3 Sheets--Sheet 1.

J. M. CONNER.

Type-Casting Machine.

No. 129,106. Patented July 16, 1872.

Fig: 1

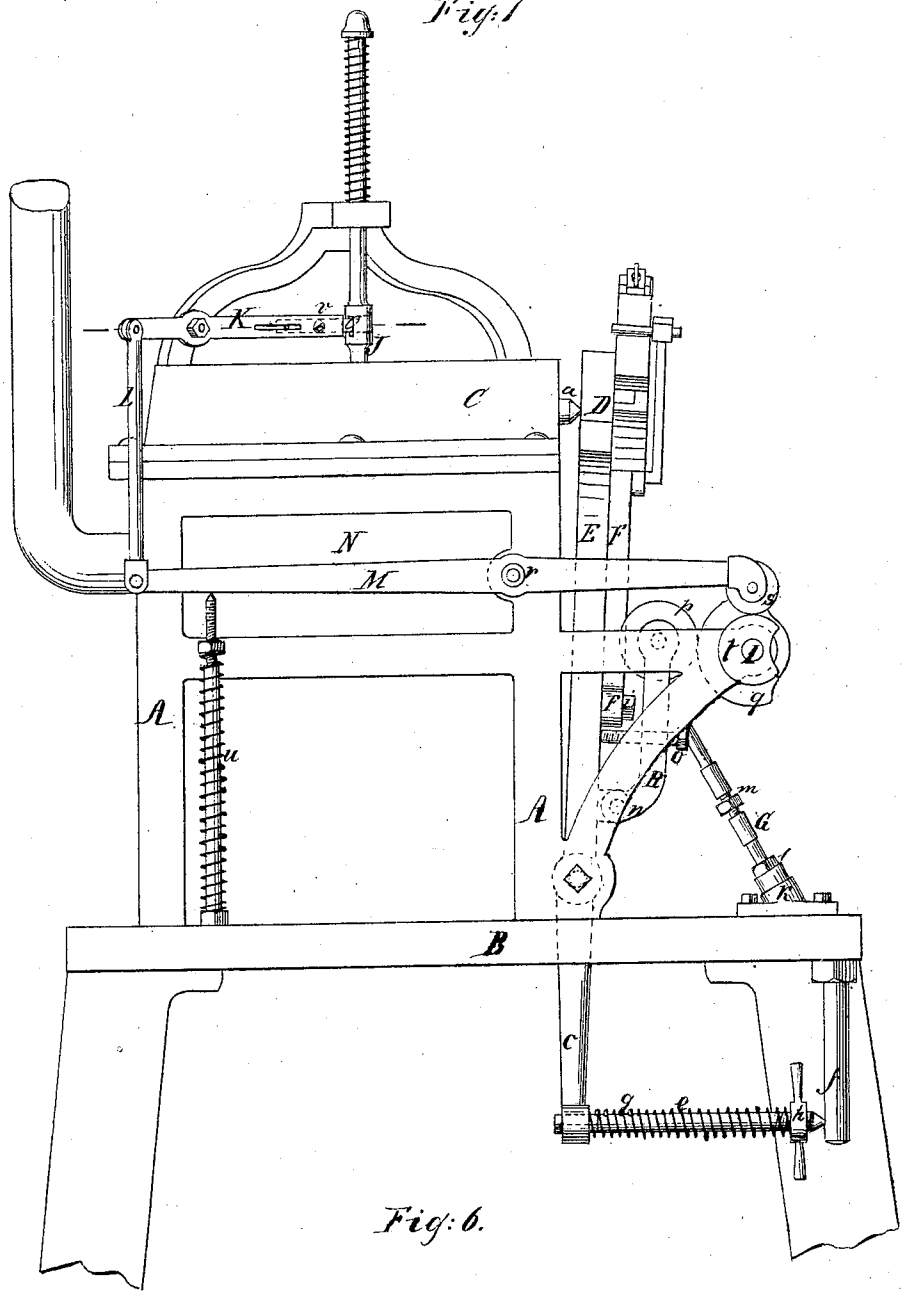
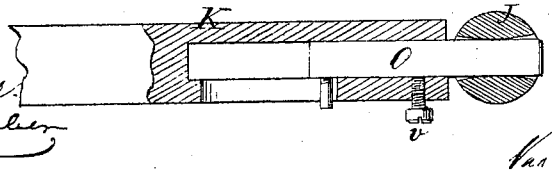


Fig: 6.



