

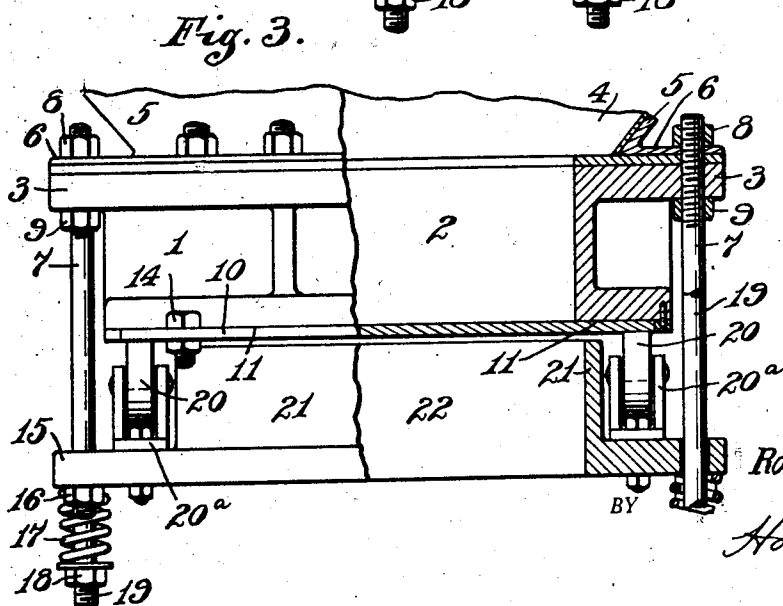
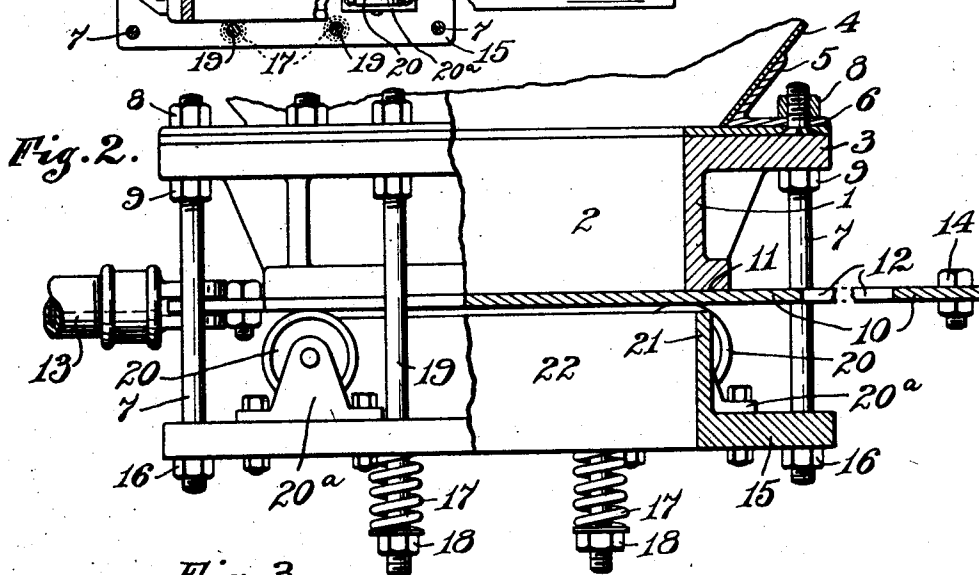
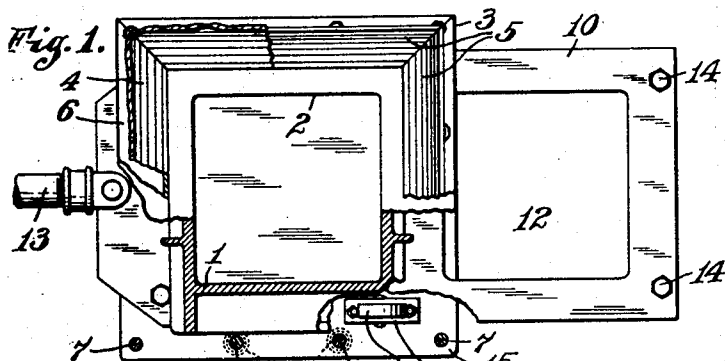
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1,667,690

R. HAMM

SAND GATE

Filed Sept. 22, 1926



INVENTOR.

Rollie Hamm,

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UNITED STATES PATENT OFFICE.

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SAND GATE.

Application filed September 22, 1926. Serial No. 137,069.

My invention relates to improvements in gates for sand storage hoppers or containers and the like.

