide 20. The external lower end of the spring 176 is forked and the two prongs 221 of this fork are sharply bent, so that they rise upwards (see Fig. 1) and can engage in two inclined recesses 24 of the operating slide 6. The right end of the operating slide 6 is adapted to force the nose of the spring 176 into the recess 177 of the pressing slide 20 and the prongs 221 engaging in the recesses 24 of the operating slide 6 are made to rise during the motion of the latter while striking the said nose and thus the nose is adapted to lift the pressing slide 20 against the tension of the spring 130 for permitting a type 2 before the slide 6 to pass beneath the slide 20. On the level of the race 3 a fork 25 (Fig. 13) provided with a spindle is horizontally guided in suitable holes of the standard 142 and is pressed against the wall of the latter by a helical spring surrounding the said spindle and bearing against a suitable projection, so that the two arms of the fork 25 project into the upper part of the vertical channel 11, their left end faces flushing with the left face of the pressing slide 20. The two arms of the fork 25 serve for checking the column of types 2, 2 pressed upwards by the weighted lever 157. The distance between the two arms of the fork 25 is slightly larger than the width of the pressing slide 20, so that the latter is permitted to move up and down. It will be understood, that if a type 2 is on the right side of the operating slide 6 in Fig. 1, it will be struck by the latter and pushed against the end faces of the fork 25, so that the latter will be pushed to the right and the type 2 will pass beneath the pressing slide 20 which is meanwhile lifted by the nose of the spring 176 in the manner described above. On depressing the pedal 32 or 32^1 a little the weighted lever 17 will be pulled downwards for pushing the type 2 with the pressing slide 20 beneath the level of the race 3, so that the fork 25 is released and under the action of its helical spring returns to its initial position, while its arms

pass over the type 2 just depressed. On releasing the pedal 32 or 32^1 the pressing slide 20 will be returned to its normal position shown and the type 2 or the line of types 2, 2 pressed upwards by the weighted lever 157 will be checked by the fork 25.

As already mentioned above the galley 34^1 and the space line magazine 46^1 on the left in Fig. 1 for the distributing part of the machine are similar to those on the right for the setting part. There are only some differences between these two parts, which will be hereinafter described.

On the machine frame a bent lever 88 is mounted to rock. The lower arm of the same is slotted and in this slot engages a pin on the movable bottom 44^1. A weight is placed on the upper arm of the lever 88 and serves for pressing the interlined composition with the bottom 44 against the slide 29^1. A bent weighted lever 47^1 of a construction clearly shown serves for pressing the movable bottom 48^1 in the magazine 46^1 with the space lines 50 against the slide 29^1. This slide 29^1 in the left vertical channel 11^1 constructed substantially the same as that 29 on the right in Fig. 1, only that the spring 45^1 is reversed, so that its stripper 245^1 is below. To the pin 309 of the slide 29^1 are attached two cords 81 and 165 or the like, which are led over guiding rollers shown and are connected with weighted handles 79 and 166 respectively. It will be seen, that the slide 29^1 can be pulled downwards by means of the handle 166 and raised by means of the other handle 79. The upper part of the spring 45^1 is arranged for pushing the next space line 50 into the magazine 46^1 against the pressure of the weighted lever 47^1, so as to prevent this space line from being taken along with the slide 29^1 by means of the friction between them.

