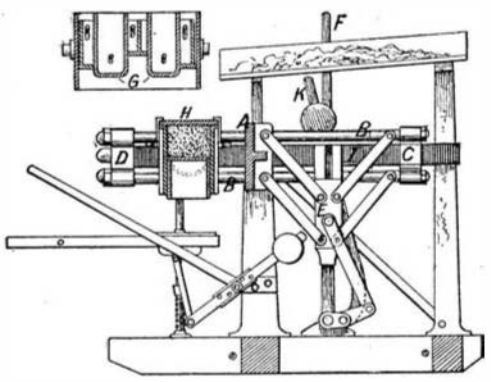
Patent Department

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.

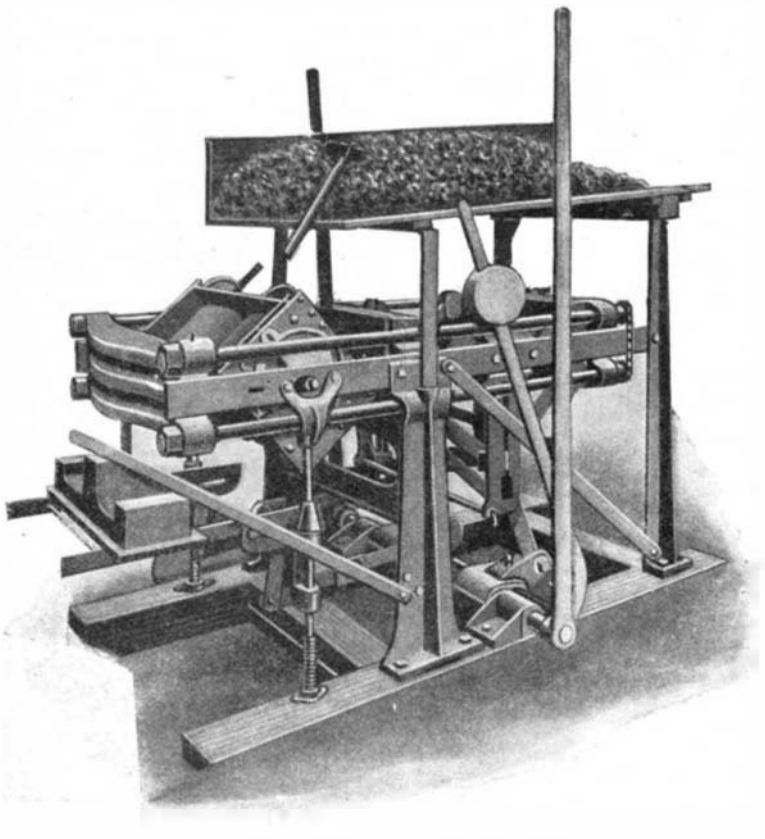
of the machine. The press head indicated at *A* is movable, being mounted at each end on a pair of horizontal bars, *I*. Above and below these bars, and parallel thereto, the pressure rods, *B*, are mounted. The lower ones on each side passing through an opening in the main frame are coupled together 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.



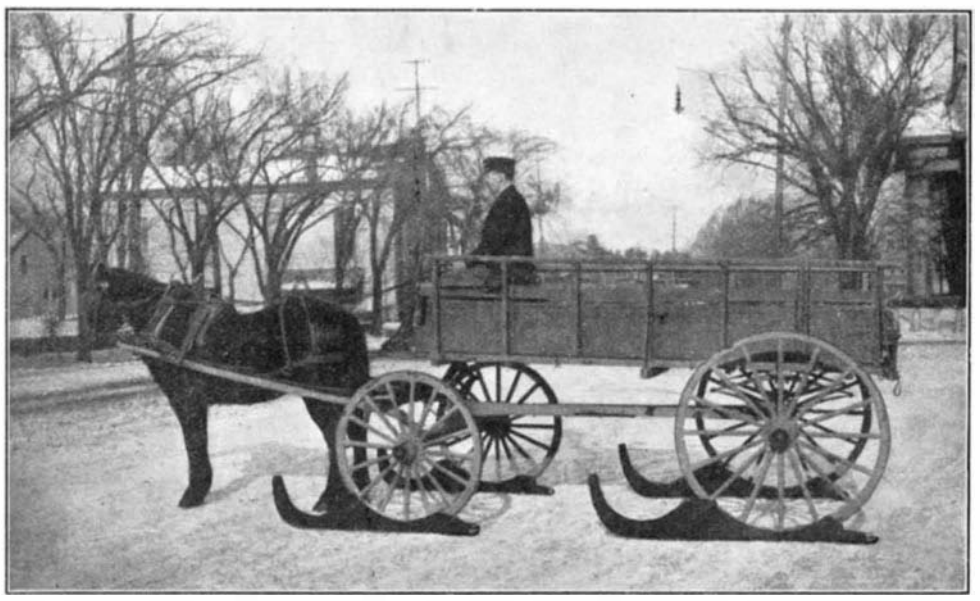
A NEW CONCRETE BLOCK MACHINE.

