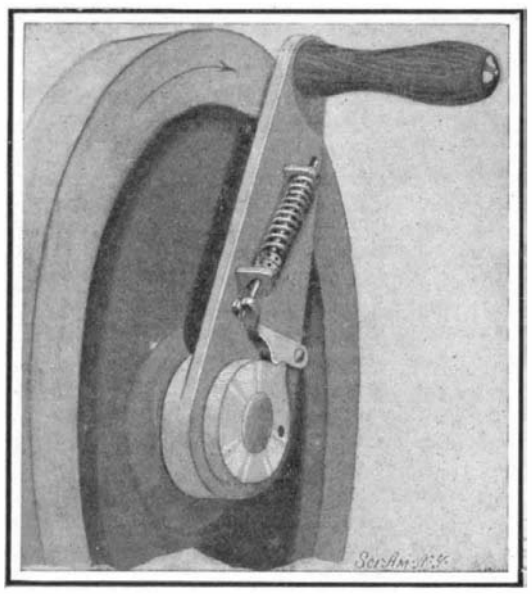
Patent Department

AN AUTOMOBILE SAFETY STARTING CRANK.

In starting automobile motors it sometimes happens, owing to too early explosions, that they will "kick back," as it is called, and wrench or break the arm or wrist of the operator.

The object of the safety starting crank shown in the illustration is to avoid this danger and shock by providing a yieldable connection between the crank and shaft, that becomes effective the instant rotation reverse to that of the starting direction occurs. This yieldable connection is obtained by simple means. The crank is held normally loose on the engine shaft between two disks. The outer disk contains within it the usual pawl common to all handles, to connect it with the shaft when the engine is turned over, as shown by the arrow. On the crank handle is a new supplementary device, intended to afford relief in case of sudden shock backward. This consists of a spring-actuated rod arranged on the face of the crank in the direction of its length, square shaped at its lower end, with nuts provided for adjusting the tension of the spring on the rod to any desired degree; the lower end of the rod, being flanged, presses against a pawl or dog



A NEW STARTING CRANK.

pivoted at one end and having on its lower side a projection which impinges against a cam projection on the edge of the outer disk.

In revolving the crank handle for starting, the pressure of the rod against the pawl brings the latter into contact with the outer disk projection and carries the shaft with it, but should a sudden impulse in the reverse direction occur, the cam on the pawl will ride up over the projection (on account of its shape), and allow the shaft to revolve freely in that direction. This in turn relieves the hand of the operator from shock. The tension of the spring on the rod may be readily adjusted to suit the friction and compression required to be overcome in starting different-sized motors.

Should the spring become damaged or break, the crank handle may be locked to the crank-disk portion by inserting a pin in the hole shown on the outer end and then be used as an ordinary crank handle.

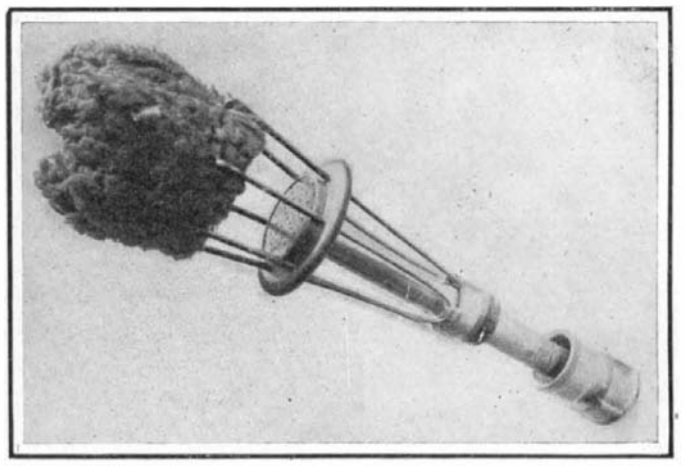
The illustration shows the mechanical parts on the outside of the crank face, for the sake of clearness. These can be neatly housed on the back, with an opening to adjust the spring, so as to give the crank a neat appearance and protect its parts from dust.

The utility of this device is self-evident to all automobilists, especially to those who are inexperienced, in that it affords a means of avoiding small, but sometimes painful, accidents.

