

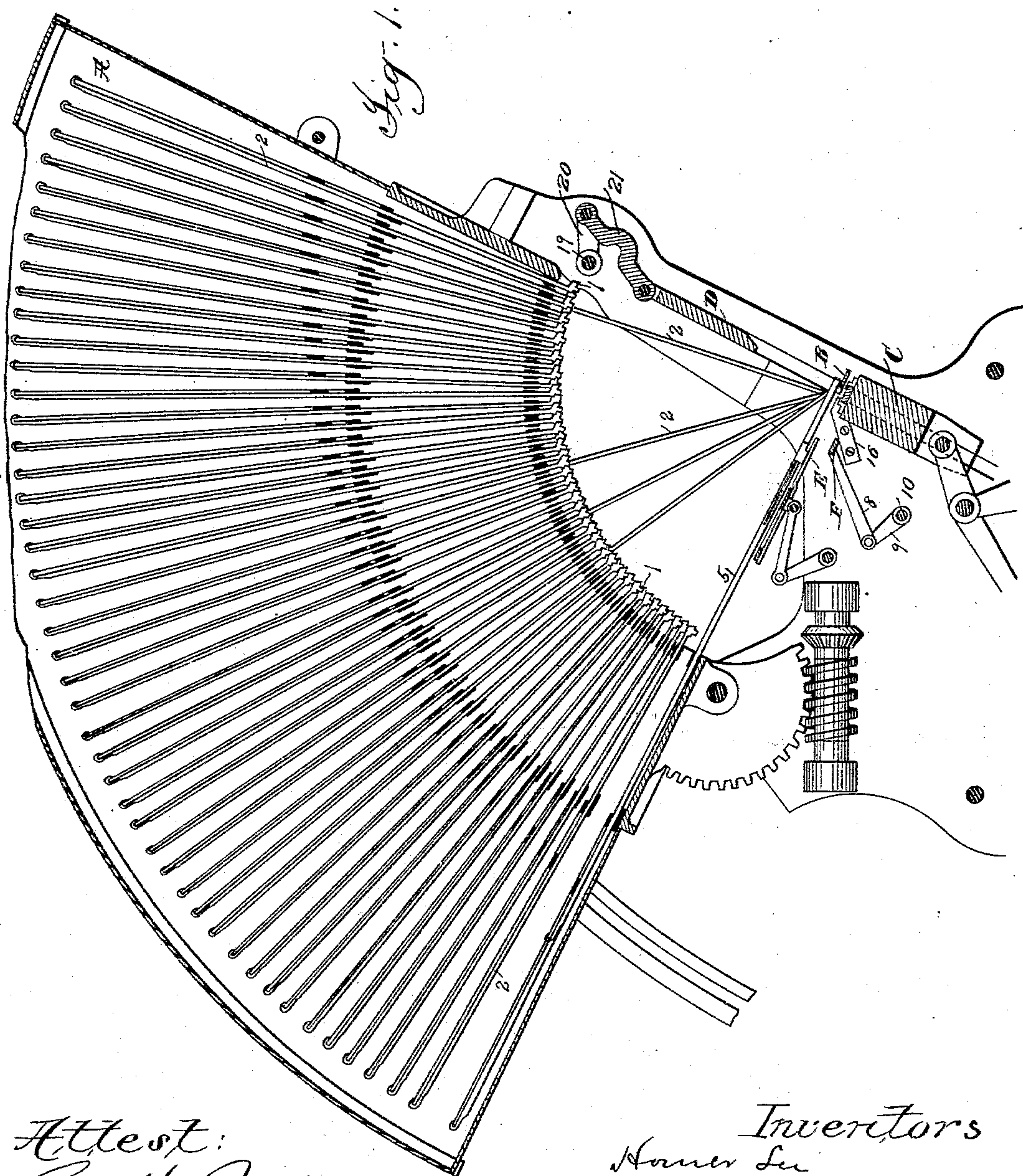
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3 Sheets—Sheet 1.

