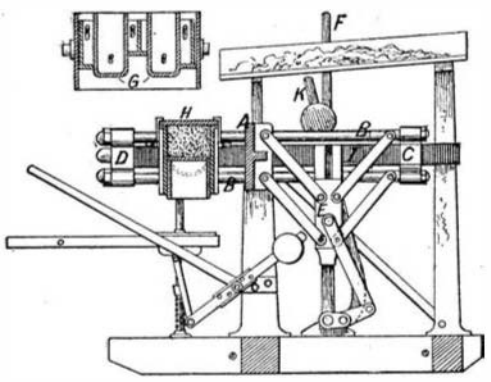
# Patent Department

## A NEW CONCRETE BLOCK MACHINE.

A marked advance in concrete block machinery has been recently made by a western manufacturer, Mr. George P. White, of Wallace, Idaho, after three years of continuous experimental work. The machine, which is now in the hands of the American Hydraulic Stone Company, of Denver, Colo., is used for making what is known as two-piece walls. An important feature of the machine is the use of multiple cores and followers, which are individually movable in the mold through various distances proportionate to the volume of material to be compressed.

One of our illustrations shows a longitudinal section




SECTION SHOWING DETAILS OF THE BLOCK MACHINE.

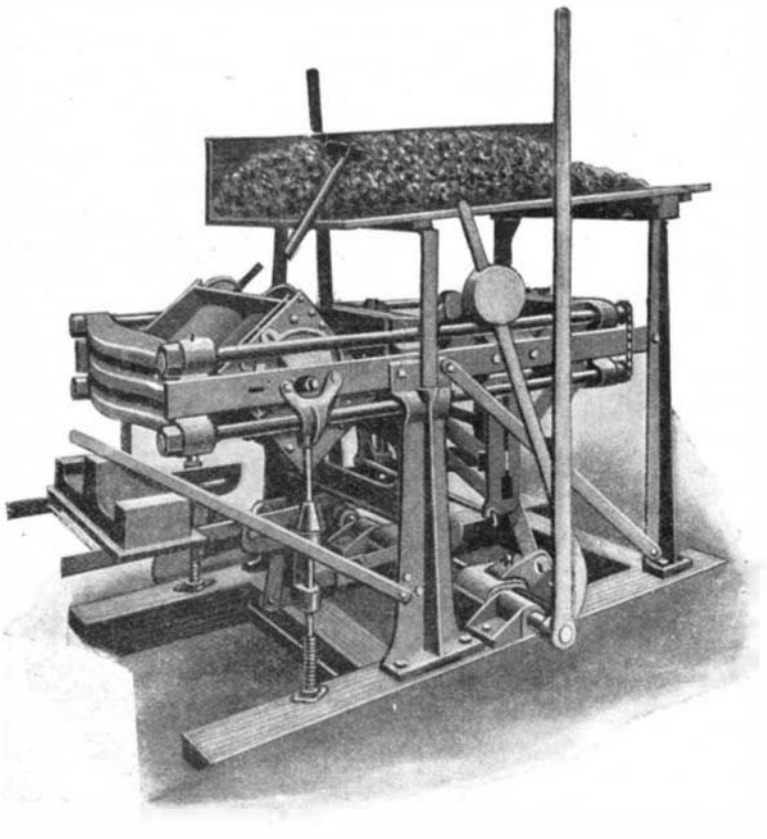
of the machine. The press head indicated at *A* is movable, being mounted at each end on a pair of horizontal bars, *I*. Above and below these bars, and parallel thereto, the pressure rods, *B*, are mounted. The lower ones on each side passing through an opening in the main frame are coupled together at each end by cross heads, *C D*. The cross head, *C*, and the press head, *A*, are connected by toggle links to a pair of slides, *E*, mounted to travel in vertical ways on opposite sides of the machine. A link connects each slide with an arm on the starting shaft, which in turn is carried in arms keyed to the main pressure shaft. By operating the starting lever, *K*, the slides will be caused to move vertically upward in their ways, and owing to the toggle link connection the cross head, *C*, and the press head, *A*, will be moved apart along the bars, *I*. Since the rods, *B*, are secured to the cross head, *C*, they will be moved bodily therewith, carrying the cross head, *D*, toward the press head, *A*. Between the cross heads, *D* and *A*, the mold, *H*, is mounted, and the operation thus far has brought the heads together sufficiently to make a partial pressure. The two pressure levers, *F*, are now operated, and pressure completed. A transverse section of the mold is shown in the machine in position to be filled with concrete, while the small detail view illustrates a longitudinal section of the mold in the inverted discharging position. The mold consists of a box frame open at the top and bottom. In this frame are the various cores and followers, *G*, adjustably attached to the same, permitting each to move independently of the other a prearranged distance. The center of gravity of the mold being unstable, the trunnions on which it is revoluble are located off the true center, thus adding greatly to the ease of movement. When the mold is in the filling position, the cores drop to their lowest positions with their ends projecting unevenly below the mold frame, in proportion to the amount of material to be compressed. After the mold has been filled with coarse concrete, a waterproof face of any desired color or texture can be applied, and a pallet, *H*, is placed over the top of the mold and secured by means of semi-automatic hooks. Then the mold is turned through an angle of 90 degrees with the pallet facing the press head, *D*. The operating levers are now drawn down to move the press heads together. The press head, *D*, is thus pressed against the pallet, while the press head, *A*, bears against the projecting cores, forcing them into the mold. A powerful compression is secured by the double toggle leverage, and the venting of cores and followers is so perfect, that no air is left in a pressed block.