On a convenient height beneath the setting race 3 the distributing race 80 is disposed, on which two type magazines 1, 1^1 are placed, which reach upwards beyond the setting race 3 and may be of any known construction. They have each a series of vertical compartments for the types 2 and on the level of the race 3 openings through which ejectors 5, 5^1 can pass. These ejectors 5, 5^1 form parts of two key boards of any known construction and of which in Fig. 3 only two single keys 4, 4^1 on both sides (that is on the front and rear in Figs. 1 and 2) are shown. Each key 4 or 4^1 is adapted to be connected with its ejector 5 or 5^1 by means of a bent lever 170, 171 or 170^1, or 171^1, on the upper arm 170 or 170^1 of which it normally bears (see Fig. 3 on the left). The lower end of the other arm 171 or 171^1 is in any known manner (not shown) pivotally connected with the ejector 5 or 5^1 so that on depressing the key 4 or 4^1 the ejector will eject the lowermost type 2 from the compartment of the magazine 1 or 1^1 to the race 3. A helical spring 189 or 189^1 surrounding a curved stud 196 or 196^1 serves for pressing the bent lever 170, 171 or 170^1, 171^1 with the ejector outwards into the normal position shown on the right in Fig. 3. The key 4 or 4^1 may be disconnected from the ejector 5 or 5^1 by merely turning it upwards around a shaft 190 or 190^1 as is shown on the right in Fig. 3. On the machine frame two parallel shafts 185, 185^1 are mounted to rock on which two handles 186, 186^1 are fastened which may be made in one piece with four slotted horizontal arms. On the internal walls of the two type magazines 1, 1^1 two movable ledges 78, 78^1 are guided in vertical guides 183^2, 183^3 and are connected with rods 184, 184^1 the upper ends of which engage by means of pins in the slots of the arms of the four handles 186, 186^1. It will be now seen that by turning either pair of connected handles 186 or 186^1 in one or the other direction the corresponding ledge 78 or 78^1 can be lowered on the setting race 3 and raised from the same. For securing the two ledges 78, 78^1 in either of the two extreme positions four supports 187, 187^1 with holes are provided and pins can be introduced through holes in the slotted arms of the handles 186 into the holes of the supports 187, 187^1. Each of the two ledges 78, 78^1 serves for limiting the stroke of the ejectors 5, 5^1 in the opposite magazine 1 or 1^1 from which types 2, 2 are to be ejected on the race 3 while the other ledge 78 is raised to permit the said ejectors 5, 5^1 to move. By means of the movable ledge 78 or 78^1 all the types 2, 2 ejected can be brought into the correct position with reference to the operating slide 6, so that they can be properly pushed into the vertical channel 11. It will be seen, that either key board may be used for setting the types and space lines of the interlined composition. Preferably the types 2, 2 in each magazine 1 or 1^1 are so placed that their letters can come in contact with the respective ledge 78 or 78^1.

Each magazine 1 or 1^1 should be capable of containing the types of the largest font and it should be arranged for equally containing the types of any smaller font, if required, suitable known insertions being used for altering the inside widths of the several compartments. The ejectors 5 or 5^1 should be fit for ejecting the types of the smallest font, so that they will be able to equally well eject the types of any larger font. The magazine 1 or 1^1 may contain compartments for solid and compressible space bars shown in Fig. 15. The type magazines 1, 1^1 may be arranged to be easily replaced by other ones.

In the standard 141 beneath the distributing race 80 two boxes 96, 96^1 (Fig. 3) are

disposed, which in any known manner are divided into compartments corresponding to those of the two magazines 1, 1¹. In the former compartments plates 99, 99¹ are vertically guided, which at their upper ends are provided with projections 114, 114¹, that can engage in the mouths of the compartments of the magazines 1, 1¹ above. All the plates 99, 99¹ are each at 107 or 107¹ pivotally connected with a bent lever 108 or 108¹ which is fulcrumed at 106 or 106¹ respectively. The plates 99, 99¹ are outbalanced by weights 105, 105¹ disposed below in the boxes 96, 96¹, their lower ends being connected with the tops of the weights 105, 105¹ by means of cords 103, 103¹ passing over guiding pulleys 101, 101 on pins 100, 100¹. Between the several plates 99, 99¹ horizontal strippers 95, 95¹ of the shape shown in Fig. 5 are guided in the standard 141. They are on the level of the distributing race 80 and are at their internal ends bent to form hooks 205, 205¹ with which the letters of the types 2, 2 to be distributed come in contact. Each stripper 95 or 95¹ is provided on its upper edge with a leaf spring 207 which is adapted to press on the type 2 and to prevent it from laterally shifting during the return of the stripper 95 or 95¹. Each stripper 95 or 95¹ is provided with a downwardly projecting arm 102 or 102¹ which is in constant contact with the upper face of the bent lever 108 or 108¹ already mentioned above. The several strippers 95, 95¹ are arranged to be operated from two lower key boards of any known construction, of which only two single keys 113, 113¹ rocking on pins 204, 204¹ are shown in Fig. 3 on both sides of the machine frame. The rear arm of each key 113 or 113¹ is in any known manner pivotally connected with the lower arm 203 or 203¹ of a bent lever rocking on a shaft 200 or 200¹ and the upper arm 202 or 202¹ is in any known manner pivotally connected with the external end of the stripper 95 or 95¹. A helical spring 201 or 201¹ serves for holding each stripper 95 or 95¹ in its normal position shown on the left in Fig. 3, so that the arm 102 or 102¹ of the stripper 95 or 95¹ depresses the bent lever 108 or 108¹ while overcoming the action of the weight 105 or 105¹ which presses the plate 99 or 99¹ upwards. In this position the upper surface of the projection 114 or 114¹ of the plate 99 or 99¹ is a little beneath the level of the distributing race 80. When the stripper 95 or 95¹ is pushed inwards by depressing its key 113 or 113¹, its arm 102 or 102¹ will engage in the recess of the bent lever 108 or 108¹, so that the latter is permitted to turn upwards under the action of the weight 105 or 105¹ as is shown on the right in Fig. 3. In this position the upper surface of the projection 114 (which is on the side of the stripper 95, see Fig. 5) is made to flush with the level of the setting race 3 or to slightly project above the same. Yielding supports 109, 109 (Fig. 4) of the construction shown at Figs. 11 and 12 are provided between the two races 3 and 80 in the planes of the partitions of the magazines 1, 1¹ and they are so located, that the upper edges of their wings are on the level of the setting race 3. The projections 114, 114¹ of the several plates 99, 99¹ are provided with inclined recesses 215 on both sides or with cuts, so as to leave in their upper position space to the yielding supports 109, 109, so that the latter are not in the least disturbed, if the strippers 95, 95¹ are pushed inwards by depressing their keys 113, 113¹. The yielding supports 109, 109 are arranged to support the columns of types 2, 2 in the compartments of the magazines 1, 1¹ and thus to prevent them from dropping, as is clearly shown at Fig. 4.

