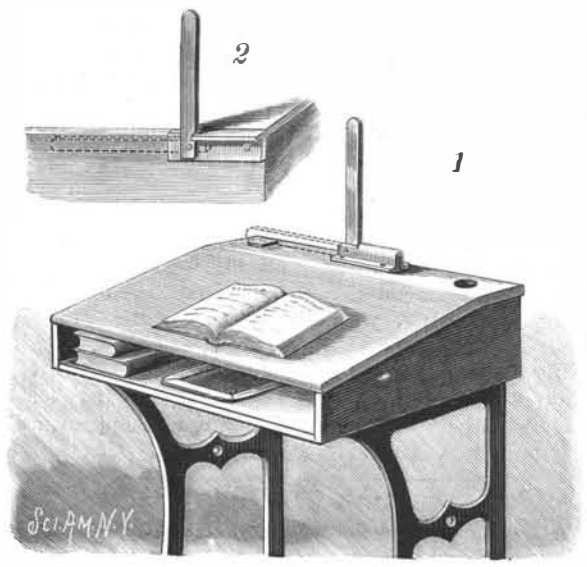
A DESK SIGNAL FOR SCHOOLS.

A simple and effective signal, to be used by scholars in schools, for attracting the attention of the teacher, is illustrated herewith, and has been patented by Mr. James C. Parker, of Woodston, Kansas. A signal arm is pivoted in a plate doubled on itself, and having



PARKER'S DESK SIGNAL.

flanges for attachment to the desk top, a part of the plate being cut away to admit the arm between its folds, and to form a shoulder for stopping the arm after it has passed a vertical position, the arm turning on a pivotal pin. Fig. 2 shows a form of signal to be placed against the front or end of the desk, the supporting plate being L-shaped in section. To give a signal, the scholar lifts the arm from the position shown in dotted lines into the position shown in full lines.

MICROSCOPICAL NOTES.

At the meeting of the Microscopical Section of the Brooklyn Institute, which occurred on the 15th of October, "Circulation in Animal and Vegetable Tissues" was the subject for the evening. It will be impossible within the limit of an ordinary article to minutely describe all the objects exhibited. Among vegetable organisms, the circulation of the sap in the nitella was shown, also the circulation in the beautiful desmid colosterium.

Among animal organisms was shown the circulation in the daphnia, or water flea, the minute heart being made clearly visible by the transparency of the shell of this little creature. The circulation of blood in a frog's foot was shown by Mr. Stephen Helm, by stretching the foot so as to distend the web, as shown in Fig. 1. Mr. Helm's apparatus consisted of a thin, apertured piece of wood, provided with a glass slide upon which to rest the frog's foot. Mr. Caleph suggested the use of a piece of cork for this purpose, omitting the glass slide.

We illustrate this frog plate, as it is the simplest that has as yet come to our notice. The plate consists of a slice of cork, with a hole near one end corresponding with the hole in the stage of the microscope. The frog is wrapped in a wet cloth and held in place upon the cork by means of a small rubber band. One of the frog's legs is extended. To two or three of the toes are attached threads which are held under tension by ordinary pins stuck into the cork. The foot is moistened to render the web more transparent, and the circulation is observed with a three-fourth or one inch objective.

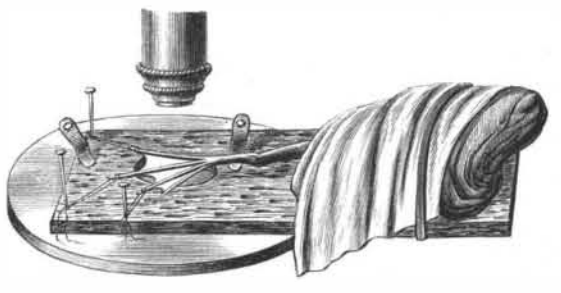


Fig. 1.—SIMPLE FROG PLATE.

