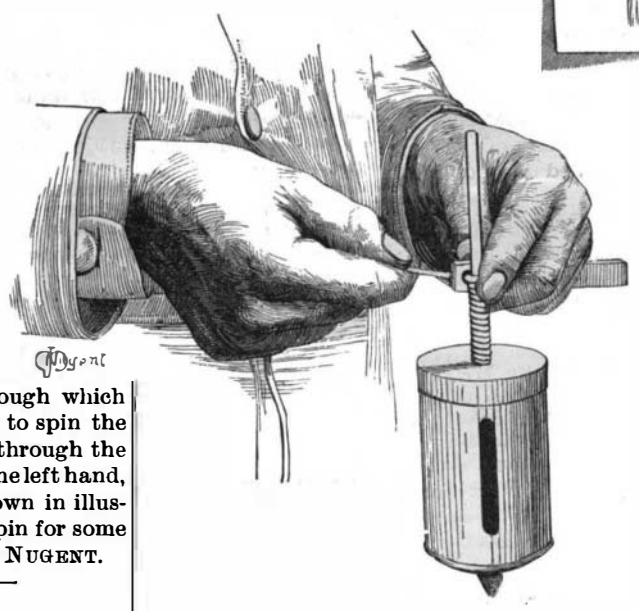
A HOME-MADE HUMMING TOP.

On one of my visits to a small town in France, I chanced to see a lot of boys making a kind of top with a small piece of wood and an old baking powder box. It was one of the most simple tops that I ever heard of, and made a loud noise. By taking any tin box, such as a baking powder box, any boy can make one. First, fasten the lid on securely with glue or white lead, and then punch a small hole, about three-eighths of an inch diameter, through the cover, and also through the bottom of box. Be careful to make the hole right in the center, or the top will lean on one side, and will not spin as long as it would if the hole is in the center. Put a thin stick through the holes of box, so as to fit it tightly. The stick should be sharpened at one end, to serve as a peg for the top, and should be thicker at that end and gradually get thinner as it leaves the peg. Insert the thin end of the stick into the hole on under side of box, and pull it through the top hole until it can be pulled no farther. Of course the lower end of the stick must be broader than the opening in the under side of the box, so as to prevent the box from slipping down.

Cut a slit in the side of the box, as is shown in illustration. This opening will make the top hum when in motion. Procure a small piece of wood about 5 or 6 inches in lengh, three-quarters of an inch in width, bore a hole through one end, through which a string can be easily passed. This you use to spin the top. Wind up the top, pass the string through the hole in the stick, which should be held in the left hand, and pull the string with your right, as shown in illustration. If rightly made, this top will spin for some time, and will sing well.

J. M. NUGENT.



A HOME-MADE HUMMING TOP.

BOILER DRILLING MACHINE.

The boiler drilling machine which we illustrate was recently constructed for the Clyde Locomotive Works, and is adapted for drilling the holes for the rivets after the plates are bent and fixed in position; it is arranged to admit shells up to 5 ft. in diameter, and made of plates up to 6 ft. wide.

The shell is mounted on a circular table, placed between two uprights carrying horizontal drilling saddles. This table is fitted with jaws forming a concentric chuck (gripping at six points), so that a ring can be quickly and accurately mounted ready for drilling.

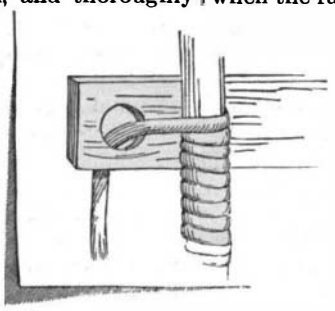
It is also provided with a worm and wheel controlled by Scott's dividing apparatus, by which the circular seams can be divided into any desired number of holes without setting out the plates. The table is also arranged with power driving gear controlled by a foot lever, so that when setting the rings or adjusting the work to the drills the table can be revolved at a rapid pace. The uprights, having the vertical slides with drilling saddles, are adjustable along the beds for the different diameter of shells, but are rigidly bolted to the beds when drilling. One of the uprights carries a saddle with two spindles, whose centers are adjustable to the different pitches of rivets, and are for use in the longitudinal seams of the shell. The drilling saddles are fitted with Dixon's releasing motion, by which the drills are instantaneously brought back together, ready for the next hole, without stopping or reversing the machine.

