

J. R. ROGERS.
 LINOTYPE MACHINE.
 APPLICATION FILED AUG. 13, 1908.

903,505.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

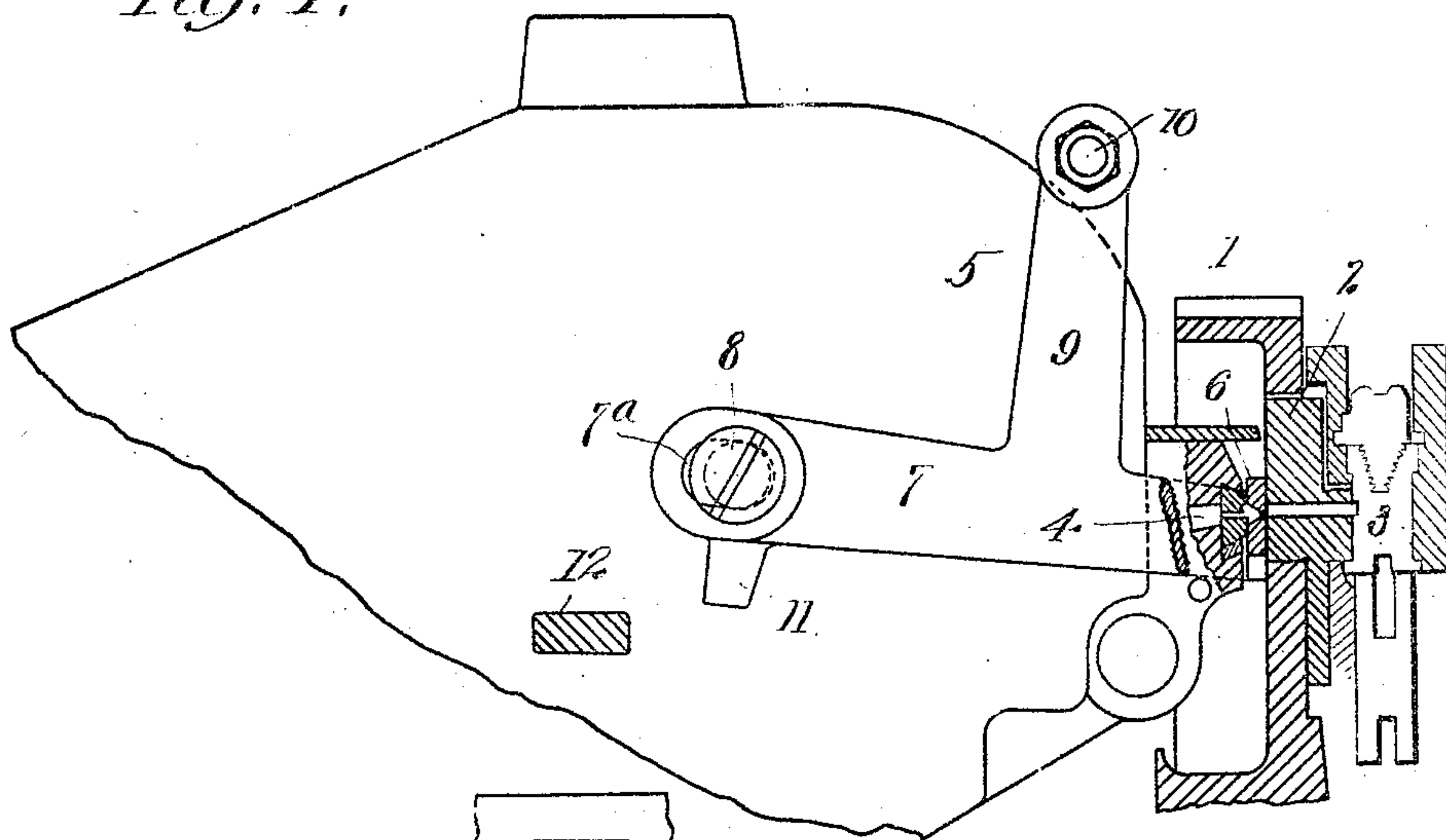
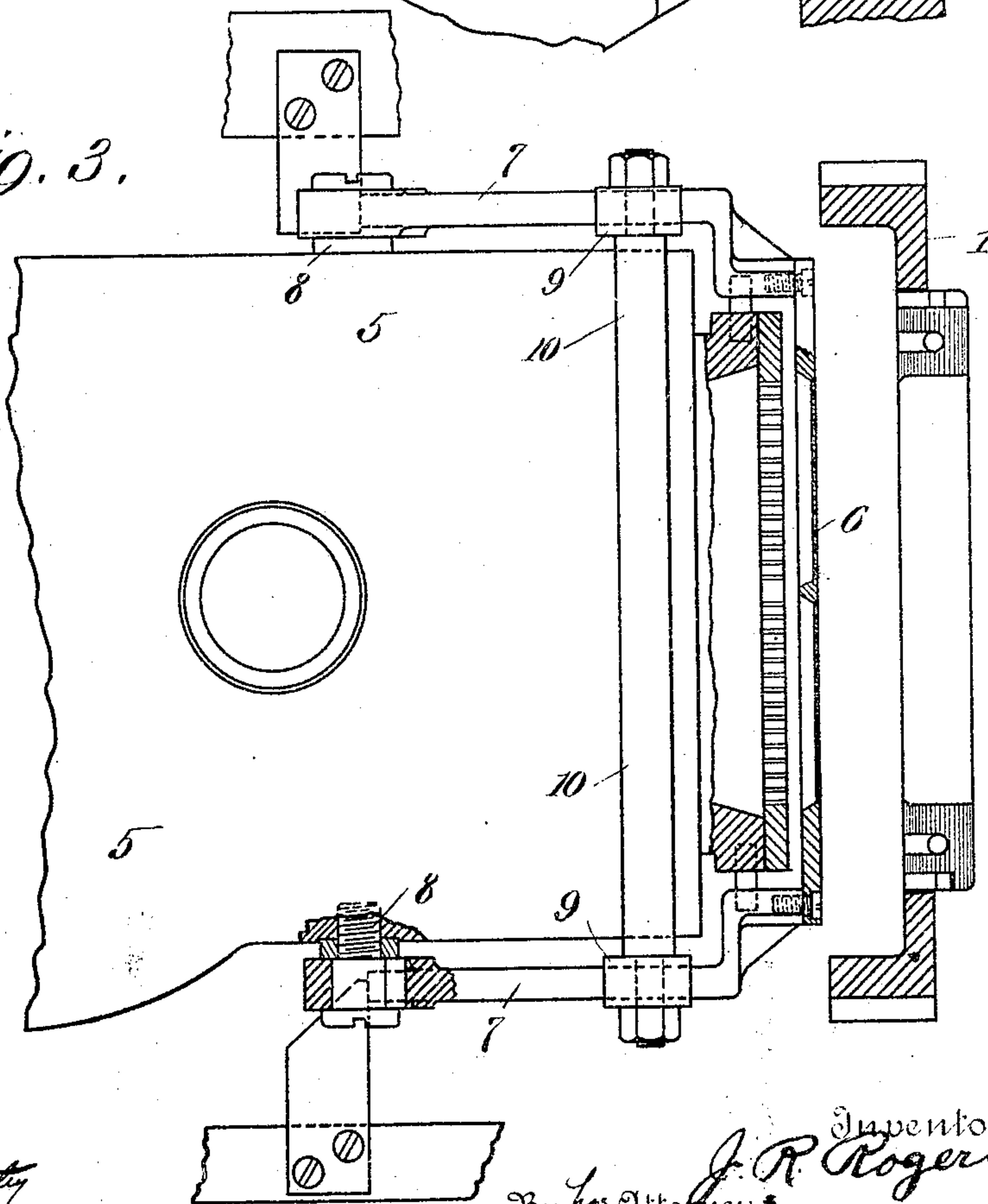


