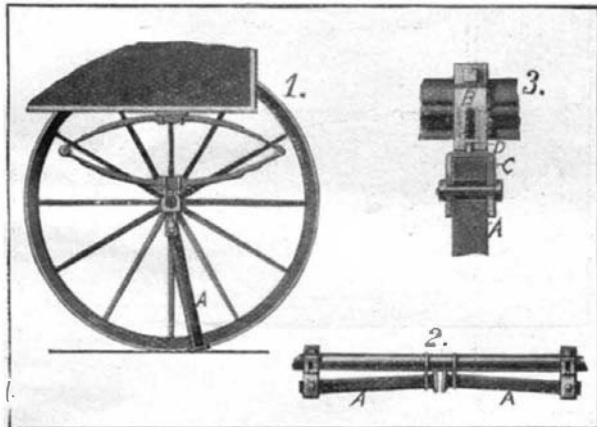




AN IMPROVED VEHICLE JACK.

An improved vehicle jack has recently been invented, which is of a type adapted to be fastened to and form a permanent attachment for a vehicle. The jack is so mounted that it can easily be brought into operative

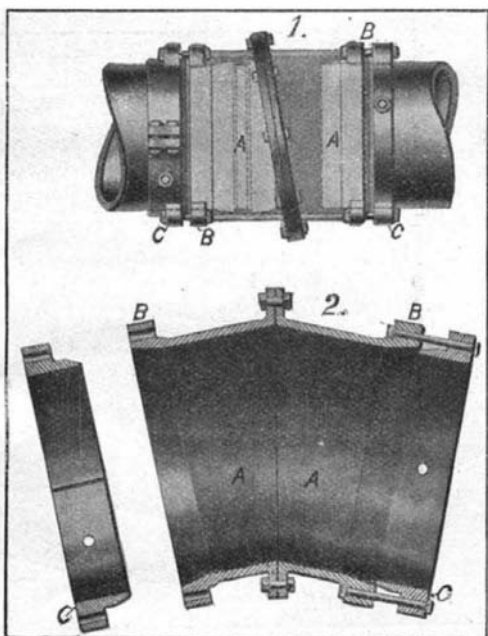


AN IMPROVED VEHICLE JACK.

position, and carried to inoperative position with little work on the part of the operator. In the accompanying engraving the jack is shown at A. It will be observed that it comprises two legs hinged to the axle of the vehicle. The method of hinging these legs to the axle is shown in Fig. 3. A collar B is secured to the axle, and this is provided with an undercut slot. Each leg A is journaled on a transverse bolt in a yoke C. The latter is formed with a pin D adapted to enter the slot in the collar B. The head of this pin D engages the undercut portion of the slot. When the jack is not in use the legs are folded up against the axle, to which they are secured by means of hooks, as shown in Fig. 2. In the operation of the jack the legs are detached from the hooks and swung laterally on the pins D as a pivot, after which they are dropped downward, turning on the bolts in the yokes C. To lift the vehicle wheels it is only necessary to back the vehicle, when the wheels will be raised by the legs. A patent on this improved vehicle jack has recently been secured by Mr. Anthony Gordon, of Sourisford, Arthur Municipality, Manitoba, Canada.

COUPLING FOR LARGE PIPES.

Pipe lines lying on the bed of a river frequently become broken from various causes, such as the dragging of an anchor along the bottom of the river, and when the connecting ends of the pipe sections become broken, it is necessary to cut away a portion of the ends of the pipe and connect the sections together by means of a sleeve, which will make up in length for the portions that have been cut away. This sleeve must be applied when the pipe sections are in their places under water, and the couplings should be so constructed as to enable the pipe sections to lie evenly on the bed of the river, otherwise a continuous strain is exerted on the joint, which is liable to break the joint. The accompanying drawing shows a simple method of making such a connection under water between pipes of large diameter. The coupling consists of two similar cylindrical sleeves A, formed with flanges on their adjacent ends, extending in a plane inclined to the axial line of the sleeves. These flanges

