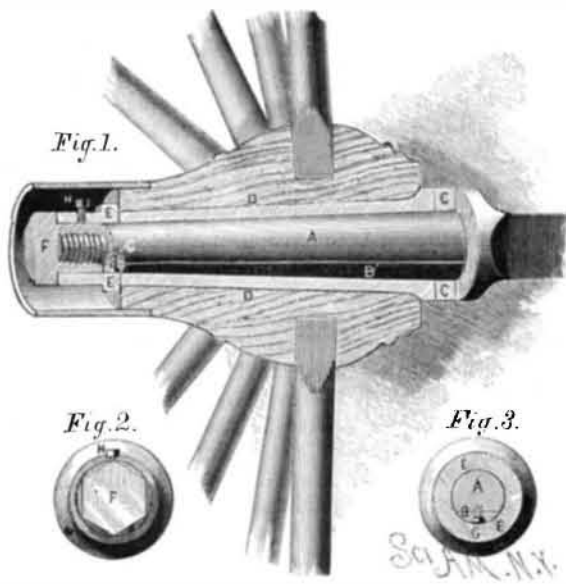


AN IMPROVED AXLE.

The under portion of the journal, A, is made flat, and the outer end is screw threaded in the ordinary way. Applied to the flat surface is a wearing plate, B, which is held in place by the washer, C, collar, E, and by the screw, G, which enters a countersunk hole in the plate, as shown in the cross section, Fig. 3. The nut, F, fits within the collar and screws upon the end of the axle to hold the wheel in place; by means of the set screw, H, the collar may be confined to the nut at any desired position. In ordinary use the nut and collar act together as a single nut, but when the thimble, D, becomes worn at the end, the collar may be

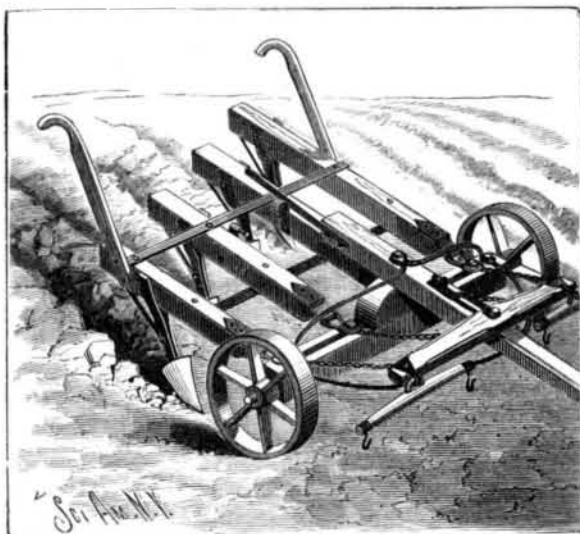
**GREGG'S IMPROVED AXLE.**

ed forward upon the nut by loosening the set screw. When the wearing plate becomes worn so as to be too small for the thimble box of the wheel, it can be easily removed and replaced by a new one, thus always insuring the true running of the wheel.

This invention has been patented by Mr. T. E. Gregg, of Mineral Springs, S. C.

AN IMPROVED CULTIVATOR.

In the wheeled cultivator patented by Mr. E. R. Ham, of New Market, Ga., a number of plow beams are secured to the axle and arranged side by side with flexible connections, to adapt them for various movements independent of the axle and of each other. The axle has a central arch to which the tongue is rigidly secured, and is formed with slots on each side of the arch, which are equal in length to the greatest distance between any two of the beams, which are flexibly connected to loops pivoted to the axle by bolts and nuts. This permits both a vertical and lateral movement of the beams, which is very desirable in stumpy land, and where the soil is wet and softer in some places than in others. The beams are connected to each other by flexible cross bars made of sheet metal. These bars are pivoted to the beams so that by moving one of the outside plows by its handle all the beams will be moved simultaneously in the same direction. This construction is important, since both handles owing to their distance apart, cannot be held by one man at the same time. The standards to which the plows are attached are slotted to receive the beams. The tongue is pro-

**HAM'S IMPROVED CULTIVATOR.**

vided with a rear projection, upon which the beams are supported by means of hooks when the cultivator is not in actual use.

