J. WAHLSTROM & S. HAUNSPERGER.

CASTING MACHINE.

APPLICATION FILED APR. 22, 1911.

1,042,854.

Patented Oct. 29, 1912.

3 SHEETS—SHEET 1.

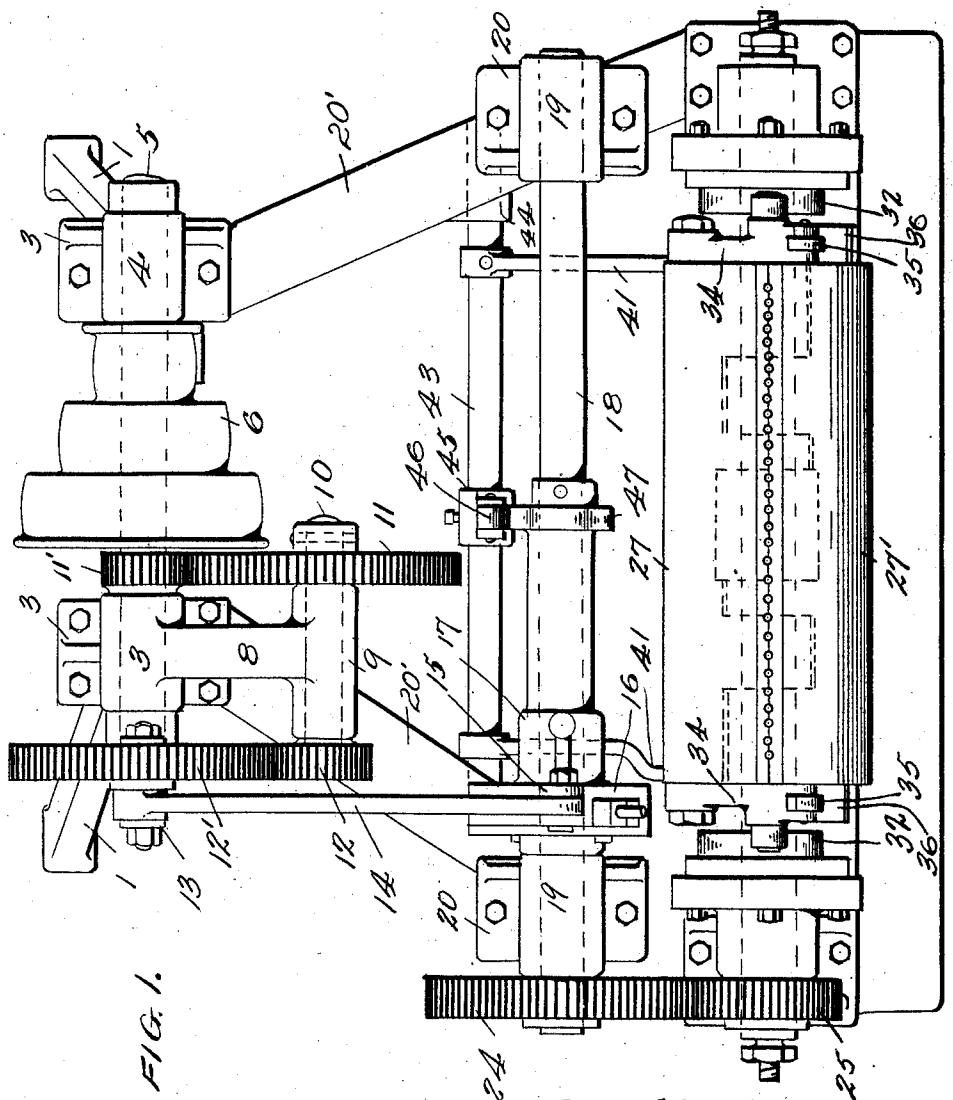


FIG. 1.

John Wahlstrom and
Simon Haunsperger
INVENTORS:

WITNESSES

C. F. Dawes
M. E. Moore.

By Jas. J. Moore,
Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. WAHLSTROM & S. HAUNSPERGER.

CASTING MACHINE.

