

THE VICTOR DRILL CHUCK.

We illustrate herewith a new self-centering drill chuck, in which the clutches are flush with the face or front of the device, by which arrangement, it is claimed, the workman has less difficulty in adjusting the drills, and the said clutches are not liable to be broken under strain or through dropping the chuck. The invention embodies a new device for operating the levers which control the clutches, and there are various other advantages which will be noted as we progress.

The chuck head has a spindle whereby it is secured to the lathe mandrel, and also a small screw which gears into the female screw formed inside the chuck holder. A spindle on the head carries a cylindrical follower, as shown in the sectional view, Fig. 1, which is provided with three longitudinal slots having bottoms inclined as represented.

The rear ends of the levers which actuate the clutches enter the above mentioned slots, and at their fulcrums are enlarged and rounded, so that they there have spherical bearings which rest against adjustable set screws passing through the walls of the holder. The clutches each consist of a short metal cylinder having a broad longitudinal feather and beveled, at the lower edges. These fit in a series of radial cylindrical chambers near the face of the holder, the latter being slotted in front of the cylinders to receive the feathers on the clutches, which come flush with the front of the chuck. The front ends of the levers fit into recesses of the clutches, the rear ends being provided with pivots to return the clutches or throw them out when the rear ends of the levers are released by the follower. To effect this, the recesses in the follower are grooved on the sides on a line parallel with the inclined bottom. Into these grooves the lever pivots enter, so that the levers are thrown back on the return motion of the follower.

The device holds from 0 to $\frac{3}{8}$ inch drills, or will carry $\frac{1}{2}$ by reducing the shank, as shown in Fig. 3. The drill being inserted between the clutches, the chuck head is then turned so as to advance the follower, when the inclined bottoms of the recesses force the rear ends of the levers apart, pressing the clutches together in their radial chamber toward their common center, causing them thus to grasp and hold the tool. When the latter is to be released the operation is reversed. The pivots and the grooves in the follower then act upon the levers, bringing them back to their original positions and moving the clutches away from the tool.

The exterior appearance of the chuck is shown in Fig. 2. Its construction, of steel throughout, is durable and strong, and the arrangement of the levers, as already explained, admits of its easy adjustment.

Patented by Geo. M. Pratt, June 1, 1875. For further particulars address the Victor Sewing Machine Company, Middletown, Conn.

AUTOMATIC LEATHER SCOURER AND HIDE WORKER.

The improved leather scourer and hide worker herewith illustrated is complete in itself, and is independent of buildings or extra framework. It can be put up on any ordinary strong floor, without bolting down or bracing, with safety to both machine and building. It is simple in construction, and its many movements are effected by direct and positive means. It is made wholly of metal, disposed so as to secure great strength, and is further protected by air cushions, which relieve it of thrusts and strains.

The machine can be set up at any angle with the line shaft, and belts may be attached at either end, from above or below. It requires comparatively little power to run it, from one to three horse being sufficient, according to the thickness of leather to be dressed. But little more space is occupied than that required

for a table alone, thus saving, it is claimed, fully seventy-five per cent of the room occupied by the old-fashioned scourer. The machine is universal in its movements; and it can be readily managed, being so far automatic that the strength of a man's finger will guide its movements. It is capable of the widest range of work, from the lightest to the heaviest; it will scour, set out, or gloss; it can be made to take a slow or quick stroke, a long or a short one, the stroke being effected by the epicycle and cam combined. Lastly, it is claimed that, through the efficiency of the ap-

then only in a downward direction. During the first week of its captivity we fed the kingfisher with six to twelve minnows and sticklebacks each day; we gave them to it head foremost, so that the fins might not stick in its throat; it always kept them in its bill for a short time, and then bolted them suddenly. When it began to take the minnows off our hands it always got them in its bill crosswise, where it held and shook them before swallowing them; from this time on, wards it ate every day about two dozen minnows and sticklebacks, and occasionally a young gudgeon. It had been in our possession for a fortnight when we first saw it fishing for itself, but we believe it helped itself for two or three days before it was noticed doing so, because it was often not at all hungry when we went to give it a meal. While it was unable to feed itself we occasionally gave it dead fish, which it swallowed as readily as living ones; it always swallowed the latter without killing them, although it shook and squeezed them, and frequently made them bleed.

