Dec. 29, 1925. 1,567,577

S. DERDERIAN

APPARATUS FOR PILING, HANDLING, AND UNLOADING ARTICLES

Filed May 26, 1925

Fig. 1.

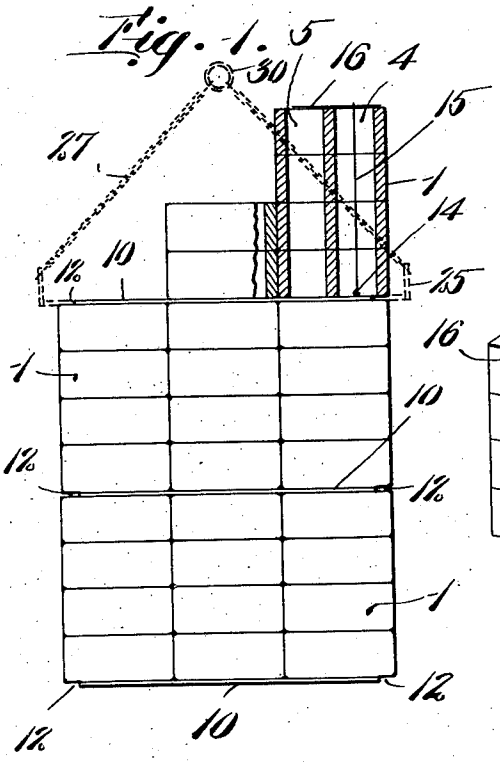


Fig. 2.

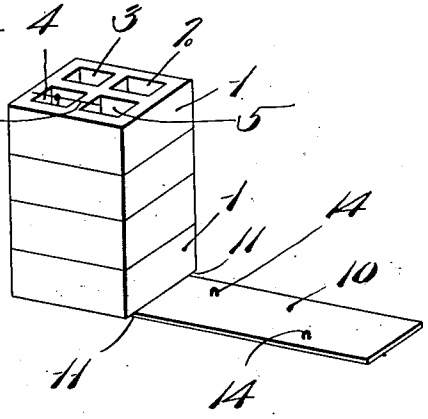
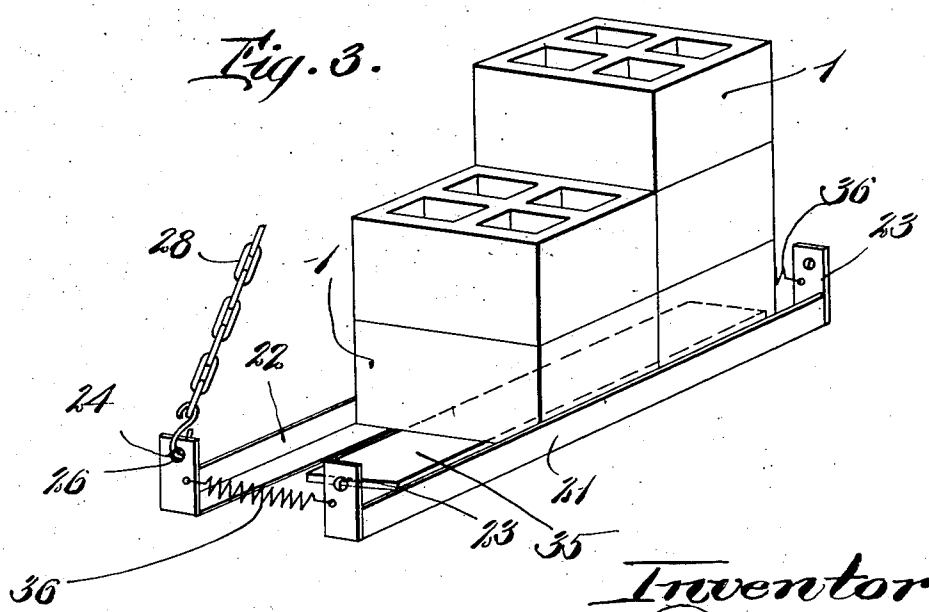


Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PILING, HANDLING AND UNLOADING ARTICLES.

Application filed May 26, 1925. Serial No. 33,008.

To all whom it may concern:

Be it known that I, SETRAK DERDERIAN, a citizen of the United States, and resident of Watertown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Apparatus for Piling, Handling and Unloading Articles, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings representing like parts.

My present invention is a novel process for handling heavy articles, such for example as concrete blocks or the like, and forming said articles into a pile, stack or unit comprising a plurality of the same, and then handling such stack, in bulk, and while thus piled, and unloading the same in released position ready for individual use.