Witnesses:
Ernst Bilhuber
C. L. Kastenhuber

Inventor:
James M. Conner
per
Van Santwood & Hauff
Attys

3 Sheets--Sheet 2.

J. M. CONNER.

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Fig. 2.

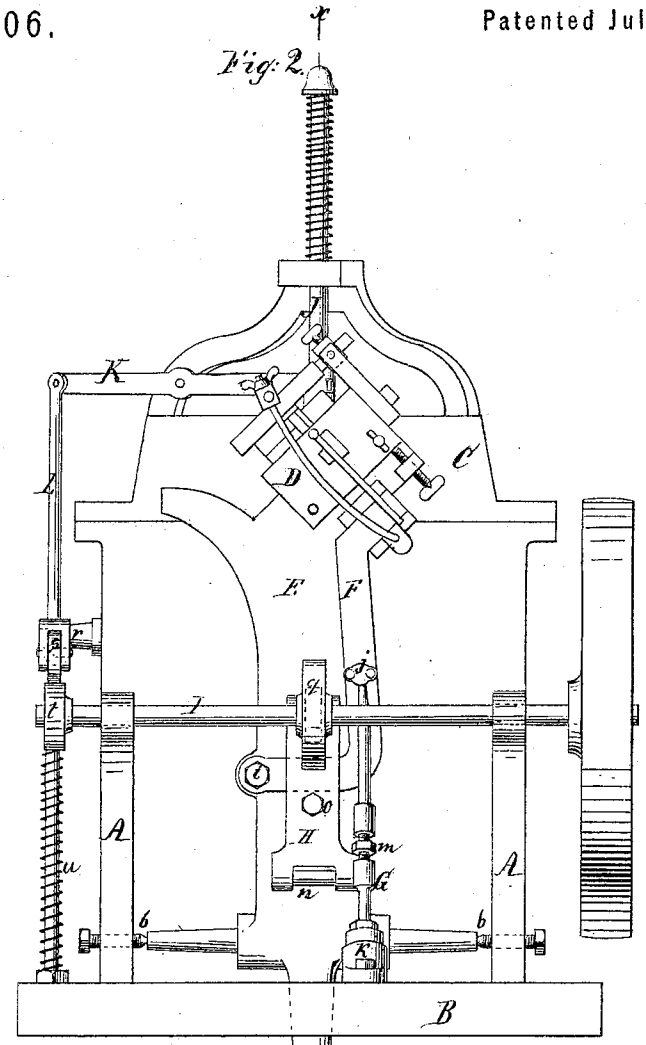
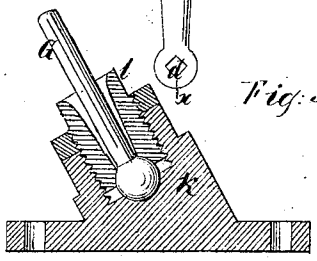


Fig. 5.



Witnesses:
Ernst Bildmber
E. G. Rastenhuber

Inventor:
James M. Conner
per
Van Santvoord & Hauff-
Attys

3 Sheets--Sheet 3.

J. M. CONNER.

Type-Casting Machine.

No. 129,106. Patented July 16, 1872.

Fig. 3.

