J. V. BRETAUD.

LADLE.

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947,729.

Patented Jan. 25, 1910.

Fig. 1

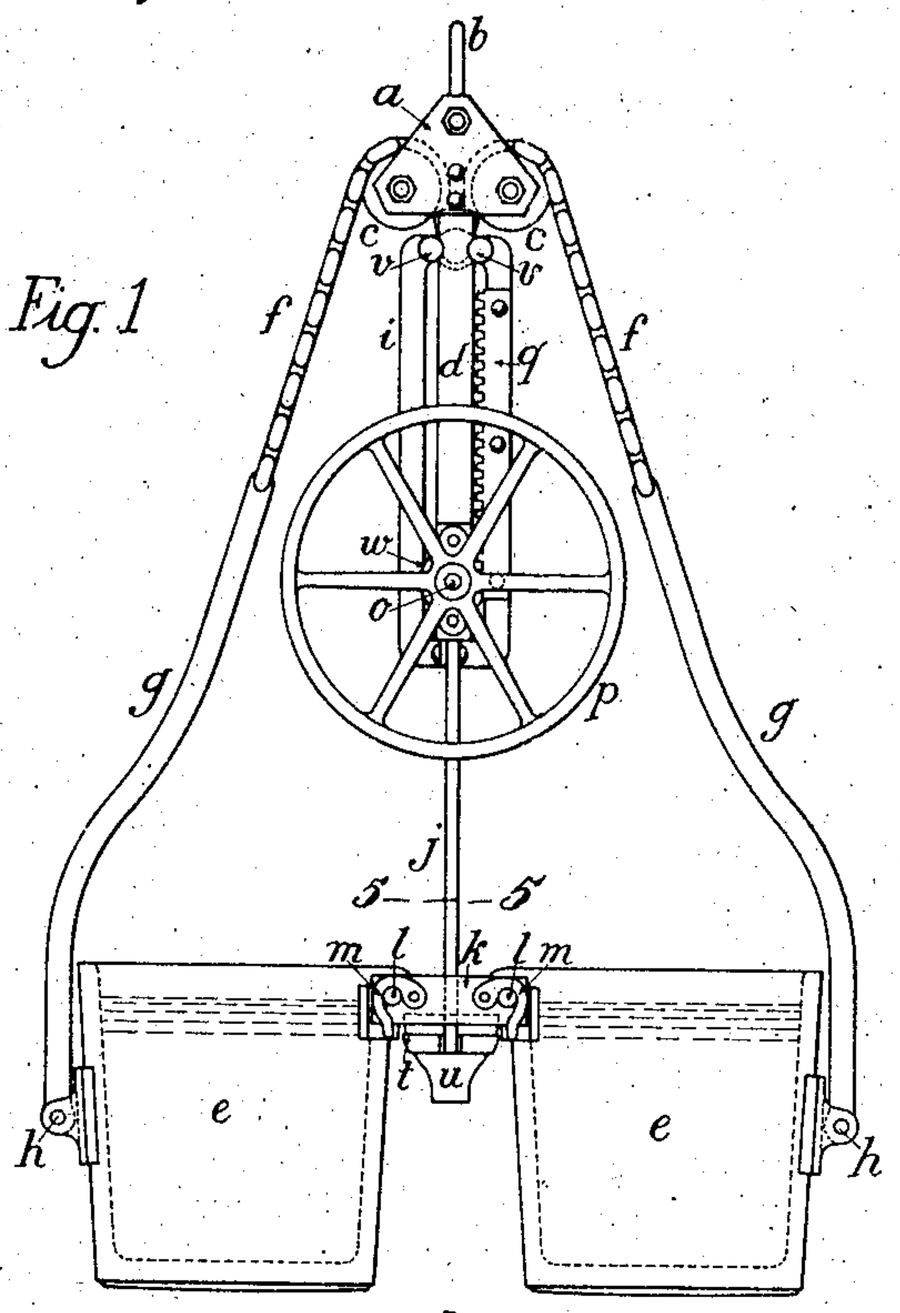


Fig. 4

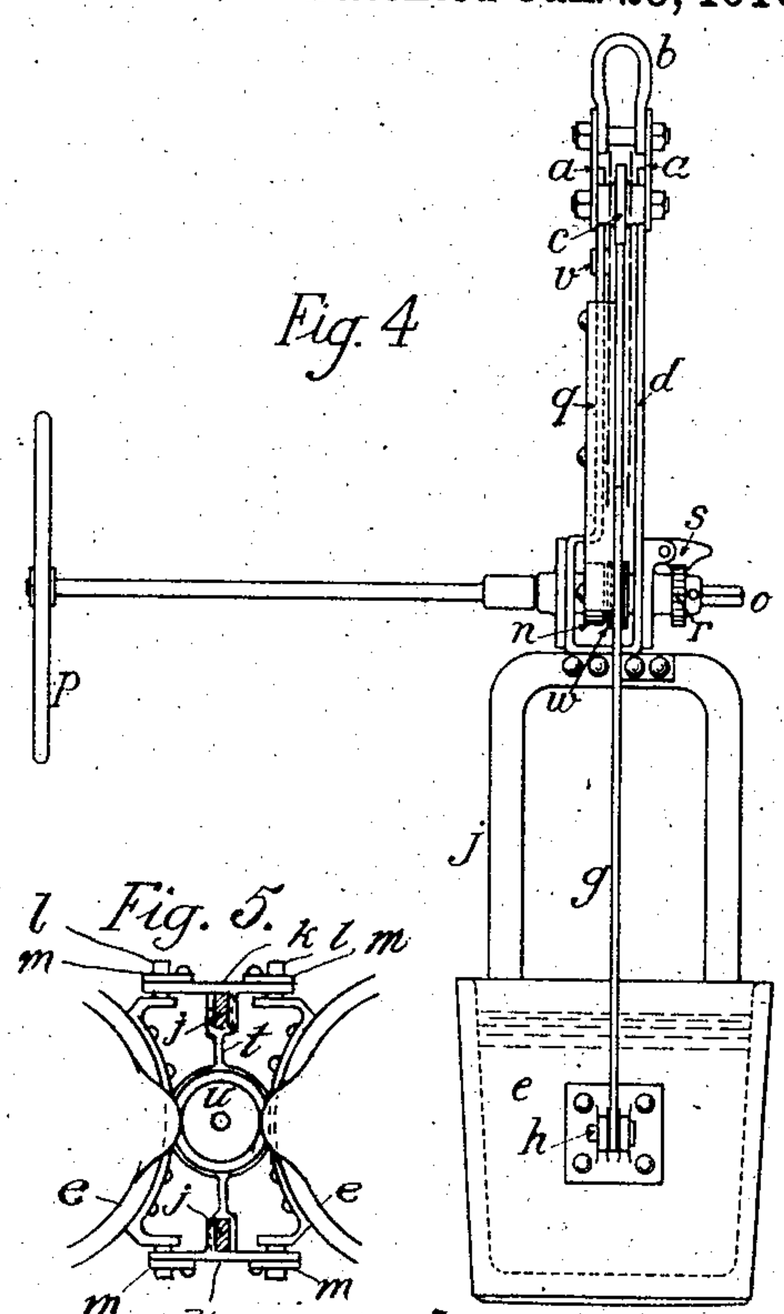


Fig. 5.

Fig. 6.

