Sept. 13, 1938. T. A. ZSAMBOKY 2,130,171

SLAB PILER

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FIG. 1.

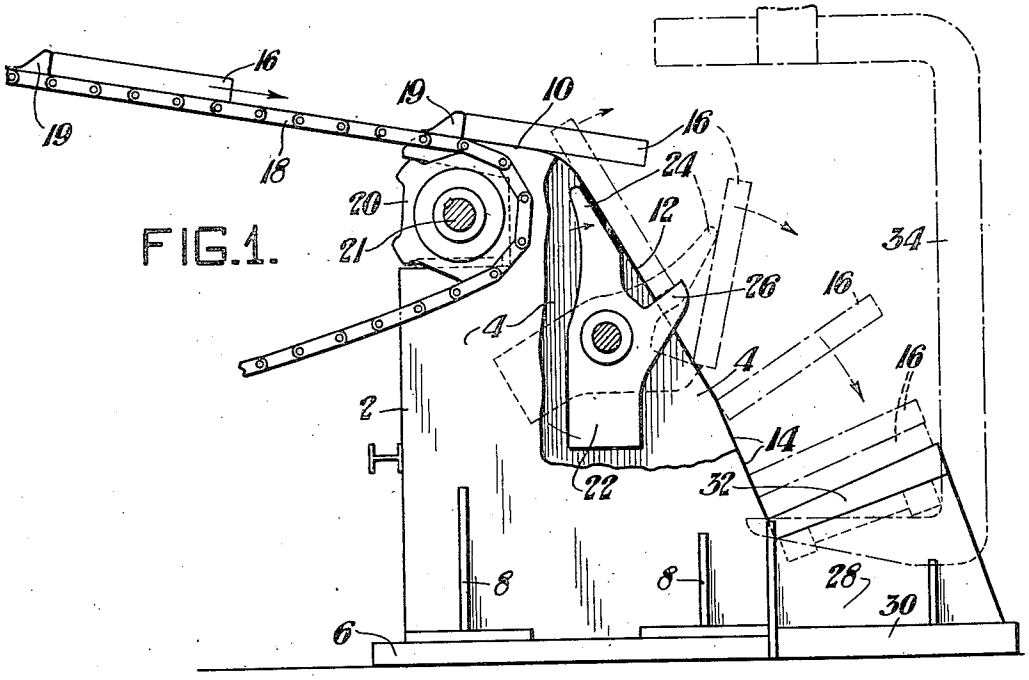
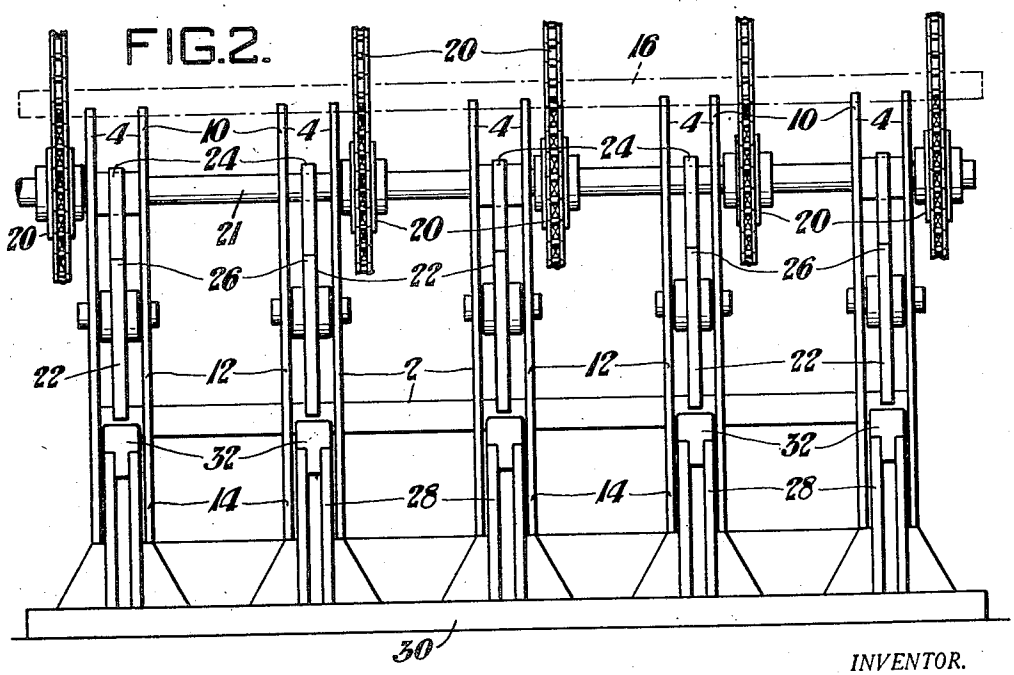


FIG. 2.



