

June 28, 1932.

C. E. FRANTZ

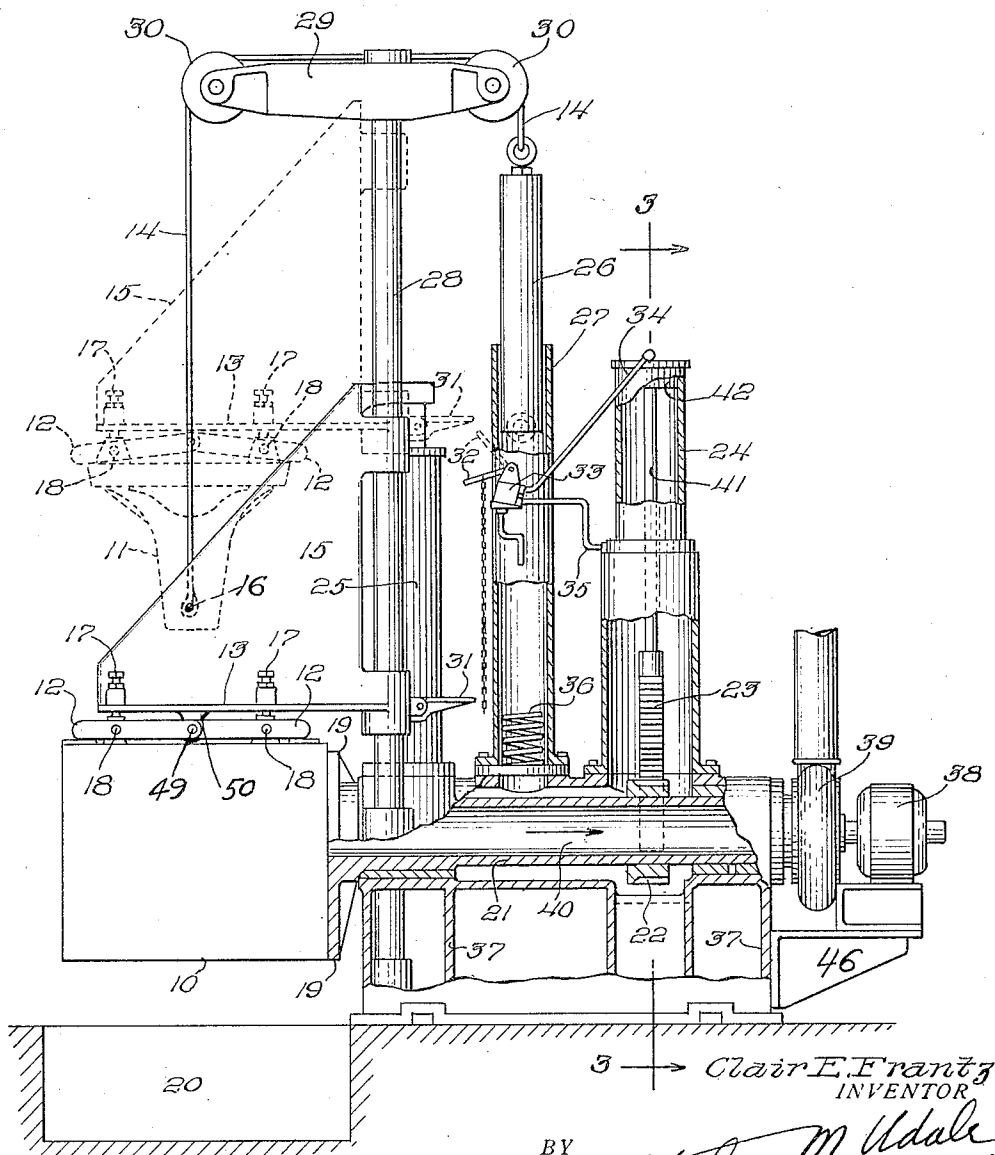
1,865,244

MOLDING MACHINE

Filed March 6, 1930

2 Sheets-Sheet 1

FIG. 1.