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.

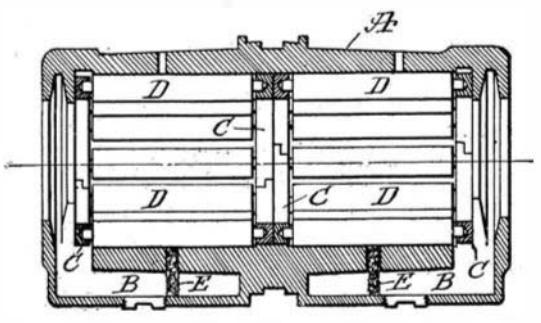
Most manufacturers will be surprised to learn how much power is lost in the shafting of their factories. An interesting series of tests was recently made in Cleveland, O., in sixteen different works using from 8 to 400 horse-power, to determine what percentage of the power was absorbed by the shafting.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



A WAGON EQUIPPED WITH SNOW SHOES.

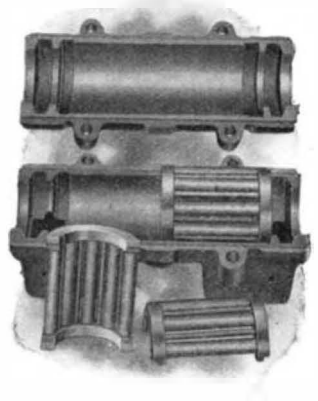
that in one-quarter of these factories 48 per cent of the power was used to drive the shafting, that the general average was 56 per cent, and that in one factory 80.7 per cent was thus lost, leaving but 19.3 per cent to drive the machines. It is needless to say that these shaftings were mounted in the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

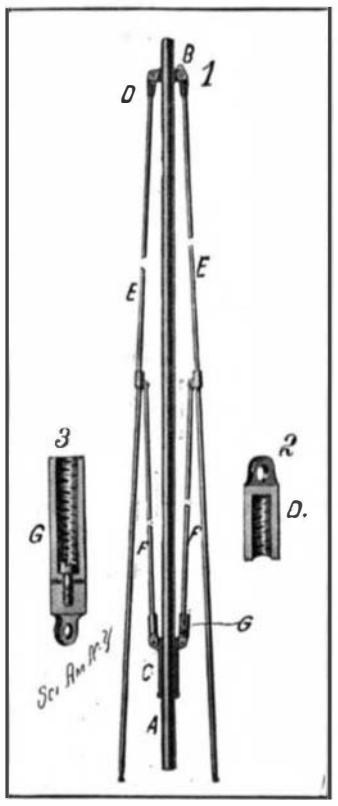


A SELF-OILING ROLLER BEARING.

oil to the rolls, *D*. Surplus oil flows to the ends of the shell and drops through openings into the oil wells. Thus a continuous circulation is maintained. A pair of spaced flanges formed at each end of the shell, *A*, prevents the escape of oil from the bearing.

UMBRELLA FRAME WITH DETACHABLE RIBS.

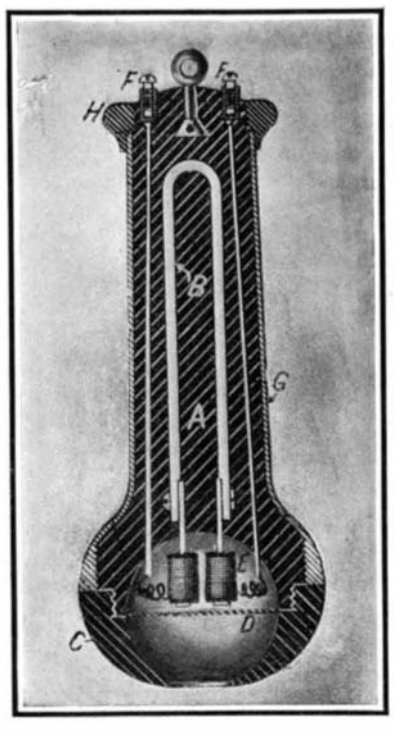
A new form of umbrella frame has recently been invented, in which the ribs and stretchers may be readily detached and replaced, when desired; thus, when a frame member breaks, the damage can be easily repaired. In general appearance, the frame does not differ from the ordinary, as will be observed in Fig. 1 of the accompanying engraving. The umbrella rod is shown at *A*, with the usual crown, *B*, and runner, *C*. Pivoted to the crown by means of a wire are a series of heads, *D*. Fig. 2 shows an enlarged sectional view of one of these heads, which will be seen to have a threaded bore. In this bore the upper end of the rib *E* is screwed. Intermediate of its length, each rib is provided with a lug to which the upper end of the stretcher *F* is pivoted in the usual manner. The lower end of the stretcher engages a swivel coupling *G*. This coupling is shown in detail in the sectional view, Fig. 3; it comprises an axially bored stud which is attached to a head by means of a screw in such a manner that it can swivel. The bore of the stud is threaded to receive the stretcher. The head of the coupling is pivoted to the runner *C*. If it be desired to remove one of the ribs, the stud of the swivel coupling is first turned to unscrew it from attachment with the stretcher, and as soon as the latter is released, the rib may be turned to unscrew it from the head *D*. In applying a new rib, the process is, of course, reversed, that is, the rib is first screwed into the head *D* and then the stretcher is made fast to the coupling *G* by screwing the stud upon it. A patent on this improved umbrella frame construction has just been granted to Mr. William Haeckel, of 804 Macon Street, Brooklyn, N. Y.