The standard 141 is cast in one piece with a box 160 (Figs. 6 to 8), which is provided with a longitudinal slot 159. The box 160 forms a channel for a small carriage 87, which channel widens beneath the left vertical channel 11¹ (Fig. 1) of the type distributing part, so that here the carriage 87 will occupy a lower position than in the remaining part of the channel. The carriage 87 is shown as being composed of two plates hinged together by means of pivots 140 and the right plate in Figs. 1, 6 and 7 can be connected by means of a pin 158 passing through the slot 159 on the one hand with the weight 28 or 28¹ by means of a cord 84 and on the other hand with the hook 182 on either pulley 7 or 7¹ by means of a cord 162. Thus the carriage 87 is pressed to the right in Fig. 1 by the weight 28, the pedal 10 or 10¹ being pressed upwards by its spring as explained above. On depressing the pedal 10 or 10¹ the carriage 87 will be pulled to the left as is shown in Fig. 1 and on releasing the pedal 10 or 10¹ the carriage will be returned to its normal position on the right by the weight 28 or 28¹. The left plate of the carriage 87 in Fig. 6 is provided with two bent springs 89, 89, which have the shape shown in Figs. 6, 7 and 8 and pass through slots 90, 90 provided in the race 80. In the extreme left position of the carriage 87 shown in Figs. 1 and 6 the upper ends of the bent springs 89, 89 will bear from the left side on the lowermost type 2 in the vertical channel 11¹, so that on releasing the pedal 10 or 10¹ for moving the carriage 87 to the right the springs 89, 89 will push forward the lowermost type 2 from under the column of types. During this motion of the carriage 87 the upper ends of the bent springs 89, 89 will rise above the type 2, so that they will snap over it and press it beneath the spring 207 of the stripper 95 meanwhile pushed inwards across the distributing race 80, so that the type is prevented from shifting. It will be seen, that on depressing either key 113 or 113¹ the

corresponding stripper 95 or 95^1 will be moved forward into the path of the type 2, so that on releasing the pedal 10 or 10^1 for moving the carriage 87 and the type 2 to the right in Fig. 1 the stripper 95 or 95^1 will check the type 2 and thereby the carriage 87. The operator feeling this depresses his pedal 10 or 10^1, whereupon the carriage 87 will be returned to the left position beneath the vertical channel 11^1. The operator further releases the key 113 or 113^1 so that the stripper 95 or 95^1 returning to its initial position will take along with it the type 2 by means of its hook 205 or 205^1 and bring the same over the projection 114 or 114^1 of the plate 99 or 99^1, as is shown on the left in Fig. 3. The next time that the stripper 95 or 95^1 is again pushed inwards the projection 114 or 114^1 of the plate 99 or 99^1 will push the type 2 upwards, so that the latter pushes aside the wings of two opposite yielding supports 109 and at the same time pushes upwards the column of types 2, 2 in the compartment, snaps over the said wings and is thus supported.

