To all whom it may concern:

Be it known that I, Arthur G. Hatch, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Concrete-Block-Making Plants, of which the following is a specification.

This invention relates to a new and improved concrete block making plant, and more particularly to the block forming and handling apparatus in such a plant.

In the making of concrete blocks as heretofore practiced the plastic concrete has, in general, been poured in forms and allowed to remain therein until it is completely set after which the blocks are individually removed from the forms. The molds for forming blocks used in the present plant comprise removable portions for forming the sides of the blocks and sections adapted to form the faces of a plurality of blocks. These latter sections are removable and serve as pallets upon which to transport the green blocks.

In order to facilitate the handling of the materials and of the blocks, an overhead carrier system is provided which is adapted to carry plastic concrete from the mixer to the forms and also to serve to carry the block supporting pallets from their casting position to a curing or storage ground or to a loading platform. In order to facilitate the setting of the concrete, steam carrying pipes are provided below the forms and the forms when filled are preferably covered with a pailin in order to hold in the heat and moisture.

In order to economize in space and to facilitate the manufacture, the forms are laid upon each other in successive layers. In the preferable form, after each layer of forms is filled, upper form sections are placed upon the filled forms, these sections being spaced and concrete is placed in the spaces to form lugs upon the blocks. The next layer of forms is placed upon these upper sections and the pile of forms may consist of any desired number of layers.

I have illustrated a preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a somewhat diagrammatic plan view showing the general lay-out of the plant;

Figure 2 is a section taken on line 2—2 of Figure 1;

Figure 3 is a section taken on line 3—3 of Figure 1;

Figure 4 is an enlarged plan view showing a portion of one of the form beds;

Figure 5 is a section taken on line 5—5 of Figure 4; and

Figure 6 is a section taken on line 6—6 of Figure 4.

The plant as shown in Figures 1, 2 and 3, comprises the material storage bins 11, 12 and 13 adapted to discharge through chutes 14 to a car 15 carried on track 16. Material is carried by this car to the concrete mixer 17. From the mixer the concrete is dumped into carrier 18 supported upon the overhead trolley track 19. Upon track 19 it is carried to the form beds 20 which are shown in detail in Figures 4 to 6 and will be described hereinafter. The overhead conveyor tracks 19 also pass out of the building to a curing yard or storage yard 21 and to a loading platform 22.

As best shown in Figures 4 to 6, the mold bed consists of pallets 23 bearing rows of four blocks 24. The rows of blocks are separated by division boards 25 and the blocks upon each pallet are separated by septums 26. The series of pallets are enclosed by lateral boards 27 and end boards 28. Below the lower mold layer are located the pipe coils 29 which are adapted to carry steam in order to heat the bed.

As best shown in Figure 5, the upper mold sections 30 are placed upon the lower bed when the molds are filled and concrete is placed in the spaces 31 between the upper sections to form lugs on the upper faces of the blocks. Spacing boards 32 are placed upon the upper layer of molds and a pailin 33 is placed over the mold block to keep in the heat and moisture. As indicated in Figure 6, in broken lines, the apparatus is not limited to two layers, and additional layers may be placed thereon if desired.

The plastic concrete is dumped from the carrier 18 upon the molds and suitably smoothed out to form the blocks. When the blocks have sufficiently set the frame boards 27 and 28 of the layer are removed as are the dividing boards 25. Then the pallets are lifted by a chain hoist 34 as shown in Figure 2 and are carried out upon the overhead track 19 either to the storage yard or...
to the loading platform where the blocks may be removed from the pallets if sufficiently set or may be loaded on wagons or cars while still in the pallets and conveyed in that manner to the work. As shown at 35 in Figure 2, a traveler may be provided operating upon the track 19 to carry the blocks about in the storage yard or to move them from that yard to the loading plat-form.

With a plant of this character a large number of blocks may be made with comparatively small expenditure of labor and the plant itself covers but a comparatively small space when its output is considered. Due to the overhead conveying the ground space necessary is minimized and the labor costs are materially reduced. Due to the use of the pallets for handling the blocks, these may be moved in a comparatively green condition and consequently the mold bed space is occupied but a short time by each pouring of material. The steam pipes and the heat and moisture containing paulins aid materially in expediting the cur-ing of the blocks.

It is to be understood that the plant as shown is illustrative only and I reserve the right to make such changes and modifications as come within the scope of the appended claims.

I claim:

1. A concrete block making plant, comprising concrete mixing and conveying means, a mold bed, said bed comprising mold sections adapted to form one face and the sides of blocks, and upper sections adapted to form the remaining face of the blocks and to support another layer of molds; and conveying means for the molds and formed blocks.

2. A concrete block making plant comprising concrete mixing and conveying means, a mold bed, said bed comprising mold sections adapted to form one face and the sides of blocks, and upper sections adapted to be spaced to form between them projections upon the remaining face of the blocks and to support another layer of molds, and conveying means for the molds and formed blocks.

Signed at Duluth, Minnesota, this 22 day of June, 1922.

ARTHUR G. HATCH.