While my invention is not limited to the handling of concrete blocks, yet it is primarily intended for this purpose and the apparatus employed and the process utilized in carrying out the invention are herein shown and described as for use in large, relatively heavy and bulky concrete building blocks.

Heretofore the manufacture of concrete building blocks has required the individual handling of each block, which, when taken from the machine forming the same, must first be piled or stacked, or a complete drying and "set," such blocks weighing from fifty pounds upwardly, and therefore being incapable of easy manipulation by hand, distinguishing my operation very radically from any similar handling of brick or such small relatively light weight units. Such blocks, when thus stored, are then handled individually by present methods, one, two or more men usually being required to lift each one on to a truck, wagon or other transportating means, which in turn required additional handling and usually by two or more workmen. These heavy concrete blocks are also extremely difficult, as well as dangerous, to handle manually, the heavy rough stone cutting the hands of the workmen, being so heavy and bulky as to frequently jam and injure the men handling them, sometimes being dropped, causing damage and injury, and generally involving an unusual amount of liability and expense, these risks requiring special insurance to be maintained by manufacturers. Furthermore, it is necessary to provide specially made and heavy, expensive gloves for the workmen, which will only last in service for a few days or two weeks, being cut to pieces in the daily service of lifting and handling such blocks. Furthermore, it is sometimes impossible to secure labor to do this work, because of the danger, difficulty and extremely hard service involved.

My invention obviates the difficulties heretofore experienced in this art, and I am enabled, by providing suitable apparatus, to pile or stack a plurality of these large, relatively heavy concrete blocks, into stacked formation, preferably of just the right number for easy and convenient handling, then to transport the entire unit thus built up, and unloading and releasing the same "on the job," or where the blocks are to be used. I contemplate the building and handling of any desired plurality of such blocks, building them into a unit of any required, desired or convenient size, such for example as nine blocks in the unit, twelve blocks, twenty-four, thirty-six or even a larger number, since the manual handling is eliminated and the handling by apparatus can be effected just as efficiently with large size units as small.

In carrying out my invention I first provide a pallet, board or member of proper length and width, and of less area than the bottom row of the stack or unit to be built thereon, one of the objects of this pallet being to hold or lift the unit above the support, ground, floor or other resting place for the stack, to admit the insertion of a pair of channel irons, which in turn can be readily released when the stack or unit is set down, because of the space provided by the pallet and the overhanging portions of the concrete blocks. Furthermore, I can thus handle quickly, expeditiously and very economically, a great number of such blocks, keeping them in unit formation and preserving their edges, corners and other parts from damage or injury during transportation or handling.

Other features, advantages, and important details will be hereinafter more fully pointed out and claimed.

Referring to the drawings illustrating a preferred embodiment of my invention;

Fig. 1 illustrates a pile or stack of concrete blocks embodying my invention, partly in cross-section;

Fig. 2 is a perspective view of a portion of the stack and the pallet; and

Fig. 3 is a perspective illustrating the methods of handling and releasing.

As shown in the drawings, the concrete blocks, which may be of any size, area, dimensions and weight as desired, are designated at 1, usually such blocks weighing fifty pounds or more as above explained. The pallet prepared and employed, is indicated at 10, and is of less width than that of the blocks 1 to be piled thereon, thus leaving an overhanging or overlapping marginal edge as shown at 11, 11, on each side, and 12, 12, on each end, of the series of blocks to be plied or rested on the pallet 10. These pallets are also preferably provided with one or more staples as indicated at 14, 14. Preferably these staples are "staggered" around the block in order to permit the concrete block, which may be formed with one hollow interior space or core, or with two, or with four, as indicated in the drawings, and as shown at 2, 3, 4 and 5, to register thereover. For this purpose, therefore, the series of piled blocks herein shown, for example as a small unit of four in height and three in length, are positioned on the pallet 10 with one of the openings registering over the staples 14 and a chain 15 is engaged with the staple 14 and a crossbar or rod 16 positioned through the links of the chain across the top to thus lock or hold the pile of concrete blocks onto the pallet 10 and to lift the pallet with the unit. One or more of the same can thus be positioned so that each pair or column of the concrete blocks will be held or locked on to the pallet and prevented from being displaced during ordinary handling and transportation, and insures the lifting and carrying of the pallet until released.