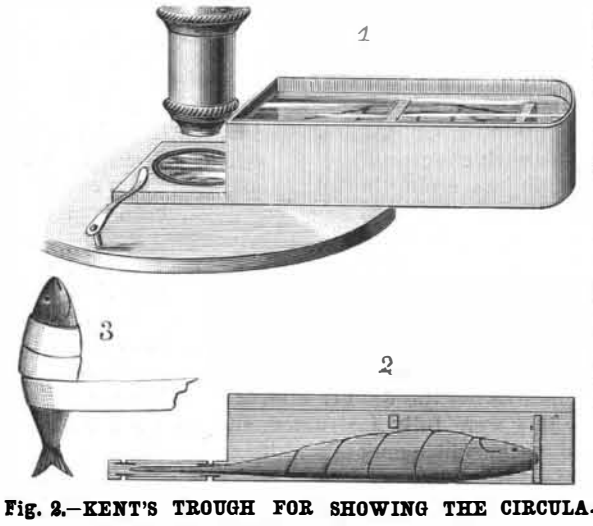


Fig. 2.—KENT'S TROUGH FOR SHOWING THE CIRCULATION OF BLOOD IN A FISH'S TAIL.

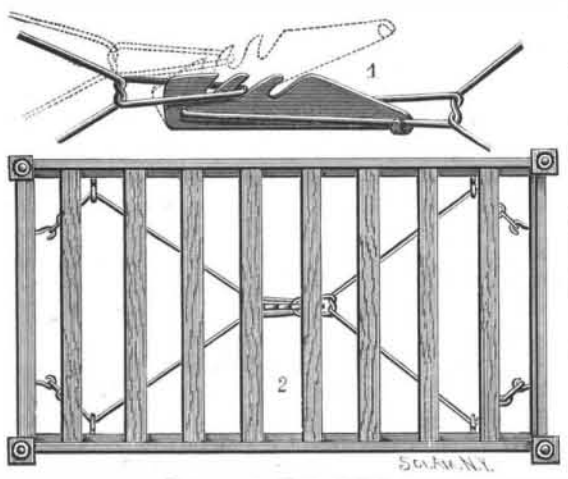
The president of the section exhibited the circulation of blood in the tail of a goldfish. This exhibit required more complicated apparatus, which consisted of a metallic tank provided with a thin extension, having in its upper and lower sides glass windows, formed of cover glasses set in recesses and secured by marine glue. The fish was wrapped in a strip of thin muslin, to deprive it of the use of its fins. It was laid upon its side in the tank, as shown in Fig. 2, with its tail between the two windows, allowing the light to pass upward through the tissues from the mirror of the instrument. The tank is filled with water, and, to prevent the fish from jumping, small wooden cross bars are placed in different positions in the tank. Arranged in this way, ths fish may be observed for about twenty minutes. The blood is seen flowing in crimson streams in various directions through the tissues of the tail. An inch or three-quarter inch objective is ample for this purpose.

The blood of the frog is white, and the corpuscles are larger than those of the fish, but, as compared with the corpuscles of human blood, those of the fish are larger.

G. M. H.

AN IMPROVED BED STAY.

A simple and inexpensive stay for bedsteads, to brace them against racking strains, is illustrated herewith, and has been patented by Mr. Cade Bethea, of Mobile, Texas. Two mainstay wires are doubled at their center parts, and twisted a turn or two to form a long loop on one and a shorter loop on the other, the ends from one loop diverging toward the head board and side rails, while those from the other loop diverge toward the foot board and side rails. Each wire passes through eyes or staples fixed in the side rails, and its



BETHEA'S BED STAY.

extremity is connected to hooks, eyes, or staples in the head or foot board. A locking device, shown in the small figure, is fulcrumed on the end of the long loop of one of the stay wires, this device having a laterally bent hook or lip at one end to catch under one side of the stay loop, and having one or more notches in one edge, whereby the mainstay wires may be drawn or strained up tightly, in the manner indicated by the dotted lines. By this means the corner posts are held firmly to the head and foot boards and the opposite side rails, and the latter are also drawn tightly to the ends of the bed slats.

Dr. Schliemann's Excavations at Mycenæ.