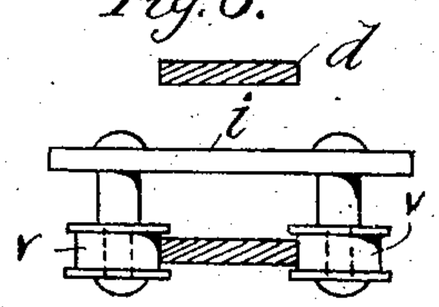


Fig. 2

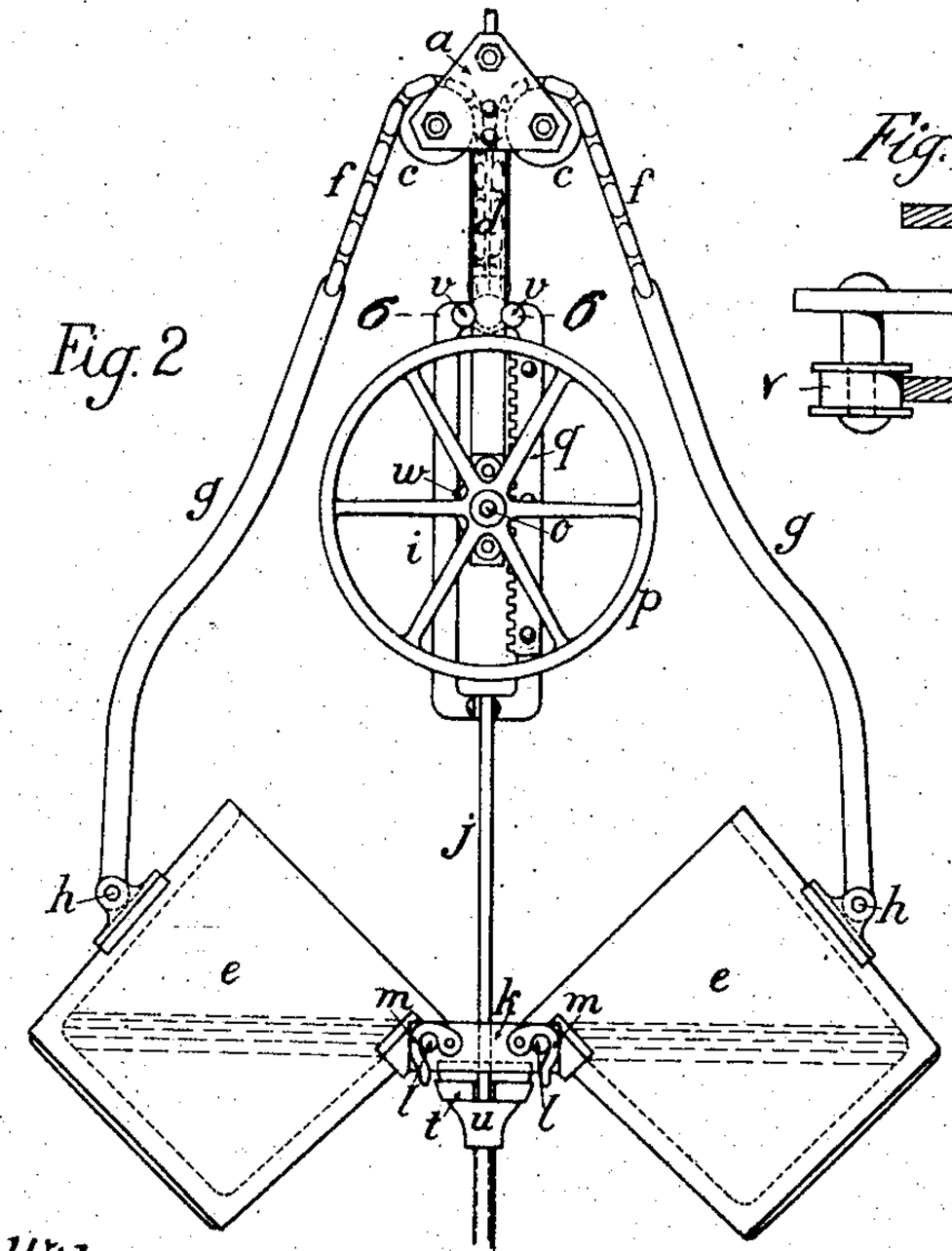
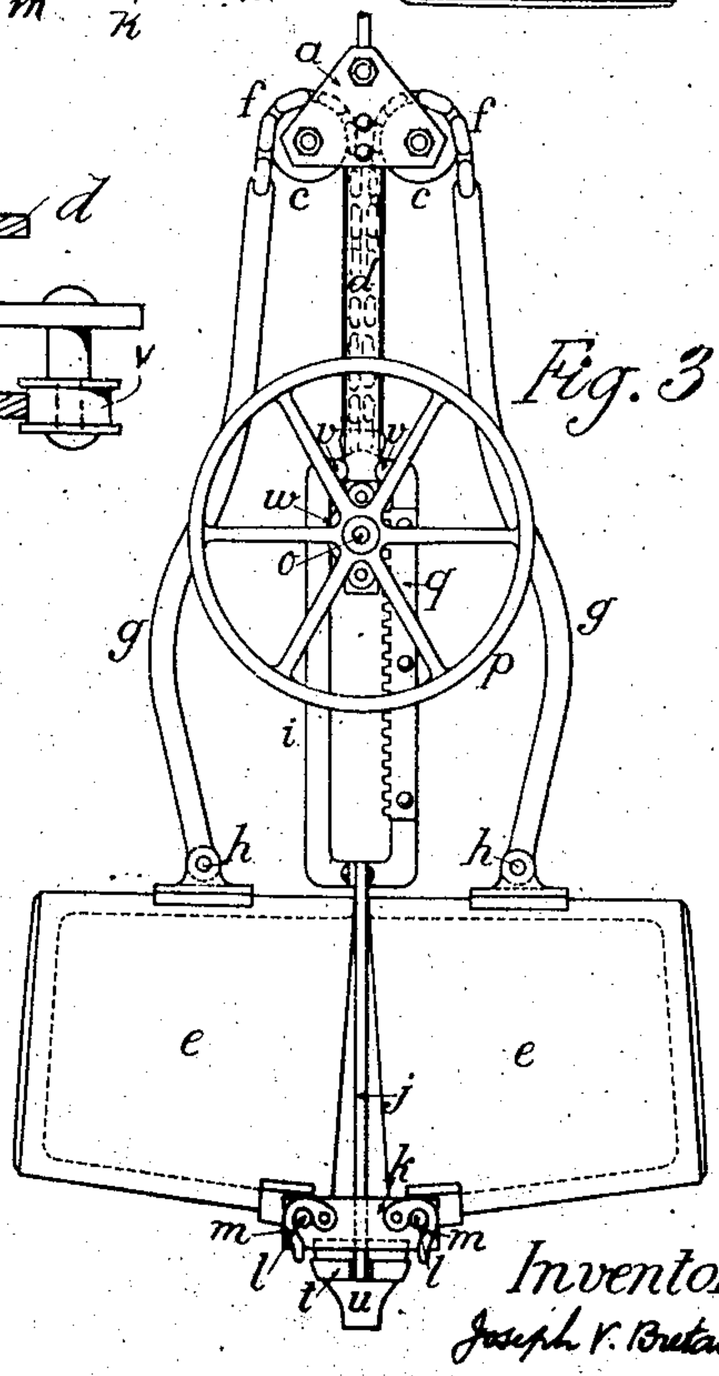