As the blocks come from the machine and are to be stored in the yard, they are thus placed first upon a pallet 10, as indicated in Fig. 1, until the desired number or unit is formed, such unit being twelve, twenty-four, thirty-six or other desired plurality, for use as above explained. Thereupon on top of the first unit is a second pallet 10, and thereupon a second unit built, and then the third pallet 10, and the third unit built up if desired. After the blocks have thus stood "cured" and it is desired to transport the same to a building remote from the point of manufacture, the chain 15 and crossbar 16 are fitted and each series of blocks in the topmost row are thus locked together and a pair of angle irons 21 and 22, each having upstanding end portions 23 and 24 respectively, are fitted to the unit adjacent the pallet 10. Preferably the lowermost flange of these angle irons is of slightly less height than the thickness of the pallet 10 to facilitate the positioning of the same readily thereunder, as indicated in dotted lines at 25, Fig. 1, and as more clearly shown in Fig. 3. At each end of these angle irons is provided an opening 26 or the like to which a hoisting hook and chain can be fitted, also as indicated diagrammatically in dotted lines, Fig. 1, at 27, and as partly shown at 28, Fig. 3. These chains 28 from the four corners of the channel irons or bars, will be led to a central ring 30, so that the tension of the hoist from the ring 30, will hold the channel irons in position and raise or lift the entire unit from the rest of the stack, the pallet 10 can be lifted with the concrete blocks by the engagement of the cross-bars 16 and the hook or chain 15. Thus the entire unit can be swung into position on a truck, in a car or other place, and thereupon the channed irons removed to transport another unit. When the truck, freight car or other transporting means is to be unloaded, the pair of angle irons are fitted underneath the stack, the hoisting hooks and chain is applied, and the entire stack lifted, including the pallet 10, if it is desired to set the same down for still subsequent lifting. If, however, it is desired to release the unit "on the job" so that there will be no longer any necessity for handling the blocks in unit or stacked formation, I remove the crossbar 16 from the chains 15 thus unlocking the pallet from the stack of blocks, and thereupon lift the unit by the angle irons and hoisting chains therefrom. I contemplate the releasing or unlocking of these units in the truck, when they are to be delivered on the job, then lifting the unit directly from the truck, thus leaving the pallets 10 and chains 15 within the bottom of the truck, whereupon they are returned to the yard for further use in future stack building and subsequent transporting.

When finally unloading the unit of blocks, after they are unlocked from the pallet, I can lower the angle irons 21 and 22 with the blocks thereon, resting them upon any loose block, board or supports on the ground or the like, such for example, as shown at 35, Fig. 3, whereupon the angle irons are readily withdrawn from the side. In fact the angle irons with their load of unit blocks, can be rested directly upon the ground if desired, and then withdrawn, since there is only a slight marginal bearing of the blocks on the lower flanges of the angle irons. Although the lead and hence the pull and strain of the hoisting chains 27, all leading to the ring 30, hold the angle irons into position, yet I may, if desired, add a light spring 36 hooked in holes or otherwise at-

tached to each end of the angle irons 21 and 22, as for example is clearly shown in Fig. 3. This serves to hold the angle irons yieldingly in contact with the unit, acts further to make the applying or positioning of the angle irons about the unit more automatic in their positioning and engaging action, as well as insuring the handling of the unit securely in case of rough or careless workmen hoisting and manipulating the same.

It will thus be seen that my novel invention comprises an improved method of handling such heavy articles in unit stacked formation, eliminating the individual handling and saving the hand labor heretofore requisite in this class of work, and on the contrary greatly speeding up the delivery, as well as the handling of concrete blocks and such articles, because lifting, carrying, transporting and unloading a unit in substantially the same time as heretofore required in handling one block. Furthermore, the corners, edges and all parts of the blocks are kept intact and free from flaking or scarring, and the pallets 10 are used over and over again, while a pair of angle irons, both at the loading and unloading points, will handle an innumerable quantity of these units. I believe that the method of handling such blocks in units, as well, also as the pallets, and the method of stacking and releasing, is distinctly new in this art, and I wish to claim the same herein broadly.

I furthermore prevent the breakage and damage by dropping, which breakage is at present a large item in concrete block manufacturing; I insure protection of the workmen against injury, and very greatly increase the speed of delivery of the blocks, because of the substantially instantaneous loading and unloading of a truck, with all the blocks it can carry.

My invention is further described and defined in the form of claim as follows:

Apparatus for handling a plurality of heavy articles in stacked units, comprising a pallet adapted to support and carry a bottom row of said articles, said pallet being of substantially less width than the width of said bottom row and of substantial thickness to permit the insertion under said articles of a pair of cooperating angle irons having horizontally disposed flanges of equal or less thickness than the thickness of the pallet, and hoisting means for said angle irons.

In testimony whereof I have signed my name to this specification.

SETRAK DERDERIAN.