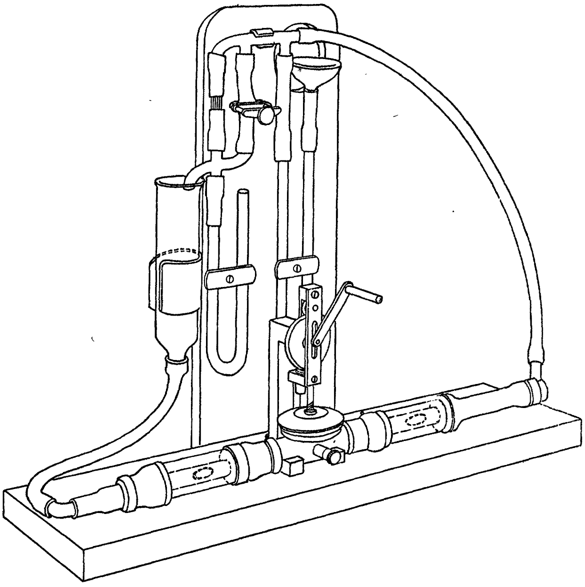
The pressure in the ventricle is varied through a tambour covered with rubber membrane. The membrane is grasped between two disks, one below and one above. The upper disk is screwed down upon the lower until the membrane is tightly held. To these disks is fastened a rod which ends in a yoke. The yoke rests upon a small wheel, which in turn is supported by a brass plate eccentric in form. This brass plate is revolved by turning a handle attached to the axle. As the plate revolves the small wheel bears upon the eccen-



tric rim and rises and falls with the rise and fall in the rim of the plate. The motion of the small wheel is transferred through the yoke, rod and disk to the rubber membrane and thus to the interior of the ventricle.

The rim of the eccentric brass plate reproduces the intraventricular pressure curve in the dog. In projecting this curve upon the plate the periphery is divided into fractions of a second and the radii are divided into millimeters of mercury pressure.

Each revolution of the eccentric plate reproduces in the ventricular tube both the time and the pressure relations of the ventricular cycle in the dog. The intraventricular pressure curve may be written by connecting the side tube with a membrane manometer, and clamping off the arterial mercury manometer to be mentioned shortly.

When the pressure rises in the ventricle to a sufficient height the contents of the ventricle will be discharged through the aortic valve into the aorta, and thus (through a convenient metal tube) into the arterial tube, leading to the capillary resistance. Here two paths may be taken: the liquid may pass either through the capillary channels in the cane, thus meeting with a high resistance, or this resistance may be lessened to any desired degree by unscrewing a clamp and thus opening the side tube. Both paths lead to the venous tubes, whence the liquid passes through the mitral valve into the ventricle. The mitral and aortic valves are of a modified Williams type. Metal tubes closed at one end conduct the liquid respectively to or from the ventricle. The liquid enters or leaves the valve tube through a hole covered by a rubber valve-flap, not shown in Fig. 1. Each valve is surrounded by a glass tube through which the working of the valve may be inspected.

Mercury manometers measure the pressure in the arteries and veins near the capillary resistance. The arterial manometer is provided with a glass thistle-tube to catch any mercury that may be driven out by a careless operator.

If the arterial mercury manometer be replaced by a membrane manometer, or if it be provided with a float and writing-point arterial pressure curves may be written, identical with those obtained from the carotid artery of the dog.

Normal sphygmographic tracings may be obtained by using a sphygmograph on the aortic tube.

Palpation of the arterial tube will give a pulse the 'feel' of which can not be distinguished from that of the pulse in the normal subject; the pressure waves in the quantitative scheme and in the living animal are identical in respect of both time and pressure.

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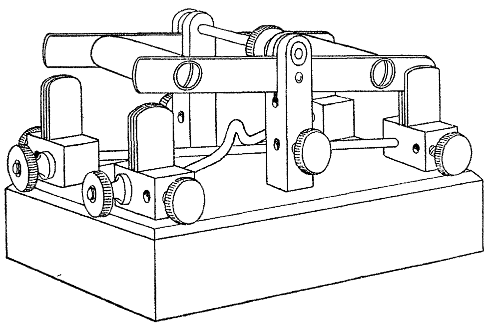
ROCKING KEY WITH METAL CONTACTS.

THE instrument illustrated by the figure serves as a simple key, short-circuiting key, and pole changer. It is in fact a universal key. No mercury is used.

The central binding posts are prolonged upwards and each is slotted to receive a brass bar which is pivotted in the slot by a horizontal pin. The brass bars are held parallel by two rubber rods which serve as handles. When the bars are depressed to one side or the other, they engage between plates of spring brass set into brass blocks each of which carries a binding screw. Cross wires enter these blocks, as shown in the figure. At one end the cross wires are soldered into the blocks,



thus making an electrical contact. The two blocks at the other end are perforated by rubber cores or 'bushings' through which the cross wires pass. The cross wires, therefore, make no electrical contact with these blocks. When a contact is desired, the screw borne on the head of each cross wire is turned until its face presses against the brass block outside the bushing. In this position the key serves as a pole changer, commutator, or 'Wippe.'

A brass cross bar unites the central posts. At one end this cross bar does not make electrical contact with the post, but passes through a rubber bushing clearly shown in the figure. Contact is secured by turning a screw upon the cross bar until the face of the screw presses against the post outside the bushing. When this contact is made the instrument may be used as a short-circuiting key.

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SOME NOTES ON THE MYODOME OF THE FISH CRANIUM.

Myodome is a term given by Dr. Theo. Gill to the tube at the base of the cranium of fishes for the reception of the rectus muscles of the eye.

It is formed by an inner longitudinal wing springing from near the middle of the prootic, or near the center of the radiation of the structural fibers of the prootic, and meeting its opposite fellow separates the myodome from the brain cavity.

It has been variously called eye muscle tube, canal or vacuity, and Cope instead of considering the vacuity itself considered the walls forming it, thus: 'basis cranii double,' meaning a double floor to the cranium with a space (the myodome) between; 'basis cranii single,' or myodome absent. With the former term he often coupled the phrase, 'with a muscular tube,' meaning the vacuity was extended backwards in a tube in contradiction to its ending blindly.

The following matter was suggested to me by a few lines in an excellent paper recently published by Dr. W. G. Ridewood (*Proc. Zool. Soc. London,* 1904, Vol. II., p. 60) as follows:

> No value can be ascribed, so far as I can see, to a feature upon which Cope has laid some stress (*Trans. Amer. Phil. Soc.*, N. S., XIV., 1871), namely the double or simple nature of the basis cranii. This refers, so far as I understand his writings, to the separation of the parasphenoid from the prootic floor of the cranium by the eye muscle vacuity. The character is one which is very difficult of application; and it is a matter of individual opinion whether such a form as *Clupea* is to be regarded as having a simple or double bases cranii, for here the parasphenoid is produced backwards into a pair of large lateral wings, the space between them freely open below.

From the second sentence quoted, I should judge that Dr. Ridewood considers the myodome to be interposed between the floor of the cranium and the parasphenoid, rather than separated from the brain cavity. Or, in other words, that he considers the roof of the myodome to be the homologue of the cranial floor of forms having no myodome.

This does not seem to me to be the correct conception. That the floor of the myodome is the true cranial base and that the roof of it is simply a septum of secondary development would seem probable from the following evidence: (1) The lower edges of the prootics