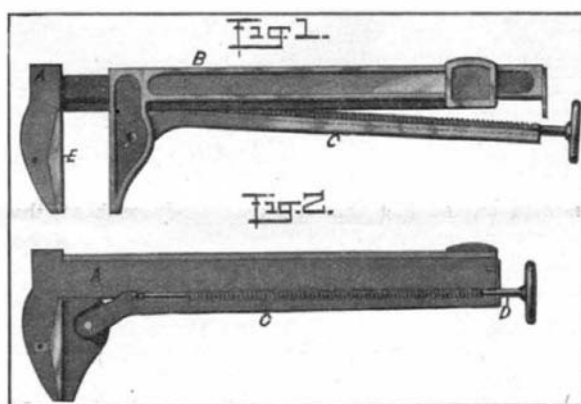


COUPLING FOR LARGE PIPES.

are provided with bolt holes equally spaced thereon, so that the sections may be rotatably adjusted on each other before being bolted together, so as to extend in any line between a straight line and a right angle. In the illustration Fig. 1 shows a straight line coupling, while Fig. 2 shows the method of coupling the sleeves at an angle with each other. This adjustment permits of coupling the sections so that they will conform to the contour of the ground upon which they lie. A series of lugs B are formed on the outer ends of the sections. Bolts which pass through these lugs are adapted to engage apertures in similar lugs formed on the sections C. The outer ends of each sleeve section and the inner edge of each set ring are beveled. In use a soft metallic packing is placed between the set ring and the sleeve, and is compressed firmly against the end of the pipe section by tightening the bolts which pass through the lugs B. A patent on this improved type of coupling has recently been granted to Messrs. Erick T. Christensen and David M. Tulloch, Hanover Square Building, New York city.

QUICK-ACTING WRENCH.

Pictured in the accompanying engraving is an improved wrench of such design that the jaws can be quickly adjusted to the work, after which they may be moved to clamp the work as tightly as may be desired. The wrench consists of a shank A with a fixed jaw formed thereon. Fitted to slide on the shank is a sleeve B, which is formed with inwardly-projecting flanges adapted to engage a pair of grooves in the shank A. At the end of the shank a collar is secured, which serves to prevent the sleeve B from being dis-



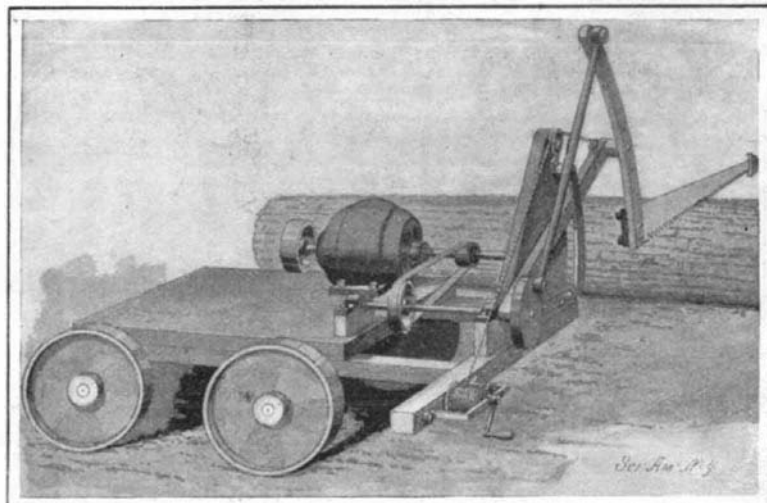
QUICK-ACTING WRENCH.

engaged from the shank A. The sleeve B carries the movable jaw of the wrench. Pivoted to this movable jaw is an auxiliary shank C. An adjusting screw D is adapted to engage a thread formed partly in the main shank A and in the auxiliary shank C. This screw is provided with a head at its inner end, which is seated in a groove in the shank C. In use, when it is desired to move the jaw of sleeve B quickly toward the fixed jaw, the shank C is swung downward, as shown in Fig. 1, so as to disengage the screw D from the segmental thread in the shank A. After the jaws have been moved to approximately the position desired, the shank C is swung up toward the shank A and held in engagement therewith by means of a hook, which is passed around the body of the screw D. Thereupon, by turning this screw the jaws may be drawn tightly into engagement with the work. The jaw A is provided with a serrated surface adapting it for use as a pipe wrench. In order to convert the wrench into one of ordinary form a plate E is provided, which is fitted into the jaw A. A tongue formed on this plate projects into a recess in the jaw, and a transverse adjusting screw which passes through the tongue serves to hold the plate firmly in place. Mr. C. M. C. Kirk, of Nahcotta, Wash., is the inventor of this improved wrench.