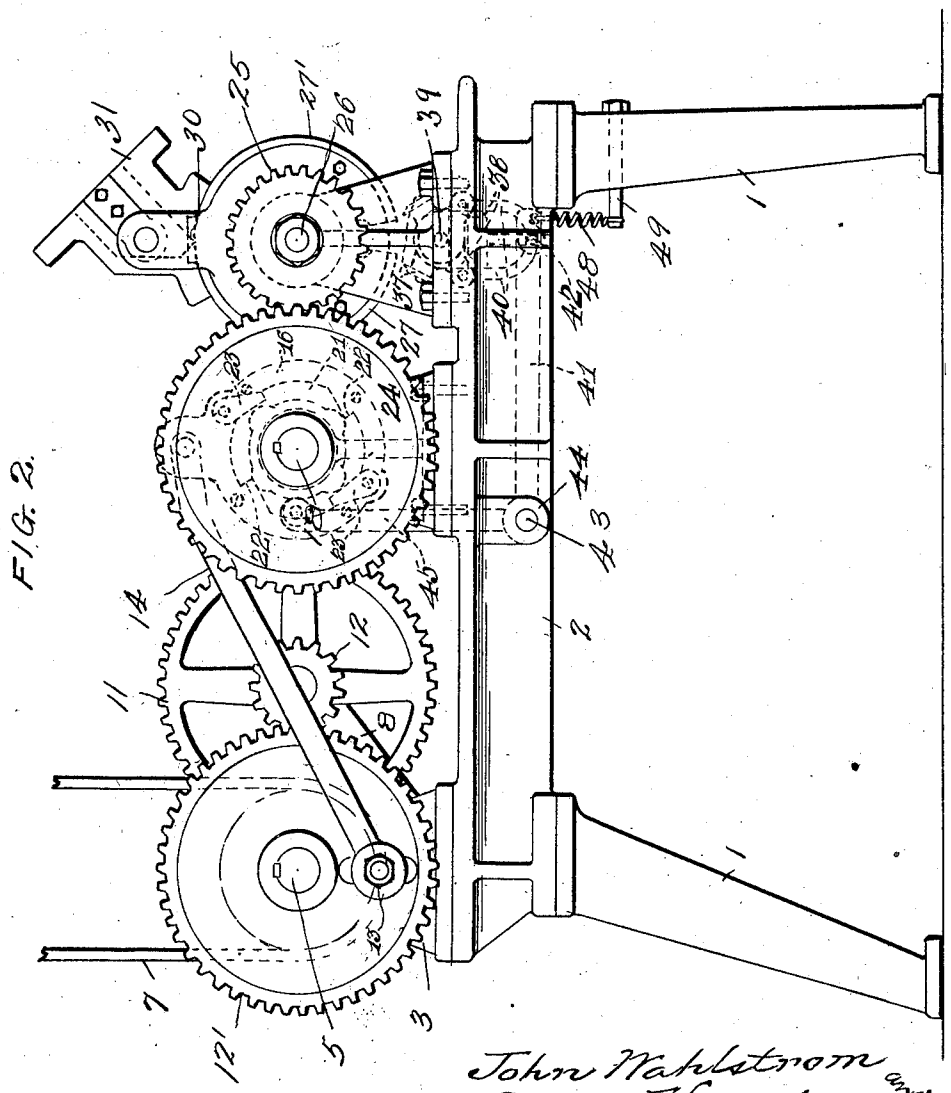
APPLICATION FILED APR. 22, 1911.

1,042,854.

Patented Oct. 29, 1912.

3 SHEETS—SHEET 2.

FIG. 2.



John Wahlstrom and
Simon Haunsperger
INVENTORS.

WITNESSES

C. N. Davis

M. E. Moore.

By Wm. J. Moore
Attorney

J. WAHLSTROM & S. HAUNSPERGER.

CASTING MACHINE.

APPLICATION FILED APR. 22, 1911.

1,042,854. Patented Oct. 29, 1912.

3 SHEETS—SHEET 3.

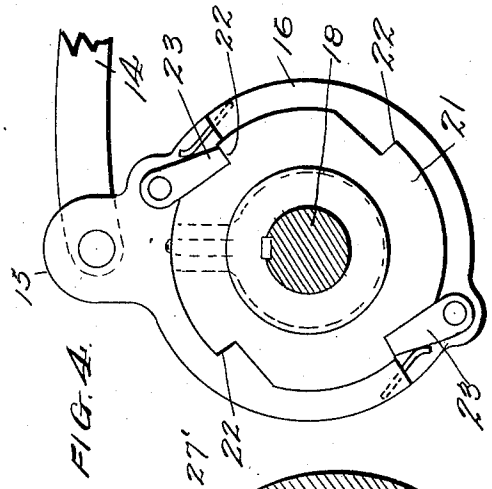


FIG. 4.