Membrane of Egg for Skin Grafting.

In a case of extensive burn unhealed after six years, Dr. Frank C. Wilson, of Louisville, Ky., in *Med. News*, says: "I made use of three different kinds of skin grafts, namely, from the skin of a young rabbit, from the human skin, and from the inner membrane of a perfectly fresh hen's egg." Of the three he much preferred the egg membrane as being much more readily obtained, and one egg will supply any number of grafts needed.

Remarkable Intelligence and Heroism of a Dog.

The large Newfoundland dog Heck, belonging to the St. Elmo Hotel in the oil town of Eldred, Pa., was known throughout the northern oil field for its great strength and almost human intelligence. The porter of the hotel, a kind hearted but intemperate person, was an especial favorite with the dog. The porter, a small man, slept in a little room back of the office. The dog slept in the office. On the night of Sept. 18 last, the porter was drunk when he went to bed, and soon fell into a heavy sleep. Some time in the night he was awakened by the loud barking of Heck, who was jumping frantically on the porter's bed and seizing the pillow with his teeth. The still drunken and drowsy porter tried to make the dog go away, but the animal persisted in his efforts, and it finally dawned on the befuddled mind of the porter that the house was on fire.

His room was full of smoke, and he could hear the crackling of the flames. He sprang from the bed, but was still so drunk that he fell to the floor. The faithful dog at once seized him by the coat collar, the porter not having removed his clothing on going to bed, and dragged him out of the room and half way to the outer door of the office, when the man succeeded in getting to his feet, and, unlocking the door, staggered into the street. The fire was rapidly spreading over the building, and the hotel was filled with guests, not one of whom had been aroused. The dog no sooner saw that his helpless friend was safe than he dashed back into the house and ran barking loudly upstairs.

He first stopped at the door of his master's room, where he howled and scratched at the door until the inmate was made aware of the danger and hurried out of the house, as there was no time to lose. The dog gave the alarm at every door, and in some instances conducted guests down stairs to the outer door, each one of these, however, being a stranger in the house, which fact the dog seemed to understand in looking out for their safety. All about the house seemed to have lost their heads in the excitement, and it is said that the hotel dog alone preserved complete control of himself, and alone took active measures to save the inmates of the house. In and out of the burning building he kept continually dashing, piloting some half-dressed man or woman down stairs, only to at once return in search of others. Once a lady with a child in her arms tripped on the stairs while hurrying out, and fell to the bottom. The child was thrown on the floor of the hall some distance away. The woman regained her feet, and staggered in a dazed way out of the door, leaving the child in the midst of the smoke that was pouring from the office door. The brave dog saw the mishap, and jumping in through the smoke, which was now becoming almost impassable, and seizing the child by its night clothes, carried it safely out.

Notwithstanding this rescue, the mishap that made it necessary led to the death of the noble animal. The mother of the child on being restored by the fresh air first became aware that the child was not with her, and crying out wildly that "Anna was burning up in the house!" made a dash for the building, as if to rush through the flames to seek her child. Heck had already brought the little one out, but it had not yet been restored to its mother. The dog saw the frantic rush of the mother toward the burning building and heard her exclamation that some one was burning up in the house, and, although the building was now a mass of smoke and flames inside and out, the dog sprang forward and, as a dozen hands seized the woman and held her back from the insane attempt to enter the house, disappeared with a bound over the burning threshold. The faithful animal never appeared again. His remains were found in the ruins. There is no doubt in any one's mind that but for the intelligence and activity of Heck the fire in the hotel would not have been discovered in time for a single inmate to have escaped from the building with his life; and that the noble animal understood from the half-crazed movements of the child's mother that there was still another one in danger, and to rescue whom he gave his own life, is accepted as certain. The remains of Heck were given a fitting burial, and his loss is regretted as that of a useful citizen might be.