In the bath room where the kingfisher lives we keep a stock of minnows, etc., in a large earthenware basin; until lately we several times a day put some of them into a saucer, from which it took them, but now it fishes in the large basin. It is very interesting, and has given pleasure to many of our friends, to watch the kingfisher perched on the edge of the basin, intently looking down into the water until a minnow comes within its reach, when it darts at and seizes it with its bill, without wetting its feathers. "The castings or pellets cast up by the kingfisher vary considerably; some are pure white, and remind one of very fine crystals, and others are of different shades of drab or gray; they are composed, I believe, entirely of fish bones, and are about half an inch long, and oval; I believe they are cast up at different times of the day, and the average number produced is about one per day. I have not yet heard the usual note of the adult bird uttered by this young kingfisher; it has a kind of whistling chirp, much less shrill and loud than the old bird's. Its plumage is as brilliant as that of the kingfisher at any age, but I do not know whether it is a male or female; I suspect it is a male from the length of its bill (one inch and three quarters to one inch and seven eighths), which probably is not yet fully grown. It is stated by Montagu that the bill of the male is two inches long; he does not give the length of the female's, but says it is not so long as that of the other sex."—J. E. Palmer, in the *Zoologist*.

Race Horse War Steamers.

The London *Daily News* says: "Half a dozen steel corvettes, each 2,300 tons, are forthwith to be added to the navy: swift, well armed vessels, to serve as cruisers. For some time past steel has been regarded by shipwrights with a favorable eye, being tougher and altogether less liable to fracture than iron, and now the Admiralty has taken the bold step of concluding a contract for building six war ships of this material without delay. They are to be built on the Clyde, and to be ready for service, with their engines on board, within two years. These corvettes will not serve in any fleet along with big ironclads, but are designed especially for foreign service in China and the Pacific, as also for cruising in the vicinity of our colonies and foreign possessions. They will be remarkably fleet sailers, and, it is anticipated, will be able to make twenty miles an hour without difficulty. Their armament is to consist of fourteen guns of different calibers.

"As their great speed will always enable them to show their sterns and prevent hostile craft from approaching, these steel corvettes should prove most useful additions to our navy; and it may safely be taken for granted that where they are likely to cruise there will be little chance of falling in with heavy ironclads, which are unable to trust themselves very far from land."

Fig. 1.

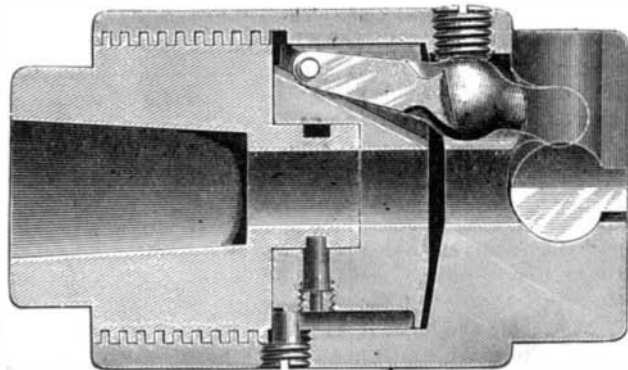
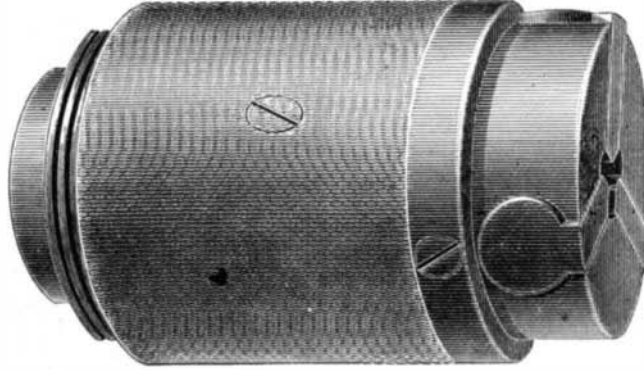


Fig. 2.



THE VICTOR DRILL CHUCK.

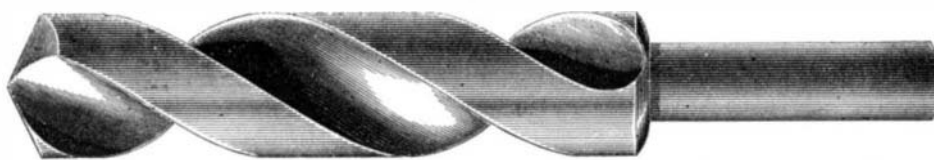
paratus, it will save its owner from fifty to seventy per cent of the cost of scouring and setting out.

Patented by F. A. Lockwood, of Fall River, Mass., July 26, 1876. Manufactured by S. C. Forsaith & Co., Manchester, N. H. W. E. Plummer, Boston, Mass., is sole agent for the Lockwood Leather Scouring Machine Association.

Defects in the Human Eye.