As the width of the types 2, 2 varies and as the upper ends of the bent springs 89 on the carriage 87 are arranged for pushing aside the thinnest type 2, it may be that two or more types 2, 2 may be pushed off at a time from under the column of types through the lower opening in the channel 11^1 by reason of the types adhering to each other. To prevent this several retainers 91, 92, 93 of varying length are provided at the lower end of the channel 11^1, as is shown in Figs. 6 and 8. These retainers are mounted to rock and are in some known manner so pressed or loaded as to yield only under different pressures. For example the longest retainer 93 is so arranged as to permit the lowermost thinnest type 2 to pass freely under it, while all the retainers 91, 92 will retain the next following types 2, 2. Every lowermost type 2 a little thicker than the thinnest one is adapted to force open the longest retainer 93 and to pass under it, while the other retainers 92 and 93 will retain the upper types 2, 2. Every type 2 thicker than the previous one is adapted to force open both the longest retainer 93 and the next shorter retainers 92, 92 and to move under them, while the remaining retainers 91, 91 will retain the next following types 2, 2. Only the types 2, 2 of the maximum width will be able to force open all the retainers 91, 92, 93 and to pass off from the channel 11^1. A long bent leaf spring 94 is fastened on the frame above the lower opening of the channel 11^1 and is adapted to press the type 2 on the race 80 during the motion of the same over the latter, so that the upper ends of the bent springs 89, 89 are permitted to move upwards without lifting the type 2 during the time that the carriage 87 ascends the inclined part of its path. The leaf spring 94 is provided with a slot through which the retainer 93 is permitted to move.

The machine is operated as follows: The operator may choose one of the two key boards for type setting and the other one for distributing. When he is desirous of setting types and space lines of interlined compositions, of course he will have to employ the operating slide 6, which he then connects with the pulley 7 or 7^1 and the weight 28 or 28^1 in the manner described. If he wants to distribute the types and space lines of interlined compositions of course he will have to disconnect the operating slide 6 from the pulley 7 or 7^1 and the weight 28 or 28^1 and to connect the pin 158 of the carriage 87 with the said parts. Two operators sitting at the front and at the rear of the machine may simultaneously work, but it will be understood, that one of them can operate the type setting part of the machine only and the other the distributing part.

The type setting part of the machine is operated as follows: The shiftable standard 142 is horizontally adjusted by means of the hand-wheels 76, 76, so that the width of the vertical channel 11 suits the height of the types 2, 2 to be set. The pressing slide 20 need not be replaced by another one, since the elasticity of the spring 45 will suffice for pressing the slide 29 under all circumstances against the surface of the standard, 141. Two plates 42 and 44 of a height like the required length of the type line are introduced with the two slotted plates 60, 60 into the galley 34 and are rigidly connected with the bottom 52 and the top 54, after the latter has been adjusted as well as the supporting plate 42. The pressing plate 44 is pushed to the slide 29 by means of the spindle 43 and its handle, care being taken that the slide 29 be permitted to move freely. The signal device 51 is also adjusted. A space line magazine 46 of the required size and filled with space lines 50 is introduced into the casing 69 and the top 70 of the latter is adjusted. The signal device 31 for the slide 29 is adjusted. Blocks 37 and 38 of the required size are rigidly connected with the slide 39 by means of the two bolts 40, 40, the four turnable stops 41, 41 are turned outwards and the handle 36 should be preferably so adjusted as to place it nearly in the middle of the two blocks 37 and 38 and not as is shown. The magazine 1 is charged with types of the desired font and with solid and elastic space bars. The stop 135 is so adjusted, that the lower face of the pressing slide 20 will flush with the lower surface of the upper slotted plate 60 in the galley 34 or slightly project beneath the same on the weighted lever 17 bearing on the stop 135. Now the operator depresses his pedal 10 for moving the operating slide 6 to the left in Fig. 1 and next he depresses in accordance with the manuscript