Fig. 3.



Witnesses:
George W. Hartley
Philip Luft

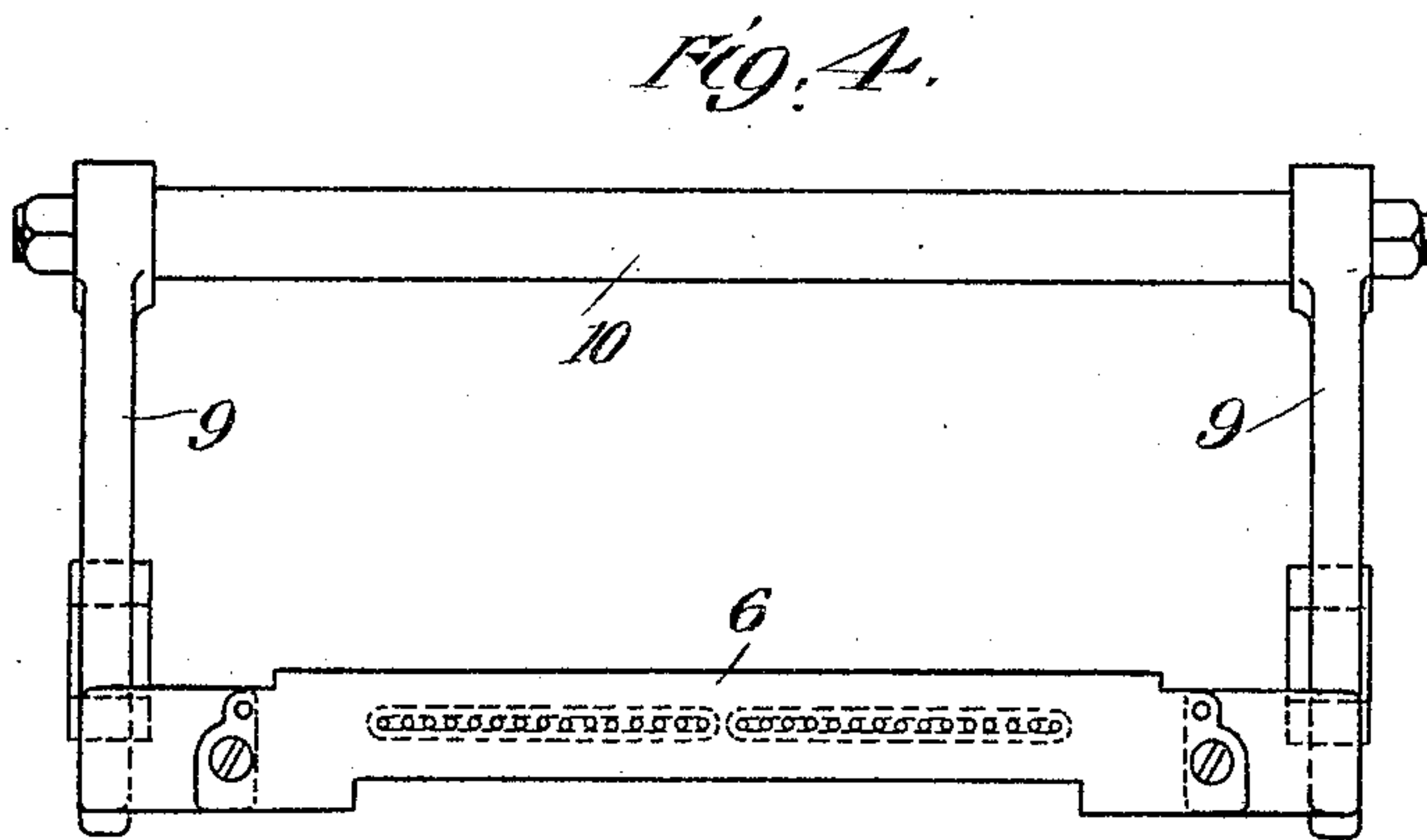
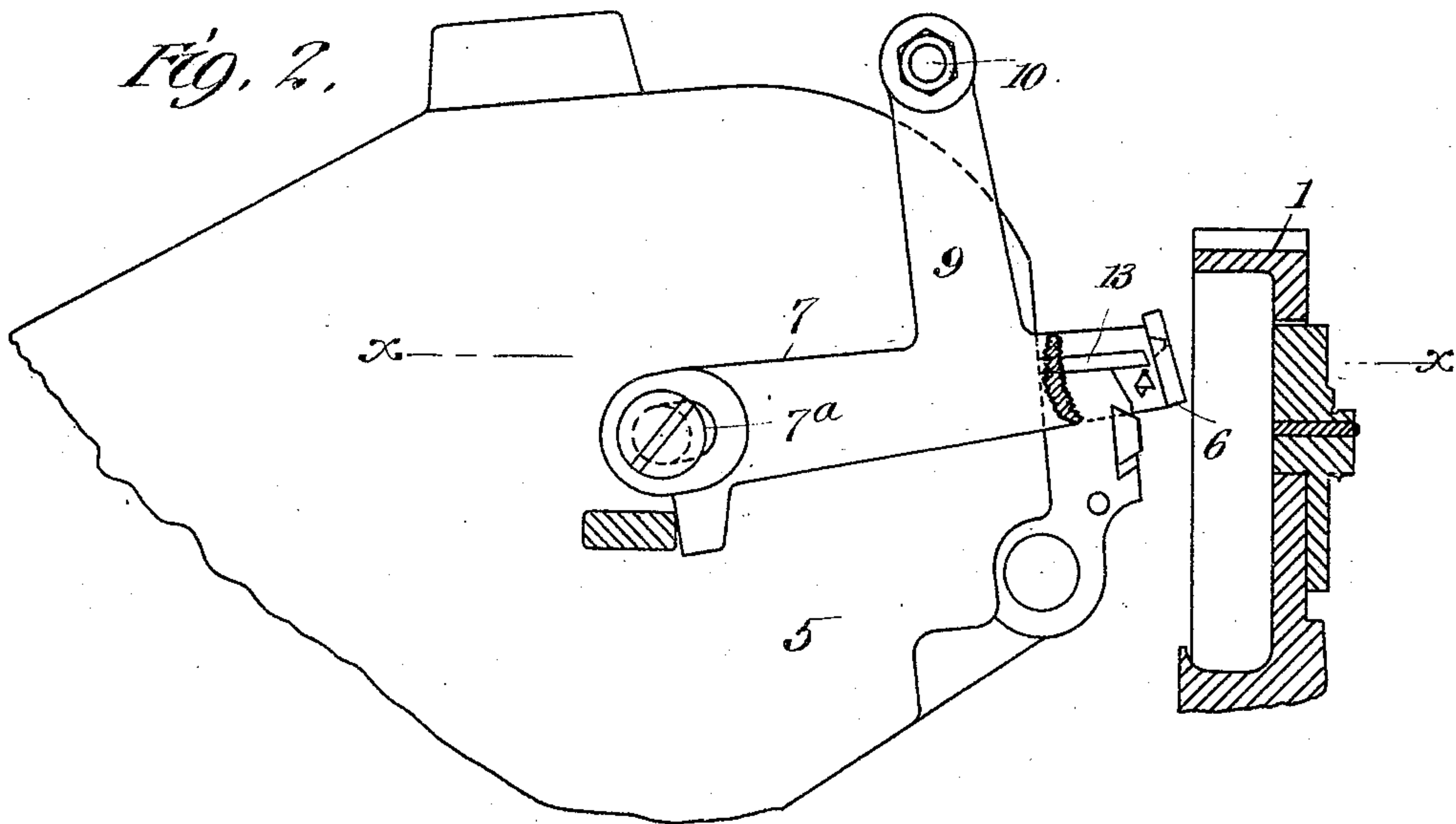
Inventor
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 By *his Attorney*
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2 SHEETS—SHEET 2.