We have already called our readers' attention to Helmholtz discovery of several defects in the human eye; and from

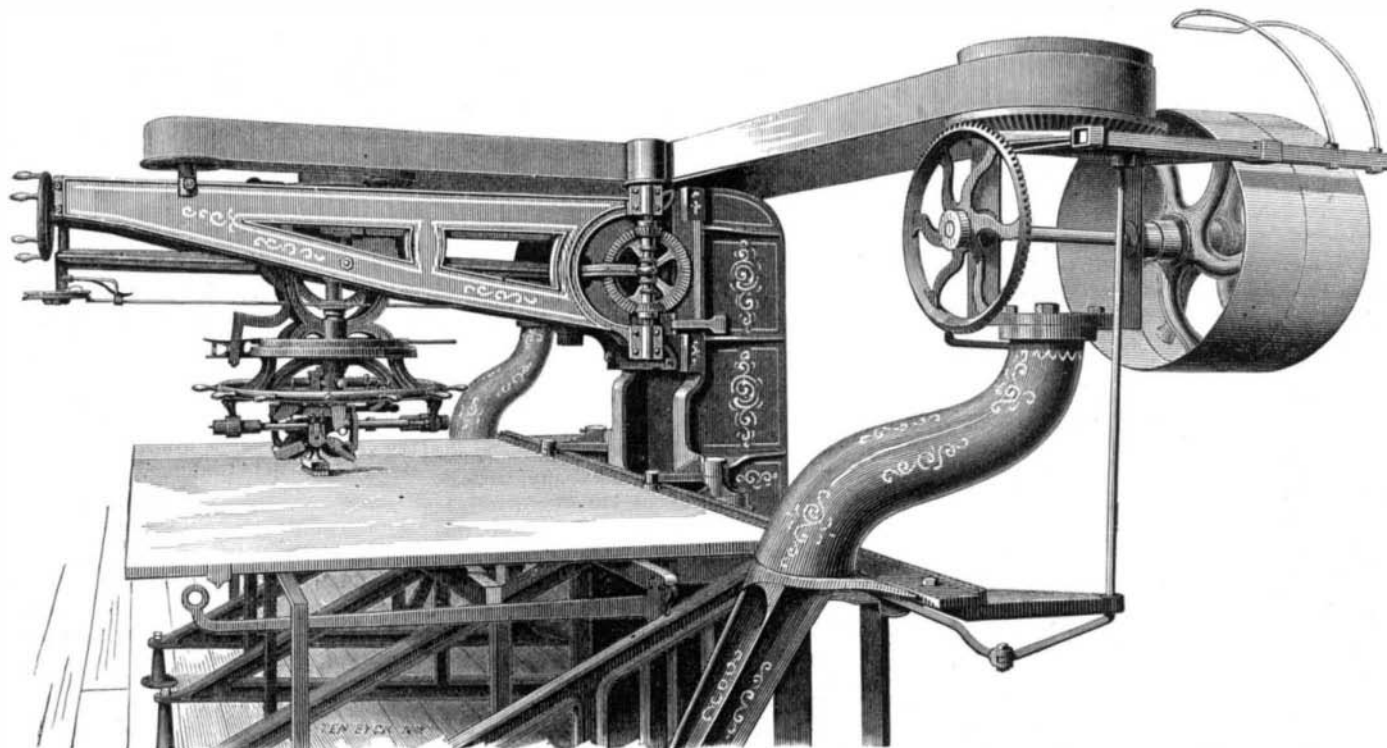
Fig. 3.



statements made at a recent meeting of the Physical Society, London, it appears that a kind of chromatic aberration must be added to the list. It was stated that to short-sighted persons the moon appears to have a blue fringe; and that, in using the spectroscope, different adjustments of the focusing glass are required for the two ends of the spectrum. Moreover, a black patch on a blue ground appears to have a fringed margin; but on a red ground, the edge of the black patch is sharply defined.

History of a Young Kingfisher.

As the kingfisher is not often kept in confinement, the following account may be of interest. It was one of five brought to us in a basket, on May 31, by a boy who had taken them from a nest in the bank of a small stream not more than three feet wide; they were fully fledged, and we think about three or four weeks old. We kept one and gave the others to the Zoological Garden, Dublin, thinking that they would be more likely to thrive there than with us, but unfortunately the four all died after being there four days. The one we kept was put into a cage, which was often placed out of doors in the daytime. After two or three days we began to allow it the use of a bath room for the greater part of the day, so that it might learn to fly, which it did at once. When brought to us it did not fly more than half a yard, and



LOCKWOOD'S AUTOMATIC LEATHER SCOURER AND HIDE WORKER.