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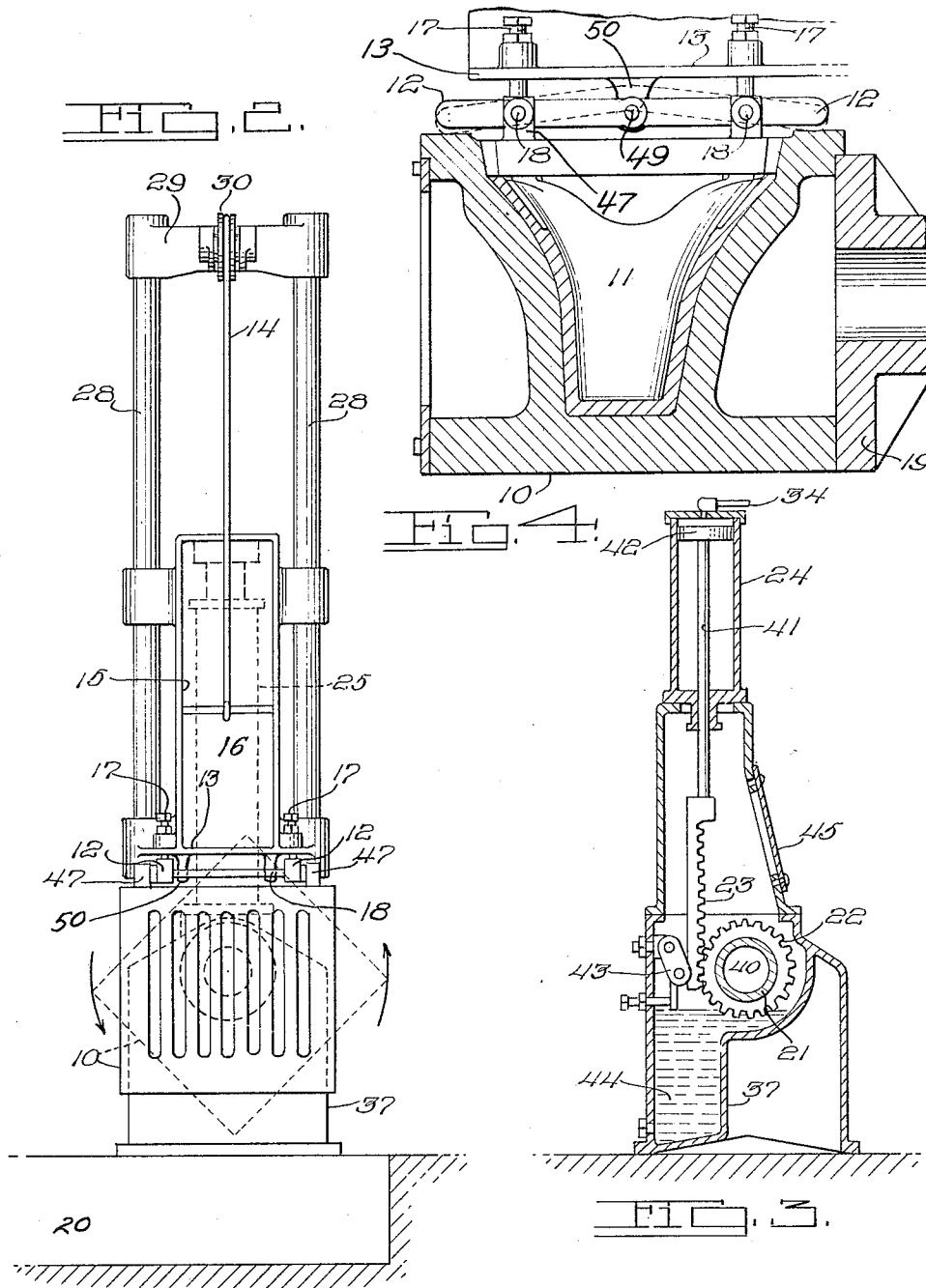
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2 Sheets-Sheet 2



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MOLDING MACHINE

Application filed March 6, 1930. Serial No. 433,553.

The object of this invention is to provide an improved molding machine for making relatively large castings (50-150 lbs.) in metal molds having metal cores.

The specific object of this invention is to provide means for automatically releasing metal cores from a metal mold.

Fig. 1 shows in partial cross section elevation all the essential elements of the invention.

Fig. 2 shows the end elevation of Fig. 1 looking to the right.

Fig. 3 shows a cross section elevation on the plan 3-3 of Fig. 1.

