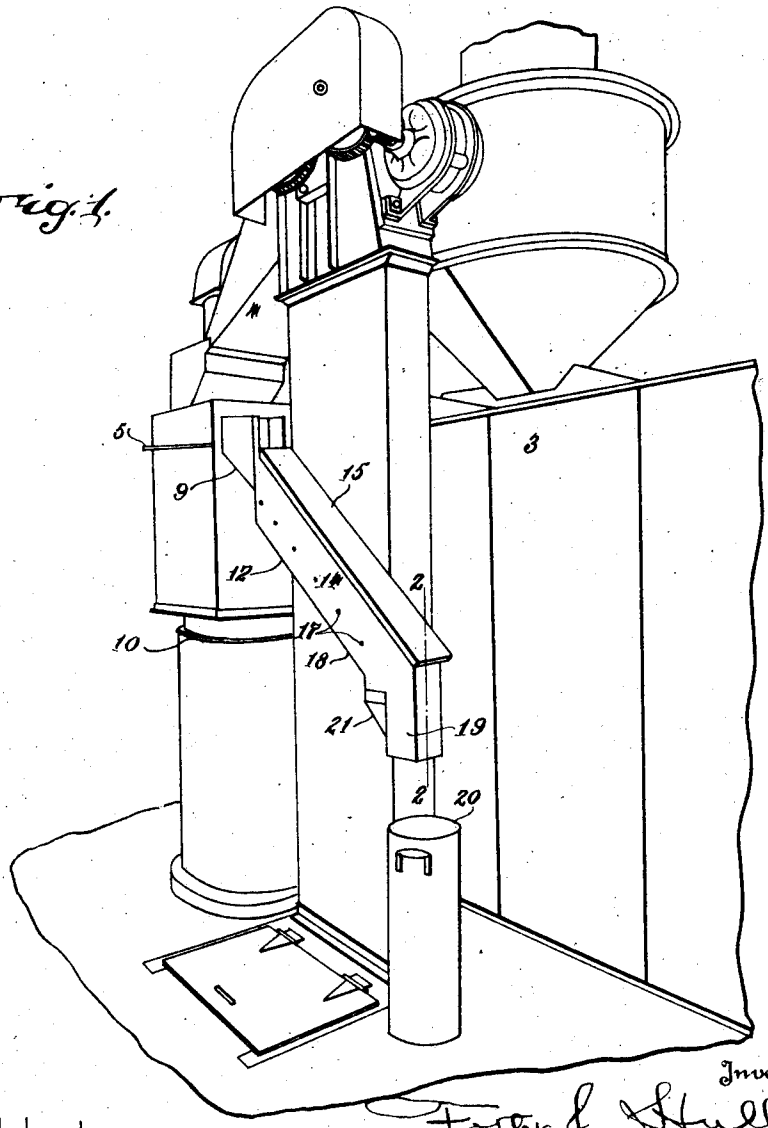
July 3, 1928. 1,675,707

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SAND BLAST ABRASIVE RECLAIMING CHUTE

Filed Sept. 22, 1927 2 Sheets-Sheet 1

Fig. 1.



Witnesses

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Fig. 2.

