June 4, 1929. G. J. FOURNIER 1,716,309

CLASSIFIER

Filed Oct. 3, 1927 2 Sheets-Sheet 1

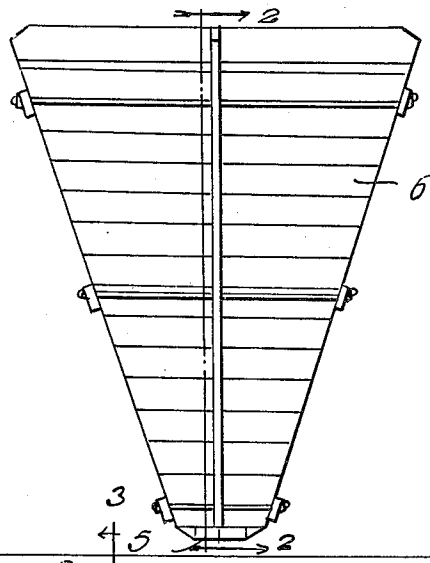
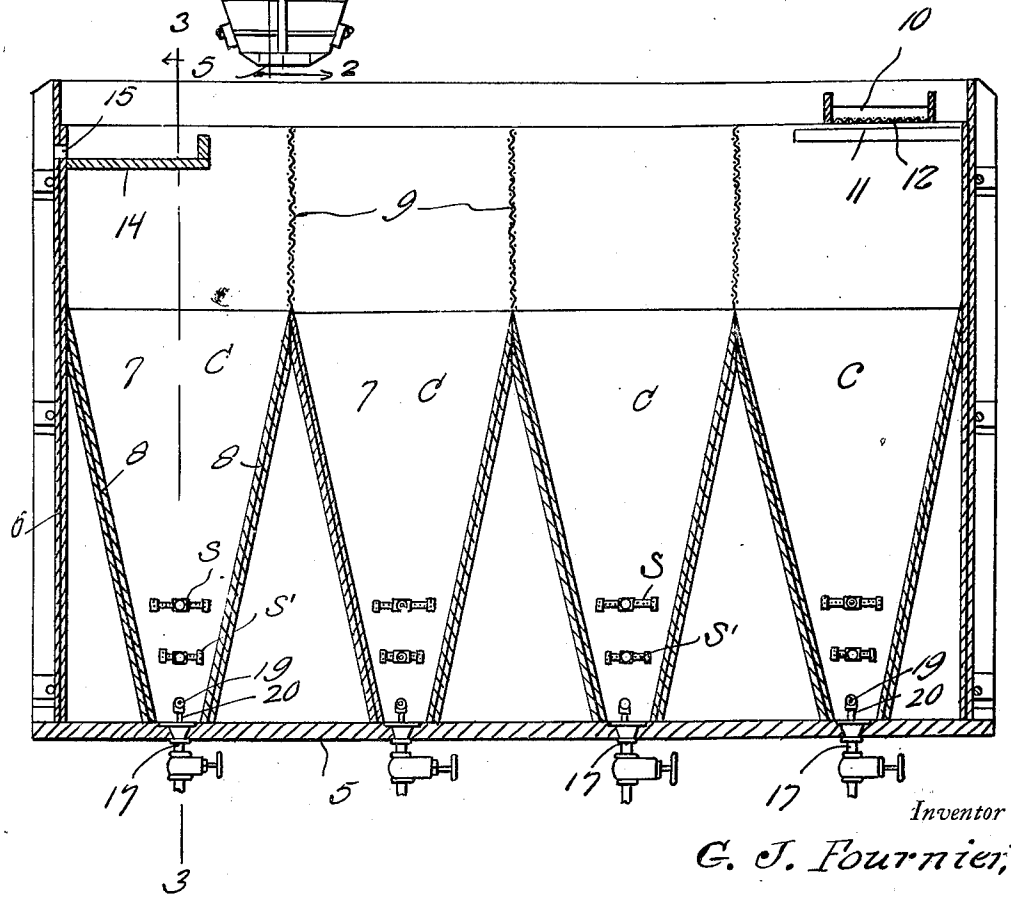


Fig. 1.