Witnesses:
George D. Hartley
Philip Left

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UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.
LINOTYPE-MACHINE.

No. 903,505.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed August 13, 1908. Serial No. 448,328.

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

This invention relates to improvements in machines in which linotypes or line printing bars are cast in a slotted mold against a line of matrices temporarily assembled against and closing one side of the mold, the metal to form the cast being injected in molten condition into the opposite side of the mold from the mouth of a melting pot in which a supply of the molten metal is maintained. The improvements, though applicable to machines of this general character, are designed more particularly for use in connection with the well-known Mergenthaler linotype machines, represented for instance by Letters Patent of the United States, Nos. 436,532 and 557,000.

The invention has reference to a sprue-plate adapted to cooperate with the mold in such manner as to form a solid base on the cast slug and to facilitate the trimming of the same, and insure that the slug will be of uniform height from end to end, and the invention consists in improved means for mounting the sprue-plate and operating the same with relation to the mold and pot, to effect the detachment and removal of the sprue or gate from the cast slug, and the ejection of the gate from the plate.

In the accompanying drawings: Figure 1 is a vertical central section from front to rear through the mouth of the melting pot, the sprue-plate and the mold, the parts being in casting position. Fig. 2 is a similar view with the pot and sprue-plate retracted and showing how the sprue or gate is ejected. Fig. 3 is a horizontal sectional plan view of the parts in the position shown in Fig. 2, the section being taken on the line *xx* of Fig. 2. Fig. 4 is a front elevation of the sprue-plate and its carrying frame or yoke.

Referring to the drawings: 1 represents a vertical intermittently movable mold-wheel or disk to which the mold 2 is fixed, the mold cavity being open at its front and rear so that a line of matrices 3 assembled against and temporarily closing the front face of the

mold, may have the molten metal injected against them from the mouth 4 of a melting pot 5, the latter being movable to and from the rear face of the mold, as usual, and the molten metal filling the mold and hardening, forming a slug with printing characters on one edge, which slug is by the rotary movement of the mold-wheel carried to an ejecting position where it is ejected.

6 represents my improved sprue-plate, which during the casting operation is seated tightly against the rear face of the mold between the same and the pot mouth, the said plate containing a cavity or slot of taper form in cross-section, with its forward or delivery end considerably less in width than that of the mold cavity, the result being that the mold will be closed by the plate except as to an opening of relatively slight width extending centrally of the mold cavity, through which contracted opening the metal enters the cavity from the mouth of the pot at the back of the plate, and as a result of which construction the base of the cast slug on opposite sides of a central line, will be smooth and solid throughout from end to end.

In accordance with my invention, the sprue-plate is sustained and operated independently of the movements of the mold wheel, the plate being sustained by the melting pot, and by the movements of the latter to and from the mold wheel, the plate is first presented in proper operative relation to the mold and pot mouth, and then retracted after the casting operation, and the gate or sprue automatically ejected therefrom.

The manner of sustaining and mounting the sprue-plate to cause it to operate in this manner may be variously modified, but I prefer to adopt the construction illustrated in the drawings, wherein it will be seen that the plate is fixed rigidly to the forward ends of two arms 7 extending parallel to each other along the opposite sides of the pot, the rear ends of the arms being provided with horizontal slots 7^a, in which extend fixed studs 8 projecting outwardly from the opposite sides of the pot, this manner of connecting the arms to the pot permitting the plate to move vertically at the front of

the pot mouth, and permitting the pot to move horizontally to a limited extent independently of the plate, the purpose of which will presently appear. Between their ends
 5 the arms are provided with rigid upward extensions 9 connected fixedly together by means of a horizontal cross bar 10, the arms, extensions, and cross bar thus forming a frame or yoke, pivotally mounted at one end
 10 on the pot on a horizontal transverse axis, and carrying at its opposite end the sprue-plate, which, by the swinging movement of the yoke, is moved vertically with relation to the pot and mold between the two. It is
 15 seen, therefore, that the sprue-plate is capable of two movements, one horizontally facewise with the melting pot to and from the mold, and the other vertically and edge-wise with relation to the pot mouth and
 20 mold. By the horizontal movements, the plate is alternately seated against the rear face of the mold and withdrawn therefrom after the casting operation, the retreat of the plate acting to sever the sprue or gate
 25 from the slug. By the vertical edge-wise movement of the plate, the gate is carried away from the mold and automatically ejected.

