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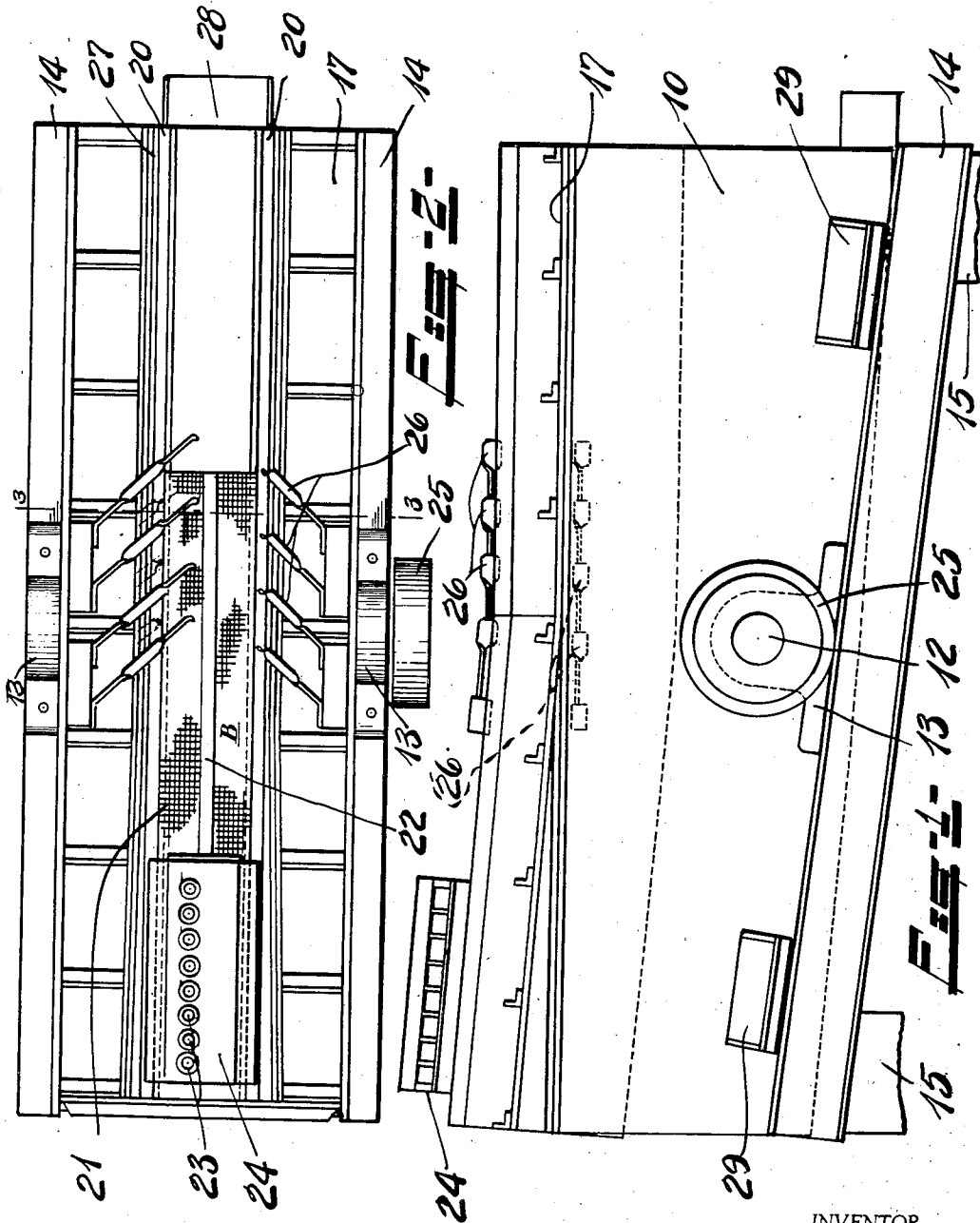
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2,102,252