the respective key 4 for ejecting by means of ejector 5 the corresponding lowermost type 2 from the compartment of the magazine 1 to the path of the operating slide 6. He then releases the pedal 10 for moving the operating slide 6 to the right. The operating slide 6 striking the type 2 will push it forward, against the pressing slide 20, so that the pressing slide 20 will be raised and the type 2 will pass under the same into the vertical channel 11, while pushing the fork 25 to the right. Thereupon the operator slightly depresses his pedal 32 to move the pressing slide 20 downwards and thereby force the type 2 against the pressure of the weighted lever 157. Thus the type 2 is pushed beneath the lower face of the fork 25, which under the action of its helical spring will move to the left and will prevent the type 2 with the slide 29 from shifting. Now the operator depresses alternately the pedal 10 and other keys 4, 4 to introduce the following types and space bars into the vertical channel 11, so that a column of types is in this manner formed beneath the fork 25 and will gradually lower the slide 29. At last the pin 30 of the slide 29 will actuate the signal device 31 to advise the operator that the type line is about to be completed. He then depresses consecutively the pedal 10 and alternately the respective keys 4, 4 for effecting the division of syllables of the last word if need be or for introducing solid or compressible space bars into the vertical channel 11. Now the operator depresses the pedal 32 until the weighted lever 17 strikes the adjusted stop 135 for causing the slide 29 to strike the lower end of the channel 11, so that the compressible space bars, if there are any, will be compressed and the column of types 2, 2 will be opposite to the galley 34. At this moment the operator turns the handle 36 to the right for pressing the type line into the galley 34 and thereby shifting the pressing plate 44 through a distance like the height of the type line and a space line 50. As explained above, the stripper 245 in the slide 29 will have snapped under the first space line 50 in the magazine 46 and the pressing block 37 will have passed over the slide 29, so that on the operator turning back the handle 36 to the left and releasing the pedal 32 the slide 29 will be released and rise until it bears against the fork 25, while its stripper 245 will have taken along with it the first space line 50 and the spring 45 will push this space line 50 into the space left by the pressing block 37. The operator now repeats all the operations described for setting the following type lines, lowering and pushing them into the galley 34 and for adding the following space lines 50, 50, until the signal device 51 sounds. After having set the last type line the operator turns the four stops 41, 41 inwards and withdraws the right bolt 40 for disconnecting the two blocks 37 and 38, then he lowers the column of types and pushes it with the pressing block 37 quite inwards, until the pressing plate 44 strikes the supporting plate 42, when the screw-threaded holes 64, 64 of the pressing block 37 will be in such a position, that screws with winged heads can be screwed into these holes 64, 64. These screws are screwed home, so that their winged heads pass through the wider slots in the top 52 and in the bottom 54 and bear on the slotted plates 60, 60. The winged nuts 63, 63 are loosened and the slotted washers are withdrawn, whereupon the former are screwed home, so that they pass through the said wider slots and bear on the slotted plates 60, 60. Thus the parts 60, 42, 44, 60 and 37 with the interlined composition will form a whole, which can be withdrawn from the galley 34 by means of the handle on the spindle 43.

The distributing part of the machine is operated as follows: The interlined composition to be distributed is placed in the frame formed by the parts 60^1, 42^1, 44^1, 60^1 and 37 as described above and the whole is transported to a suitable support near the galley 34^1 on the left in Fig. 1. After taking off the block 37 the whole is pushed into the galley 34^1, until the first type line comes in contact with the right wall of the channel 11^1. Then the bottom 44^1 is connected with the weighted bent lever 88. After disconnecting the operating slide 6 and connecting the carriage 87 with the pulley 7 and the weight 28 the operator pulls the slide 29^1 by means of the handle 166, so as to push the first type line downwards on the race 80. Then after the manuscript or an impression of the composition he operates his key board as usual for distributing the several types and space bars of the line to the various compartments of the magazine 1. When the last type or space bar has been distributed, the slide 29^1 will rest on the race 80 and its stripper 245^1 will snap beneath the first space line 50 which is pushed forward by the weighted lever 88. The operator now lifts the slide 29^1 by means of the handle 79, so that the stripper 245^1 will take along with it the space line 50 and will push it between the four projections 49^1, 49^1, where the space line 50 will be held by the friction produced by the pressure of the weighted lever 47^1. Afterwards the operator pulls the slide 29^1 downwards, so that its spring 82 will push the space line 50 into the magazine 46^1 and the slide 29^1 will push the following type line down on the race 80. The operator again distributes the types and space bars of this line and continues his work until he has finished his task. Each magazine 1 or 1^1 may be used for receiving the types from the type distributing part of the machine and for supplying the types to the type setting part.

In Fig. 1 I have shown an inclined rib 111 on the setting race 3 and an opening in the latter on the left side of the rib 111. A tube of rectangular cross section or the like may be attached from below to the race 3 beneath the said opening. Then it will be possible to separate in a simple manner any compressible space bar 178, which may have got spoiled. It is only necessary to depress the pedal 10 for pulling the carriage 87 to the left and causing its springs 89, 89 to snap over the spoiled type and then to suddenly release the pedal 10, when the weight 28 will pull the carriage 87 to the right, so that the spoiled type will fly and strike the inclined rib 111 and escape through the opening and the said tube.