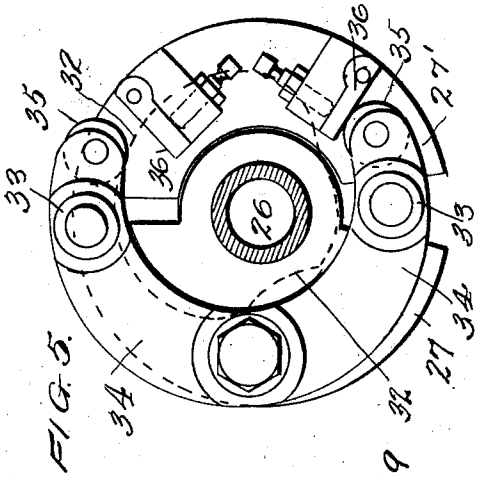
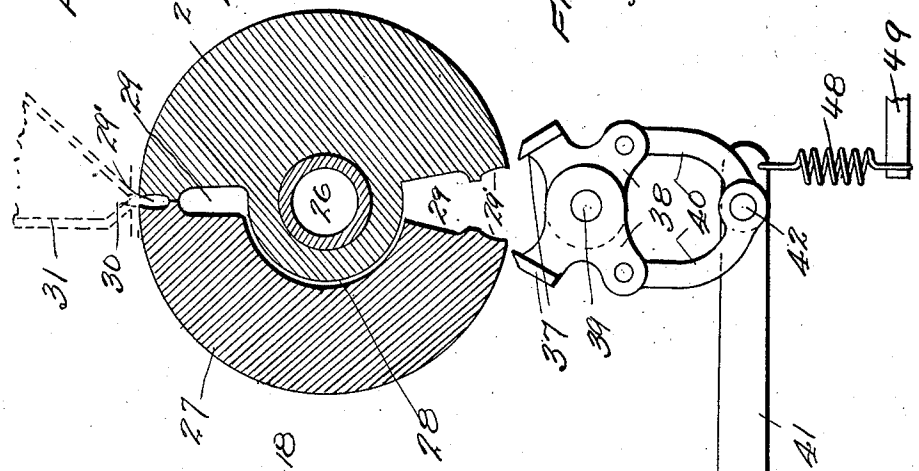


FIG. 5.



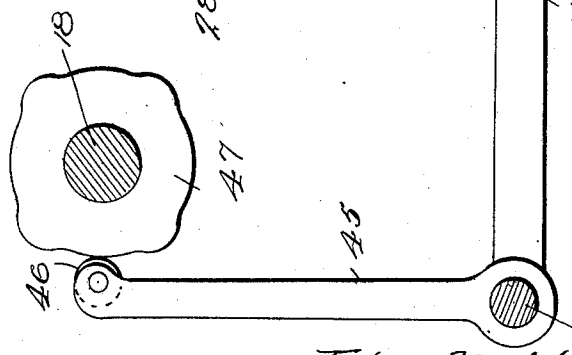


FIG. 3.

John Wahlstrom and
Simon Haunsperger.
INVENTORS.

WITNESSES

C. T. Davies

M. E. Moore.

by Wm. J. Moore
Attorney

UNITED STATES PATENT OFFICE.

JOHN WAHLSTROM AND SIMON HAUNSPERGER, OF ALTON, ILLINOIS.

CASTING-MACHINE.

1,042,854. Specification of Letters Patent. Patented Oct. 29, 1912.

Application filed April 22, 1911. Serial No. 622,790.

To all whom it may concern:

Be it known that we, JOHN WAHLSTROM and SIMON HAUNSPERGER, subjects of the King of Sweden and the Emperor of Austria-Hungary, respectively, residing at Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Casting-Machines, of which the following is a specification.

Our invention relates to improvements in casting machines and refers particularly to a machine for casting slugs, bullets or like objects automatically.

The leading object of our invention is the provision of a machine of compact, simple, durable and inexpensive construction which will feed, cast and discharge the cast objects automatically, insuring a machine which will have an enormous casting capacity and which will be thoroughly efficient and practical from every point of view.

To attain the desired objects our invention broadly stated consists of means for feeding the metal in molten or liquid form, means for casting or forming the metal into slugs, bullets or like objects, and means for trimming or finishing the cast objects, all operations being performed automatically.

The invention further consists of an automatic casting machine of the character and for the purpose stated embodying novel features of construction and combination of parts substantially as disclosed herein.

Figure 1 represents a top plan view of an automatic casting machine constructed in accordance with and embodying our invention. Fig. 2 represents a side elevation of our complete machine. Fig. 3 represents a vertical sectional view through the sectional mold of our invention with the finishing or cutting means and operating mechanism in side elevation. Fig. 4 represents a side elevation of the pawl and ratchet mechanism and a portion of the means for imparting a step-by-step action to the pawl and ratchet, and Fig. 5 represents a sectional view of the hollow mold carrying shaft with the sectional mold and operating means in end elevation and one of the cams for opening and closing the mold sections shown in dotted lines.

