

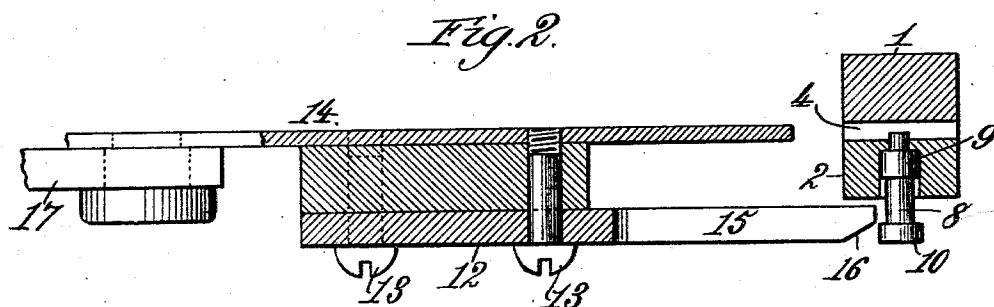
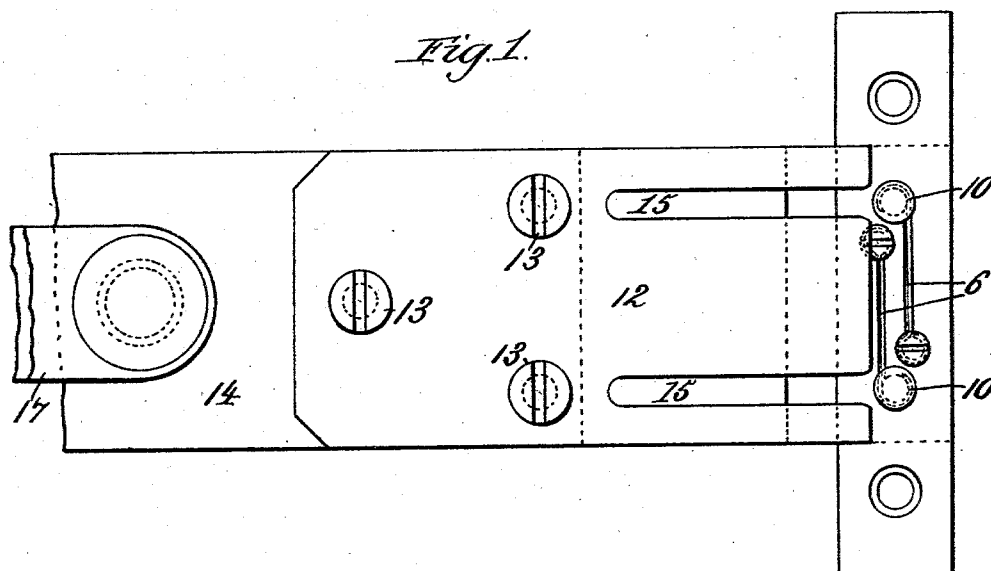
(No Model.)

2 Sheets—Sheet 1.

J. C. FOWLER.
LINE CASTING MACHINE.

No. 552,830.

Patented Jan. 7, 1896.



WITNESSES:

Frank C. F. Knaak.

Geo. W. Rea.

INVENTOR

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Albert B. Norris.

ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

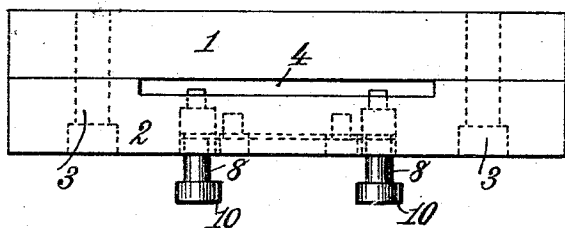


Fig. 4.

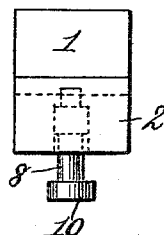


Fig. 5.

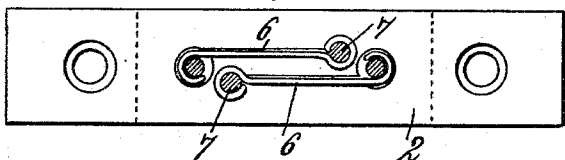


Fig. 6.