The machine described so far may be modified by omitting the space line magazines and all the parts connected therewith in a manner clearly shown at Fig. 16, in case ordinary compositions without space lines are to be set or distributed.

Of course the combined machine may be turned into a simple type setting machine or a simple type distributing machine by omitting the distributing part or the setting part respectively.

The combined or simple machine may be varied in many respects without departing from the spirit of my invention.

I claim:

1. In a type setting machine, the combination with a table having a race, of a type magazine on said table along said race, key-operated means for ejecting types from said magazine to said race, an operating slide guided on said race and adapted to push the type ejected, means for actuating said operating slide, a frame forming with said table a vertical channel which is adapted to receive the types pushed in by said operating slide, a galley in said frame and adjoining said vertical channel, a bottom movable in said galley, means for pressing said bottom towards said vertical channel, a first slide and a second slide in said vertical channel, means for pressing said first slide with the types set towards the top of said table, means for shifting said second slide with the type line towards said galley against the pressure of said first slide, and means for pushing the type line into said galley.

2. In a type setting machine, the combination with a table, of a type magazine on said table, key-operated means for ejecting types from said magazine to said table, an operating slide guided on said table along said magazine and adapted to push the type ejected, means for actuating said operating slide, a frame forming with said table a vertical channel which is adapted to receive the types pushed in by said operating slide, a galley and a space line magazine in said frame and adjoining said vertical channel, two bottoms movable in said galley and said space line magazine, means for pressing said two bottoms towards said vertical channel, a slide in said vertical channel and adapted to snap over the front space line in said space line magazine on the completion of the type line, means for pressing said slide with the types set towards the top of said table, a second slide in said vertical channel, means for shifting said second slide with the type line towards said galley against the pressure of said slide, and means for pushing the type line into said galley and permitting said slide to shift the snapped space line thereto.

3. In a type setting machine, the combination with a table having a race, of a type magazine on said table along said race, key-operated means for ejecting types from said magazine to said race, an operating slide guided on said race and adapted to push the type ejected, means for actuating said operating slide, a frame forming with said table a vertical channel which is adapted to receive the types pushed in by said operating slide, a first slide and a second slide in said vertical channel, means for pressing said first slide with the types set towards the top of said table, said operating slide being adapted to directly shift said first slide for introducing the type into the channel, means checking the type line pressed by said first slide, a galley in said frame and adjoining said vertical channel and adjustable in its height, a bottom movable in said galley, means for pressing said bottom towards said vertical channel, means for shifting said second slide with the type line towards said galley against the pressure of said first slide, and means for pushing the type line into said galley.

4. In a type setting machine, the combination with a table, of a type magazine on said table, key-operated means for ejecting types from said magazine to said table, an operating slide guided on said table along said magazine and adapted to push the type ejected, means for actuating said operating slide, a frame forming with said table a vertical channel which is adapted to receive the types pushed in by said operating slide, a galley and a space line magazine in said frame and adjoining said vertical channel and adjustable in their heights, two bottoms movable in said galley and said space line magazine, means for pressing said two bottoms towards said vertical channel, a slide in said vertical channel and adapted to snap over the front space line in said space line magazine on the completion of the type line, means for pressing said slide with the types set towards the top of said table, said operating slide being adapted to shift said slide for introducing the type into the channel, means checking the type line pressed by said slide, a second slide in said vertical channel, means for shifting said second slide with the type line towards said

galley against the pressure of said slide, and means for pushing the type line into said galley and permitting said slide to shift the snapped space line thereto.

5. In a type distributing machine, the combination with a table, of a frame forming with said table a vertical channel, a galley in said frame and adjoining said vertical channel and adapted to receive the composition to be distributed, a bottom movable in said galley, means for pressing said bottom with the composition towards said vertical channel, a slide in said vertical channel, means for pushing said slide with the front type line of the composition to the top of said table, a type magazine on said table, a carriage guided in said table along said magazine and adapted to push the lowermost type from said vertical channel to said type magazine, means for actuating said carriage, and key-operated means for stopping the type with said carriage in front of the correct compartment of said magazine and introducing the type into the latter.

