

sage located centrally in relation to the length of the cylinders, and between the two sets of blades on the cylinders, and fluid discharge passages at the opposite ends of said cylinders, substantially as set forth, whereby the current of the fluid is from the centre in opposite directions to the two ends of the cylinders, thereby balancing the end pressure of the cylinders. 3rd. In a compound motor, the rotating cylinders provided with the sets of fixed blades, increasing in depth by sets from the entrance of the actuating fluid, and set at a greater angle at said entrance than at the exhaust, in combination with the casing provided with the blades inclined in opposite direction to the blades on the rotating cylinders, substantially as and for the purpose described. 4th. In a motor, the combination of a hollow cylinder or cylinders furnished with blades on its or their interior, a moving cylinder or cylinders having external blades, and mounted on a shaft to rotate within said hollow cylinder or cylinders, and bearings for said shaft having slight lateral play or elasticity, combined with frictional resistance to such play in such a manner as to enable the moving cylinder or cylinders to rotate about its or their centre of gravity or principal axis, instead of its or their geometrical centre or axis (if the centre of gravity and geometrical centre be nearly coincident) and to cause the vibration to which the cylinder or cylinders may be subjected to be damped or modified, substantially as described. 5th. In a motor, the combination of a hollow cylinder or cylinders furnished with blades on its interior, a moving cylinder or cylinders having external blades, a shaft on which said moving cylinder or cylinders is or are mounted, and elastic bearings, each comprising a bush and friction rings or washers pressed tightly together by a spring or springs in such a manner that the bush is capable of slight lateral movement, resisted and controlled by the friction rings or washers, as described and illustrated for the purpose specified. 6th. In a motor, wherein a moving cylinder or cylinders, carrying blades on its or their interior, is or are mounted on a shaft to rotate within a hollow cylinder or cylinders, also furnished with blades, the use of a centrifugal or screw pump, mounted directly upon the motor shaft for forcing lubricant or cooling fluid to the parts to be lubricated or cooled, substantially as described. 7th. In a motor, wherein a moving cylinder or cylinders, carrying blades on its or their exterior, is or are mounted on a shaft to rotate within a hollow cylinder or cylinders, also furnished with blades wherein a pump that will not lift is employed to circulate lubricant or cooling fluid, the use of a suction fan to raise the level of such lubricant or cooling fluid, in the return or suction pipe or chamber, and enable the circulating pump to start and to keep in action, substantially as described. 8th. In a motor, wherein a moving cylinder or cylinders, carrying blades on its or their exterior, is or are mounted on a shaft to rotate within a hollow cylinder or cylinders, also furnished with blades, a regulator for regulating the speed of the motor, comprising suction fan mounted on the motor shaft, a diaphragm, a throttle valve with spindle connected to said diaphragm, and a spring, the arrangement being such that by the action of said fan said diaphragm is caused to operate in one direction, in opposition to said spring in such a way as to open or close or alter the position of throttle valve, as described, for the purpose specified. 9th. A motor (or pump) comprising two compound or built up cylinders with blades *b*, *b*<sub>1</sub>, *b*<sub>2</sub>, a casing *c*, blades *f*, *f*<sub>1</sub>, *f*<sub>2</sub> fixed within said casing, central inlet *g*, exhaust passages *h*, *h*<sub>1</sub>, shaft *a*, bushes *i*, metal rings or washers *k*, *k*<sub>1</sub>, spiral springs *l*, nuts *m*, *m*<sub>1</sub>, drain passages *o*, *o*<sub>1</sub>, ejector or steam nozzle *p*, exhaust pipe *q*, chamber *r*, pump *r*<sub>1</sub>, pipes *r*<sub>2</sub>, *r*<sub>3</sub>, *r*<sub>4</sub>, junction piece *r*<sub>5</sub>, fan *t* with holes *u*, *u*<sub>1</sub>, cavity *v*, a diaphragm rod *w*<sub>1</sub>, arm *w*<sub>2</sub>, spindle *w*<sub>3</sub>, collar or nut *w*<sub>4</sub>, spring *w*<sub>5</sub> and graduated tap *w*<sub>6</sub>, all substantially as described and illustrated. 10th. A pumping engine, comprising a single shaft with cylinder *a* and fans or blades *b*, *b*<sub>1</sub>, *b*<sub>2</sub>, and surrounding cylinder or case *c*, with fans or blades *f*, *f*<sub>1</sub>, *f*<sub>2</sub>, and inlet and outlet for actuating fluid, and on the same shaft another cylinder *a* with fans or blades *b*, *b*<sub>1</sub>, *b*<sub>2</sub>, surrounded by an enclosing cylinder or case *c*, with fans or blades *f*, *f*<sub>1</sub>, *f*<sub>2</sub>, inlet and outlet, the arrangement being such that by means of actuating fluid admitted between the first-named cylinder *a* and its enclosing case or cylinder *c*, said shaft is rotated, thus causing the secondly-mentioned cylinder *a* with its blades *b*, *b*<sub>1</sub>, *b*<sub>2</sub>, to rotate within its enclosing cylinder or case *c* and act as a pump, substantially as described.

