May 7, 1929. J. G. W. FIELD 1,711,933

TYPOGRAPHICAL LINE CASTING MACHINE

Filed Feb. 4, 1928

Fig. 1.

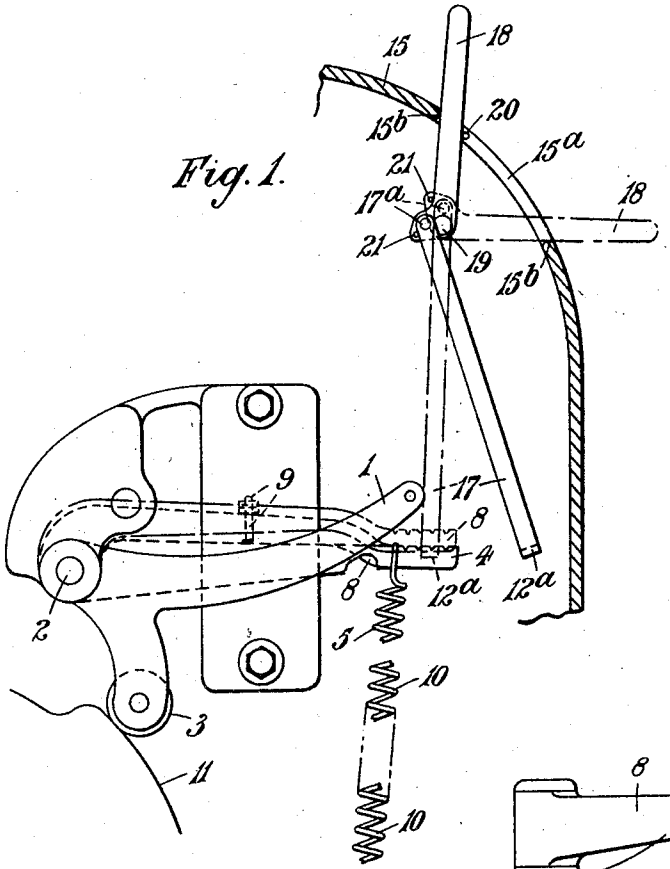
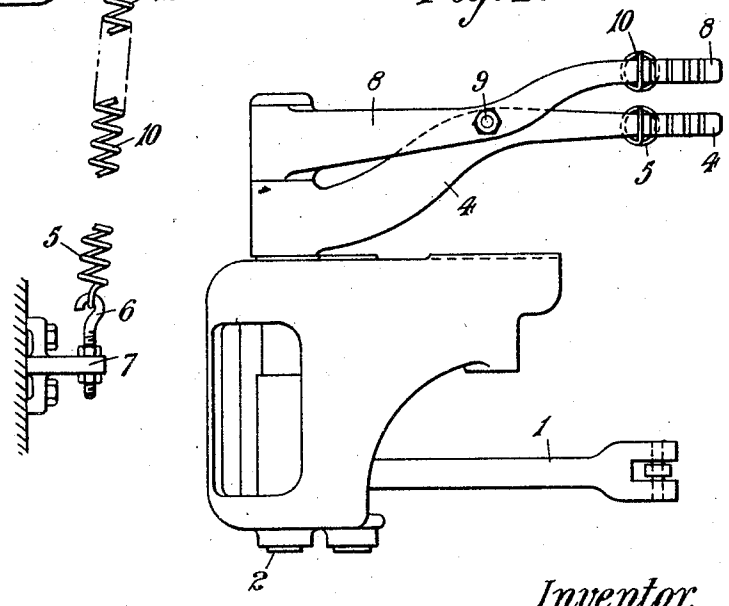


Fig. 2.



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TYPOGRAPHICAL LINE-CASTING MACHINE.

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This invention relates to typographical line casting machines and more particularly to machines which are adapted to cast lines or slugs of different sizes varying over a wide range up to those now commonly used for display and similar work.

In a machine of this particular character, the quantity of metal to be pumped into the mould for the production of any given cast slug varies according to the size of said slug, the production of a slug of say 36 point taking a much larger volume of metal than is necessary for producing one of say letter press size. For that reason a pump adapted to deliver metal into a mould of a lesser size, cannot always be relied upon to deliver the metal at the speed necessary to ensure the production of a good printing face on slugs of the larger sizes.

In the construction to which the present invention is applied the pumping mechanism is so arranged that it can be readily adjusted to suit the different requirements involved in the production of the various sizes of slugs within the capacity of each machine.

In said construction the ordinary spring and cam actuated pump lever is supplemented by another lever acted upon by a separate spring and adapted to be placed in and out of operative connection with the first-named lever according respectively to whether a large or small slug is to be produced, and in such manner that when the two said levers are operatively connected together, as when the larger slugs have to be produced, the two springs act in concert to carry the pump plunger through its metal-ejecting stroke, whereas when there is no such association (as when the smaller size slugs have to be produced) the said plunger is operated by only its own particular spring which, as ordinarily, is ample for that purpose. The last named operation is provided for by preventing the actuation of the supplemental lever, this being effected by interposing a manually adjustable stop in the downward path of said lever.