It has recently been patented by Mr. W. H. Schoonmaker, 84 South Fullerton Avenue, Montclair, N. J.

A NOVEL CARRIAGE-WASHING APPARATUS.

The apparatus shown herewith is designed for the purpose of holding a sponge to be used in washing a carriage, window, or any other object. It consists of a spraying nozzle encircled by a band of soft rubber. This nozzle is mounted upon the end of a pipe which is adapted to connect to a hose pipe by means of an ordinary coupling. This pipe has mounted upon it a slidable threaded collar having on its upper edge three lugs. Wires bent in the shape of a letter V pass through the lugs and also through holes in the sprayer disk above. These wires are hooked on their upper ends so as to engage the sponge, as shown. By sliding the collar along the pipe to the right, the sponge-holding wires are made to approach more closely together and thus pinch the sponge tightly at the same time as they draw it against the spraying nozzle. A suitable threaded cap locks the collar and thus holds the wires and sponge in this position. The water squirting through the sponge keeps it clean and there is always fresh water throughout it. The apparatus can be mounted on a long handle for use in washing windows; or, if so desired, the sponge can be removed entirely and the apparatus used as a sprayer. The rubber band around the spraying nozzle protects any varnished surfaces that the sprayer may touch. This apparatus, as is apparent to all, will be found extremely useful in the household and stable. It is made by the "Ideal" Carriage Washer Company, 148 Lenox Street, Rochester, N. Y. Its inventor, Harrie B. Howell, received a patent for the apparatus about a month ago.



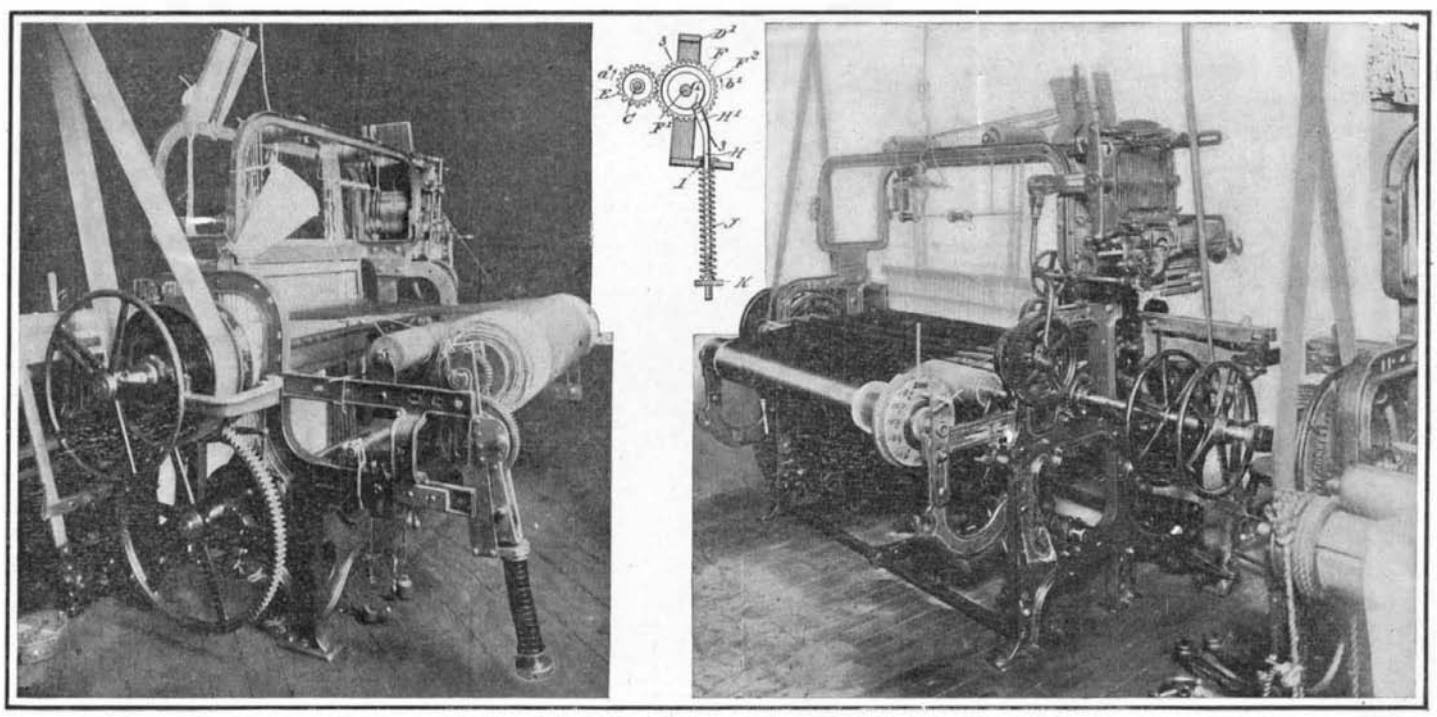
A NOVEL CARRIAGE WASHER.