PORTABLE SAW-OPERATING MECHANISM.

A patent has recently been secured by Mr. W. K. Gor-

don, of Thurber, Tex., on a mechanism for operating cross-cut saws whereby logs, timbers, trees, or the like may be cut into blocks or lengths while the wood is flat upon the ground. The mechanism is supported on a wheeled-carriage, the wheels turning in planes at right angles to that of the saw so that the carriage may be moved along the log to bring the saw to a new place for cutting. The saw is operated by a gasoline or electric motor, mounted on a carriage.

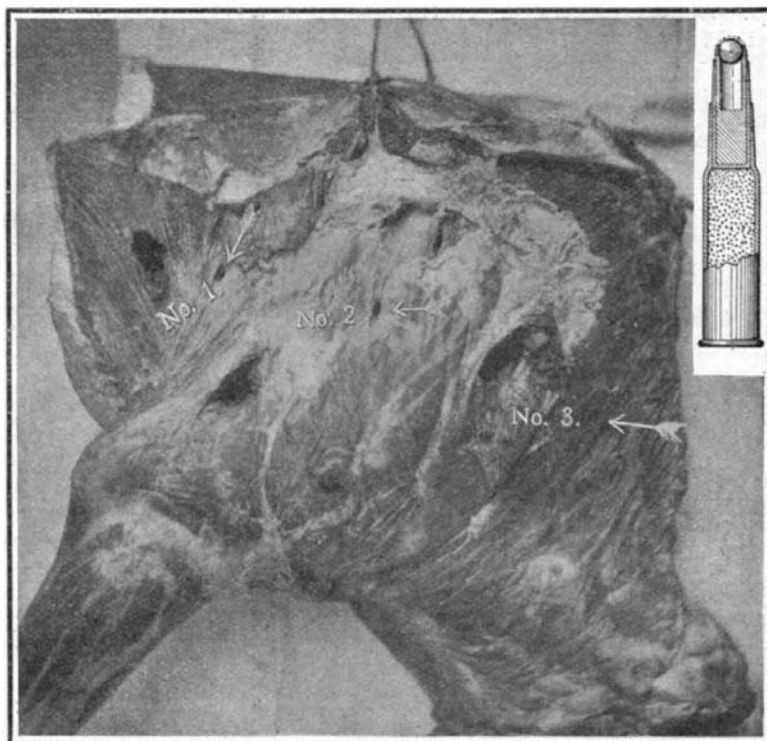


PORTABLE SAW-OPERATING MECHANISM.

The power is transmitted by means of belts and pulleys to a crank shaft on which a disk is secured. A pitman engages a crank pin on this disk and its opposite end is pivoted to a curved or segmental bar. An arm is adjustably pivoted to the bar at one end, while the other end is mounted on the crank shaft. The lower end of the segmental bar carries the saw which is pivoted thereto. A cable attached to the arm passes over a pulley and to a winding drum. This provides means for lifting the saw when it is desired to move the mechanism about, and a stop pin in the bar projects under the saw and prevents it from swinging down to the ground. In operation the machine is placed to bring the saw in position for cutting the log. The ratchet mechanism on the winding drum is then released, permitting the saw to drop down on the log. At the outer end of the saw is a shoe formed with a curved under face. Now, when the motor is operated the pitman will cause the segmental bar to oscillate on the outer end of the arm as a fulcrum, and thus move the saw back and forth. As the cutting proceeds the saw will move downward on the crank shaft as a fulcrum. The shoe on the end of the saw serves first to weight the saw and assist it in its downward movement, and then, by engaging with the ground, to prevent the saw teeth from touching the ground and being injured.

