No. 845,065. PATENTED FEB. 26, 1907.

M. DUNN.

PRESSURE GAGE.

APPLICATION FILED MAR. 15, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

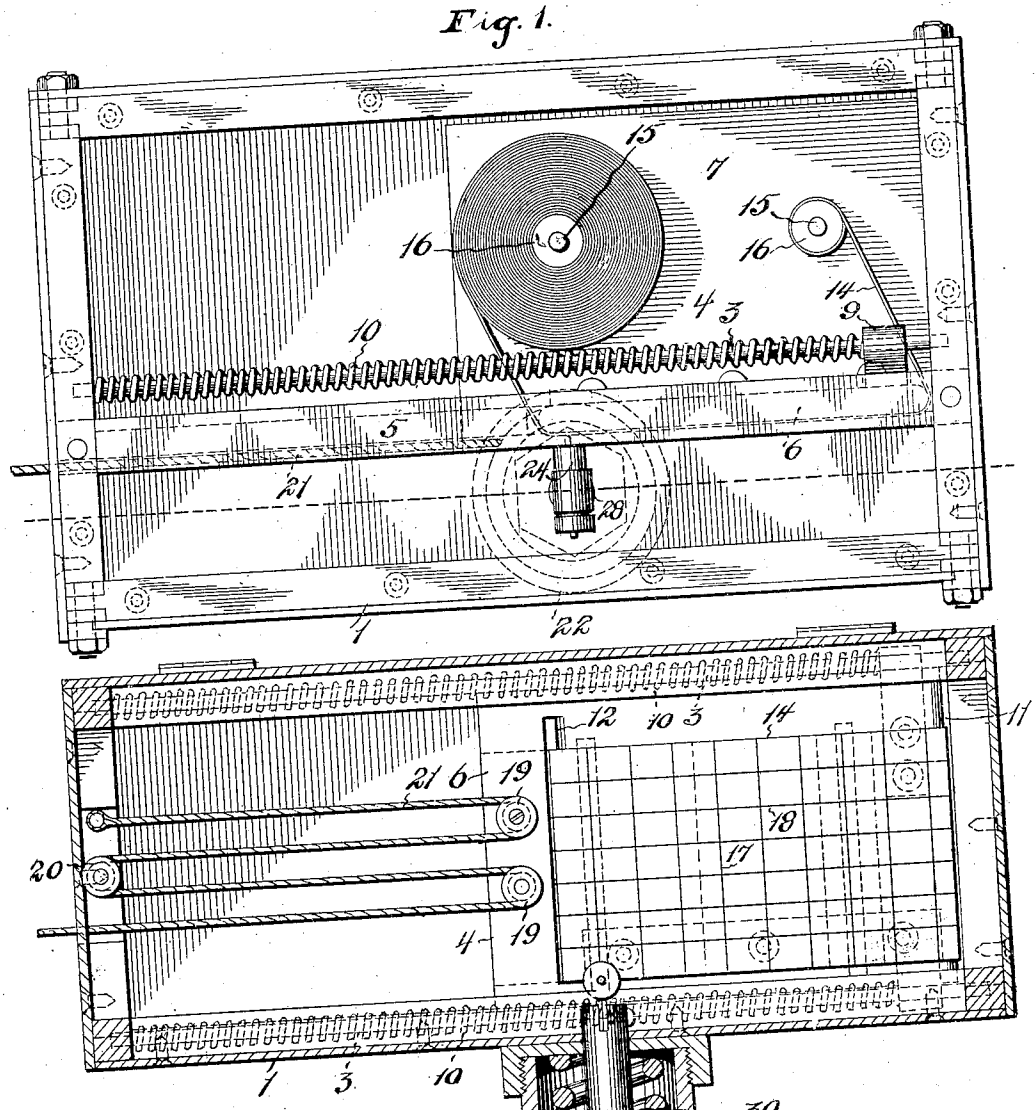
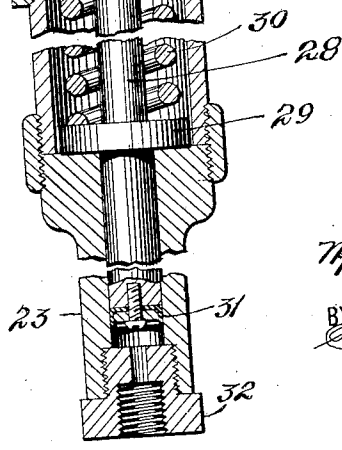


Fig. 2.