The excavations commenced by Dr. Schliemann at Mycenæ are still being energetically carried on, and continue every day to bring to light fresh objects of great archæological and anthropological interest. The entire terrain around the town is full of tombs belonging to an epoch antecedent to Homer. These pre-Homeric sepulchers are cut in the solid rock and carefully formed in regular compartments, with an area of from thirty-five to forty square meters. In these chambers the dead were laid without being covered with earth, nor were they cremated, as at the time of Homer. Among the numerous objects discovered at Mycenæ in the course of the latest diggings are articles of glass, crystal, and ivory, besides precious stones with engravings of animals charmingly executed, the whole treatment being Oriental in character.

Delivery of Pipes.

A cylindrical pipe, flowing full, discharges less than the same pipe when only filled through a segment whose arc is 281 deg. 30 min. by 2·5 per cent, while the velocity is less by 9·5 per cent, the hydraulic inclination being the same. The full section discharges less, and also with less velocity, in other forms of pipes as well as in cylindrical. The scouring power of circular pipes flowing full is therefore less by nearly 10 per cent than that of the same pipes filled through an arc of 281 deg. 30 min.—a new element to be considered in the arguments for and against circular pipe sewers.

AN IMPROVED GIG SADDLE.

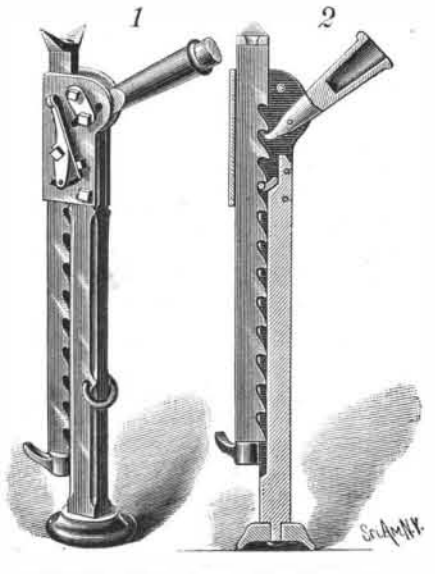
A construction of gig saddle, with the attachment of the tug straps thereto, whereby the saddle is kept from material movement on the back of the horse, and there is less wear and tear upon the saddle, is illustrated herewith, and has been patented by Mr. Marcellus

HITT'S GIG SADDLE.

M. Hitt, of Luray, Va. The pad, skirts, and saddle tree are of the usual construction, the tug straps being fastened at their upper ends by the terrets, while the lower end of each tug strap is securely fastened to the skirt to hold a buckle or ring, the end of the strap being folded under and secured to the skirt by rivets. The thill loop has at its upper end a snap hook by which it is connected to the ring held on the lower end of the tug strap, permitting the thill loop to be readily attached and detached from the harness, so that the loop may remain on the thills. This obviates the necessity of slipping the thills through the loops in hitching up, or when the thill is through the loop on one side, the other side can be detached and slipped on the thill without moving the horse or vehicle. With this construction the saddle is held in perpendicular position while the horse is in motion, the only movement being from the snap hook to the thill, as shown in dotted lines.

AN IMPROVED JACK.

A simple form of jack, by means of which a hold or purchase may be obtained on a log where but limited space is available, is illustrated herewith, and has been patented by Mr. Leroy O. Lander, of Tacoma, Washington Ter. The body of the jack has a concaved base, and a guide groove for the lifting bar, which is held to the body by a strap or casing, one of the bolts by which this casing is held to the body affording a pivot for the two links which carry the operating lever of the jack, a bolt connecting the links and lever, the bolt working in guide slots formed in the casing. The toe of the operating lever engages the teeth of the lifting bar as shown in the sectional view, Fig. 2. The spring dog engaging the lifting bar is pivoted to the outer face of the casing, the spring acting to normally maintain an inwardly projecting stud or pin of the dog in engagement with one of the teeth of the lifting bar. The foot of the lifting bar is so pivoted that the foot may be swung or turned at any angle to the longitudinal axis of the bar, whereby the foot may be made to engage the end of the log from either side or from the front of the jack. The head of the bar flares outward



LANDER'S JACK FOR LOGGING, ETC.

from near the center, to afford a firm seat against the side of a log. The arrangement of the operating lever and links, with the connecting bolt, allows of the ready engagement and disengagement of the operating lever and ratcheted lifting bar.

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