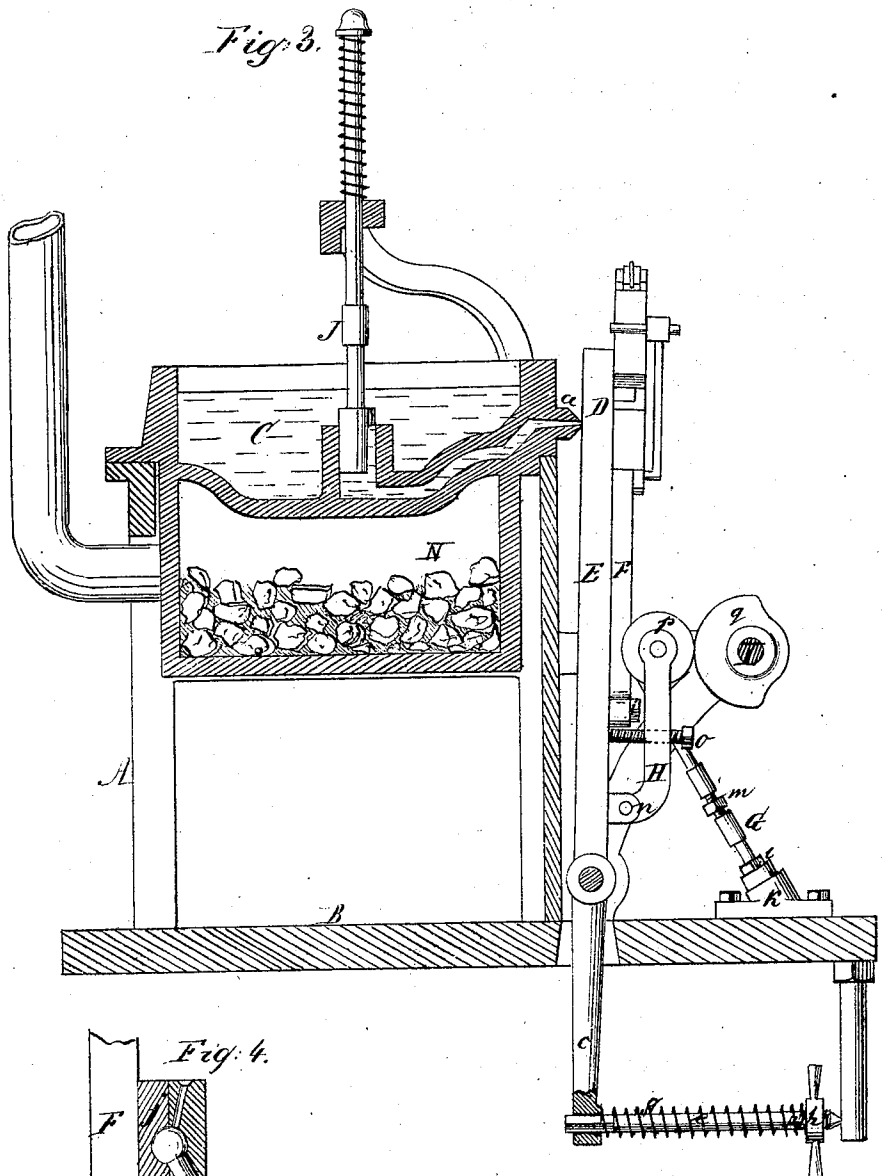


Fig. 4.

Witnesses:
Ernst Bilhuber
E. L. Rastenhuber

Inventor.
James M. Conner
per
Van Santvoord & Hauff
Attys

UNITED STATES PATENT OFFICE.

JAMES M. CONNER, OF NEW YORK, N. Y.

IMPROVEMENT IN TYPE-CASTING MACHINES.

Specification forming part of Letters Patent No. 129,106, dated July 16, 1872.

To all whom it may concern:

Be it known that I, JAMES M. CONNER, of the city, county, and State of New York, have invented a new and useful Improvement in Type-Casting Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a side view of my invention. Fig. 2 is a front view of the same. Fig. 3 is a transverse vertical section of the same in the plane *x x*, Fig. 2. The remaining figures are details, which will be referred to as the description progresses.

Similar letters indicate corresponding parts.

This invention relates to certain improvements on a type-casting machine for which a patent was granted to David Bruce, Jr., November 6, 1843, No. 3,324. My improvement consists in the arrangement of an arm extending from the vibrating beam, and provided with a socket to receive a screw-rod, which carries a spring in such a manner that by the action of said spring the vibrating beam is pressed back from the spout, while the screw-rod allows of adjusting the tension of the spring; also in the arrangement of an adjusting-lever, which is hinged to the vibrating beam and carries a friction-roller, acting against the cam which carries the vibrating beam up to the spout, said adjusting-lever being provided with a set-screw, and leaving room for the end of the oblique lever in such a manner that by means of the set-screw the throw of the vibrating beam can be regulated, and at the same time the length of the vibrating beam can be reduced to a minimum; also in the arrangement of an extension slide in the end of the walking-beam, so that said walking-beam can be readily disconnected from the pump whenever it becomes desirable; further, in the arrangement of the furnace which is suspended from the bottom of the melting-pot containing the type-metal and the spout in such a manner that the position of the spout in relation to the mouth of the mold is not disturbed by the expansion and contraction of the furnace.