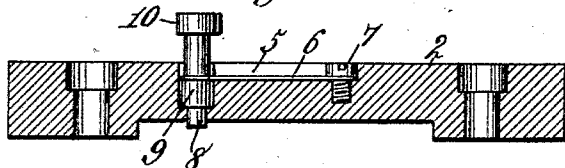
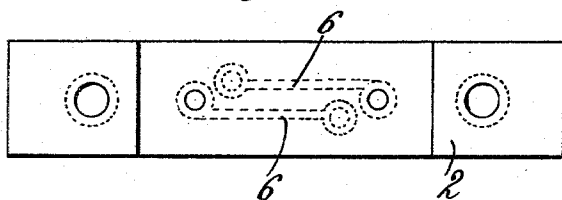


Fig. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH C. FOWLER, OF NEW YORK, N. Y., ASSIGNOR TO THE FOWLER
COMPOSING AND TYPE SETTING COMPANY, OF CHICAGO, ILLINOIS.

LINE-CASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 552,830, dated January 7, 1896.

Application filed August 3, 1895. Serial No. 558,139. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. FOWLER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Line-Casting Machines, of which the following is a specification.

This invention relates generally to the two classes of line-casting machines known as the "direct line-casting," wherein a printing-bar is cast direct from a line of assembled female type or matrices, and the "indenting-machine," wherein a line of assembled male or relief type are impressed into matrix material to form a matrix from which the printing-bar is cast.

The invention relates more particularly to the line-casting machines described and shown in my Letters Patents Nos. 510,853 and 533,285, dated, respectively, December 12, 1893, and January 29, 1895.

In line-casting machines having a rotary mold-carrier provided with molds, in which the printing-bars are formed, it is usual to rotate the mold-carrier in juxtaposition to a dressing or trimming knife, which trims the bases of the printing-bars while they lie in the molds for the purpose of smoothing the bases of the bars and producing type-high printing-bars, or rather printing-bars of exactly uniform height.

In the trimming operation it is necessary that the printing-bars be held immovable in the mold-cavities while the mold-carrier is rotating and the trimming-knife is acting on the bases or faces of the bars to trim the same, because the knife acts like a shear and tends to move or shift the ends of the bars first acted on, and consequently if the ends of the bars first acted on can move the bases of the bars will not be truly leveled with respect to the faces of the type characters formed on the edges of the bars.

The object of my invention is to provide new and improved means for holding or retaining the cast printing-bar positively immovable in the mold during the action of the trimming-knife on the base or foot of the printing-bar while it lies in the mold, thereby

obtaining type-high printing-bars, which are of absolutely uniform height and have their bases smoothed and made perfectly level with respect to the faces of the type characters on the edges of the bars.

To accomplish this object my invention consists in the combination, with a mold, of pins adapted to enter into the mold-cavity and remain therein while the printing-bar is being cast, an ejector for ejecting the printing-bar from the mold, and pin-retracting mechanism actuated by the ejector for retracting the pins from the mold-cavity to permit the removal of the printing-bar therefrom.

The invention also consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation showing one of the molds with the pins entering the same, the devices for withdrawing the pins from the mold, and a portion of the ejector-blade and devices for reciprocating the same. Fig. 2 is a sectional plan view of the same. Fig. 3 is a front elevation of the mold. Fig. 4 is an end elevation of the same. Fig. 5 is a side elevation of the mold, showing the movable pins and the spring-attaching screws in section. Fig. 6 is a longitudinal sectional view of a part of the mold, and Fig. 7 is a view looking at the inside of the mold-section shown in Fig. 6.

The invention is particularly designed for use in connection with a rotary mold-carrier, such as is shown in my patents hereinbefore referred to, which mold-carrier is provided with several molds of similar construction.

The trimming-knife for trimming the bases of the cast printing-bars will be constructed and arranged substantially as in the patents referred to, and therefore I do not deem it necessary to herein illustrate the trimming-knife or the rotary mold-carrier.

As before stated, the molds are of similar construction, and therefore a description of one is sufficient for all.

The mold shown in the drawings comprises two sections 1 and 2, secured together by

bolts 3, and so constructed and arranged as to provide the cavity or space 4 in which the printing-bar is formed by injecting molten metal thereinto in the usual manner.

5 The mold-section 2 is constructed in its outer surface with a recess 5, in which are arranged two springs 6, firmly secured at one end through the medium of screws 7, and having their opposite ends engaged with movable
10 pins 8, which normally project into the mold-cavity 4, as shown in Fig. 3. The movable pins are each constructed with inner and outer collars 9 and 10, and the free ends of the springs 6 press against the inner collars 9 to
15 press the pins inwardly. The pins are adapted to be simultaneously retracted to withdraw their inner ends from the mold-cavity through the medium of a plate 12, secured by screws or bolts 13 to the ejector-blade 14. The plate
20 12 is constructed with parallel slots 15 and with beveled portions 16, so that when the ejector-blade is advanced toward the mold the beveled portions 16 of the plate 12 act upon the heads 10 of the pins 8 and force the
25 latter outwardly against the pressure of the springs 6.