H. LEE & E. LEBRUN.
MATRIX MAKING AND TYPE SETTING MACHINE.

No. 551,469.

Patented Dec. 17, 1895.



Attest:
Geo. H. Roth.
J. F. Kehoe.

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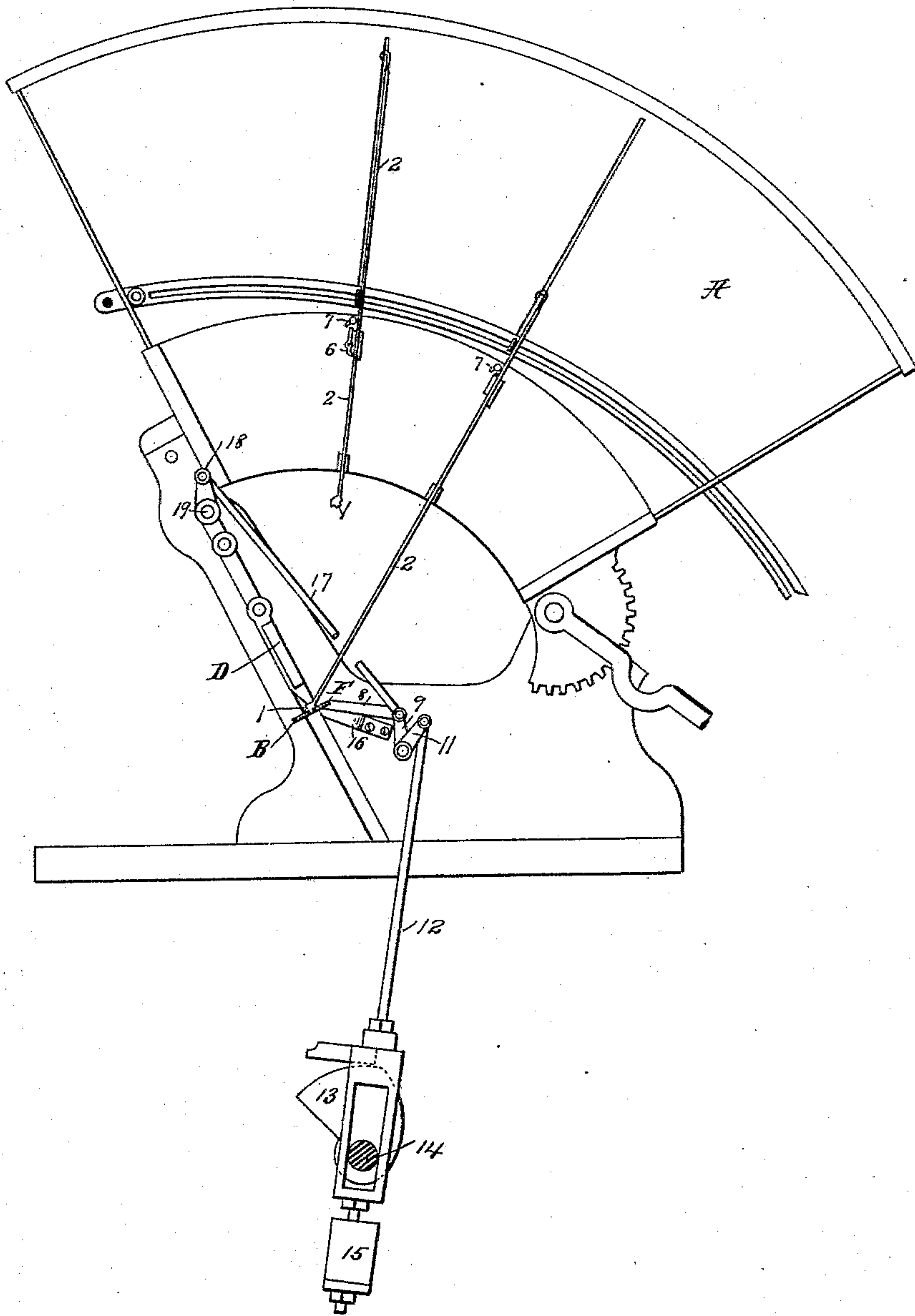
3 Sheets—Sheet 2.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

HOMER LEE AND EDMOND LEBRUN, OF NEW YORK, N. Y., ASSIGNORS TO
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MATRIX-MAKING AND TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 551,469, dated December 17, 1895.