6. In a type distributing machine, the combination with a table, of a frame forming with said table a vertical channel, a galley and a space line magazine in said frame and adjoining to said vertical channel and adapted to receive the interlined composition to be distributed and the space lines respectively, two bottoms movable in said galley and said space line magazine respectively, means for pressing said two bottoms with the composition and the space lines towards said vertical channel, a slide in said vertical channel and adapted to snap under the front space line of the composition when in contact with said table, means for pushing said slide to shift the snapped space line from said galley to said space line magazine, means for pushing said slide with the front type line of the composition to the top of said table, a type magazine on said table, a carriage guided in said table along said magazine and adapted to push the lowermost type from said vertical channel to said type magazine, means for actuating said carriage, and key-operated means for stopping the type with said carriage in front of the correct compartment of said magazine and introducing the type into the latter.

7. In a type distributing machine, the combination with a table having a race, of a frame forming with said table a vertical channel, a galley in said frame and adjoining said vertical channel and adjustable in its height and adapted to receive the composition to be distributed, a bottom movable in said galley, means for pressing said bottom with the composition towards said vertical channel, a slide in said vertical channel, means for pushing said slide with the front type line of the composition to the top of said table, a type magazine on said table along said race, a carriage guided on said race and adapted to push the lowermost type from said vertical channel to said type magazine, means for actuating said carriage, a box in said table beneath said type magazine, a plurality of weighted slides vertically guided in said box, and a key-operated mechanism for normally withdrawing said weighted slides from said magazine and adapted on any key being depressed to simultaneously stop the type with the carriage in front of the correct compartment of said type magazine and introduce any type by means of the corresponding weighted slide from below into the compartment and on the key being released to shift the type from said race to the weighted slide.

8. In a type distributing machine, the combination with a table, of a frame forming with said table a vertical channel, a galley and a space line magazine in said frame and adjoining to said vertical channel, both of them being adjustable in their height and adapted to receive the interlined composition and the space lines respectively, two bottoms movable in said galley and said space line magazine respectively, means for pressing said two bottoms with the composition and the space lines towards said vertical channel, a slide in said vertical channel and adapted to snap under the front space line of the composition when in contact with said table, means for pushing said slide to shift the snapped space line from said galley to said space line magazine, means for pushing said slide with the front type line of the composition to the top of said table, a type magazine on said table, a carriage guided in said table along said magazine and adapted to push the lowermost type from said vertical channel to said type magazine, means for actuating said carriage, a box in said table beneath said type magazine, a plurality of weighted slides vertically guided in said box, and a key-operated mechanism for normally withdrawing said weighted slides from said magazine and adapted on any key being depressed to simultaneously stop the type with the carriage in front of the correct compartment of said type magazine and introduce any type by means of the corresponding weighted slide from below into the compartment and on the key being released to shift the type from said table to the weighted slide.

9. In a combined type setting and distributing machine, the combination with a frame having two superposed races and two vertical channels at the ends of same, of two type magazines on both sides of said two superposed races, key-operated means for ejecting types from either of said two type magazines to the upper race, means for pushing the type ejected into one of said two vertical channels, a galley in said frame and adjoining said one vertical channel, means for shifting the type

line from the upper race to said galley, means for pushing the type line into said galley, a second galley in said frame and adjoining the other vertical channel and adapted to receive the composition to be distributed, means for pushing the front type line of the composition to the lower race, means for pushing the types one after the other from the other vertical channel to said two type magazines, and key-operated means for stopping the type in the plane of the correct compartments of said two type magazines and introducing the types into the latter.

10. In a combined type setting and distributing machine, the combination with a frame having two superposed races and two vertical channels at the ends of same, of two type magazines on both sides of said two superposed races, two key-boards on both sides of said two type magazines and adapted to eject types from said two type magazines to the upper race, an operating slide guided on the upper race between said two magazines, means for actuating said operating slide to push the type ejected into one of said two vertical channels, two galleys in said frame and adjoining said two vertical channels, two bottoms movable in said two galleys, means for pressing said two bottoms towards said two vertical channels, a first slide and a second slide in said one vertical channel, means for pressing said first slide with the types set towards the top of the upper race, means for shifting said second slide with the type line towards the galley against the pressure of said first slide, means for pushing the type line into this galley, a third slide in the other vertical channel, means for pushing said third slide with the front type line of the composition in the galley to the top of the lower race, a carriage guided on the lower race and adapted to push the lowermost type from the other vertical channel to said two type magazines, means for actuating said carriage, and key-operated means for stopping the type with said carriage in the plane of the correct compartments of said two magazines and introducing the types into the latter.