When drilling the longitudinal seam of the shell, the drilling saddles are elevated together by independent power driving gear, a pitching staff and pointer being provided for determining the position of the holes in this seam.

Kendall & Gent are the makers, Springfield Works, Manchester.—*Engineering*.

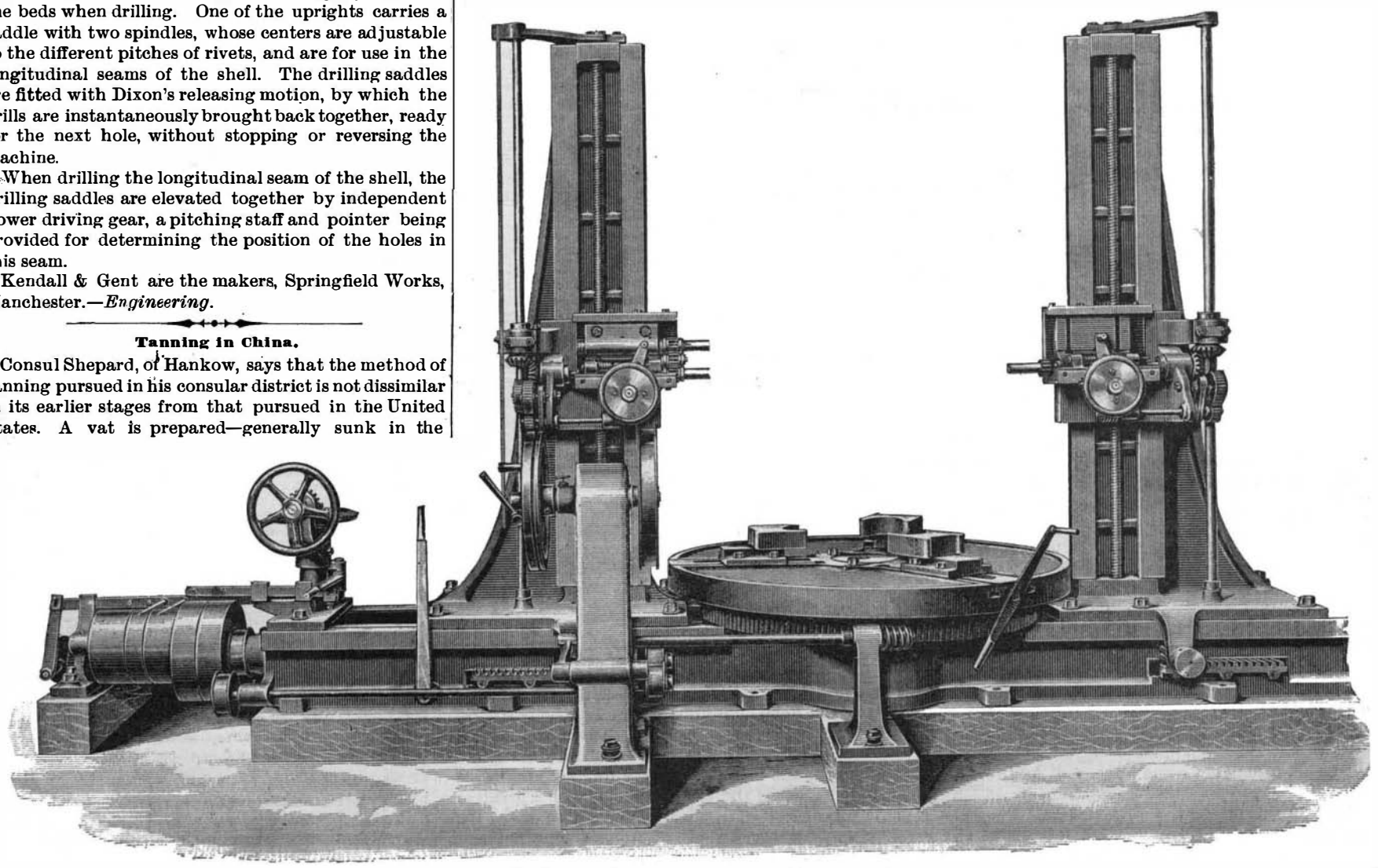
Tanning in China.