GYRATING MACHINE

Filed Oct. 12, 1936

2 Sheets-Sheet 1



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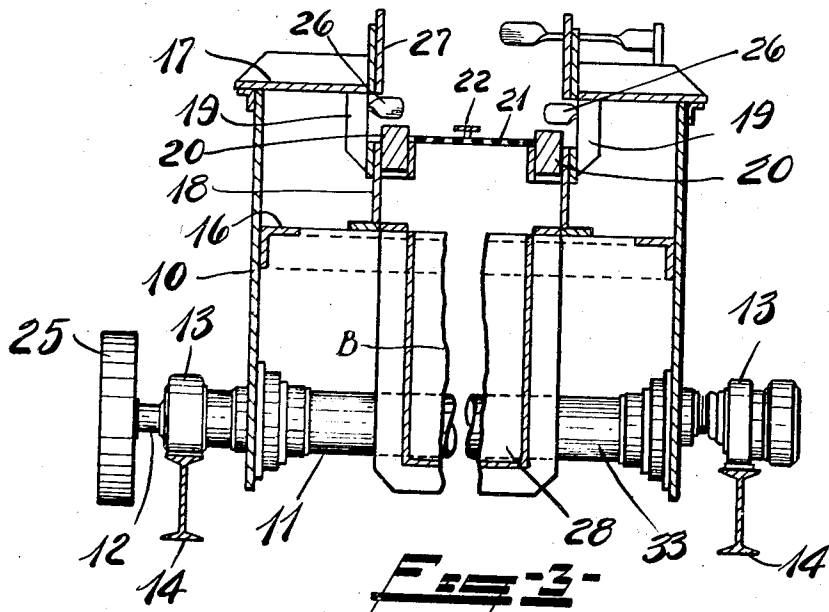
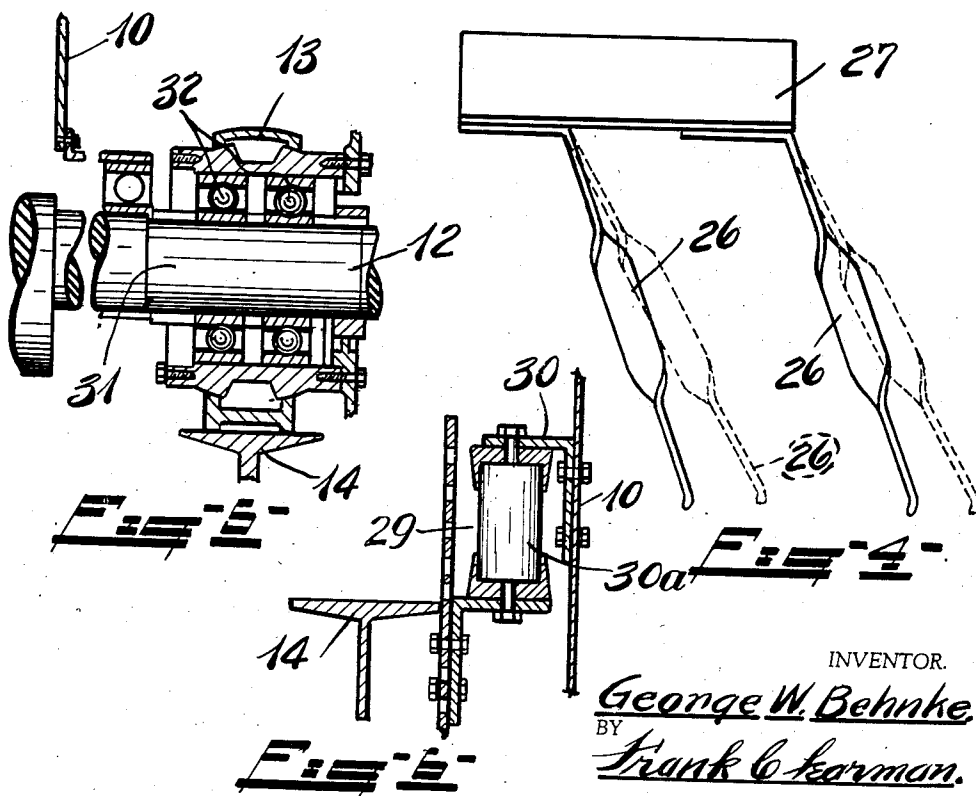
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GYRATING MACHINE

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2 Sheets-Sheet 2



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GYRATING MACHINE

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8 Claims. (Cl. 22—1)

This invention relates to screening apparatus for cleaning and block knock-out work, and more specifically to a screening apparatus used in foundries and similar plants.