Fig. 2.



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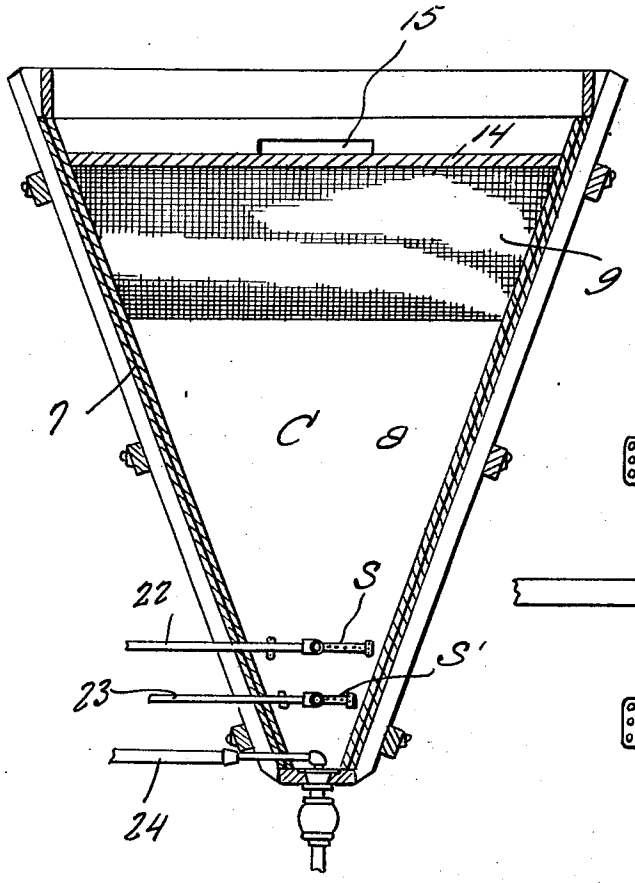
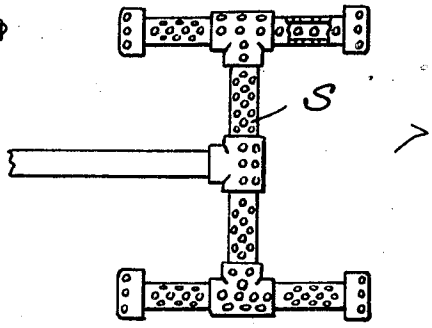


Fig. 3.

Fig. 5.



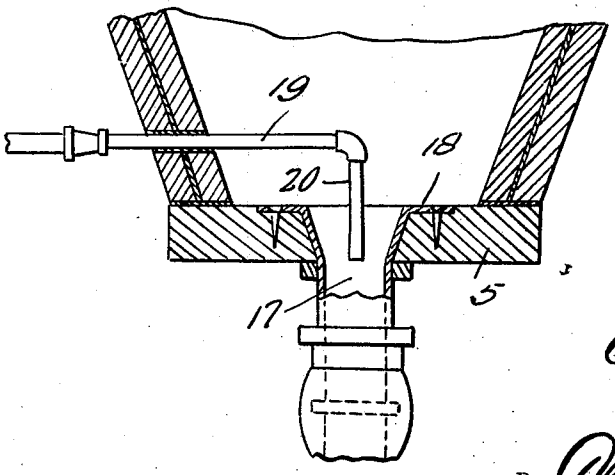


Fig. 4.

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UNITED STATES PATENT OFFICE.

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CLASSIFIER.

Application filed October 3, 1927. Serial No. 223,712.

The present invention relates to a classifier and has for its prime object to provide a structure to separate the fine minerals and tailings from the coarse minerals and tailings as they come from the screens at the head of the mills, so each classifier will feed each table or jig the size that it should carry and the feed adjusted so that each table or jig will not carry an overload and will alleviate the separation on the table or jig with less loss in the tailings.