I propose to effect the vertical movements
 30 of the plate automatically by the retreat of the pot, which automatic action may be effected by providing the arms 7 near their rear ends with depending lugs 11, arranged to encounter fixed fingers 12, mounted on
 35 the machine frame and extending in the path of the lugs, the relation of the parts being such that the lugs will encounter the fingers at the moment when the rearward movement of the pot is nearly completed,
 40 the result being that the yoke carrying the plate will be swung upward on its axis and will correspondingly elevate the plate.

The automatic ejection of the sprue from the sprue-plate is effected by means of a
 45 horizontal blade 13, fixed to the front of the pot, with its forward edge so disposed that as the plate is elevated the rear face of the latter will move in proximity to the edge of the blade, the result being that the project-
 50 ing portions of the sprue, left by the withdrawal of the pot mouth from the sprue-plate as the pot starts to retreat, will be moved against the edge of the blade, and the plate continuing its upward movement, the
 55 sprue will be dislodged and drawn out of the plate, the engagement of the edge of the plate with the projections on the sprue, acting to loosen the latter and causing it to be withdrawn in a downward direction as the
 60 sprue plate moves past the blade, as illustrated in Fig. 2.

In the operation of the mechanism described, the parts being in the position

shown in Fig. 2, with the melting pot in retracted position, the sprue-plate elevated 65 and held raised by the engagement of the depending lugs 11 with the fingers 12, the studs 8 at the rear ends of the slots 7^a, and a line of matrices assembled in front of and
 70 closing the mold, the pot begins its forward movement, the studs moving forward in the slots, and thereby disengaging the lugs from the fingers and permitting the yoke to fall, which will lower the sprue-plate in front of
 75 the pot mouth. As the forward movement of the pot continues, the sprue-plate will be carried against the rear face of the mold, and the pot mouth seated against the rear face of the plate, after which the parts will come
 80 to rest in the position for casting shown in Fig. 1. The pot plunger being operated, a quantity of molten metal is injected from the mouth through the sprue-plate and filling the mold and sprue-plate will form a slug with a gate or sprue attached to its
 85 base along a central line. The casting operation being now completed, the pot begins its retreat, the first portion of its movement being relatively to the sprue-plate, which relative motion takes place as the studs 8
 90 move rearwardly in the slots in the arms, and without disturbing the position of the plate, but resulting in the separation of the pot mouth from the rear face of the plate, thereby leaving a number of projections on
 95 the rear edge of the sprue formed by the holes in the pot mouth. As the studs, in the continued movement of the pot, encounter the rear ends of the slots, the sprue-plate will be drawn horizontally and at a
 100 slight upward inclination from the mold, thereby severing the thin connecting web between the gate and base of the slug, the latter being retained in the mold by the usual shoulders at the ends of the same.
 105 The further movement of the pot rearward, carries the lugs 11 into engagement with fingers 12, whereby the yoke will be rocked and the sprue-plate carried upward past the ejecting blade 13, which being encountered
 110 by the projections on the rear edge of the sprue, the latter will be dislodged and drawn from the plate.

Having thus described my invention what I claim is:

1. In a linotype machine, the combination of the mold, the melting pot movable to and from the same, and a sprue-plate carried by the melting pot.

2. In a linotype machine the combination 120 of the mold, the melting pot movable to and from the same, and the sprue-plate carried by and movable relatively to the melting pot.

3. In a linotype machine, the combination 125 of the mold, the melting pot movable to and

from the same and a sprue-plate movable with the pot to and from the mold and movable also relatively to the pot, to eject the sprue.

4. In a linotype machine, and in combination with the mold, the melting pot movable to and from the mold, a sprue-plate carried by the pot and adapted by the advance of the same to be seated against the rear face of the mold, said sprue plate being movable with relation to the pot edgewise to eject the sprue, and means controlled by the retreat of the pot for moving the sprue-plate edgewise.

5. In a linotype machine, and in combination with the mold, the melting pot movable to and from the same, a sprue-plate movable also to and from the mold, and adapted on the advance of the pot to be seated between the pot mouth and back of the mold, means for withdrawing the plate from the mold on the retreat of the pot, and means for thereafter shifting the plate edgewise to eject the sprue.