Referring by numerals to the drawings in which similar numerals denote corresponding parts in all the views: the numeral 1 designates the supporting legs and 2 designates the bed, table or platform forming the frame or supporting structure of our casting machine which is of the desired size according to the capacity of the machine.

From one end of the machine rise the brackets 3, having the shaft bearing sleeves 4, in which is journaled the driving shaft 5, carrying the series of graduated speed regulating pulleys 6, receiving the driving band 7, receiving motion from a suitable driving source. One of the brackets 3 is formed with an arm 8, carrying an elongated sleeve 9, in which bears the short shaft 10, upon the inner end of which is a large gear 11, meshing with a small gear 11′, on the driving shaft, and upon the outer end of said shaft 10 is mounted a small gear 12, meshing with a larger gear 12′, carried by the driving shaft. From this construction it will be seen that the power is transmitted from the driving belt to the pulleys and driving shaft to the system of gearing and the peculiar arrangement of the gearing insures a smooth, even running of the parts and revolves the large gear 12′, to which is eccentrically connected at 13, one end of the lever 14, the other end being secured to the ear 15 in the disk 16. The disk 16 is secured to the sleeve 17, freely mounted on the shaft 18, journaled in the bearing 19 of the brackets 20, which are secured to the table of the machine, said brackets being connected by the arms 20′ to the bearings 3. Also connected with the shaft 18 and contiguous to the disk 16 is the ratchet wheel 21, the teeth 22 of which are adapted to be engaged at regular intervals by the spring actuated pawls 23, secured in opposite positions upon the disk 16. From this construction it will be noted that when motion is imparted to the lever 14 the disk 16 is moved and by means of the spring pawls carried by the disk a part revolution given to the ratchet wheel 21, which being rigid upon the shaft 18 gives the shaft a step-by-step motion, and to the end of the shaft 18 is secured a gear wheel 24, which meshes with the smaller gear 25, secured upon one end of the hollow mold carrying shaft 26, the shaft being made hollow to admit a cooling medium to cool the mold to effect the proper forming of the slugs or bullets. This step-by-step movement is therefore transmitted to the hollow mold carrying shaft 26, and upon the shaft is mounted our mold, which consists of a pair of sections or members 27 and 27′, fitted together and upon the hollow

shaft by means of the hinge and socket joint 28, most clearly shown in Fig. 3, and having the cavities 29 forming the molds. These molds extend across the entire opposite inner faces of the sections and are of the shape desired, according to the shape and size of the slug, bullet or other object to be molded and the mold cavities 29 are each formed with the metal receiving pockets 29′, which are adapted to pass under the delivery opening 30 of the feed trough 31, securely bolted to the frame of the machine and extending across the entire length of the molds. It will thus be seen that the power is transmitted to the gear carrying shaft 5 by means of the pulleys 6 and drive belt 7 and revolves the gear 12′ to which is eccentrically connected one end of the lever 14, to whose other end is connected the disk 16 on the shaft 18. The ratchet wheel 21, also connected to the shaft 18 is engaged by the spring actuated pawls secured in opposite directions upon the disk 16 and thus a step-by-step movement is imparted to the shaft 18. This shaft, as clearly shown in Fig. 2, carries a gear 24 meshing with the gear 25 on the mold carrying shaft 26, and the step-by-step movement is thus imparted to the mold-carrying shaft and naturally presents the mold cavities of the sectional mold on opposite sides to the feed hopper. When it is desired to close the molds while the metal is being fed from the hopper to the closed molds and to simultaneously open the molds to discharge the formed objects therefrom, we place on the hollow shaft 26, the cams 32. These cams 32 are thus actuated by the shaft 26 and the step-by-step movement heretofore described is imparted thereto. At the proper interval they are caused to engage with the pair of rollers 33, arranged in upper and lower relation to the cams 32. These rollers 33 are carried by the cam-shaped plates 34, mounted on section 27 of the sectional mold. When the lower plate 34 is carried downwardly by the action of cam 32 carried by shaft 26, it causes the lower roller 33 to drive roller 35, also carried by plate 34, against the stop device 36, thereby closing the mold sections at their upper ends against introduction of material and permitting the molded objects to pass out through the lower opening to the cutting mechanism. To open the mold to admit material, the cam 32 drives upper plate 34 upwardly causing upper roller 33 to drive roller 35 against the upper stop device 36, thereby opening the mold sections at their upper ends and closing the discharge ends of the mold. These stop devices 36 are also provided with adjusting means for regulating the size of the mold cavities and take up any wear on the parts.