INVENTOR.
THEODORE A. ZSAMBOKY,
BY: Usina & Rauber
HIS ATTORNEYS.

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SLAB PILER

Theodore A. Zsamboky, Sharon, Pa.

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5 Claims. (Cl. 214—6)

This invention relates particularly to slab pilers that utilize the force of gravity to pile heavy metal slabs or the like.

One object of this invention is to provide a slab piler which requires no power to drive it and which has a minimum of operating parts.

The above and further objects will be made apparent by referring to the following description and the accompanying drawing, in which:

Figure 1 is an elevation, with the end-skid member partly broken away, of one embodiment of my novel slab piler, the movement of a slab thereover being indicated by dotted lines; and

Figure 2 is an end elevation of Figure 1.

Referring more particularly to the drawing, the numeral 2 indicates generally a slab piler which is adapted to pile heavy metallic slabs or the like. The slab piler 2 includes a plurality of aligned, parallel skid-members 4 which are secured to a suitably anchored base-plate 6 by brackets 8 and which may be grouped into pairs, as shown in the drawing. The skid-members 4 are preferably provided with downwardly slanted upper surfaces 10, sharply inclined front surfaces 12 and substantially vertical front surfaces 14. The upper surfaces 10 are adapted to receive a heavy metal slab 16 or the like and permit gravity to slide the metal slab 16 onto the front surfaces 14. Gravity also tends to slide the metal slab 16 over and hold it against the surfaces 14. The number and construction of the skid-members 4 depend upon the weight and length of the slabs to be received thereon.

The metal slab 16 is placed on the upper surfaces 10 by any suitable means, such as a conveyer 18. The conveyer 18 is provided with arms 19 which bear upon the metal slab 16 and make it move with the conveyer. Sprockets 20, which are adjacent the upper surfaces 10, mount and terminate the conveyer 18. The sprockets 20 are carried by a shaft 21 which is journaled in the skid-members 4 and may be driven by any suitable means (not shown).

In order to position the metal slabs 16 for piling, pawls 22 are pivotally secured between pairs of the skid-members 4, as shown in the drawing. The pawls 22 have upper fingers 24 and lower fingers 26. The pawls 22 are adapted to normally position themselves in such a manner that the upper fingers 24 are substantially flush with the front surfaces 12 and the lower fingers 26 project at substantially right angles to the front surfaces 12. Therefore, as the metal slab 16 slides down over the front surfaces 12, the forward or lower edge thereof engages with or bears upon a plurality of the lower fingers 26. The weight and downward movement of the metal slab 16 causes the pawls 22 to rotate and force the upper fingers 24 to bear upon the rear surface of the slab 16. This motion of the pawls 22 starts the slab 16 rotating about its lower edge. As the pawls 22 rotate about their fulcrum points, the lower fingers 26 are moved inwardly or toward the skid-members 4 and finally move within the edges of the skid-members 4 and necessarily release the metal slab 16. The downward movement of the slab 16 is considerably slowed by the pawls 22. The upper fingers 24 have moved the upper portion of the metal slab 16 a distance from the front surfaces 12 and imparted a definite rotational movement to the metal slab 16 while it was in contact with the lower fingers 26. The skid-piler 2 is constructed and arranged to permit the metal slab 16 to move downwardly and continue to rotate after being released from the pawls 22. One edge of the metal slab 16 normally contacts the front surfaces 12 and 14 during its downward, rotating movement.

The pawls are pivotally mounted so that the center of gravity of each of the pawls is below its supporting axis and will normally assume the position as shown in the full lines of Figure 1. This permits the pawls to return to their normal position after a slab has passed thereover in order to receive the next slab and the slabs successively thereafter. The pawls, if desired, may be weighted at the bottom, or a spring or other means supplied to aid in returning the pawls to their normal position, but it is thought that this is not necessary.

Means are provided to receive or catch the moving metal slab 16, and include slab catchers 28 which are secured to and supported by a base-plate 30. The slab catchers 28 are positioned adjacent the front surfaces 14 and inclined toward the skid-members 4. Catcher skids 32, particularly adapted to receive the impact of the falling metal slab 16, may be carried by the upper surfaces of the slab catchers 28. The catcher skids 32 are positioned to receive the falling metal slab 16 when they are substantially parallel to the upper surface thereof. The catcher skids 32 are slanted toward the skid-members 4 a sufficient amount to make gravity slide the metal slab 16 over against the skid-members 4.

The speed of the conveyer 18 is regulated so that the metal slabs are not delivered to the skid-piler 2 faster than it can handle them.