Original application filed October 31, 1888, Serial No. 289,676. Divided and this application filed October 11, 1890. Serial No. 367,806. (No model.)

To all whom it may concern:

Be it known that we, HOMER LEE, a citizen of the United States, and EDMOND LEBRUN, a subject of the Queen of Great Britain, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Matrix-Making and Type-Setting Machines, 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 a line of type, either male or female, is composed and then used, if male, either to print a line of matter or as a die from which to make a matrix, or, if female, as a matrix from which to cast a printing-bar.

Among the machines of this class in common use are matrix-making machines, type-writing machines, type setting and distributing machines, and printing-bar-casting machines. Our invention is applicable to all of these and to all other machines in which type are thus composed and locked in position for any purpose. There are several varieties of this class of machines, to all of which our invention is applicable; but the mechanism embodying the same has been designed particularly for use in a machine of that variety in which the type are fixed upon bars adapted to slide longitudinally in order to bring the type to the composing-space, and the invention will be illustrated and described in connection with such a machine, for a full description of which reference may be had to our Patent No. 447,134.

The object of our invention is to provide improved means for aligning and locking the type in position after they are assembled; and to this end the invention consists in various constructions and combinations of parts, all of which will be particularly described in the following specification, and pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional side elevation of a machine of the particular variety referred to, showing such parts as are necessary for understanding the present invention. Fig. 2 is a diagrammatic sec-

tional view of the opposite side of the machine, showing the means for operating the aligning-block. Figs. 3 and 4 are details showing the aligning and abutment blocks in their different positions. Fig. 5 is a section on the line 5 5 of Fig. 4.

Referring now to the drawings, A A are the side plates of the machine.

B is the rest-bar in the composing-space upon which the type are assembled.

C is the platen or impression-table having a limited movement toward and from the line of assembled type.

D is the abutment-block moved against the top of the assembled type to lock them against the rest-bar for the impression, and E is the thrust-plate by which the justifiers are moved forward for justification of the line.

The type 1 are carried by type-bars 2 arranged radially to the rest-bar, each of the type being provided with a front shoulder 3, which rests upon the top of the rest-bar when the type are in position in the line being formed, and a rear shoulder 4 engaging the aligning-block, as hereinafter described. A series of justifiers and justifier-bars 5 are also arranged to be brought into position in the line of type upon the rest-bar, the justifiers being afterward forced forward by the thrust-plate E for justification of the line. The type may be advanced to the composing-space by any suitable means. In the machine shown, the type-bars are arranged approximately vertically and are mounted to slide freely in transverse frames supported in the side frames A, being normally held in their upper position by the friction of spring-pressed detents 6, and released by trips 7 operated by keys, as usual in this variety of machines, the type-bars moving downward into the composing-space by their own weight when released.

For the purpose of aligning and locking the line of assembled type in position for the impression, we have provided the following means: An aligning-block F is mounted upon arms 8 pivotally connected to one or more crank-arms 9 carried by a rock-shaft 10, this shaft 10 being rocked by means of a crank-arm 11 operated through a connecting-rod 12 by a cam 13 carried by the main operating-

shaft 14 of the machine, the lower end of the connecting-rod 12 being weighted at 15 to return the aligning-block to position. The aligning-block F moves forward upon guides 5 16 secured to the frame at each side of the machine, by which it is guided positively into position, so that when brought against the side of the type it lies upon the upper ends of the guides and presses against the rear side 10 of the type below the shoulder 4. The abutment-block D may be operated in any suitable manner, a simple and satisfactory construction being shown, in which a link 17 connects one of the crank-arms 9 to a crank-arm 18 15 on a rock-shaft 19, which operates the abutment-block through a crank 20 and link 21.