Consul Shepard, of Hankow, says that the method of tanning pursued in his consular district is not dissimilar in its earlier stages from that pursued in the United States. A vat is prepared—generally sunk in the ground—capable of holding about thirty hides. These are covered and left to soak in a solution of lime, called by the natives "milk of lime." They are kept in this bath sixteen days and upward, according to the season, cold weather requiring more lime than warm. The hair is then loosened, and the hides are taken singly, spread upon a bench, and thoroughly put through a scraping process to remove the hair and offal from the flesh. The tool used for this purpose is of peculiar construction. It is shaped like the capital letter H, one side being a steel or iron blade, and the other the handle, the cross bar merely connecting them. The blade is about a foot in length, and the handle two or three inches less. The workman places the handle against his breast for greater ease and power, and with this forcible application of the tool to the hide the hair is speedily removed. The hide is then turned with the flesh side up, and by a similar manipulation all offal is removed, and the hide is reduced to a uniform thickness. A thorough washing follows, and the skin is cleansed of all remains of the lime. The refuse hair is saved for agricultural purposes, and the scrapings of the flesh side are boiled down for glue. After the cleansing the hides are subjected to a vigorous rubbing with a heavy sandstone, or similar article, until both sides are thoroughly smooth. When this process is completed, a strong decoction of nutgall is sprinkled over the green leather, and then the tanning is commenced. The nutgalls are boiled in water over a slow fire until they become liquefied, and the strained liquor furnishes all the tannin used. Nutgalls are abundant in the districts furnishing exports to Hankow, and considerable quantities are sent to the United States. The next process to which the skins are subjected is as follows: A kind of furnace is built underground with an opening in circular form, from which a dense smoke issues when the fuel is fired. The fuel required is either wheat straw or a species of grass gathered from the mountain side; it is believed that nothing else will answer the required purpose. For the space of seven days the hides are passed backward and forward through the smoke issuing from the furnace, and, unless it is to be blacked, the tanning of the leather is thus completed. If it is to be blacked, a liquor of vinegar in which iron has been left to corrode, or a solution of nutgalls and copperas, is ordinarily used, but at times simple lampblack is employed. The yellow-brown color given to the leather by the smoking process is considered to be of remarkable beauty, and is therefore greatly preferred by manufacturers and wearers. The leather is made soft by sprinkling it with saltpeter during the smoking, accompanied by repeated and violent kneading of it, drying it in the air, instead of by exposure to the sun. The strength of the solution of saltpeter as applied is said to be kept secret, no apprentice being initiated to the knowledge of it until he has served for three years.



New British War Ships.

On August 3, thousands of people assembled on both banks of the Tyne to witness the launching of H.M.S. Orlando from the Palmer Shipbuilding Company's yard. The Orlando is the first of the belted cruiser class, of which seven in all are now building. They are quite a new departure in war ship design, and are superior to anything of this class of war vessel afloat in point of speed, are much more heavily armed, and have greatly more defensive power than the Mersey class, which approach them nearest from a constructive point of view, the chief difference consisting of a belt of armor at the water line, which is fitted in the Orlando class, and from which they derive the name of belted cruisers. The engines and boilers occupy four separate compartments, arranged in a fore and aft line along the middle of the vessel, fitted on each side by coal bunkers about 5 ft. in width. The armament is exceedingly powerful, and consists of two 9·2 in. 22 ton guns, ten 6 in. 5 ton guns, six 6 pounder and ten 3 pounder Hotchkiss quick-firing guns, and numerous boat and field guns. The engines, which have been designed by the builders, embody all the latest improvements in engineering, and are of the triple-expansion type, the cylinders having a stroke of 42 in. There are two sets of engines, the Orlando being a twin-screw vessel. They will develop 9,000 indicated horse power when working under forced draught, and it is expected that the vessel will attain a speed of about 19 knots.



IMPROVED BOILER DRILLING MACHINE.