NEW WARP-BEAM TENSION DEVICES FOR LOOMS.

The accompanying engravings illustrate two forms of a tension device for warp-beams of looms. invented by Mr. Gottlieb Keller, of 1480 Avenue A, New York city. These mechanisms have been attached to a number of looms and are, at the present time, in successful operation in every case where this has been done. A company has been formed to further these devices, and it has been predicted that they will be in general use before long. The company which will exploit the inventions is the Keller Machine Company, care of Hansen, Zinser & Power, 38 Park Row, New York city. Letters patent have been issued to Mr. Keller covering the form shown in the first half-tone, and in the line drawing, while the patent application to protect the other type has recently been allowed by the United States Patent Office. Foreign patents have been granted or have been applied for to cover both forms.

The object of the inventions is to provide new and improved tension devices for warp-beams of looms, arranged to give a uniform tension under varying weather conditions to insure the formation of faultless weaves. They do away with the massive and cumbersome weights—up to 800 pounds—hitherto utilized to give the necessary tension to the warp-threads by means of ropes wound around the ends of the warp-beams. These weights have really been an anachronism in the highly perfected and efficient loom of to-day, and it is really remarkable that some successful device to take their place has not been before designed. The warp unwinds from the warp-beam, having its shaft, *C*, journaled in suitable bearings on the loom frame, and on one or on each end of the said shaft is secured a pinion, *E*, shown in the line drawing, in mesh with a gear wheel, *F*, having its shaft, *F'*, journaled in suitable bearings formed in a bracket, *D'*, attached to the loom frame. On one or both faces of the gear wheel, *F*, are formed annular shoulders, F^2, on which bear projections, *G*, held in the members of a fork, *H'*, formed on one end of a tension or pressure rod, *H*, extending loosely through a bearing, *I*, held on the bracket, *D'*. A spring, *J*, is coiled on the tension rod, *H*, and abuts with one end against the bearing, *I*, and the other end of the spring rests on a nut, *K*, screwing on the threaded terminal of the tension rod, *H*, to allow the operator to increase or diminish the tension of the spring, *J*, by screwing the nut, *K*, up or down on the threaded end of the tension rod. When the warp unwinds, and the warp-beam turns in the direction of the arrow, *a'*, then the pinion, *E*, imparts a rotary motion to the gear wheel, *F*, in the direction of arrow, *b'*, where the projections, *G*, abutting against the shoulders, F^2, are carried along, thus exerting an upward pull on the tension rod, *H*, to compress the spring, *J*, thereof. Now, in case the warp, *A*, becomes slack, then the tension rod, *H*, on account of being under the tension of its spring, *J*, causes a turning of the gear wheel, *F*, in the inverse direction of the arrow, *b'*, so that the pinion, *E*, and the warp-beam are turned in a reverse direction to rewind the warp on the said beam. By adjusting the nut, *K*, as described, the spring, *J*, can be set to any desired tension according to the nature of the warp under treatment. By this arrangement, described above, the unreliable weights heretofore used for giving the desired tension to the warp, are entirely dispensed with, and it takes but a very short time on the part of the operator to set the tension rod, *H*, to the desired tension to secure a proper taking up of the warp on the beam in case the warp slacks under varying weather conditions or other causes. The bearing, *I*, for the rod, *H*, is arranged to allow the rod to readily slide in the bearing, and also to freely swing thereon so as to compensate for the travel of the projection, *G*, in the segmental path. In the photograph of this apparatus is shown an additional device wherein by means of an adjustable pin, the return travel of the gear wheel, *F*, to rewind the warp is regulated to from 1 to 6 inches. If this is not sufficient, the gears may be thrown out of mesh by sliding the pinion, *E*, laterally on its shaft, and the warp then rewound as far as desired.