Fig. 4 shows cross section elevation through the mold on the same plan as Fig. 1 drawn to an enlarged scale.

In the figures 10 is the mold, 11 is the metal core which is released from the mold by means of the links 12-12 (Fig. 4). These links 12-12 engage with the core 11 through a shaft 18, which is mounted on the ears 47-47, which project from the core 11. The shaft 18 is a very loose fit in the links 12-12.

Corresponding ears 50-50 depend from the cast bracket 15. (This cast bracket 15 carries the weight of the core 11 when in the raised position.) Two pins 49-49 connect the ends of the links 12-12 with these ears 50-50.

Adjustable stops 17-17 engage with the links 12-12 exactly opposite the ears 47-47 for the purpose of ensuring that the core is located accurately and squarely in the mold 10. A cable 14 passes over two pulleys 30-30 which are mounted on a beam 29, the cable 14 engages with the eye bolt 16, which is connected to the cast bracket 15. This cast bracket 15 slides on the guides 28-28 and is raised and lowered by an air cylinder 25.

(The complete details of which are not shown.) A counter weight 26 is provided to just balance the weight of the core 11 and the links 12-12 and the cast bracket 15 etc. This counter weight slides in a cylinder 27 at the bottom of which a buffer spring 36 is provided. The mold 10 is mounted on the flange 19 which is integral with the hollow shaft 21. This hollow shaft 21 is connected to a pinion 22 (see Fig. 3.) This pinion engages with a rack 23 which in its turn is operated by an air

piston 24 in which there is a piston 42 and a piston rod 41 which connects with the rack 23. An adjustable link 43 is also provided to keep the rack 23 always in engagement with the pinion 22. The cylinder 24 connects with the pipes 34 and 35 with an air connection valve 33 controlled by a lever 32. This lever 32 engages with a projection 31 mounted on the cast bracket 15 so that the air valve is automatically operated in a well known manner. The hollow shaft 21 is mounted on the casting 37 which forms the base for the molding machine. An oil well 44 is provided in 37 to keep the pinion lubricated. Air is drawn through the hollow shaft 21 by means of the fan 39 which is operated by an electric motor 38 the hollow shaft is thus kept at a reasonable temperature and the oil in 44 is neither too hot nor too cold for satisfactory operation. The air flows into the shaft 21 from around the mold 10 in order to cool the mold. A pit 20 is provided in which sand can be placed so that when the casting is ejected it will not be damaged.

Operation

Assuming that the mold is in position for pouring and the core 11 in place, then after the mold is filled the core 11 is raised by admitting air to the bottom of the air cylinder 25. Pressure is applied to the ends of the four links 12-12, the outer ends of 12 engage with the mold 10 and thus a pull of three times the pull exerted by the air cylinder 25 is applied to the ears 47 tending to separate the core 11 from the mold 10. As the pin 18 is a loose fit in the links 12-12 these links are free to operate without locking. The core is thus forcibly separated and the cast bracket 15 rises carrying with it the core 11 and the ejection mechanism 12-12 etc.

As the bracket 15 rises it carries with it the finger 31 which strikes the lever 32 which admits compressed air to the cylinder 24 which rotates the shaft 21 through the rack and pinion 22 and 23 controlled by the piston rod 41 and the piston 42. The casting is thus ejected into the pit 20 and the mold is ready to commence another cycle of operations. When the mold gets too hot the

fan 39 is started up and cooling air is drawn over the mold and through 21.

What I claim is:

1. In a molding machine, a metal mold, a
5 metal core therefor, means for separating the core from the mold comprising a bracket, links pivotally connected thereto at one end, each link having its other end adapted to engage with the mold, lugs projecting from
10 the core and loosely engaging with the links at a point adjacent the end engaging with the mold, means for raising the bracket so as to forcibly withdraw the core from the mold by the leverage exerted by the links.
- 15 2. A metal mold, a metal core therefor, a bracket, lugs projecting from the core, levers loosely pivoted to said lugs, the inner end of said levers being connected to said bracket and the outer end being adapted to engage
20 with said mold, set screws adjustably mounted on said bracket and adapted to engage with said lever so as to square the core up when it is put in place.

In testimony whereof I affix my signature.

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CLAIR E. FRANTZ.

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