A still further important object of the invention resides in the provision of a classifier of this nature which is simple in its construction, compact in its arrangement, comparatively inexpensive to manufacture, strong and durable, thoroughly efficient and reliable in use, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawing:—

Figure 1 is an end elevation of the classifier embodying the features of my invention,

Figure 2 is a longitudinal vertical section taken substantially on the line 2—2 of Figure 1,

Figure 3 is a vertical transverse section taken substantially on the line 3—3 of Figure 2,

Figure 4 is an enlarged detail section through the lower portion of one of the compartments,

Figure 5 is a plan view showing one of the spraying devices.

Referring to the drawings in detail it will be seen that a tank is formed with a bottom 5, perpendicular end walls 6 and upwardly diverging side walls 7. A plurality of partitions 8 are mounted transversely of the tank between the side walls 7 and these partitions 8 are arranged in pairs, the partitions of each pair converging downwardly toward each other to form with the side walls 7 a downwardly tapering compartment C. In the embodiment of the invention now under discussion there are four of these compartments but any suitable number may be used. The partitions 8 terminate short of the upper edges of the end and side walls and adjacent partitions of adjacent pairs are provided with upstanding foraminous sheets 9 which are disposed between the side walls 7. A frame 10 is horizontally disposed over the first compartment C being supported by members 11 or in any other suitable manner and has a foraminous sheet 12 thereacross. In the last compartment at the top thereof there is provided a launder structure 14 leading to an opening 15 in one end wall 6.

In each compartment at the bottom thereof there are mounted two spraying devices S and S′, the latter being smaller than the former. These spraying devices S and S′ are both H-shaped as clearly illustrated in Figure 5 being formed of perforated piping.

In the bottom of each compartment C extending through an opening in the bottom 5 there is mounted an outlet conduit 17 the upper end of which is flared outwardly terminating in a flange 18 fixed and embedded in the upper surface of the bottom 5 as is clearly illustrated in Figure 4. A water conduit 19 leads through the side wall for each compartment and terminates in a downwardly directed nozzle 20 terminating in the lower portion of the flared upper end of the outlet conduit 19 so as to assist in ejecting the larger settlings in the bottom of the compartment.

In using this embodiment of the invention the material to be classified is poured on the screen. The sprays S and S′ are then turned on being fed by pipes 22 and 23 respectively from any suitable source of water supply, to which, will also be connected pipe 24 leading to pipe 19. The water flowing and the heavier particles will settle in the bottom of the compartment and be forced down through the outlet 17 while the finer particles will pass over into the next compartment through the foraminous sheet 9. This process will continue through the various compartments until the last compartment where the finer particles will collect on the launder 14 and be exhausted through the opening 15.

It is thought that the construction, operation, and advantages of the invention will now be quite apparent to those skilled in this art without a more detailed description thereof. It is apparent that changes in the details of construction, and in the combination and arrangement of parts may be re-

sorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:—

1. A classifier of the class described comprising a tank having a bottom, a pair of perpendicular end walls, a pair of upwardly and outwardly slanting side walls, a plurality of partitions mounted in the tank transversely thereof across and between the side walls, said partitions being arranged in pairs and the partitions of each pair converging downwardly toward each other to form with the side walls a downwardly tapering compartment, an outlet in the bottom of each compartment, a spraying device in each compartment.

2. A classifier of the class described comprising a tank having a bottom, a pair of perpendicular end walls, a pair of upwardly and outwardly slanting side walls, a plurality of partitions mounted in the tank transversely thereof across and between the side walls, said partitions being arranged in pairs and the partitions of each pair converging downwardly toward each other to form with the side walls a downwardly tapering compartment, an outlet in the bottom of each compartment, a spraying device in each compartment, said partitions terminating short of the upper end of the tank, transverse foraminous sheets across the top of the tank, one between each pair of compartments.

In testimony whereof I affix my signature.

GEORGE J. FOURNIER.