### No. 22,123. Microphone. (*Microphone*.)

Kazimir S. Dembinski, Brussels, Belgium, 21st July, 1885; 5 years.

*Claim*.—1st. A telephone comprising three or four horse-shoe magnets *B*, the extremity of whose branches cross each other alternately, about twenty millimetres and which are connected with two soft iron rods *E*, each bearing a bobbin *F*, round which fine wire is wound in the same direction, in combination with a diaphragm *N* of tin plate or ferrotype close to the bobbins *F*, a wooden box bearing an ear trumpet *Q*, or a flexible tube provided with an ear trumpet, and line circuit, arranged substantially as described. 2nd. In a telephone, in combination with bobbins *F* a brass ring *K* bearing the diaphragm, and the four pressure screws *L*, *L*<sub>1</sub>, *M*, *M*<sub>1</sub>, arranged, substantially as described, for determining the distance of the diaphragm from the bobbins. 3rd. A telephone formed of a tube widened at both ends, and containing a straight magnet terminated by two thinner parts of soft iron each bearing a coil wound with fine wire; near each of these coils a diaphragm of tin plate or ferrotype, and a flexible tube or tubes terminating with a funnel, for the purpose above referred to. 4th. A bell consisting of a commutator of eight laminæ as above described, an induction coil combined with an ordinary magneto-bell consisting of oscillating armature, such as described and represented. 5th. An induction coil consisting of a primary wire, of an uneven number of helices (or at least three) without insulating bonds between the helices, and of a secondary wire separated from the latter by a sheet of letter paper, the number of helices of the secondary wire being a multiple of the number of helices of the primary wire, each of these wires entering on one side of the coil and taking exit on the opposite side, substantially as set forth. 6th. In an induction coil, primary and secondary wires *L*, and *B* passing through the cheeks of the coil, so as to avoid the wire from knotting itself, the entry and exit of the wires on the two opposite sides of the coil being on a like diameter. 7th. A microphonic apparatus, as described and set forth, consisting of an induction coil, one or more vibrating drawers comprising longitudinal and transverse carbons 12, 13, and

vibrating strings 16, the whole arranged in a box bearing also vibrating strings 16, and acting as do each of the drawers as boxes of resonance. 8th. In combination with a microphone box having desk top as shown, vibrating cords arranged upon the bottom of said box, and one or more drawers or frames supported above said cords each drawer containing microphone devices and vibrating cords, substantially as and for the purpose set forth. 9th. In combination with drawers in a microphonic, longitudinal and transverse carbons or platinum rods joined by means of semi-circular recesses cut into the former and in which the latter lie loosely. 10th. In combination with drawers forming resonance boxes, the lids thereof carrying series of vibrating strings, each of which gives a different note corresponding to the complete or partial scale. 11th. In combination with a resonant box for microphones, a layer of petroleum lamp black or other form of carbon applied for the purpose of increasing the resonance. 12th. In combination with a resonant box for microphones, metallic vibrating strings arranged spirally, substantially as and for the purpose set forth. 13th. The use, in the described apparatus, of one or more induction coils formed of a wire of one millimetre, and of a wire of one-twelfth of a millimetre of diameter. 14th. In combination with a resonance box in a microphone, one or more steel combs arranged therein, capable of giving all the notes of the chromatic scale, substantially as set forth.