After molding, the press heads return to normal position, and the mold is tilted. Below the mold is the lowering table, consisting of a pair of connected parallel bars mounted to move vertically up against the pallet. The pallet is then unhooked and moves down with the table as the latter is lowered, carrying the green block, which is thus pushed down by the weight of cores, which follow the block to face of mold, insuring a clean discharge. The table is balanced by a counterweight, and as it is mounted to travel on ways its movement is smooth, so that there is no danger of jarring the block as it is lowered out of the mold. The value of this lowering table, especially for heavy pieces, will be appreciated. As soon as the block is discharged, the mold may be turned over and filled for the next block.

The cores are so arranged that they can be readily removed and replaced with other forms, providing for blocks of different shapes and for walls of different widths. The machine adapts itself to a very wide range of construction, while but one size of pallet is used for any shape or size of block manufactured. A grave objection to concrete blocks has been the difficulty in meeting architects' specifications in cases where cut stone had been contemplated and courses of different heights had been specified. This difficulty is entirely overcome in the present machine by what is known as the "splitting device," which provides for the manufacture of blocks for any height of course or length of block in the same mold and with the same pressing plates. This splitting device is in effect a compressible partition conforming in section with interior of mold, which may be set at any desired place to block off the mold.

To make ornamental or rock face, a plate of desired form is used instead of pallet, *H*, and the block turned upon edge in the turning device, leaving the plates free for continuous use. Owing to the construction of mold case, having neither top nor bottom, it can be used either as a face-up or a face-down machine, greatly facilitating the manufacture of some special forms of courses.

Due to the perfection of the double toggle mechanism of the press, the pivotal features of the mold, the convenience of overhead mixture table, and the instantaneous action of cores in discharging blocks, the speed is accelerated to such an extent that four clever laborers, using a machine mixer, can make and place on curing cars a minimum product of 1,200 blocks per day. The machine can, of course, be operated by power by removing the six-foot operating levers and substituting a simple gear.



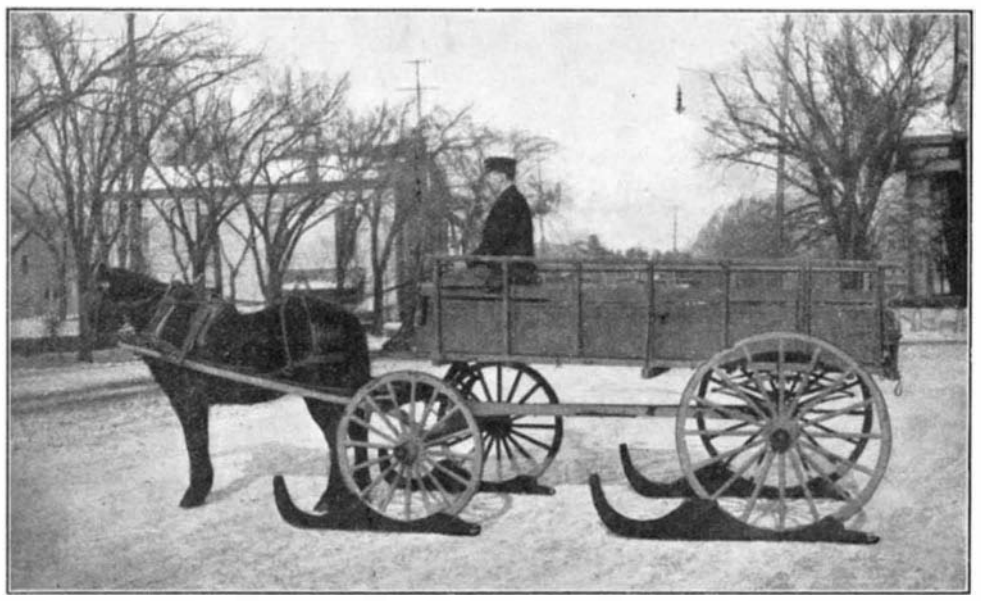
A NEW CONCRETE BLOCK MACHINE.