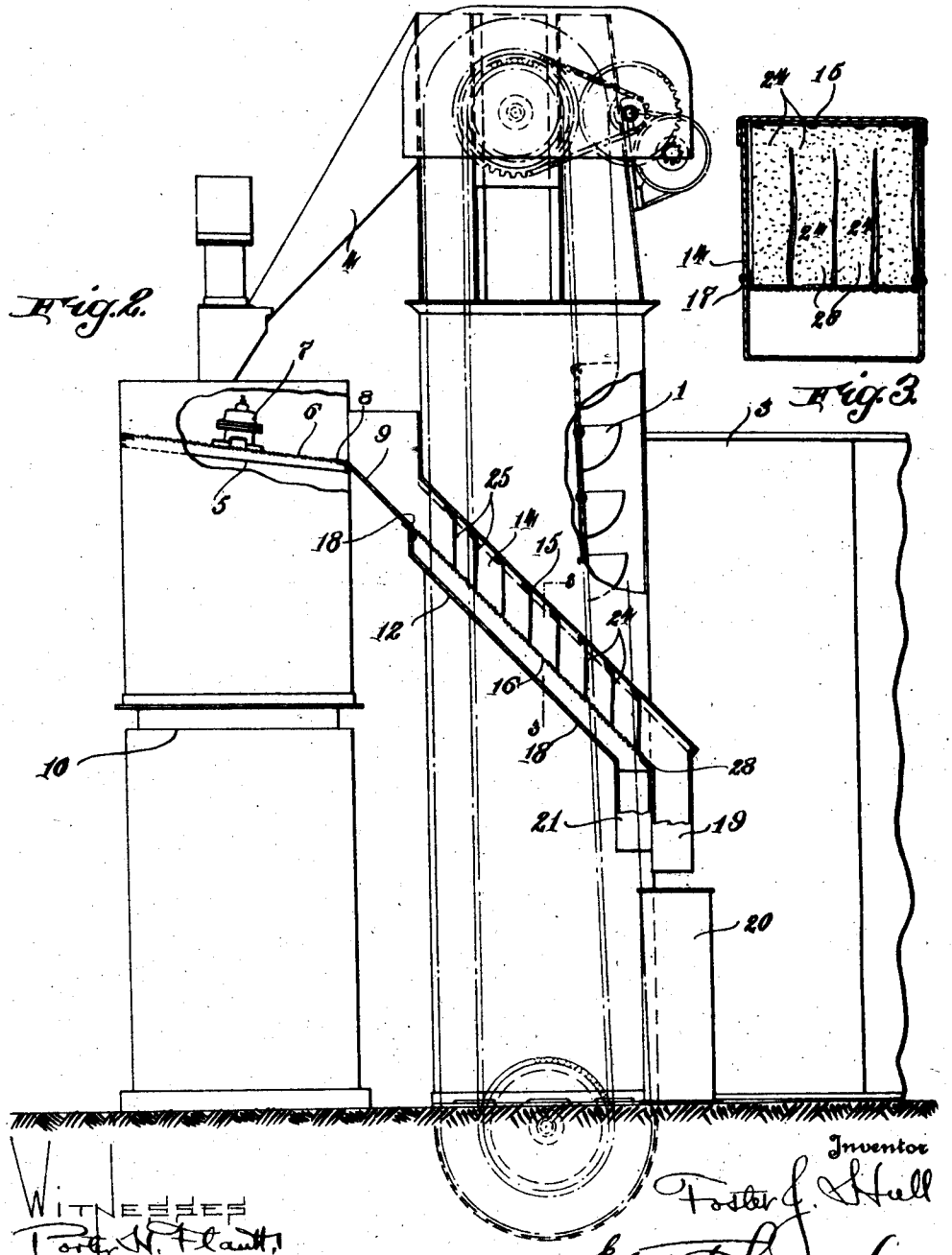


Fig. 3.

Witnesses
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Patented July 3, 1928. 1,675,707

UNITED STATES PATENT OFFICE.

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SAND-BLAST-ABRASIVE RECLAIMING CHUTE.

Application filed September 22, 1927. Serial No. 221,237.

The invention relates to an improvement in, and in connection with, apparatus for reclaiming abrasive used in cleaning castings or for other abrading operations by means of the so-called sand blast, other abrasives being at present employed to the almost complete exclusion of sand in this connection.

In the operation of such reclaiming apparatus the abrasive, due to its extreme hardness, has a tendency to bounce over the screens so that a portion of it, instead of passing through the screen to the tank from which it is fed to the air blast, is carried with the refuse along and over the screen to be finally discharged with the refuse and discarded therewith and wasted. The object of the present invention is to overcome this difficulty and recover and save the abrasive which in the previous practice was discarded and lost in this way.

The improvement consists in a supplementary chute connected to the refuse discharge of the previous reclaiming apparatus and having an inclined screen intermediately placed therein leading downward substantially to the floor of the chute. Over this screen the refuse and used abrasive not yet separated therefrom are passed, the chute being provided with means for checking the motion of the abrasive particles as they bounce along the screen and causing them to fall back on the screen, reducing their velocity as they pass down the incline and causing the particles of abrasive to drop through the screen while the larger particles of refuse pass down the incline to a suitable receptacle.

The means for checking the course of the abrasive and thus precipitating it against the screen consists, in the preferred form of the invention shown, of a series, or a number of sets of depending strips of flexible semi-soft material hanging downwardly substantially to the surface of the screen. The course of the abrasive particles is checked by these pendant strips which close the entire cross section of the chute above the screen and these abrasive particles are thus caused to drop onto the screen. In this way the bouncing action is completely eliminated and the particles are dropped on and held in close contact with the screen causing practically all the abrasive to pass through the mesh and fall to the bottom of the chute along which it passes to the elevator, or is returned to the reclaiming apparatus in any preferred manner. The waste material from the screen passes by way of a waste outlet to a suitable receptacle.

In the accompanying drawings I have shown sufficient of a sand blast apparatus for recovery of abrasive to which the improvement of my invention has been applied, to illustrate the construction and operation of the same and the manner of applying it.

In the drawings:

Figure 1 is an elevation of a sand blast elevator also showing the reclaiming apparatus and the tank, to which apparatus the improved recovery chute of the invention is applied.

Figure 2 is a view looking at the apparatus from the left in Figure 1, the side of the elevator casing being removed to illustrate the elevator and portions of the recovery apparatus and chute being broken away showing these members in section, the latter being shown in central vertical section on the line 2—2 of Figure 1.