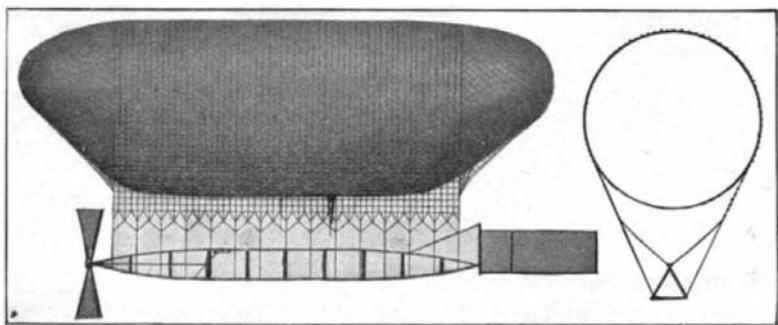
A NEW FORM OF MUSHROOM BULLET.

The small-bore, high-power rifle that is in general use to-day was originally designed as a military rifle, the object of which is to wound or maim at extreme range; and owing to its high velocity, the trajectory is so flat that the raising or changing of sights under ordinary circumstances is unnecessary. Sportsmen, seeing the advantage gained by great velocity, were quick to adopt this type of rifle. It was found that by inverting the jacket of the full metal-jacketed bullet



A NEW MUSHROOM BULLET AND THE WOUNDS IT MAKES.

so as to leave the soft nose exposed, this bullet when striking hard substances such as bone, will very often mushroom or expand, causing a severe wound. Improvements in powder have from time to time increased the velocity of these bullets until they now have a muzzle velocity of 2,700 feet per second. With this velocity even the soft nosed bullet will pass through the animal without expanding in the least until some hard substance is struck, when it is apt to fly to pieces. The great heat caused by friction in the air causes the bullet to cauterize the veins and ar-



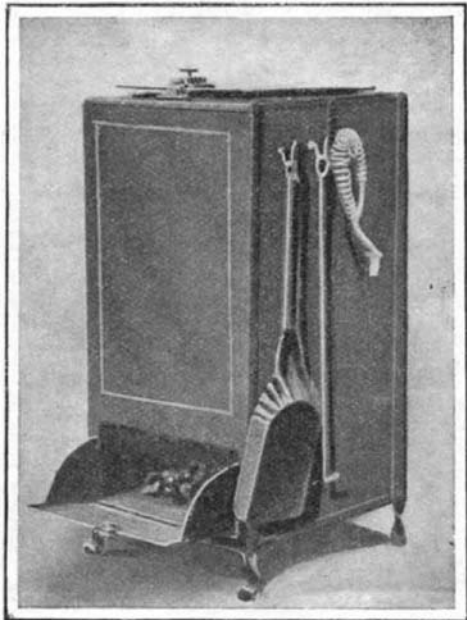
AN IMPROVED NETTING FOR AIRSHIPS.

teries, causing little bleeding and thus making it impossible for the hunter to track his game by the blood. It is stated on reliable authority that this year in Nova Scotia over forty per cent of the game hit or wounded escaped, some to die a lingering death in great agony.

To overcome these objections to the ordinary bullet, Mr. G. H. Hoxie, 4440 Michigan Avenue, Chicago, Ill., has invented the form of bullet illustrated in section in the accompanying drawing. The bullet consists of a jacket with a filling of lead in which a steel ball is seated. In another construction a steel wedge is used in place of the ball. Behind the ball is a chamber formed in the filling. When the bullet strikes an object the ball is forced into the chamber, expanding it and tearing it open. One of the illustrations shows the character of wounds produced by this bullet as compared with other wounds. The arrows 1, 2, and 3 point to wounds produced by the ordinary soft-nosed bullet. The wounds made by the improved bullet are four or five times larger, and need no designating arrows.

PORTABLE COAL BIN.