The second device is even more compact than the one described above. It consists substantially of a flat wheel or disk having a depression within which is retained a coiled spiral spring. The shaft of the warp-beam extends through the hub of this wheel, and to this hub one end of the said spring is fastened. On the outside of the disk, means are provided for putting the spring under any desired tension and for retaining the same at that tension. The outer rim of the disk is graduated into

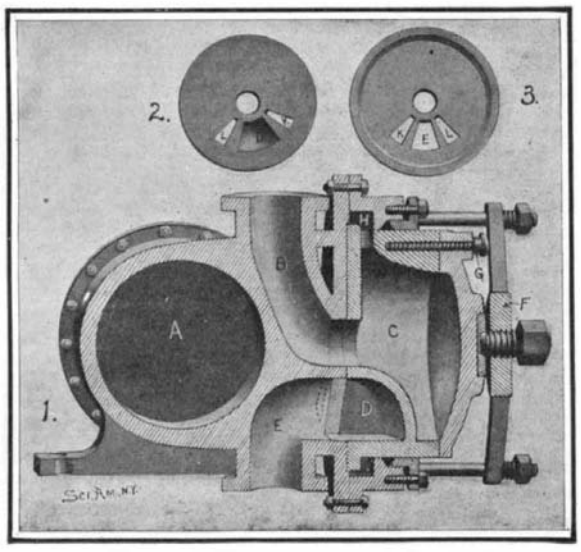


THE TWO KELLER TENSION DEVICES FOR THE WARP BEAMS OF LOOMS, IN OPERATION.

a scale which shows the exact tension of the warp threads due to the coiled spring. By means of this scale the weave may be closely regulated. A flat disk provided with ratchet teeth is suitably secured to the end of the warp-beam and covers the opening in the other disk containing the coiled spring, to one end of which is secured a pin carried by the closing disk. The disk containing the spiral spring carries a pawl which engages with the ratchet teeth to limit the return travel in rewinding. Should a greater return travel be desired, it is merely necessary to lift the pawl. The coiled spring maintains an even and steady tension on the warp threads, which is absolutely independent of meteorological conditions, an immense advantage over the old rope and weight system.

NEW ROTARY VALVE FOR STEAM ENGINES.

A new rotary valve for steam engines has recently been invented, which is designed to relieve the valve seat of boiler pressure, and to keep the balance of the valve without regard to the pressure in the boiler. The manner in which this result is obtained will be readily comprehended by reference to the accompanying engraving, which illustrates a section through a steam engine equipped with the improved valve. The cylinder is shown at *A*, and *B* is the port admitting steam from the boiler into the combined valve and steam chest, *C*. The bottom of the steam chest or valve, as illustrated in Fig. 2, is formed with a central opening communicating with the steam supply port, *B*, and is also provided with two radial openings, *K* and *L*, between which is a cut-away port, *D*. The valve seat, which is shown in Fig. 3, is similarly formed with radial ports, the port, *K*, communicating with one end of the cylinder, and port, *L*, with the other, while between them is the exhaust port, *E*. The bottom of the valve is formed with a flange which projects into



NEW ROTARY VALVE FOR STEAM ENGINES.

an annular balancing chamber, *H*, formed by a cylindrical casing bolted to the valve seat. Communication between the interior of the valve and this chamber is had through the port shown. A steam-tight joint is made between this casing and the valve. The valve is mounted to rock in the casing and is held under pressure by a screw in the spring-pressed spider, *F*. The link which connects the valve with the rocker is shown at *G*. In operation the cut-away port, *D*, alternately connects the ports *K* and *L* with the exhaust port, *E*. The flange at the bottom of the valve extends into the balancing chamber to an extent sufficient to balance the excess of outward pressure due to the ports cut in the bottom of the valve, so that the valve is held down properly on its seat. It will be understood, of course, that the valve seat must be fitted to a ground joint in order to secure the desired action and that if the area of the flange be equal to the area of the ported openings a perfect balance will be secured at all times. Mr. John Cruikshank, of Yorktown, Virginia, is the inventor of this improved rotary valve.

