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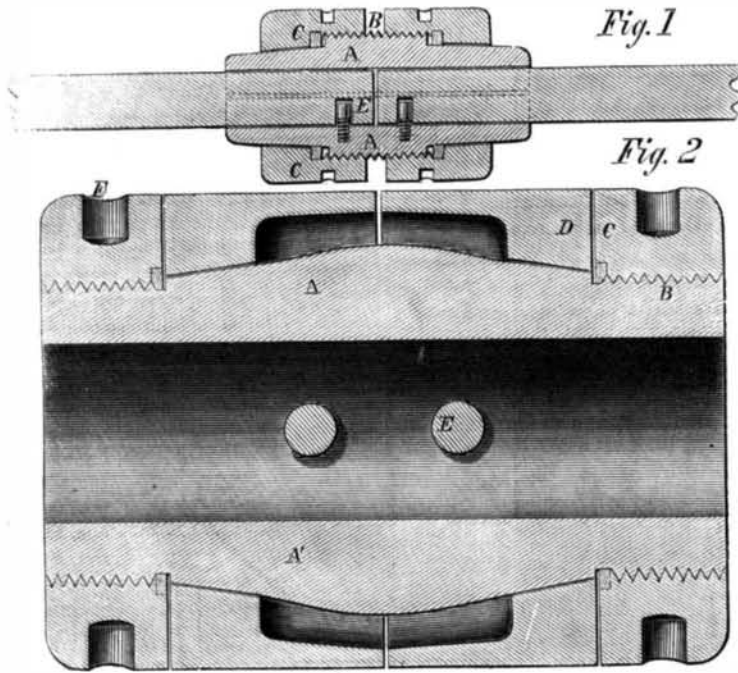
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Improved Shaft Coupling.

The old-fashioned method of connecting lines of shafting by uniting the several lengths with cast-iron couplings is expensive, clumsy and unreliable. The heads are frequently bored out of truth, have to be heavy to get strength, and in keying on are frequently forced out of line, so that the shafting is also thrown out when the two faces are bolted together. This coupling is a neater and more efficient device

into it to greater or less distance, and ending in a cap turning its convexity toward the extremity of the jet. The tubes thus formed were perfectly continuous, and fitted one to each other, so that each line of junction was represented in slices cut at right angles to the axis of the jet. "These lines," says the writer, "show that all the molecules composing the primitive block came individually to take their place in the jet exactly as the molecules of a running liquid



COLLINS'S SHAFT COUPLING.

for the purpose than the cast heads; it can also be put on or taken off in half the time, and allows lateral adjustment in the length of the line, all of which renders it useful to machinists and others erecting or running machinery.

In construction it consists of two halved couplings, A, in shape like the brasses in a journal box. These couplings have a thread, B, in the center, over which nuts, C—one on each end—work. The ends of the couplings are tapered, as are also the nuts inside, to correspond, so that when the nuts are drawn up the boxes or couplings are shut together.

Figs. 1 and 2 show two ways in which the arrangement is applied. In Fig. 2 there are center pieces, D, which are cast, if necessary, and forced together by the collar nuts. The pins, E, fit in holes drilled in the shaft so as to cause them to turn; they perform the same office as keys in the coupling, and the holes, F, are for the application of wrenches, should these holes for the pins get worn at any time it is a simple matter to renew them by turning the shaft partly around. This coupling is also much safer where shafting runs in close proximity to thoroughfares or where men are obliged to pass and re-pass; there are no projecting bolt heads to catch in belts that happen to run off or carry unfortunate individuals around the shafting when their shirt sleeves happen to touch; this often occurs with bolts.

This arrangement was patented through the Scientific American Patent Agency, on the 20th of December, 1864, by James P. Collins, of Troy, N. Y., address him for further information at that place.

Flow of Solids under Pressure.

M. H. Tresca has communicated a paper on this subject to the French Academy, in which he details experiments to show that "solid bodies can, without change of condition, flow after the manner of liquids, if sufficient pressure is exerted upon them." His method consists in operating upon solids composed of separate pieces, the joints of which are known before the experiment begins, and so that their position after the trial indicates the amount and kind of displacement that has been produced. When a block composed of disks was placed in a cylinder and exposed to pressure on one of its bases, in some cases amounting to 100,000 kilogrammes, and allowed to flop through a round hole, concentric with the cylinder, it was found that the plane surfaces of the disks were modified so as to form surfaces of revolution in the jet, which were almost cylindrical, descending

chimneys. This accident is especially liable to happen where the common shades are used. The difference in the temperature and conducting power between the metal top of the screen and the glass chimney breaks the latter very often. Sometimes persons forget to apply the shade until the lamp has been lighted for some time; contact with the cold metal of the screen, if it be put on at the time spoken of, is sure to crack the glass immediately. Screens

of the ordinary kind are also fixed in one place, and no adjustment is possible, and the hot metal chars or burns the paper of the screen, so that the same soon drops off and requires renewal.

The screen top here shown is a great improvement on the ordinary kind. It can be adjusted, limitedly, so as to be at different heights; this is done by slipping the arms, A, up or down; these arms are like the clasps on spectacles, and operate by slipping in the same way. The hooks, B, by which the screen is suspended, are so small at the points of contact that no danger of breakage need be apprehended, while the liability of scorching, so common in the ordinary shades, is here entirely obviated; so also is the breaking of glasses from striking against the cooler metal. This screen top does not touch the glass at all, being suspended, as shown, so that it is clear all round. This arrangement was patented through the Scientific American Patent Agency on the 28th of December, 1864, by Henry Zahn, of New York city. For further information address him at 79 Chatham street. The entire patent is for sale.

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