The common coal scuttle is a very primitive device, which in nowise meets the requirements of the ordinary household. It is impossible to scoop a shovelful of coal out of it without tipping the scuttle, unless the scuttle be filled to the top, and in the latter case there is danger of spilling the coal over the floor. Furthermore, the scuttle is of entirely too small a capacity to supply the needs of the ordinary kitchen range. This deficiency is particularly felt in flats and apartments; and in order to meet these special needs, Mr. August H. Koch, of 230 West 142d Street, New York, has invented a portable coal bin of sufficient size to receive a sackful of coal, and so arranged that the coal may be shoveled out of it with equal facility, whether the bin is full or nearly empty. The accompanying engraving clearly illustrates the device. It consists of a metal box with a hinged lid at the top, covering the opening through which the coal may be poured into the bin. At the lower end of the bin is an inclined chute or slide, which directs the coal toward the rear. A door opens into the bin at the bottom, and when this is open the coal may be scooped out with perfect ease. The door is formed with side walls which prevent the coal from spilling when it is shoveled out. At the side of the bin is a rack adapted to hold a shovel, poker, etc. It will be noticed that the lid at



PORTABLE COAL BIN.

the top and the door at the bottom render the bin entirely dustproof. Not only is the bin of advantage as a place for storing coal, but it provides a convenient receptacle for trash and sweepings which may be thrown in, and later, as they work their way down through the chute, taken out with the coal and burned.

IMPROVED NETTING FOR AIRSHIPS.

One of the difficulties encountered in the dirigible balloon or airship is the tendency of the gas bag to sag in the middle, the gas going toward both ends, thus changing the form of the bag and rendering the airship uncontrollable. To obviate this it has been customary to use a second internal bag or "ballonette." This requires a continuously-operating air pump to keep up the pressure in the internal bag. Capt. Thomas S. Baldwin (Box 78, Madison P. O., New York city), has recently received a patent on a means for preventing this collapse of the gas bag without employing a ballonette. This result he attains by inclosing the bag

in a netting, having a square or other form of mesh, which enables the lines of the netting bearing the weight of the frame, to extend truly vertically and to be of equal length. This places an equal strain on the gas bag, practically throughout its entire length, and it retains the bag in its correct form. At its extremities the bag is inclosed in netting caps, which may be of the usual diamond or diagonal mesh and which are connected to the main portion of the netting. The frame of the airship is constructed in triangular cross sectional form and is suspended from the netting by means of hanger lines which reach down to the bottom of the frame. The frame is prevented from undue rolling and is held in the correct position by means of guy lines which pass from the sides of the netting to the upper part of the frame. As shown in the illustration the frame consists of three longitudinal stringers connected at intervals by braces of equal length so that its cross section is that of an equilateral triangle. The peculiar manner of supporting the frame allows a certain swaying thereof, but within well-defined limits.

Patents, Trade Marks, and Copyrights in the Panama Canal Zone.

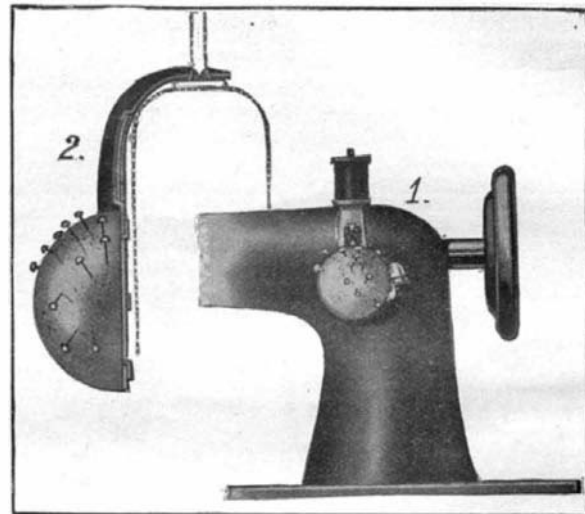
On the secession of Panama from the Republic of Colombia, there was a great deal of uncertainty for a time concerning the status of patent and trade-mark rights and the laws for their protection in Panama, and this uncertainty was made even more annoying for inventors and merchants by the further complications which existed in the Canal Zone by the formal lease of that important strip of land to the United States, with authority on the part of the lessee to govern the leased territory. The Republic of Panama many months ago made provision for the protection of inventions and trade marks, but these enactments did not extend protection to the Canal Zone, which is not under the administration of the Republic of Panama, but is governed from Washington. The Administration, in whose hands the governing of the Canal Zone has been intrusted by Congress, was requested many times to make some ruling which would enable interested parties to protect their inventions and trade marks, but no action was taken until, on March 12, 1907, the Hon. William H. Taft, Secretary of War, issued an executive order extending the United States patent, trade-mark, and copyright laws to the Canal Zone, which has the effect of protecting in that territory, in the names of the legal owners of record, all United States patents, trade-marks, and copyrights issued or registered in the United States. The issue of this order is one more step for the protection of the rights of classes of people who have ever been foremost in the development of trade and the technical and the fine arts.

