

FIG. 3.

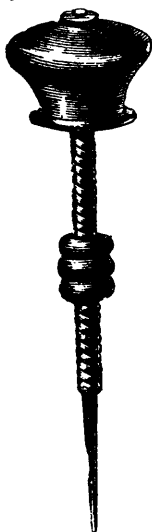


FIG. 1.



FIG. 11.

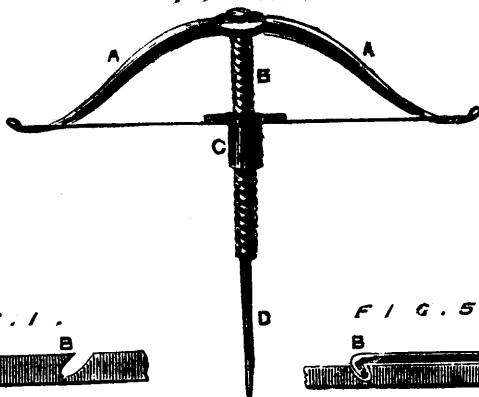


FIG. 5.



FIG. 7.

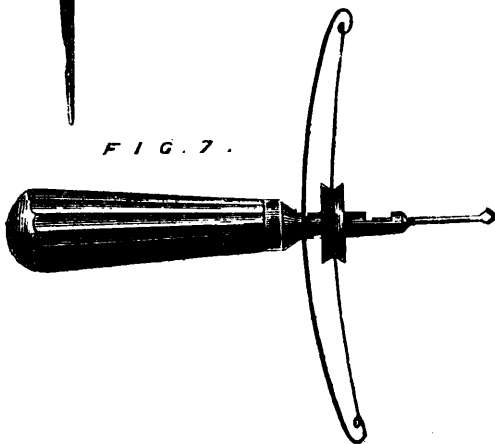


FIG. 2.



FIG. 6.



## RIVETING CHINA AND GLASS.

age of the shuttle, or at any other time, each part is in place for starting again.

The advantages may be briefly enumerated :

1. The unlimited scope of the shuttle : is being drawn instead of knocked through the warps, enables the carrying of large quantities of weft any distance ; which being kept at a uniform tension until it is beat gives a perfect selvage.

2. The friction of the shuttle on the yarn is perfectly overcome, therefore it does not wear the warps, nor break any threads, even in the finest fabrics of silk, wool, cotton or linen.

3. The weft is not subject to sudden pulls in starting, and may be of the most delicate texture, regardless of the width of the fabric.

4. The loom can easily be arranged to run a number of shuttles, weaving as many widths of cloth as there are shuttles, and with perfect selvage.

5. The width of the fabric may be extended indefinitely.

6. The loom runs with less power, much more quietly than others, and at any speed desirable.

7. The great desideratum is, that it dispenses with the necessity for the skilled labor heretofore required, enables the weaving of very wide goods at no greater cost per square yard than that of narrow, and on ordinary cotton and woollen fabrics gives a large gain.

The looms are now running in a number of the largest and most important mills in this country and giving great satisfaction, and for Jacquard irregular and heavy sleyed fabrics it is indispensable.

Their four-piece loom is arranged with head motion, for from 4 to 12 harnesses for seamless bags, jeans, crash, toweling, ticking, duck, canvas, hose, etc. They build the above loom to weave from 2 to 6 webs in each loom up to 36 inches wide. Using the large cops or bobbins (which are 4 to 10 times larger than those used in other looms) a girl can run two looms 5 webs each, equal to 10 ordinary looms. It has positive take-up for a large roll of cloth 20 inches in diameter ; wrought iron crank shaft, tension or friction let-off, geared for any

number of picks per inch, and beam heads from 18 to 24 inches in diameter, and stop motion for each web ; harnesses are also arranged to work from cams, 2, 3, or 4 harnesses. These looms are used for sheetings, quilts and blankets, 2 webs in each loom, 80 to 100 inches wide, and are arranged for "Jacquard" when required. They also manufacture cop-winding, spool-winding and cop-compressing machines, of similar ingenuity and value.—*Scientific American*

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It has always appeared to me that an unnecessarily large number of rivets are invariably put in the broken articles by the itinerant menders who perambulate the country. It may be that the workman has an eye to getting as much as possible out of the job, or he is led away by a desire to make the article as strong as possible. It is charitable to allow that the latter is the correct supposition. Anyhow, I think for all ordinary requirements, a few well disposed rivets are quite as efficient as a large number crowded together in an unsightly manner. For a simple crack two or three rivets are ample. A compound fracture necessarily requires an increased number of rivets. There is no great beauty in a rivet at any time, so no more should be used than are absolutely necessary to hold the parts together, and give such strength as the nature of the article and its uses require. Again, the size of the rivet should be proportionate to that of the article under repair. Obviously, such slight and delicately-formed articles as are found in some tea and coffee services, should not be fitted with such large rivets as would be necessary to hold together a punch-bowl or soup-tureen. Yet it is no uncommon thing to see the same sized wire used indiscriminately. The drills and wire should in all cases be consistent with the job. The term riveting is, to my mind rather misleading, as, in fact, the mending is not riveting at all in its generally understood sense, because the holes are seldom or never drilled right through and the wire hammered over. The holes are drilled only partly through, as in Fig. 1, and at an acute angle, as will be seen in the draw-