The object of the present invention is so to construct the stop devices that when these devices are adjusted for preventing the actuation of the supplemental spring, the supplemental lever arm to which this spring is attached, will be lifted out of operative contact with the lever underlying it. Such an arrangement attains the very desirable result of relieving the pump-actuating cam of the pressure which otherwise would be exerted on it when the smaller size slugs have to be produced, that is to say when the pressure of a single spring suffices for ejecting the necessary amount of molten metal.

The invention will now be described by reference to the accompanying drawings in which:—

Figure 1 is a side elevation of the improved devices with parts of the machine frame shown in vertical section, and

Figure 2 is a plan of the same with parts omitted.

1 is the pump lever which is fast to the pump lever shaft 2 and which is raised by a cam 11 acting against an anti-friction roller 3. 4 is the ordinary spring lever arm which also is fast to the shaft 2, and to whose free end is attached the upper end of a spring 5 whose lower end is anchored to a hook 6 adjustable in a stationary bracket 7.

8 is the supplemental lever arm which is loosely pivoted on shaft 2 and which, overlaps the lever arm 4 and acts on the latter through a screw 9 adjustable in the said arm 8. To the free end of the lever arm 8 is attached the upper end of a spring 10 whose lower end like that of the spring 5 is adjustably attached to the bracket 7.

17 is the stop whose deflected lower end 12^a can be moved into and out of engaging relationship with the lever arm 8. The upper end of the stop 17 is pivotally attached by a pivot pin 17^a to the short arm of a hand lever 18 which is free to turn upon a stationary pivot 19 fast to the fixed frame 15, and whose longer arm is capable of being swung within a slot 15^a from one to the other of the two terminal positions in which it is indicated in the drawing. The ends of the slot, marked 15^b, serve to limit the swing of the hand lever 18, and just below the upper of these ends there is provided a detent or spring-pressed plunger 20 (shown more or less diagrammatically in Fig. 1) of any desired construction, for yieldingly retaining the lever 18 against accidental displacement.

The short arm of the hand lever 18 has fast therein, a stud 21 which is adapted to engage with the stop 17 when this lever is approaching its erect or upper position and to thereafter swing said stop out of engagement with the lever arm 8. During the

reverse movement of the hand lever 18 the stud 21 recedes in advance of the stop 17 and allows the deflected lower end 12a of the latter to pass beneath the arm 8, and the continued movement of the hand lever 18, through the then ascending pivot 17a, raises the stop 17 and with it the arm 8 and screw 9 so as to lift the latter out of contact with the lever arm 4 which is thereby relieved of the supplemental pressure of the spring 10.

The axes of the two pivots 17a and 19 are so disposed relatively to each other and to the stopping or operative position of the deflected end 12a, that just prior to the stop reaching the last-named position, the said axes pass dead centre with the result that the spring 10 will retain the hand lever 18 in its depressed position until such time as it is manually raised for releasing the lever arm 8 and the said spring 10 associated therewith.

The drawing represents the improved devices in their two terminal positons, in chain lines in the operative position and in full lines in the inoperative or "off" position.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. In a typographical line casting machine, the combination with a spring-actuated pump mechanism, and additional spring devices adapted to supplement that mechanism, and means adjustable at will to permit or prevent this supplemental actuation, of means whereby the pump-actuating cam is relieved of the pressure of the supplemental spring throughout all such time as the additional spring is prevented from acting on the pump mechanism.

2. In a typographical line casting machine, the combination with devices according to claim 1, and in which one of the springs exerts its influence through an arm, and the supplemental spring exerts its influence through a second arm overlying the first arm, of a stop movable into and out of engagement with the second arm, and means whereby the stop raises said second arm during its movement into engagement therewith.

3. In a typographical line casting machine, the combination with devices according to claim 1, and in which one of the springs exerts its influence through an arm, and the supplemental spring exerts its influence through a second arm overlying the first arm, of a stop movable into and out of engagement with the second arm, means whereby the stop raises said second arm during its movement into engagement therewith, and means whereby when the stop is engaged with the second arm, the supplemental spring serves for resiliently retaining it in such engagement.

4. In a typographical line casting machine, the combination with a pump lever, a spring lever arm operatively fast to the pump lever, a spring acting on the lever arm, a supplemental lever arm overlying the first lever arm, a spring acting on the supplemental arm, a stop movable into engagement with the supplemental lever arm to lift it out of operative contact with the first lever arm underlying it, and prevent it from being actuated by its spring, a hand lever turning about a fixed axis, and a pivot for the stop on the hand lever, the axis of said pivot being so related to the fixed axis that dead center is passed during the movement of the hand lever from one position to another.

5. In a typographical line casting machine, the combination with a pump lever, a spring lever arm operatively fast to the pump lever, a spring acting on the lever arm, a supplemental lever arm overlying the first lever arm, a spring acting on the supplemental arm, a stop movable into engagement with the supplemental lever arm to lift it out of operative contact with the first lever arm underlying it, and prevent it from being actuated by its spring, a hand lever turning about a fixed axis, a pivot for the stop on the hand lever, the axis of said pivot being so related to the fixed axis that dead centre is passed during the movement of the hand lever from one position to another, and a stud on the hand lever movable from a position in which it is clear of the stop to a position in which it can swing said stop out of engagement with the supplemental lever arm, and vice versa.

In witness whereof I have affixed my signature hereto.

JOSEPH GRACIE WINTER FIELD.