In the drawing, the letter A designates a frame, which rises from the bed-plate B, and on the top of which is secured the melting-pot C. From the side of this melting-pot projects the spout *a*, through which the metal is delivered to the mold D. This mold is secured to the top of the vibrating beam E, which swings between center points *b*, (see Fig. 2,) and from the lower end of which extends an arm, *c*, provided with a square socket, *d*, to receive one end of a rod, *e*, the opposite end of which is pointed and made to catch in a cavity in a stud, *f*, projecting from the lower surface of the bed-plate B. On said rod is wound a spiral spring, *g*, and a nut, *h*, serves to press said spring up against the arm *c* of the vibrating beam, thereby throwing the mold D back from the spout. By turning the nut *h* the tension of the spring *g* can be adjusted. The mold D is constructed as fully described in the patent of Bruce, dated November 6, 1843, and forms no part of my present invention. Its operation depends upon the motion of the vibrating beam E and of the oblique lever F, which in my machine has the form of a bell-crank lever, being connected to said vibrating beam by a pivot, *i*, passing through the end of its horizontal arm, while its vertical arm is provided with a box, *j*, forming a socket to receive the upper globe-shaped end of a brace, G. (See Fig. 4, which shows an enlarged view of the upper end of the brace.) The lower end of this brace is also globe-shaped, and it fits in a corresponding socket, *k*, which is secured to the bed-plate. A detached section of this socket in an enlarged scale is shown in Fig. 5. It is provided with a follower, *l*, that screws into the body of the socket, and serves to confine the globe-shaped end of the brace securely in position. Said brace is made in two sections, which are connected by a right-and-left screw, *m*, so that by turning this screw the brace can be lengthened or shortened, and the position of the oblique lever F in relation to the vibrating beam can be regulated with the greatest accuracy. To the vibrating beam is connected (by a pivot, *n*,) the adjusting-lever H, the upper end of which is bifurcated, and which is provided with a set-screw, *o*, bearing against the surface of the vibrating beam. In the bifurcated end of the adjusting-lever is secured a roller, *p*, which bears against the circumference of a cam, *q*, which is mounted on the driving-shaft I of the machine, said roller

being held in contact with the cam by the action of the spring *g*. (See Fig. 3.) As the shaft I revolves the vibrating beam is alternately thrown forward and then allowed to fall back, and whenever the vibrating beam is thrown forward the mold closes and receives metal from the spout *a;* but when the vibrating beam moves back by the action of its spring *g*, the oblique lever F being actuated by brace G, causes the mold to open. By the set-screw, in the adjusting-lever H, the throw of the vibrabrating beam is adjusted, and the motion thereof is so regulated that the mold comes as close to the spout as may be desirable for metals of different nature. By referring to Figs. 2 and 3 of the drawing it will be noticed that the adjusting-lever H is cut out so as to allow the horizontal arm of the oblique lever to pass through under it, and by these means much room is saved, and the length of the vibrating beam is reduced to a minimum, thereby materially diminishing the effect of the expansion and contraction of said lever on the position of the mold. The molten metal is forced out from the melting-pot C to the spout *a* by the action of a pump, J, which is operated by a working-beam, K, connecting by a rod, L, with one end of a double-armed lever, M, which has its fulcrum on a pivot, *r*, and the opposite end of which carries a friction-roller, *s*, that is depressed upon the circumference of a cam, *t*, by means of a spring, *u*. By using a double-armed lever for the purpose of transmitting the required motion from the driving-shaft to the pump, I am enabled to obtain the full motion of the cam, or to impart to the plunger of the pump the required throw without increasing the cam, simply by changing the proportion between the two arms of the lever. In the end of the working-beam K is fitted an extension slide, O, (see Fig. 6,) which is held in position by a set-screw, *v*, and which, when pushed out, engages with a slot in the pump-rod. By releasing the set-screw *o* the extension slide can be pushed back, and the pump can be readily disconnected from the working-beam without removing any portion of the mechanism. The furnace N is suspended from the bottom of the melting-pot, as shown in Fig. 3, so that the expansion or contraction of said furnace will not affect the position of the spout. If the furnace is secured to the frame A, and the melting-pot rests on the top of the furnace, the extension and contraction of the sides of the furnace disturbs the position of the spout, and great care must be taken to preserve the proper relation between the spout and the mold. By my construction this difficulty is removed.

I disclaim distinctly everything shown and described in the patent of David Bruce, Jr., dated November 6, 1843, No. 3,324.

What I claim as new, and desire to secure by Letters Patent, is—

1. The arm *c*, extending from the vibrating beam E, and provided with a socket, *d*, in combination with the rod *e*, carrying a spring, *g*, and nut *h*, substantially as and for the purpose set forth.

2. The adjusting-lever H, extending over a portion of the oblique lever F, in combination with said oblique lever and with the vibrating beam E, substantially as set forth.

3. The extension slide O in the working-beam K, in combination with the pump J and melting-pot C, substantially as set forth.

4. The furnace N, when the same is suspended from the melting-pot C, in combination with the spout *a* and mold D supported by the vibrating beam E, substantially as described.

JAMES M. CONNER.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.