UMBRELLA FRAME WITH DETACHABLE RIBS.

AN IMPROVED RECEIVER FOR TELEPHONES.

Few persons who are not directly concerned with the telephone business have any conception of the expense to which a large telephone company is put each year in replacing damaged telephone receivers. In the ordinary construction, a thin shell of hard rubber is used to inclose the magnets and diaphragm of the receiving apparatus. This shell is so brittle, that it is liable to be cracked or broken if the receiver is accidentally dropped or knocked against a hard substance. With this in mind, Mr. Louis Steinberger, of 127 North 10th Street, Brooklyn, N. Y., has invented an improved receiver, of very solid construction, which offers little possibility of being damaged, and furthermore, it is formed with removable outer sections which, if marred, can be renewed at a small cost. The accompanying engraving shows a longitudinal section of the improved receiver, from which it will be seen to consist of a core, *A*, of insulating material, preferably "electrose," in which the usual permanent magnet, *B*, is imbedded. The core is enlarged at one end, and hollowed out to form a hemispherical concavity. A cap, *C*, provided with a similar concavity, is screwed onto a neck formed on the core *A*. The two concavities are separated by the diaphragm *D*, back of which is the usual electro-magnet, *E*. The latter is connected with the binding posts *F* by means of conductors imbedded in the core. Over the core a casing, *G*, may be fitted, to give a suitable finish to the receiver. This casing is preferably of metal, although the inventor does not limit himself to any special material. The casing is screwed onto the core at the forward end, and at the rear is held by a ring, *H*, screwed onto the core. In place of the locking member, *H*, as shown, an apertured cap may be employed for concealing the binding posts to conform with a certain type of receiver. The inventor has adopted the use of a spherical concavity about the diaphragm, because he has found that the acoustic properties of the receiver are greatly increased thereby, the intensity of the sound waves being apparently amplified by this arrangement. It will be observed that the large end of the receiver has the form of an oblate spheroid. This enables it to be applied to the ear with great precision, and also gives it a neat appearance. The globe rotundity of the receiver prevents undue catching of dust, and presents a surface which is easily cleaned or polished, all parts being readily accessible. The sanitary properties of the receiver are therefore greatly increased.



AN IMPROVED RECEIVER FOR TELEPHONES.

The scope of Mr. Steinberger's patent is very broad, as it covers not only a solid core, but also a hollow core of insulating material, nor does it limit him to making the outer case of the receiver detachable from the core section, as it may be molded permanently on the core.

Rejuvenation of Worn-Out Files.

The latest application of the air and steam blast is in the rejuvenation of worn-out files. A piece of portable apparatus has been recently introduced as part of the equipment of the workshop by which ninety per cent of the discarded files of the shop may be reclaimed at a trifling cost. Furthermore the file is capable of being sharpened in this manner from four to six times. The device is a comparatively small one, somewhat like a forge in appearance, and having a hood. Under the latter is a rack for holding the file which is to be operated upon. The jet, which may be air or steam, or a combination of both, is laden with some abrasive and it strikes the file at an angle of from fifteen to thirty degrees. In this manner the blast acts upon the back or sloping edge of the teeth. The abrasive material falls into a pocket containing water and is drawn from this receptacle and used over and over again until it becomes broken up into such fine particles that it floats off in the overflow of water. The cost of this renewal is said to be one-tenth that of a new tool. Hack-saw blades may be successfully treated in the same manner.

A HANDY PORTABLE CRANE AND HOIST.

BY A. FREDERICK COLLINS.