Tantalum has been hammered into sheets, which are extremely hard. Sir William Crookes, F.R.S., states that "a hole had to be bored through a plate of this metal, and a diamond drill was used, revolving at the rate of 5,000 revolutions per minute. This whirling force was continued ceaselessly for three days and nights, when it was found that only a small depression 0.25 millimeter deep had been drilled; and it was a moot point which had suffered the more damage—the diamond or the tantalum."

ATTACHMENT FOR SEWING MACHINES

The seamstress while seated at the sewing machine finds it often necessary to use pins or a needle and thimble for basting certain parts together, and for this reason Mr. Andrew B. Rosenthal, 872 Clinton Street, Milwaukee, Wis., has devised a simple pinch-cushion attachment which can be readily applied to

the ordinary sewing machine. The attachment consists of a plate bent over at the upper end and formed with an aperture, which may be fitted over the usual stud or spool holder. This plate hangs down against the side of the machine frame and carries, at its lower end, the cushion in which needles and pins



ATTACHMENT FOR SEWING MACHINES.

may be inserted. At one side the plate is formed with an upwardly-projecting horn on which a thimble may be seated. Above the pinch-cushion is a piece of sand-paper or emery paper, which may be used in sharpening the points of the needles or in removing any rust therefrom. The cushion is sewed to the plate by passing the thread through slits cut into the plate, and the emery paper is held between a pair of nibs formed on the plate. The device can thus be very simply made, as the principal part is the plate, which may be stamped out of sheet metal. In order that the attachment may fit any size of spool holder, the aperture in the plate is fitted with a rubber washer, on which tongues are formed which fit snugly against the stud.

ROLLER APPLIANCE FOR ROCKING CHAIRS.

A very simple attachment, whereby a rocking chair of the ordinary construction can readily be converted into a wheeled invalid chair, has recently been invented by Mr. E. W. Raymond, of 452½ South Broadway, Los Angeles, Cal. The accompanying engraving clearly shows the construction of the attachment and its method of application. It consists of an axle A, on which a pair of rubber-tired wheels or rollers are mounted, and a yoke frame B carried by the axle. The yoke frame comprises a long carrying bar parallel with the axle, and having offset ends formed with eyes which are journaled on the axle. In use this simple truck is slipped under the rocking chair, the rockers passing between the carrying bar and the axle. The chair is rocked forward to permit the axle A to bear against the rear posts of the chair, while the carrying bar bears against the treads in advance of the axle. In this position the appliance is held by means of a diagonally-disposed tie-rod C, which is hooked over the carrying bar and is fastened at its upper end to the seat of a chair. Now, when the chair is tipped back it will be lifted on the rollers. The offset ends of the carrying bar B are made longer than the width of the ordinary rockers, and the appliance is thus made to fit different sizes of rockers. When the truck is detached from the chair, the tie rod C is folded up against the bottom of the chair seat and is held in place by a hook D. The device should prove of especial value for use in cases of temporary illness, when it would not pay to purchase an invalid chair.



ROLLER APPLIANCE FOR ROCKING CHAIRS.