A STRIKING ILLUSION APPARATUS.

The field of inventions pertaining to stage effects and illusions is continually on the increase. We illustrate one of the latest, recently patented by Mr. R. B. Smith, Sydney, New South Wales, Australia, which possesses points of peculiar interest and novelty.

The illusion consists in showing a floating automobile about four feet above the stage, in motion, apparently traveling in the air with its occupant, going across the space of the stage, turning around and returning, then taking a flight upward in the air, until it is completely upside down, with the chauffeur there operating in the same way as in the beginning, and returning again to the stage. Our illustration gives an idea of the effect, showing the machine in two positions. It is necessary that the chauffeur be securely held in the machine to prevent him from dropping to the floor when in the reverse position.

Simple mechanism operated from behind the scenes is employed for producing this startling effect, and combined with peculiarities of lighting easily deceives the eye of the spectator.

Motion to the wheels is imparted by silent electrical

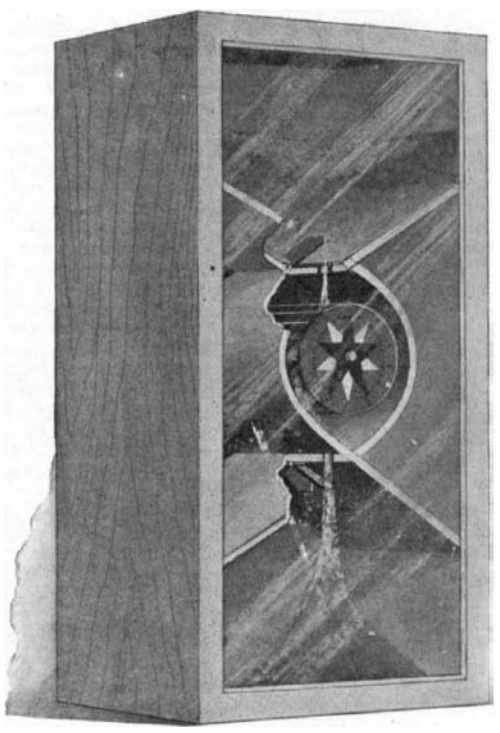
A STRIKING ILLUSION APPARATUS.

means. It is presumable that other devices can be utilized to imitate the noises observable in gasoline-driven machines in order to make the effect more realistic.

In the beginning, as the curtain rises, the automobile is observed floating in the air. The chauffeur, a lady perchance, walks in upon the stage and apparently steps through space as she gets into the machine. To show that it really is in the air, the magician passes a wand all around under the machine. The chauffeur starts the wheels rotating by a lever, and the illusion is continued. At its termination, the chauffeur steps out on what appears to be air and walks off from the stage, leaving the audience mystified as to how this effect was obtained.

SAND WHEEL TOY.

The use of sand falling on a wheel provides an excellent motive power for operating small toys of various descriptions. However, this form of toy is usually so constructed that the movement of the sand cannot be seen and the natural curiosity of the child is aroused to such an extent by the mysterious power within the toy that he is very liable to destroy the toy in order to discover the secret of its action. It has occurred to Mr. Harvey I. Dedrick, 26 South Center Street, Schenectady, New York, that the toy would lose little,