### No. 22,124. Bolting Cloth and Means of Manufacturing the same. (*Etamine et Moyens de la Fabriquer*.)

Silas O. Brigham, New York, N.Y., U.S., 21st July, 1885; 5 years.

*Claim*.—1st. The herein described method of cementing a binding cloth *C* to a bolting or sifting fabric *A*, which consists essentially in placing the said parts in their relative positions with a suitable cementing material between, and then subjecting the same to compression between coincident flat or substantially flat surfaces, in such manner as to exert a substantially uniform pressure thereon over more or less considerable areas thereof, substantially as and for the purpose herein set forth. 2nd. As a new article of manufacture, flatly compressed binding cloth *C*, layer *B* of india rubber or equivalent material, and sifting cloth or fabric *A*, the whole arranged and united substantially in the manner and for the purpose herein set forth.

### No. 22,125. Grain Binding Harvester.

(*Moissonneuse Lieuse*.)

The Toledo Mower and Reaper Company, (Assignee of John S. Davis,) Toledo, Ohio, U.S., 21st July, 1885; 5 years.

*Claim*.—1st. The combination of the binder frame sills having up-turned ends, and the brace bar by which the inner sill is stiffened, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the binder-frame sills having up-turned ends, and the inclined brace connecting the up-turned front end and horizontal portion of the outer sill, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the main frame, the rigidly united grain-platform frame, finger-beam, and binder-frame having pointed connection with the main frame and at its rear, and the castu wheel at the rear of the binder frame, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the driving wheel, the main frame, the rigidly united grain platform, finger beam, and binder frame having pointed connection with the main frame at its rear, and the caster wheel at the rear of the binder frame following directly in the path of the driving wheel, substantially as and for the purpose set forth. 5th. The combination, substantially as hereinbefore set forth, of the main frame, the freely pivoted tongue, the rigidly united binder frame, grain-platform frame, and finger beam having pointed connection with the main frame at its rear the castu-wheel supporting the binder-frame at rear, and means for vertically adjusting the grain platform frame, binder frame and finger beam, by rocking them about their pointed connection with the main frame and rendering them rigid therewith against toward flexure, for the purpose described. 6th. The combination of the main frame, its rearwardly projecting arms, the racks secured to said arms, the binder frame having jointed connection with the main frame arms in rear of the racks, the pinions engaging the racks, their shaft supported by the binder frame, and means for turning and dogging the shaft, substantially as and for the purpose hereinbefore set forth. 7th. The combination of the main frame, the rearwardly projecting arms the racks secured to said arms, the rigidly united binder frame and finger beam having jointed connection with the main frame arms, their shaft supported by the binder frame, the ratchet on the shaft, the dogging pawl, and the lever with its pawl, for actuating the ratchet, substantially as and for the purpose hereinbefore set forth. 8th. The combination of the binder frame sills up-turned at their front ends, the main frame with the rearwardly-projecting arms with which the sills have pivoted connection, the adjusting shaft, its ratchet, the dogging-pawl and the inclined brace by which the end of the outer sill is relieved of strain by the thrust of the dogging-pawl, substantially as and for the purpose hereinbefore set forth. 9th. The combination, substantially as hereinbefore set forth, of the driving-wheel, the axle, the rocking main frame, the freely-pivoted tongue, the binder frame having jointed connection at its front directly with the main frame at its rear, the caster wheel supporting the rear end of the binder frame, and adjusting mechanism by which to rock the binder frame about its jointed connections with the main frame and render it rigid therewith against downward flexure while leaving it free to flex upward, for the purpose described. 10th. The combination, substantially as hereinbefore set forth, of the rocking main frame, the binder-frame having pointed connection at front with the rear of the main frame, adjusting mechanism for raising and lowering the binder frame at front and rendering it rigid with the main frame against downward flexure, the caster wheel at the rear of the binder frame, and means for vertically adjusting the binder frame, at rear, for the purpose described. 11th. The combination, substantially as hereinbefore set forth, of the main frame, the rigidly united finger beam, platform frame, and binder frame at its rear, adjusting mechanism for working the finger beam,