Fig. 3



Witnesses.

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LADLE.

947,729. Specification of Letters Patent. Patented Jan. 25, 1910.

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To all whom it may concern:

Be it known that I, JOSEPH V. BRETAUD, a citizen of the Republic of France, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ladles, of which the following is a specification.

The present practice of pouring molds in iron and steel foundries, making small and medium castings, is to fill a large ladle at the cupola or converter and to empty its contents into small shank ladles carried by two or three men, the pouring proper being thus made by hand. The use of these small ladles is resorted to on account of the impossibility to get from a large ladle a gentle even stream of metal easily controlled, and to direct this stream in the mold gate without cutting of the sand or undue spilling of metal. This is however, an unsatisfactory method owing to the chilling of metal and formation of skulls on the hand ladles, the irregularity of the pouring temperature and consequently of the shrinkage of the castings, the exhausting character of the work and excessive heat radiated upon the men and the expense of labor attending to the pouring itself and to the keeping up of hand ladles.

The rapid development of the molding machine with its tremendous output has further emphasized the need for a more modern method of pouring, eliminating manual work. These considerations will serve to show the newness and usefulness of my improved ladle hereinafter described.

My invention relates to lip pouring ladles suspended from a crane or an overhead trolley, and the objects of my improvements are to provide a medium sized ladle easily controlled by one man, capable of delivering a vertical steady stream of metal, the position of which does not change during the tilting of the ladle, with consequent ability of having this ladle filled at the cupola or converter, carried to the molds by means of an overhead traveler and used to pour the smallest molds, thus eliminating labor, waste and chilling of metal. I attain these objects by using two bowls of equal size, set side by side, oscillating around their respective lips toward one another, and thus balancing each other in all positions of pouring. These bowls are kept at a proper distance apart so that their streams unite and further I use a funnel to give to the resulting stream a uniform size, independently of the speed of tilting, which funnel also acts as a skimming device.

I have illustrated on the accompanying sheet of drawings, a ladle embodying the above features although numerous means of producing the tilting of the bowls can be devised.

Figure 1 is a front elevation of the ladle before pouring. Fig. 2 is a similar view during the pouring of metal. Fig. 3 shows the ladle emptied. Fig. 4 is a side elevation of the ladle before pouring. Fig. 5 is a detail horizontal section on line 5—5 of Fig. 1, and, Fig. 6 is a similar view on line 6—6 of Fig. 2.

Similar letters refer to similar parts throughout the several views.