Heretofore great difficulty has been experienced in obtaining a gate for sand hoppers or storage containers which when closed will effectually seal the discharge opening of the hopper against the escape of sand. Usually the sand contained in these hoppers is in an extremely wet condition and such gates as have been heretofore used would not close sufficiently tight to prevent the escape of a certain amount of the mixed sand and water. In containers of this character it is desirable that as much water as possible be drained from the sand but at the same time it is not desirable that the sand should leak from the container.

It is one of the objects of my invention to provide a gate for sand hoppers which will effectually prevent leakage of sand, when the gate is closed, and which at the same time will permit the drainage of water.

For the purpose of disclosing my invention I have illustrated one embodiment thereof in the accompanying drawings in which:

Fig. 1 is a plan view of a gate embodying my invention;

Fig. 2 is a side elevation thereof partly in section, and

Fig. 3 is an end elevation thereof partly in section.

In the embodiment of the invention illustrated I provide a discharge mouth 1 for the bottom of the sand hopper which may be of a suitable casting having a preferably rectangular opening 2 therethrough and provided with an annular flange 3. This mouth is secured to the bottom of the hopper 4 by means of acute angle irons, one leg 5 of which lies parallel with the tapering side walls of the hopper 4 and is secured thereto by rivets or other suitable means and the other leg 6 of which lies parallel with the flange 3, being secured thereto by bolts 7, the upper ends of which pass through the flange 3 and the leg 6, being screw threaded and adapted to receive above and below the flange 3 and the leg 6 nuts 8 and 9. The discharge opening 2 of the mouth is maintained closed by a sliding gate in the form of a flat plate 10 sliding across the bottom face 11 of the mouth and having an opening 12 therein coinciding, when the gate is moved to open position, with the opening 2 in the

discharge mouth. A suitable handle 13 is provided for sliding the gate and the gate is prevented from movement too far in the opening direction by means of a suitable stop 14 on one end thereof.

A supporting platform 15 for the gate is hung beneath the same on the rods 7, which it will be noted are disposed on the sides only of the discharge mouth leaving the ends clear. These rods at their lower ends pass through openings in the platform 15 and are provided with nuts 16 which limit the downward movement of the platform. The platform is biased in an upward direction by a plurality of coil springs 17 interposed between the bottom of the platform and nuts 18 on the lower ends of rods 19 depending from the flange 3 of the mouth. This platform 15 is provided on each side with a pair of rollers 20 mounted in suitable bearings 20^a secured on the upper face of the platform 15 and engaging the bottom face of the gate 10 and to prevent the discharging sand from clogging the rollers an annular lip 21 extends upwardly around the discharge opening 22 in the platform and into proximity to the bottom face of the gate 10.

By the above arrangement it will be noted that the gate 10 is resiliently clamped against the bottom face of the discharge mouth 1 so that when the gate is in its closed position it is seated against the bottom face 11 of the mouth 1 effectually sealing the discharge mouth against the escape of sand. While this seal is tight enough to prevent the escape of sand or sand suspended in water, it is not so tight as to prevent the seepage of water. At the same time the gate is readily slidable back and forth for opening and closing purposes.

I claim as my invention:

1. In a storage bin for wet sand, the combination with a hopper having a discharge throat, of a transversely movable gate slidable across the face of said throat, and resiliently supported rollers bearing on the under side of said gate and holding the same clamped against the face of said throat sufficiently tight to seal the throat against the escape of sand while permitting the escape of water.

2. In a storage bin for wet sand, the combination with a hopper having a discharge throat, of a transversely movable gate slid-

able across the face of said throat, a platform resiliently hung from said throat, rollers mounted on said platform and bearing upon the under side of said gate and holding the same clamped against the face of said throat sufficiently tight to seal the same against the escape of sand while permitting the escape of water.

3. In a storage bin for wet sand, the combination with a hopper having a discharge throat, of a plurality of hanger rods secured to said throat, a carrier slidably movable on said hanger rods, springs interposed between the ends of said rods and said carrier for biasing the same toward said throat, rollers mounted on said carrier and a transversely movable gate supported on said rollers and slidable across the face of said hopper throat and held into engagement with said face by said springs.

4. In a storage bin for wet sand, the combination with a hopper having a discharge throat, of a transversely movable gate slid-

able across the face of said throat, rollers supporting said gate, resilient supporting means for said rollers for holding the gate clamped against the face of said throat and means permitting the adjustment of said resilient supporting means.

5. In a storage bin for wet sand, the combination with a hopper having a discharge throat, of a transversely movable gate slidable across the face of said throat, a platform hung from said throat, resilient means for supporting said platform, rollers mounted on said platform and bearing upon the under side of said gate and holding the same clamped against the face of said throat and means permitting the adjustment of said resilient supporting means.

In witness whereof, I ROLLIE HAMM have hereunto set my hand at Indianapolis, Indiana, this 17th day of September, A. D. one thousand nine hundred and twenty six.

ROLLIE HAMM.