The ejector-blade 14 is attached to a bar 17, adapted to be reciprocated, as in my patents before mentioned, in such manner that when
30 a printing-bar has been cast in one of the molds, and the mold-carrier is turned to place such mold in coincidence with the ejector-blade, the latter will be advanced to eject the cast printing-bar from the mold. As the
35 ejector-blade commences to advance, the beveled portions 16 of the plate 12 act upon the heads 10 of the pins 8 and withdraw the latter, so that the printing-bar can be removed from the mold by the action of the ejector-
40 blade 14. When the fluid or molten metal is injected into the mold-cavity, the inner ends of the pins 8 project thereinto, and consequently when the metal solidifies the inner ends of the pins are engaged with the cast
45 printing-bar at points near the ends thereof. The movable pins are carried by the mold and remain in engagement with the cast printing-bar during the action of the trimming-knife in dressing or trimming the base of the print-
50 ing-bar to make the same perfectly smooth and produce a type-bar which is exactly type-high. After the base of the bar has been dressed and smoothed, the mold containing such printing-bar is brought into coincidence
55 with the ejector-blade, and the latter advances to eject the printing-bar, at which instant the beveled portions 16 of the plate 12 operate to withdraw the pins 8 from engagement with the printing-bar.

60 The engagement of the pins 8 with different portions of the printing-bar during the dressing or trimming action of the knife serves to firmly hold the printing-bar against any movement whatever during the action of the knife,
65 and consequently all the printing-bars will

have their bases accurately and smoothly trimmed and made perfectly level with respect to the faces of the type characters on the edges of the bars.

The provision of pin-retracting mechanism, 70 actuated by the ejector-blade for retracting the pins from the mold-cavity, is advantageous and important, in that it is simple in construction and reliable in practicable operation.

The springs 6 are preferably composed of 75 elastic wire, each formed with eyes at its ends, as best seen in Fig. 5; but I do not wish to be understood as confining myself to any particular construction of spring for pressing the movable pins inwardly. 80

I have shown the mold as composed of two sections 1 and 2, connected by bolts or screws 3, but do not wish to be understood as con- 85 fining myself to any particular mold, as the construction thereof may be modified to meet the conditions required in casting printing-bars.

In the practicable operation of a line-cast- 90 ing machine, wherein the cast printing-bars are acted upon by a cutter or knife as the mold-carrier rotates to trim and smooth the bases of the bars, the cutter or knife ordinarily operates like a shear, and unless the print- 95 ing-bars are held absolutely stationary they will move or shift at the end first acted upon by the cutter or knife, and consequently will not be truly leveled.

In my invention simple and efficient means are provided to firmly hold the cast printing- 100 bar in a fixed position during the action of the trimming cutter or knife, and therefore all the printing-bars will be uniformly smoothed and trimmed and truly leveled with respect to the faces of the type characters on the edges 105 of the bars.

I have referred to the mold as belonging to the rotary class; but it is not absolutely es- 110 sential that the mold rotate in juxtaposition to the trimming-knife. The mold may otherwise move, so that the knife trims the bases of the bars.

Having thus described my invention, what I claim is—

1. The combination with a mold, of pins adapted to enter the mold and remain therein 115 while the printing-bar is being cast, an ejector for ejecting the printing-bar from the mold, and pin-retracting mechanism actuated by the ejector for retracting the pins from the mold to permit the removal of the printing- 120 bar therefrom.

2. The combination with a mold, of pins adapted to enter into the mold and remain therein while the printing-bar is being cast, an 125 ejector-blade for ejecting the printing-bar from the mold, and a plate mounted on the ejector-blade and serving to retract or withdraw pins from the mold when the ejector-blade advances to eject the printing-bar.

3. The combination with a mold, of spring- 130

pressed pins adapted to enter into the mold,
an ejector for ejecting the printing-bar from
the mold, and a plate carried by the ejector
and having slots and a beveled portion for re-
tracting or withdrawing the pins from the
5 mold to permit the removal of the printing-
bar.

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

JOSEPH C. FOWLER.

Witnesses:

M. W. ALEXANDER,
ALFRED J. AMEND.