5 The prime object of the invention is to design a gyrating screening apparatus for causing the cores to be loosened, and the core sand to flow out of the block and/or castings as they travel over the screen.

10 Another object is to provide a gyrating screening apparatus for vibrating castings, etc., and provide means extending into the path of travel of the castings for loosening and cleaning off the sand, slag and other foreign matter adhering to the casting or held on the flat surfaces thereof.

15 A further object is to design a gyrating screening device which is adapted for use in foundries and shops in general for vibrating, brushing and/or cleaning hot castings, such as cylinder blocks, etc., as they travel through the machine.

20 Still a further object is to provide means for supporting the weight of the castings above the screening surface in such a manner that there will be no internal strains set up in the castings, and provide means for retaining the cores in the casting so that they will, at a predetermined point, be discharged into a bin or other receptacle and separated from the core sand and slag.

25 With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, and proportion and minor details of construction, without departing from the spirit, or sacrificing any of the advantages of the invention.

30 In the drawings:

Fig. 1 is a side elevational view of my gyrating screening apparatus showing a cylinder block in the machine.

Fig. 2 is a top plan view thereof.

35 Fig. 3 is a transverse sectional view taken in the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail plan view of one of the resilient fingers, the broken lines showing it sprung.

40 Fig. 5 is an enlarged sectional view of the gyrating assembly.

Fig. 6 is a fragmentary part sectional view showing the resilient corner mounting.

55 The cleaning and handling of hot castings as they come from the moulds is quite difficult due

to the heat and weight, and further, because it is difficult to force out and clean all of the cores, cored openings, and flat surfaces and ledges to which core sand, slag and other foreign matter will adhere, and I have therefore, designed a gyrating screening apparatus which vibrates and cleans the castings so that the sand and slag is removed, which collects the cores and core sand, after which the castings can be either mechanically or manually handled in an efficient and practical manner.

In the accompanying drawings I have shown a screening apparatus "B" which in the present instance comprises a pair of spaced apart longitudinally disposed plates 10, which form the side walls of the screen frame, said frame being connected to a gyrating shaft assembly 11 which includes a shaft 12, the ends of which are journaled in bearings 13 provided on the longitudinally disposed frame supports 14, these supports being slightly inclined, and are mounted on posts or foundations 15 as usual.

Transversely disposed braces and plates 16 and 17 respectively secure these side plates in spaced apart relation, and longitudinally disposed members 18 are mounted on the members 16 and are connected to the plates 17 by knee braces 19 as usual.

Track members 20 are secured to these longitudinally disposed members 18, and a screen 21 is interposed between said tracks, and is of a predetermined length and for a purpose to be presently described, said track being of predetermined width so that the casting to be cleaned is supported thereon. A central longitudinally disposed T-shaped member 22 is provided on the face of the screen 21, the face of said member being substantially flush with the face of the track, and this member is designed to prevent the cores 23, which are in the block 24 when it is placed on the screen, from coming in contact with the face of the screen, as they are shaken loose, so that they will not snag, hang and injure the screen as the block travels through the machine.

Power for the operation of the apparatus is supplied from any suitable source, a pulley 25 being provided on one end of the shaft 12 which forms a part of the gyrating mechanism, and can be connected to any satisfactory power plant, or an electrical motor can be mounted on the machine and connected direct to the gyrating shaft assembly, if desired, and I do not deem it necessary to describe this gyrating assembly in detail,

as it can be of any desired design for agitating, vibrating and/or gyrating the screen.