11. In a combined type setting and distributing machine, the combination with a frame having two superposed races and two vertical channels at the ends of same, of two type magazines on both sides of said two superposed races, key-operated means for ejecting types from either of said two type magazines to the upper race, means for pushing the type ejected into one of said two vertical channels, a galley and a space line magazine in said frame and adjoining said one vertical channel, means for shifting the type line from the upper race to said galley, means for pushing the type line into said galley, means for shifting the front space line from said space line magazine to said galley and pressing it on the type line, a second galley and a second space line magazine in said frame and adjoining the other vertical channel the former being adapted to receive the interlined composition to be distributed, means for pushing the front type line of the interlined composition to the lower race, means for pushing the types one after the other from the other vertical channel to said two type magazines, key-operated means for stopping the type in the plane of the correct compartments of said two type magazines and introducing the types into the latter, and means for shifting the front space line of the interlined composition from said second galley to said second space line magazine and pressing it into same.

12. In a type setting or distributing machine, the combination with a frame having a race and at its one end a vertical channel, of a galley made in one piece with said frame and adjoining said vertical channel and being open at both ends and on one horizontal side, its other horizontal side being longitudinally slotted parallel to said race, a cover longitudinally slotted and adjustable in said frame and adapted to close the open side of said galley, two plates fitting to said cover and the opposite side of said galley and having each a longitudinal slot narrower than those of cover and galley, a supporting plate adapted to connect said two plates, two bottoms movable in said galley and one of them connected with an operating rod passing through said supporting plate, screws with winged nuts and removable washers adapted to connect said supporting plate and the other of said two bottoms at will either with said galley and said cover or with said two plates, the space between the two bottoms serving for containing the composition, means for pressing the one bottom towards said vertical channel, and means for withdrawing and pushing in the other bottom.

13. In a type setting or distributing machine, the combination with a frame having a race and at its end a vertical channel, of a casing made in one piece with said frame and adjoining said vertical channel and being open at both ends and on one horizontal side, a cover adjustable in said frame and adapted to close the open side of said casing, a space line magazine adapted to be introduced in said casing and to be withdrawn, a bottom movable in said space line magazine, means for pressing said bottom towards said vertical channel, projections in said vertical channel and adapted to check the space lines pressed by said bottom, a slide movable in said vertical channel, means for actuating said slide, and a stripper in said slide and adapted to shift the front space line.

14. In a type setting machine, the combination with a frame having a race and at its end a vertical channel, of a type magazine on

one side of said race, key-operated means for ejecting types from said type magazine to said race, an operating slide guided in said race and adapted to push the types ejected one after the other into said vertical channel, a slide in said vertical channel and provided with a recess, means for normally pressing said slide on the level of said race, a spring guided in said frame and adapted on being pushed by said operating slide to engage in the recess of said slide and to lift the latter for permitting a type to pass beneath same, a spring-pressed fork horizontally guided in said frame and permitting said slide to move downwards and adapted to be pushed back by the type and to snap over same, a galley in said frame, and means for forcing said slide with the type line downwards to said galley.

15. In a type setting machine, the combination with a table having a race, of two type magazines on both sides of said race, key-operated means for ejecting types from either of said two type magazines to said race, two slides vertically guided on the sides of said two type magazines facing said race and adapted to stop the ejected types, means for alternately lowering one and raising the other of said two slides, and means for pushing off the ejected types one after the other from said race.

16. In a type distributing machine, the combination with a frame having a slotted race and at its end a vertical channel, of a carriage so guided in said frame as to occupy a lower position beneath said vertical channel and to first ascend on moving away and then to move horizontally, means for operating said carriage, means for supplying a type line to be distributed to said vertical channel and pressing it on said race, springs on said carriage and adapted to push the lowermost type from under the type line, a type magazine on one side of said race, strippers guided in said frame across said race and adapted to severally stop the type with said carriage and to withdraw the type from said race, plates vertically guided in said frame and adapted to introduce the types from below into the compartments of said type magazine, and key-operated means for actuating said strippers and said plates.

17. In a type distributing machine, the combination with a frame having a race and at its one end a vertical channel and at its other end a hole, of means for supplying a type line to be distributed to said vertical channel and pressing it on said race, means for ejecting the types one after the other from said vertical channel to said race, an inclined rib on said race and adapted to catch any rejected type and to drop it through said hole.

EHRENFRIED MIRUS.

Witnesses:
NIKOLEIUS MEURER,
CARL SEIGEN.