The ladle is formed by a supporting frame *a*, hooked to a trolley or crane chain by the link *b*. This frame carries two rollers *c* and *c* and has a downward extension *d*. The bowls *e* and *e* lined inside with a refractory material are suspended from the rollers *c* by means of the chains *f* and *f*, on one end of which are attached the eye bars *g* and *g*, journaled at *h* and *h* on the back of the bowls. The other end of the chains *f* and *f* is connected with the link *i* which is rigidly fastened to the U-shaped bail *j*, the link *i* being guided in the frame extension *d* by means of the rollers *v*, *v* and *w*. Each end of the bail *j* carries a lip spacing member *k*, one in front of the bowls and one on the back in Fig. 1. These spacing members act as bearings for the ends of shafts *l* and *l* which are riveted to the bowls underneath their respective lips. Each bowl has thus three bearings, one on each side of the lip at *l*, on a line perpendicular to the plane of the drawing in Fig. 1 and one central bearing at *h* on the back. Each bowl is then in stable equilibrium. The hooks *m* and *m* prevent any accidental withdrawing of the shafts *l* from their bearings.

The ends of bail *j* are connected by a light frame *t* forming support for a central funnel or nozzle *u* which regulates the size of the stream of metal. The tilting is provided by a pinion *n*, shaft *o* and hand wheel *p* carried by the frame extension *d*, the said pinion meshing with a rack *q* riveted to the link *i*. The shaft *o* carries on its outer end,

a ratchet A the pawl *s* of which is secured to the frame *d;* the ladle can thus be locked in any desired position.

It will be seen from Figs. 2 and 3 that during the tilting of the ladle, the respective centers of gravity of the bowls are not materially raised, the effort necessary to tilt them, being consequently very small. In this case, the funnel has a vertical downward movement during the pouring.

The ladle being symmetrical in respect to the vertical center line, for every position of the bowls, the center of gravity of the whole system is always on this same line, and the equilibrium is not disturbed by the tilting of the bowls. It follows that the two lips being conveniently kept apart by the spacing members *k*, their respective streams of metal will unite and form a single stream always situated on the center line of the ladle. The funnel receives the metal from the bowls and delivers it in a stream of uniform size, irrespective of the speed of tilting of the bowls.

This ladle produces a steady even stream of metal always under perfect control, and owing to its positive operation, it can be used to pour the smallest work with ease. The molds being lined up under the overhead traveler, one man grasps the hand wheel and proceeds to do the pouring with speed and precision by stopping the ladle funnel over each gate, any further adjustment being unnecessary.

I do not intend to limit myself to the precise construction shown and described, as various alterations can be made without changing the scope of my invention, but,

Having fully described my invention, I claim:

1. A ladle for the purpose described, comprising in combination, a pair of metal containing vessels, a frame in which the same are mounted, means for tilting the vessels, and a discharge funnel common to said vessels, substantially as described.

2. A ladle for use in connection with a crane or other overhead support, comprising a frame, a pair of concurrently operated metal containing vessels of equal size, supported thereby, means to connect said vessels with said frame, means to concurrently tilt these vessels toward one another a discharge vessel common to said vessels, and a ratchet and pawl to lock said ladle in any desired position, substantially as described.

3. A ladle for use in connection with a crane or other overhead support, comprising a frame, a pair of concurrently operated metal containing vessels of equal size, supported thereby, means to connect said vessels with said frame, means to concurrently tilt these vessels toward one another, a pair of stationary lip spacing members of such a length that the streams of metal will unite, and a ratchet and pawl to lock said ladle in any desired position, substantially as described.

4. A ladle for use in connection with a crane or other overhead support comprising a frame, a pair of concurrently operated metal containing vessels of equal size supported thereby, means to connect said vessels with said frame, means to concurrently tilt these vessels toward one another, a pair of lip spacing members having a vertical movement and of such a length that the streams of metal will unite, and a ratchet and pawl to lock said ladle in any desired position, substantially as described.

5. A ladle for use in connection with a crane or other overhead support comprising a frame, a pair of concurrently operated metal containing vessels of equal size supported thereby, means to connect said vessels with said frame, means to concurrently tilt these vessels toward one another, a pair of stationary lip spacing members of such a length that the streams will unite, a funnel to regulate the size of resulting stream, and a ratchet and pawl to lock said ladle in any desired position, substantially as described.

6. A ladle for use in connection with a crane or other overhead support, comprising a frame, a pair of concurrently operated metal containing vessels of equal size supported thereby, means to connect said vessels with said frame, means to concurrently tilt these vessels toward one another, a pair of lip spacing members having a vertical movement and of such a length that the streams will unite, a funnel to regulate size of resulting stream, and a ratchet and pawl to lock said ladle in any desired position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH V. BRETAUD.

Witnesses:
MARWOOD B. TAYLOR, 2nd.,
CHARLES A. FINLEY.