The block 24 is placed on the upper end of the track 20 and the gyrating or vibrating pitched frame and action of the screen mechanism causes it to travel downwardly on the tracks, the cores 23 shaking loose and riding on the T-shaped member 22, the vibrating of the screen loosening the core sand, slag, etc., which screens through the screen 21 into a suitable hopper or bin (not shown) provided for the reception thereof. As the block travels along, the rows of fingers 26, which are mounted on the side walls 27 in certain predetermined positions, engages the flat surfaces and ledges on the block, cleaning off the sand, etc., and while I have shown sets of spaced apart resilient fingers 26, it will be obvious that brushes or other cleaning members may be substituted, if desired.

It will be noted that the screen 21 does not extend the entire length of the machine, consequently, when the block 24 passes the end of the screen, the cores 23 drop through into a hopper 28, and from which they are removed or discharged as desired, the cores being thus separated from the core sand, slag, etc.

The shaft assembly 11 is located substantially in the longitudinal center of the screen, and I therefore, provide resilient corner mountings 29, angles 30 being secured to the side plates 10, and resilient members 30a are interposed between these angles and the supports 14 so that proper gyrating action is assured.

The gyrating shaft 12 is turned at 31 and is mounted in the bearing 32 as usual, the tubular casing 33 is bolted to the side plates 10, thus providing a dust proof construction.

From the foregoing description it will be obvious that I have perfected a very practical, substantial and efficient screening apparatus for cleaning and block core knockout work in general.

What I claim is:

1. A screening apparatus of the class described and comprising a base, a gyrating screen frame mounted thereon and including spaced apart side walls, "work" supporting tracks secured to said side walls and adapted to support the "work", a screen interposed between said tracks, and driven means for gyrating said frame.

2. In a screening apparatus of the class described and including a supporting base, a screen frame mounted on the base, inclined tracks mounted on the screen frame and on which the work is adapted to travel, and a gyrating mechanism drivingly connected to said frame for positively gyrating said frame.

3. A screening apparatus for cleaning and

block core knock-out work, comprising a supporting base, a screen frame mounted on said base including a screen, spaced apart tracks mounted on the frame and extending beyond the one end thereof, said tracks being adapted to support the "work", and a gyrating means connected to said frame for positively gyrating the frame and tracks.

4. In a screening apparatus for cleaning and block core knock-out work, in combination, a base, a screen frame mounted thereon and a screen carried by said frame, tracks on said frame and adapted to support the "work", a core retaining member mounted on the face of the screen for preventing contact of the cores with the screen, and means for gyrating said screen frame.

5. A screening apparatus for cleaning and block core knock-out work, comprising a screen frame, including spaced apart side plates, a screen carried by the frame, spaced apart tracks secured to the side plates and adapted to support the "work", a core retaining member mounted on the face of the screen for holding said cores from contact with the face of the screen during the progress of the block thereover, a hopper for receiving the cores after the block has traveled past the end of said screen, and means for gyrating said screening apparatus.

6. In a screening apparatus for cleaning castings, in combination, a base, a frame supported thereon and including a screen, tracks mounted on said frame, fingers secured to the side walls of the frame and extending into the path of travel of the "work", and means for gyrating said frame.

7. In a screening apparatus for cleaning and block core knock-out work, in combination, a base, a frame mounted on the base and including a screen, inclined tracks mounted on the frame and adapted to support the "work" as it travels over the screen, means on the face of the screen for preventing contact of the cores with the screen, fingers on the frame and extending into the path of travel of the "work", and means for positively gyrating said frame.

8. In a screening apparatus for cleaning and block core knock-out work, in combination, a supporting base, a frame mounted thereon and including an inclined screen, tracks mounted on the frame and adapted to support the "work" as it travels over the screen, resilient fingers secured to the side walls of the frame and projecting into the path of travel of the "work", a core receiving hopper adjacent the lower end of the screen, and means for positively gyrating said frame.

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