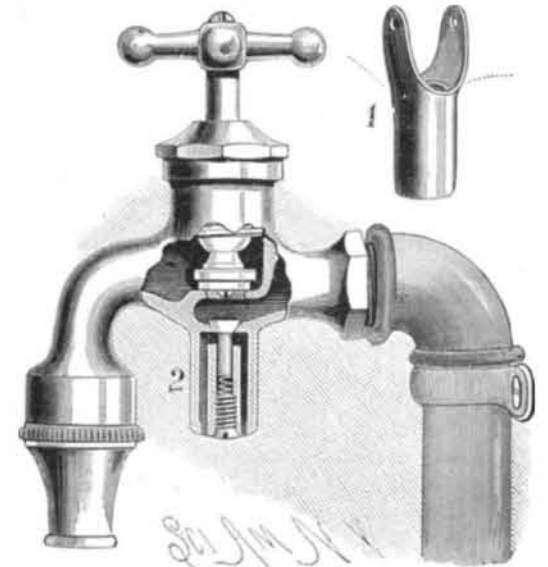
Diamond Turning Tools.

It is sometimes desirable to reduce the dimensions of a hardened steel article that has received a lathe finish without first drawing the temper, as this necessitates a rehardening and retempering. The usual method of lathe reducing of hardened steel articles by corundum wheel grinding is necessarily confined to straights or tapers, no offsets, collets, or shoulders being amenable to this style of work. A model maker and bright mechanic has succeeded in utilizing the black diamond, or bort, as a turning tool for hardened steel. He places a crystal in the end of a piece of iron or brass for flat turning, and one on the side of the end, or on a corner of the end, for side or shoulder turning. He has succeeded in doing some good work with these crude-looking tools.

The chips taken from the hardened steel are literally chips, not turnings, and are very minute. But viewed under the microscope they are seen to be cut from the hardened steel, and not merely disengaged crystals. One of the specimens of work with these bort tools is a well finished V-thread, about 32 to the inch. Two differing crystals of the diamond were employed to cut and true the thread. An adaptation of bort tools to the planer is evidently possible, and there seems to be no reason why its use might not be extended with economical results in the treatment of hardened steel and of chilled iron.

IMPROVED FAUCET.

The faucet shown in the engraving is so constructed as to prevent the water from standing in the pipes after the supply from the main has been shut off. The faucet may be of the ordinary pattern. The outer case of the automatic draining attachment is arranged at the lowest point beneath the body of the valve, and may be cast with the faucet or attached to those already in use. When made separately, it may have a jaw-like form (Fig. 1) on its upper end to hug the sides of the body, to which it may be held by set screws. A valvular vent-stem is arranged to close an orifice in the bottom of the body, and is kept closed by the water in the

**ALLWOOD'S IMPROVED FAUCET.**

faucet when exposed to the full pressure of the supply. The stem is raised by a spring when the pressure is reduced by shutting off the supply; and by means of an adjusting screw upon which the spring rests, the tension of the latter may be so regulated as to adapt the device to different pressures. The screw and spring are contained within an inner tubular projection, within the case, which serves as a guide for the stem. Outside of this projection is a passage communicating below with any number of escape holes in the bottom of the case.

When the supply is shut off the valve stem will be raised by the spring, thereby allowing the water to drain out of the faucet and its connecting pipe, the escape being made through the orifices. In this way the device is automatic, and frozen water pipes within the building are prevented, supposing all the faucets to be similarly constructed.

Further particulars may be obtained by addressing the patentee, Mr. Arthur Allwood, of 381 Pleasant Street, Fall River, Mass.

DUMPING CAR.

The car herewith shown is for carrying coal, gravel, etc., and is so made as to permit dumping of the load at either side. The body is composed of ends and sides, which are hinged at their upper edges to side rods connecting the ends. The lower edges of the sides are curved inward, so that they unite when closed to form a tight receptacle with a rounded

**SHERROD'S DUMPING CAR.**

bottom. Fixed to the frame beneath the body are slide boards placed to form a double incline, the apex of which is at the center; these slides extend out far enough to carry the material beyond the wheels and track. The sides are held closed by pivoted bars, that engage notched pieces attached to the ends. The shape of the body is such that the pressure on the sides will throw them open as soon as the latches are released. It will be seen that the load may be thrown upon either side, or may be divided by opening both sides at once. Each end of the car is provided with a handle and hook, for hand use and horse power respectively.

This invention has been patented by Mr. B. W. Sherrod, P. O. Box 156, Birmingham, Ala.