Figure 3 is a cross section of the improved recovery chute on the line 3—3 of Figure 2.

Referring to the drawings by numerals each of which is used to indicate the same or similar parts in the different figures, the apparatus, as shown, comprises an elevator 1 for removing the used abrasive from the point of discharge at the base of the sand blast apparatus 3. The elevator delivers the used abrasive, together with the refuse from the machine, by way of a chute 4 which discharges into a separator chamber 5 which, in turn, delivers the used abrasive, together with the heavier portion of the débris, to the screen 6, it being understood that the fine dirt, is, in accordance with the preferred operation, removed from the material by an upwardly directed air draft in the chamber 5.

The screen 6 is downwardly inclined and is preferably vibrated in any suitable manner as by means of rotary vibrator 7 which may be in the form of an air turbine or other convenient motor. The screen 6, referred to as downwardly inclined, delivers at its lower edge at 8 to a discharge chute 9 all of the material which is not either passed through the screen or removed by the air draft, it being understood that the bulk of the used abrasive is recovered by passing through the screen 6 and is thus delivered

to the top of the tank 10, however, a considerable portion of the abrasive, on account of its extreme hardness, bounces along the screen and is thus discharged at the bottom of the screen with the débris and waste material by way of discharge chute 9 which, in turn, delivers to the supplementary reclaiming chute 12. This chute is preferably of U shaped cross section, as shown in Figure 3. It preferably consists of a channel member 14 closed at the top by means of a removable cover 15. This channel member 14 is provided with a screen 16 extending longitudinally almost the entire length of the chute and laterally, i. e., horizontally, across the chute from side to side, being secured to the side walls of the chute in any suitable manner as by means of rivets 17. This screen, as shown, is preferably parallel to the floor or bottom of the chute at 18 and to the cover 15 and is, therefore, inclined downwardly as is the chute, the screen being, in fact, shown as aligned and connected with the floor or bottom of the discharge chute 9 and terminating a little short of the end of the supplementary chute 12. The screen discharges downwardly at its lower end by way of down spout 19 at the end of the chute into a refuse receptacle 20.

The lower end 28 of the screen is spaced away from the corresponding end of the chute to permit the waste to drop into the down spout 19, which discharges the refuse which will not pass through the screen and which, therefore, traverses the full length of the screen supported thereon. The floor or bottom 18 of the supplementary chute 16 which is spaced below the screen, on the other hand receives the abrasive which is dropped through the screen, the screen being of a mesh somewhat larger than the dimensions of the granules of abrasive. The floor or bottom 18 of the supplementary chute is provided with a delivery passage referred to in connection with the machine as a collector 21 leading to the elevator whereby the good abrasive recovered in the operation of the supplementary chute, as hereinafter described, is returned to the elevator 1.

An important feature of the invention resides in the provision of means in the supplementary reclaiming chute 12 for overcoming the tendency of the abrasive, on account of its extreme hardness, to bounce along the screen instead of passing through the meshes of the screen, which are of suitable dimensions to pass the abrasive when properly presented thereto, but to prevent the passage of the débris, consisting mainly of larger pieces of metal and other materials not removed by the air draft.

This device consists in a series of depending members 24 of soft or semi-soft flexible material substantially closing the portion of the channel or chute 12 above the screen and extending downward into contact or substantially into contact with the screen. These members may to advantage be supported on and secured to the cover 15 of the chute. As shown, they are in the form of pieces of soft cloth or felt 25 secured at their upper edges to the cover extending transversely across the cover and chute and hanging downwardly, as aforesaid, into or almost into contact with the screen. These strips of cloth are preferably slitted at intervals at 26 in a vertical direction forming the flexible strips 24 already described.

The members 25, as shown, are arranged at short intervals along the entire portion of the chute overlying the screen so that the used abrasive, as it enters the chute and tends to pass along the screen bouncing from point to point, comes in contact with the flexible members and is thereby precipitated into contact with the screen, its course being thereby interrupted so that it tends to fall and pass through the screen instead of continuing its passage downwardly along the screen as it would do in many instances if its original course were not thus interrupted.

I have thus described specifically and in detail a supplementary abrasive recovery chute embodying the features of my invention in the preferred form in order that the nature and operation of the same may be clearly understood, however, the specific terms herein are used descriptively rather than in a limiting sense, the scope of the invention being defined in the claim.

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

The combination with a sand blast abrasive reclaiming apparatus comprising a screen adapted to pass the abrasive as undersize, means for feeding used abrasive to the screen, a supplementary screen receiving oversize with residual unrecovered abrasive from the first mentioned screen and adapted to separate abrasive as undersize, means for delivering the oversize of said supplemental screen to waste, and means for delivering the undersize thereof including the thereby recovered residual abrasive, to the initial feed means.

Signed by me at Hagerstown, Maryland, this 20 day of September, 1927.

FOSTER J. HULL.