A utility tool that has been found almost indispensable in garages, machine shops, and warehouses is the portable crane and hoist shown in the accompanying illustration. This crane is constructed of angle steel bent to the required form without a joint from top to bottom, effectually eliminating all the weak points of previous types. It rests on three wheels, each of which is 7½ inches in diameter with a 3-inch face, and these form the truck on which the bed of the machine rests; the wheels are about 4 feet apart at each angle. The sheaves at the head of the crane are on a cold-rolled shaft, and midway between the head and the windlass is placed a roller, over which the cable draws leading to the windlass. The crane is usually furnished with a special grade of manila cable, the tensile strength at breaking limit being 2,400 pounds. The smallest size is equipped with three ropes from the overhang to the steel pulley block; the next largest size has five ropes, the third seven ropes, and so on. Chain hoists can be used instead of the manila cable, and an adjustable grab chain having two double hooks for handling cases, casks, barrels, etc., can be used where necessary. The crane is made in six sizes, the smallest weighing 260 pounds and having a lifting capacity of 1,000 pounds, while the largest weighs 650 pounds and lifts 6,000 pounds.

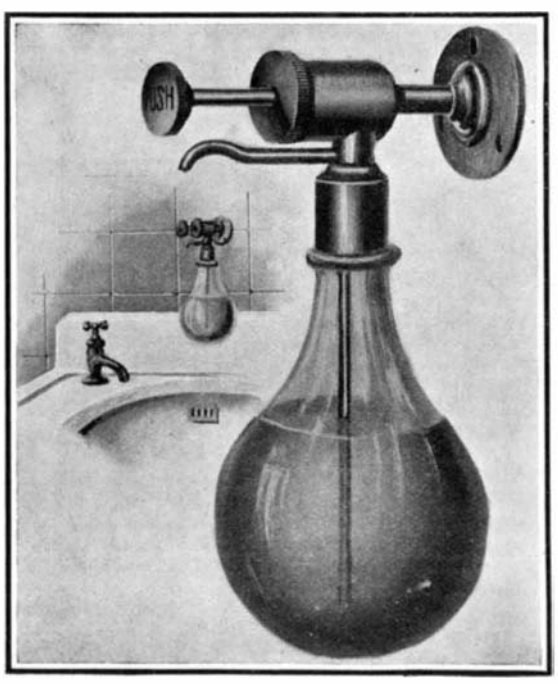
The advantages of this hoist are readily apparent when its portability is considered; it can be easily rolled to the desired position, and one man can handle armatures, lift an engine out of a chassis, or heavy castings on or off machine tools; in fact, the apparatus will perform many of the duties of an overcrane or a trolley truck, thus saving the large cost of installing the latter equipments.

A manufacturer of automobiles has called this crane "the handiest man in the shop;" and this is quite true, for it circumvents the necessity of keeping several men waiting for a ponderous crane to do a little work, and no other tool will pick up and carry heavy weights to where they are wanted, and then get out of the way, hence it is a tool that keeps things moving.

A HANDY PORTABLE CRANE AND HOIST.

LIQUID SOAP HOLDER

Physicians have often pointed out the dangers of using cake soap in public lavatories. Good soap, undoubtedly, possesses antiseptic qualities of a mild character, but it is unable to cope with the germs of a virulent disease, and, as a consequence, it often plays an important part in communicating contagious diseases from one person to another. With the purpose of overcoming this evil, and insuring a clean supply of soap, the soap holder shown in the accompanying engraving has been invented. It consists of a bottle in which soap in liquid form is contained. Screwed to the neck of the bottle is a plug, which supports a piston cylinder. The plug is formed with a port, which opens communication between the rear of the cylinder and the interior of the bottle. A tube in the bottle, which reaches almost to the bottom of the receptacle, passes through the plug and communicates with a spout. The plunger, which fits snugly into the cylinder, is normally held in the outer position by means of a coil spring. The outer end of the plunger is fitted with a push button. The cylinder is formed with a bracket, by means of which the device may be readily fastened to the wall or other support over a basin. In use, the push button is pressed, compressing the air in the bottle and forcing some liquid soap up through the tube and out of the spout. The operator may be assured that the soap is perfectly clean, as there is no way in which it may be contaminated. Aside from the value of this device, in preventing the dissemination of disease germs, it prevents an undue waste of soap, for, as is well known, more soap is wasted, when used in cake form, than is actually put to use. When the supply in the receptacle is exhausted, the bottle may be unscrewed and refilled without necessitating the removal of the piston cylinder and bracket from the wall. Not only can this device be used for dispensing soap, but it will be found equally useful for various toilet preparations. A patent on this liquid soap holder is owned by the Bender Manufacturing Company, Land Title Building, Philadelphia, Pa.



LIQUID SOAP HOLDER.