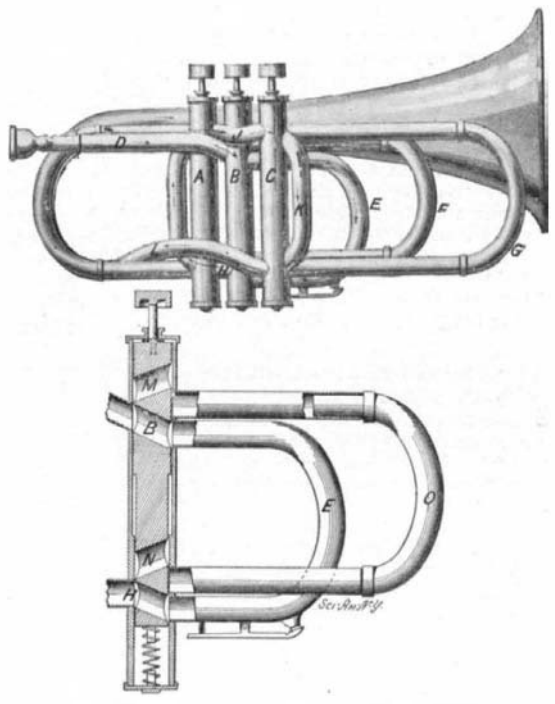


SAND WHEEL TOY.

if any, of its charm, were it so designed as to exhibit all its working parts, and by thus letting the child into the secret, the life of a toy would be materially lengthened. Aside from this feature Mr. Dedrick has designed an improved valve which will prevent the wheel from becoming clogged with sand and has also provided means for keeping the sand out of the bearings of the wheel. In the accompanying engraving the general design of the improved toy and the construction of the sand valves are clearly illustrated. The box containing the mechanism is provided with a glass cover so that the flow of sand can be observed. Sand hoppers are provided at opposite ends of the box, after the fashion of an hour glass. Between the hoppers is a chamber, in which a sand wheel is mounted. The sand flows through an opening in the bottom of the upper hopper, onto the vanes of the sand wheel, rotating it like an overshot mill wheel. Thence the sand flows out through an opening into the lower hopper. When the upper hopper is emptied, the toy may be reversed so as to continue the flow of sand and the rotation of the wheel. To prevent the wheel chamber from becoming choked with sand, it is desirable that the sand should flow out more rapidly than it can enter. To this end each hopper is provided with a hinged valve covering its opening into the sand wheel chamber. The valves are operated by gravity, so that no matter which end of the toy is up the valve of the upper hopper will fall to closed position, while the lower one will swing open against a stop. Sand then flows into the wheel chamber, through a small perforation in the upper valve, but flows out into the lower hopper through an unobstructed port.

A NEW WIND INSTRUMENT.

Letters patent have recently been granted to Mr. Harman J. Ellis, of Brooklyn, Wis., covering an improved form of musical instrument. The invention, illustrated in the accompanying engraving, relates to wind instruments such as cornets, horns, and the like, and provides means for readily lowering or raising the tone by the manipulation of corresponding valves, the arrangement being such that the formation of abrupt bends for the air passages is completely avoided to insure a rapid and unobstructed flow of the air. The complete view of the illustration shows the invention in the form of a cornet, while the detailed view shows the cross section of one of the valves. As shown in the side elevation of the entire instrument, it is provided with three valves, *A*, *B*, and *C*, arranged one alongside the other and each having a spring-pressed piston adapted to be manipulated by the player, and two sets of ports. The valve, *B*, is connected at its forward side with a mouthpiece-tube, *D*, carrying the usual mouthpiece, and when the several valves are in their normal non-pressed positions, the air forced through the mouthpiece and the tube, *D*, passes by way of a port into a U-shaped or return-bend tube, *F*, connected with the valve, *B*, at a port which joins with a short connecting tube, *H*, leading to the valve, *A*, at a port which connects by a tube with another port of *A*. This is connected by a short tube, *J*, with a port of *C*, connected by a tube, *K*, with another port of *C*, which in turn is connected by a tube, *L*, with the bell of the instrument. From the foregoing it will be seen that each of the valves, *A*, *B*, and *C*, has a return or U-shaped tube connected at both ends to the corresponding valve-casing at or near the upper and lower ends thereof, and each tube normally registers with a set of ports in the corresponding valve. When a valve is pressed, the shorter tube is cut out and the longer tube is brought into action to provide a correspondingly longer air passage and a consequent change of tone. When it is desired to lower the open tone one-half an interval, it is necessary to press the piston-valve of the valve, *B*. When it is desired to lower the open tone one full interval, the piston-valve of the valve, *A*, is pressed, and when the valve *C* is operated the tone is lowered an interval and a half.



A NEW TYPE OF WIND INSTRUMENT.