6. In a linotype machine, the combination with the mold and melting pot, of a sprue-plate movable to and from the mold horizontally between the pot mouth and mold, to alternately seat the plate against the back of the mold and remove the sprue from the cast slug, and means for thereafter moving the plate edgewise to eject the sprue.

7. In a linotype machine, the combination with the mold, of the melting pot movable to and from the same and a sprue-plate sustained by the pot and movable with the same, whereby on the advance of the pot the plate will be seated against the back of the mold, said pot being movable to and from the mold independently of the plate.

8. In a linotype machine, and in combination with the mold and melting pot, a sprue-plate extending in front of the pot mouth, arms connected with the plate and extending at the sides of the pot, and a sliding connection between the arms and pot; whereby the pot may be moved independently of the plate.

9. In a linotype machine, the combination with the mold, of the melting pot movable to and from the same, a sprue-plate between the mold and pot mouth, arms fixed to the plate and extending rearwardly at the sides of the pot and formed with horizontal slots, and studs fixed to the pot and extending in said slots.

10. In a linotype machine, and in combination with the mold, the melting pot movable to and from the same, a sprue-plate between the pot mouth and mold, arms fixed to the plate and extending rearwardly and pivoted to the pot, depending lugs on the arms, and fixed projections on the machine

frame adapted to be engaged by the lugs on the retreat of the pot; whereby the arms will be rocked, and the plate moved edgewise to eject the sprue.

11. In a linotype machine, the combination of a slotted mold, a melting pot movable to and from the same, a sprue-plate carried by the pot and adapted on the advance of the pot to be seated against the back of the mold, means for withdrawing the plate to detach the sprue from the slug, means for moving the plate edgewise relatively to the pot, and a fixed blade in position to act at the rear face of the plate and eject the sprue.

12. In a linotype machine, the combination of a mold, a melting pot, a sprue-plate adapted to be seated at the back of the mold between the same and pot mouth, means for moving the plate edgewise after the casting operation, and a fixed blade, adapted when the plate is moved edgewise, to engage the rear edge of the sprue and eject the same.

13. In a linotype machine, the combination of a mold, a melting pot having a mouth movable to and from the mold, a sprue-plate carried by the pot and extending horizontally across the mouth of the same, whereby on the advance of the pot the plate will be seated against the back of the mold and on the retreat of the pot will be withdrawn from the mold, said plate being movable with relation to the pot edgewise, means controlled by the retreat of the pot for moving the plate edgewise, and a fixed ejecting device adapted when the plate is moved edgewise, to act at the back of the same and eject the sprue.

14. In a linotype machine, the combination with the mold, of the melting pot movable to and from the same, and a sprue-plate movable horizontally with the pot to and from the mold, and movable also vertically with relation to the pot, and means controlled by the movement of the pot for effecting the relative movements of the plate.

15. In a linotype machine the combination with the mold and melting pot movable one to and from the other, of a sprue plate movable horizontally to and fro between said parts, and adapted to be seated against the back of the mold.

16. In a linotype machine the combination with the mold and melting pot, of a sprue plate movable to and from the mold between the pot mouth and mold to alternately seat the plate against the back of the mold and detach the sprue from the cast slug.

17. In a linotype machine and in combination with the mold and melting pot, a sprue plate separable facewise from the mold and adapted to be seated against the rear face of the same to receive the molten metal from the pot mouth.

18. In a linotype machine and in combina-

tion with a mold and melting pot movable to
and from each other, a sprue plate adapted
when said parts are moved towards each
other to be seated against the back of the
5 mold, and adapted when said parts are
moved and away from each other to be sepa-
rated facewise from the mold.

19. In a linotype machine and in combina-
tion with a mold open at the front and back,
10 a melting pot, and a sprue plate separable

face wise from the mold and adapted to be
seated against the back of the same to re-
ceive the metal from the pot.

In testimony whereof I hereunto set my
hand this 11th day of August, 1908, in the 15
presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:

NORMAN DODGE,

HENRY W. COZZENS, Jr.