To cut or finish the objects after they leave the molds we employ the pair of knives or cutters 37, arranged below the mold and carried by the pair of levers 38, pivoted upon the shaft 39 located directly beneath the mold pockets 29′ and connected with the links 40, whose lower ends are connected together and to the arms 41 by means of the pin 42, and the arms have their inner ends secured to the shaft 43, mounted in bearings 44. This shaft 39 is located directly beneath and parallel with the mold carrying shaft 26 and is journaled in bearings secured upon the bed plate 2 of the machine. Also rising from this shaft is the single lever 45, which carries the roller 46, at its upper free end and the roller is operated upon by the four-point cam wheel 47, on the sleeve carrying the disk 16 and consequently is given a similar step-by-step movement with the disk and which operates to close the knives upon the slugs or bullets as they leave the molds and thus deliver the slugs or bullets in a finished and perfect manner.

Our machine is of simple and inexpensive construction while being capable of performing a great amount of service occupies a small amount of floor space; is entirely automatic in operation and consequently requires the services of only a single operator and that generally the machine is efficient and practical.

To retain the lever 45 in proper relation with the cam 47, we employ the spring 48 connected at one end to the pivoted arm 41 and having its other end secured to bolt 49, which bolt passes through the upright leg 1 of the machine as best shown in Fig. 2.

We claim:

1. In a casting machine, the combination of a frame, a driving mechanism, a step-by-step mechanism operated by the driving mechanism, a sectional mold operated by said step-by-step mechanism and means for simultaneously opening and closing the molds, said means comprising a plurality of cams mounted on the mold carrying shaft and engaging pairs of rollers mounted at the top and bottom of said mold, said pairs of rollers engaging other rollers carried by a pair of curved plates secured to said mold.

2. In a casting machine, the combination of a frame, a driving mechanism, a lever connected with said mechanism and having a step-by-step action, a shaft, a disk on the shaft connected with the lever, a ratchet wheel and pawls operated by the part rotation of the disk, and a sectional mold having mold cavities on opposite sides operated by the ratchet wheel and pawls.

3. A casting machine, consisting of a frame, a feed hopper, a driving mechanism, a step-by-step mechanism operated by the driving mechanism and a sectional mold having cavities on opposite sides adapted to be alternately brought under the hopper, a

hollow shaft carrying the mold sections, abutments on said sections and cams for engaging the abutments to open and close the mold sections.

4. A casting machine, consisting of a frame, a feed hopper, a sectional mold having cavities on opposite sides adapted to be alternately brought under the hopper, a hollow shaft carrying the mold sections, abutments on said sections, and cams for engaging the abutments to open and close the mold sections.

5. In a casting machine, the combination with a frame, a driving shaft, a driven shaft, and a mold-carrying shaft, of a sectional mold mounted upon said shaft, and means including cams mounted on the mold-carrying shaft, plates having rollers and mounted upon one of the mold sections, and stop devices against which the rollers may contact whereby the simultaneous opening and closing of the mold sections may be accomplished.

6. In a casting machine, the combination with a frame, a driving shaft, a driven shaft, and a mold-carrying shaft, of a sectional mold mounted on said shaft and consisting of a pair of sections fitted together upon the mold-carrying shaft by means of a hinge and socket joint and provided with mold cavities formed with metal receiving pockets into which the metal is fed.

7. In a casting machine, the combination with a frame, a driving shaft, a driven shaft, and a mold-carrying shaft, of a sectional mold mounted on said shaft and consisting of a pair of sections fitted together upon the mold-carrying shaft by means of a hinge and socket joint and provided with mold cavities formed with metal receiving pockets into which the metal is fed, and means actuated by the mold-carrying shaft for simultaneously opening and closing the mold sections.

8. In a molding machine, the combination of a feed hopper, a two-part mold containing two cavities adapted to be alternately presented to the hopper, one of said cavities being open while the other is closed, the parts comprising the mold being pivotally connected between and in line with the cavities.

9. In a molding machine, a mold comprising two pivotally connected parts containing two cavities, the pivot being located midway and in line with the cavities, one of which is open while the other is closed for simultaneously forming and discharging the molded objects.

10. In a molding machine, the combination of a feed hopper, a two part pivotally connected mold having two cavities, one of which is open while the other is closed, and means for alternately moving the parts of the mold to open and close the two cavities for molding and discharging the molded objects.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN WAHLSTROM.
SIMON HAUNSPERGER.

Witnesses:
A. J. NORCOM,
EDWARD O'BRIEN.