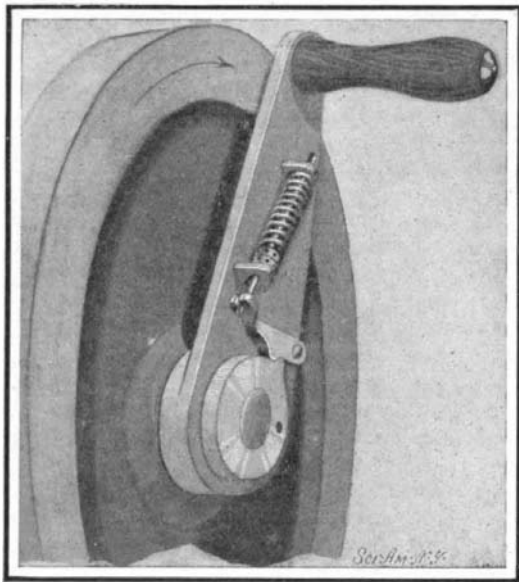




#### AN AUTOMOBILE SAFETY STARTING CRANK.

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.

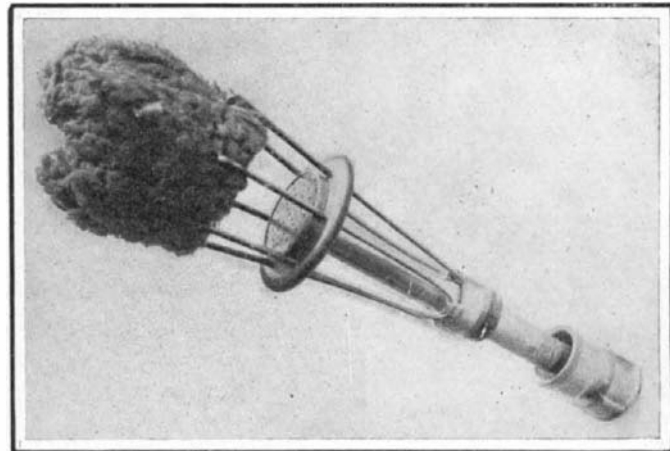
The utility of this device is

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.

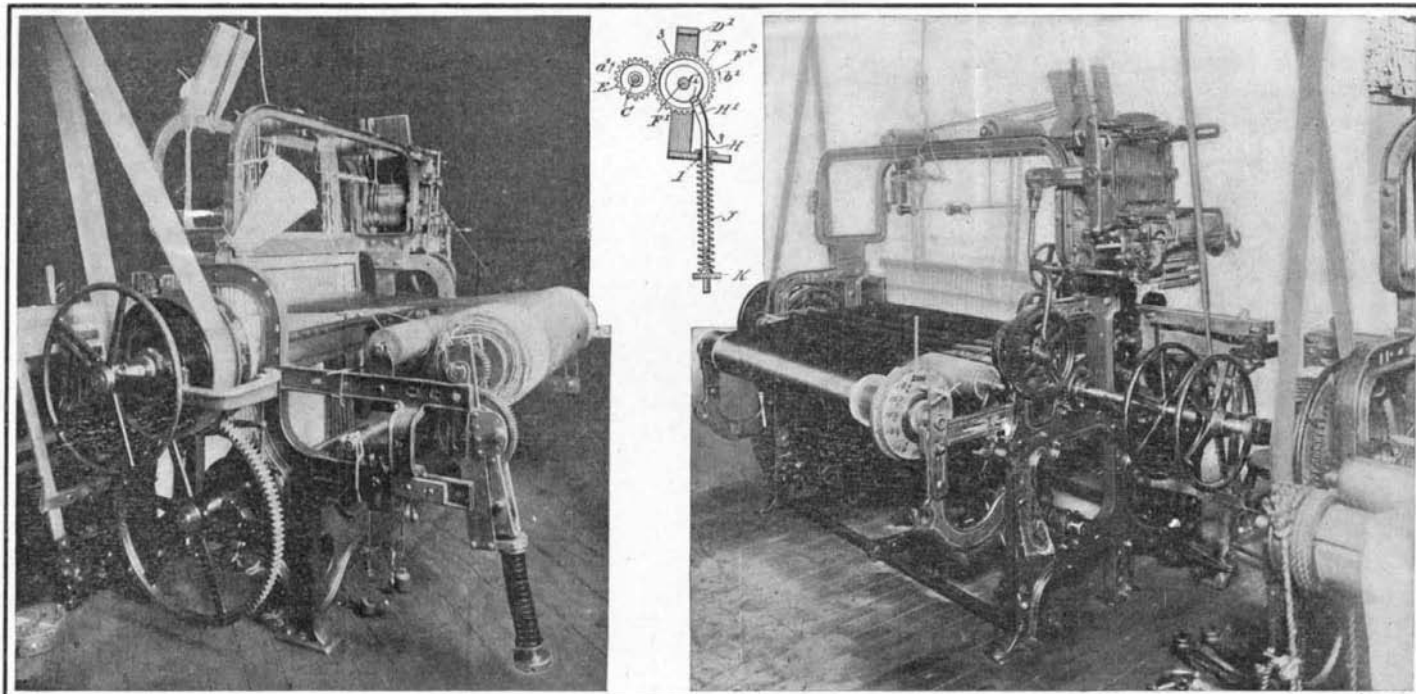
The object of the inventions is to provide new and improved tension devices for warp-beams of looms, arranged to give a uniform tension under varying weather conditions to insure the formation of faultless weaves. They do away with the massive and cumbersome weights—up to 800 pounds—hitherto utilized 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, *G*, 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<sup>2</sup>*, 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<sup>2</sup>*, 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.