The catcher skids are adapted to receive a plurality of metal slabs but the piled metal slabs

should never extend to a height adjacent the junction of the front surface 14 with the front surface 12

The catcher skids 32 and the slab catcher 28 are constructed and arranged to permit a multiple gang-hook 34, or similar device, to be inserted between the slab catchers 28 and pick up the metal slabs 16 thereon. The multiple gang-hook 34 first engages the lowermost edge of the bottom metal slab. Then the multiple gang-hook 34 is raised and the lower edges of the metal slabs 16 are all slid along the front surface 14 and the metal slabs 16 are pivoted about the higher edges of their bottom surfaces until the metal slabs 16 are moved to a horizontal position. The front surface 14 is made substantially tangential to the arc described by the lower edge of the bottom metal slab 16 when it is raised by the multiple gang-hook 34. The arms of the multiple gang-hook 34 are finally brought into linear contact with the lowest metal slab 16 and the front surfaces 14 meanwhile have positively aligned the sides of the metal slabs 16 piled on the multiple gang-hook 34.

While I have shown and described one specific embodiment of the invention, it will be understood that I do not wish to be limited exactly thereto since various modifications may be made without departing from the scope of the invention, as defined by the following claims.

I claim:

1. Apparatus for piling flat metallic pieces including a plurality of aligned skid-members provided with backwardly inclined front surfaces, means for moving said pieces successively onto said front surfaces, said front surfaces being adapted to permit gravity to slide said pieces thereover, pawls provided with upper and lower fingers pivotally secured between a plurality of pairs of said skid-members, said pawls adapted to be actuated by the weight of said pieces and being constructed and arranged to start said pieces rotating about their lower edges, said apparatus being adapted to permit said pieces to continue to move downwardly and rotate after being released from said pawls, and a plurality of spaced catchers secured against the base of said skid-members for receiving said pieces.

2. Apparatus for piling slabs including a plurality of aligned skid-members provided with backwardly inclined front surfaces, the upper portions of said front surfaces being sharply inclined and the lower portions thereof being substantialy vertical, means for moving a slab onto said upper portions, said upper portions being adapted to permit gravity to slide said slab thereover, pawls provided with upper and lower fingers pivotally secured between pairs of said skid-members, said pawls being constructed and arranged to temporarily engage said slab and start said slab rotating about its lower edge, said apparatus being adapted to permit said slabs to continue to move downwardly and rotate after being released by said pawls, and a plurality of spaced slab catchers secured adjacent the front of the bases of and inclined toward said skid-members, said slab catchers being adapted to receive said slabs from said skid-members and cause one edge of said slabs to bear on said front surfaces of said skid-members.

3. Apparatus for piling heavy metal slabs by gravity including a plurality of aligned skid-members provided with downwardly slanted upper surfaces and backwardly inclined front surfaces, the upper portions of said front surfaces being sharply inclined and the lower portions being substantially vertical, means for simultaneously moving said slabs onto a plurality of said upper surfaces, said upper surfaces permitting gravity to move said slabs thereover onto said upper portions of said front surfaces, pawls provided with upper and lower fingers pivotally secured between pairs of said skid-members, said lower fingers normally projecting from said upper portions of said front surfaces and being adapted to be struck by the lower edge of any of said slabs moving over said front surfaces, the downward movement of said slabs causing said pawls to rotate and force said upper fingers to bear upon the rear surface of said slabs, said slabs being started to rotate about their lower edges and then being released from engagement with said lower fingers by the rotation of said pawl, slab catchers secured adjacent the front of the base of and inclined toward said skid-members, and catcher skids carried by the upper surfaces of said slab catchers and positioned to receive said slabs when substantially parallel to the upper surfaces of said catcher skids, said catcher skids being adapted to cause one edge of said slabs to bear upon the front surfaces of said skid-members.

4. Apparatus for piling slabs including a plurality of aligned skid members provided with backwardly inclined front surfaces, means for moving slabs successively onto said front surfaces, said front surfaces being adapted to permit gravity to slide said slabs thereover, a plurality of pawls pivotally mounted on said skid members, each of said pawls provided with an upper finger and a lower finger, said pawls normally positioned so that the upper fingers are below the plane of the inclined edges of said skid members with the lower fingers adapted to extend beyond said edges, said lower fingers adapted to be engaged temporarily by the edge of said slabs, the weight of said slabs adapted to actuate said pawls whereby said upper fingers cause said slabs to rotate about the edges thereof so that the lower fingers recede below the inclined edges of said skid members to deliver the slabs therefrom to a slab receiving means, and means for facilitating the return of said pawls to their normal positions.

5. The combination of apparatus defined in claim 4 wherein the pawls are so pivotally mounted that the center of gravity of each of them is below their supporting axes thereby facilitating the return of said pawls to their normal position after a slab has passed thereover.

THEODORE A. ZSAMBOKY.