The aligning-block is shown as placed at the rear of the type so as to engage the rear aligning-edge of the type, and this construction is preferred and especially adapted for the machine to which our invention is shown as applied. In some machines, however, it may be found desirable to mount the aligning-block in position to engage the front aligning-edges of the type and clamp them against a 25 rest-bar at the rear.

The operation is as follows: After the type are assembled in line upon the rest-bar and justified, the aligning-block F is forced up 30 against the rear sides of the type below the shoulder 4, the aligning-block resting upon the upper ends of the guides and the type being pressed forward against the rear side of the rest-bar, with their shoulders resting 35 upon the top of the aligning-block and rest-bar. The abutment-block D is then operated by the further movement of the main shaft and forced downward against the top of the type, thus pressing the type downward 40 with their shoulders against the upper side of the aligning-block and the rest-bar, and locking the type firmly in their aligned position. The type are thus held during the impression operation, and then released by the 45 withdrawal of the aligning and abutment blocks on the further rotation of the shaft. It will be seen that by our construction the type are positively locked on four sides, so as to prevent tilting or other movement in 50 any direction.

While we have shown the preferred form of aligning and abutment blocks and means for operating the same, it will be understood that our invention is not to be limited to the 55 exact form of these blocks or operating mechanism therefor, as it is evident that both may be varied without departing from our invention.

This application forms a division of our 60 application, Serial No. 289,676, filed October 31, 1888.

By the expression "widthwise of the type" used in certain of the claims we mean a direction transverse to the line of impression 65 and widthwise of the body of the type, so as

to bring the faces of the type into position to make a straight impression-line, as distinguished from a movement longitudinally of the body of the type tending to bring the faces of the type onto the same plane to secure uniformity of impression. 70

What we claim is—

1. The combination of type, means for assembling the type in line, an aligning block mounted to move widthwise of the type, a 75 rock shaft having one or more arms on which the aligning block is pivotally mounted, guides for the aligning block, and means for actuating said rock shaft to advance the aligning block against the aligning edges 80 of the type and clamp them against a part of the machine, substantially as described.

2. The combination of type, means for assembling the type in line, an aligning block mounted to move widthwise of the type, a 85 rock shaft having one or more arms on which the aligning block is pivotally mounted, and means for actuating said rock shaft to advance the aligning block against the aligning edges of the type and clamp them against 90 a part of the machine, substantially as described.

3. The combination of type, a rest bar, means for assembling the type in line upon the rest bar, an aligning block, an abutment 95 block adapted to press the type against the rest bar, and means for causing said aligning and abutment blocks to advance in different directions upon the assembled type and respectively align and lock them against 100 the rest bar, substantially as described.

4. The combination of type, a rest bar, means for assembling the type upon the rest bar, an aligning block, an abutment block adapted to lock the type against the aligning 105 block and rest bar, a power shaft, and connections between the aligning and abutment blocks and power shaft for causing said blocks to advance in different directions upon the assembled type and respectively align 110 and lock them during a portion of the revolution of the power shaft, substantially as described.

5. The combination with the type having shoulders 3, 4, of rest bar B and aligning 115 block F between which the type are aligned and on which the shoulders 3, 4, rest, and the abutment block D locking the type against the aligning block and rest bar, substantially as described. 120

In testimony whereof we have hereunto set our hands in the presence of the subscribing witnesses.

HOMER LEE.
EDMOND LEBRUN.

Witnesses:

J. J. KENNEDY,
C. J. SAWYER,
E. S. SPIKE.