## SNOW SHOES FOR WAGONS.

It may seem rather a curious notion to equip an ordinary wheeled vehicle with snow shoes, and yet that is what F. W. Nightingale, of Quincy, Mass., has done. By means of the invention, any wheeled vehicle can be converted into a sled in a few minutes. The shoes are placed on the ground, and the vehicle driven into them. Clamps are provided, by means of which the shoes can be firmly bolted in place. The inventor suggests that the runners may also be placed on the front wheels of automobiles to facilitate travel in the snow.

## AN IMPROVED SELF-OILING ROLLER BEARING.

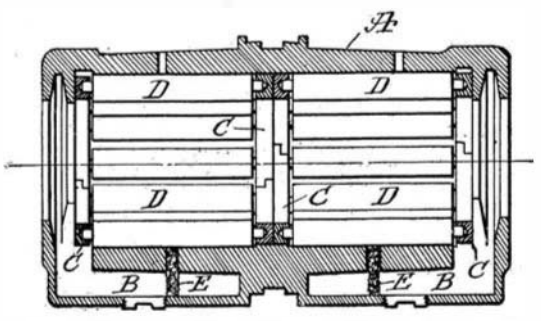
Most manufacturers will be surprised to learn how much power is lost in the shafting of their factories. An interesting series of tests was recently made in Cleveland, O., in sixteen different works using from 8 to 400 horse-power, to determine what percentage of the power was absorbed by the shafting. It was found



A WAGON EQUIPPED WITH SNOW SHOES.

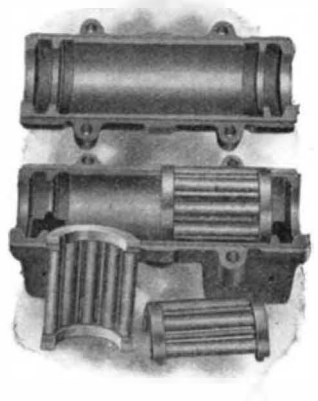
that in one-quarter of these factories 48 per cent of the power was used to drive the shafting, that the general average was 56 per cent, and that in one factory 80.7 per cent was thus lost, leaving but 19.3 per cent to drive the machines. It is needless to say that these shaftings were mounted in the ordinary babbitted bearings.

The importance of using anti-friction bearings is thus emphasized; for even if the first cost of anti-friction bearings is quite large, the saving in power which they are sure to effect will in most cases repay the initial outlay in less than a year. An excellent bearing




SECTION SHOWING CONSTRUCTION OF ROLLER BEARING.

of the anti-friction type made by George A. McKeel & Company, of Jackson, Michigan, is illustrated in the accompanying engraving. The bearing, which is self-oiling, is so constructed that no oil will be wasted. It is claimed that the oil saved by this bearing over the ordinary babbitted type is alone sufficient to pay for the bearing in a short time. One of the illustrations shows a sectional view which reveals the construction of the bearing. The shell, *A*, is made in halves which are bolted together. Extending under the lower shell are the oil wells, *B*. Mounted within the shell, *A*, are two pairs of rings, *C*, which form the bearings for two sets of rolls, *D*. The rings are made in halves, as shown, and their ends are formed to provide interlocking joints when the rings are assembled. In the lower shell are two ports which communicate with the oil wells. Fitted into these ports are a pair of wicks which are adapted to carry the



A SELF-OILING ROLLER BEARING.