WITNESSES

Carl Stoughton

W. B. Ashley

INVENTOR

Michael Dunn

BY Thos. Hubbard Parker

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

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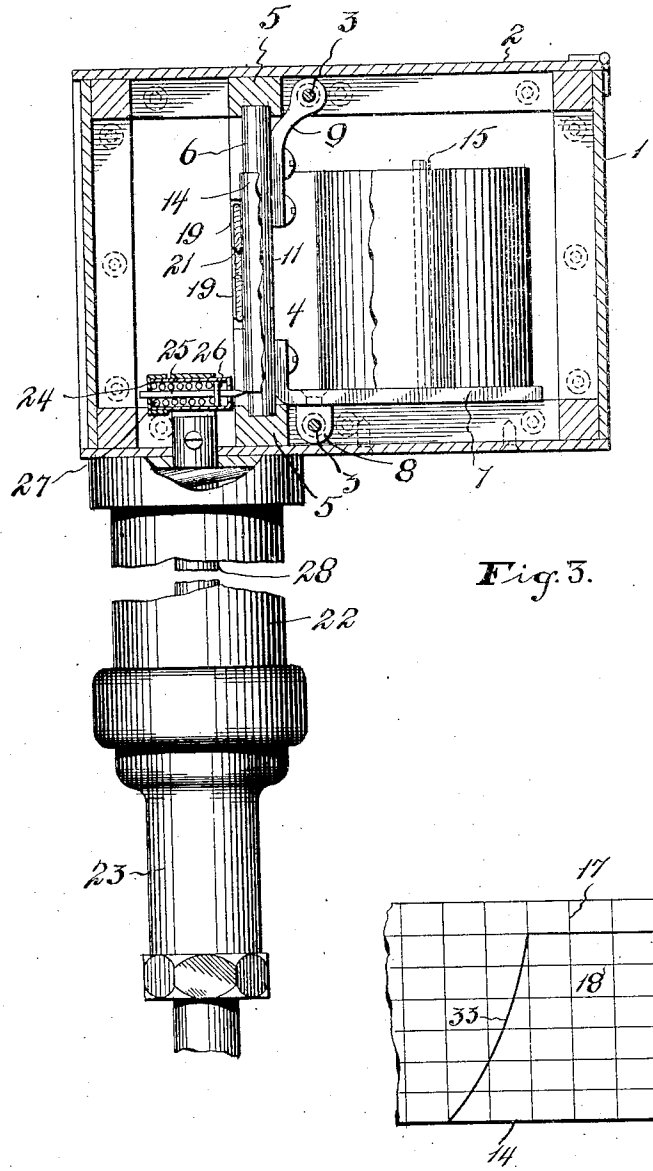


Fig. 3.

Fig. 4.

WITNESSES

Carl Stoughton

INVENTOR

Michael Dunn

BY

ATTORNEYS.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MICHAEL DUNN, OF COLUMBUS, OHIO

PRESSURE-GAGE.

No. 845,065. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed March 15, 1906. Serial No. 306,152.

To all whom it may concern:

Be it known that I, MICHAEL DUNN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Pressure-Gages, of which the following is a specification.

My invention relates to new and useful improvements in pressure-gages.

The object of the invention is to provide a simple gage of superior construction adapted to be employed to register the pressure used in pressing wheels on axles, piston-heads on piston-rods, crank-pins in locomotive-wheels and the like, &c.

Another feature is the arrangement whereby a diagram-card or paper ribbon is employed and the number of inches indicated by lines running in one direction and the pressure indicated by lines running in an opposite direction.

Finally, the object of the invention is to provide a device of the character described that will be strong, durable, and efficient and one in which the several parts will not be liable to get out of working order.

With the above and other objects in view the invention consists of the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view with the cover removed. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is a transverse vertical sectional view of the casing, showing the piston-cylinder and the slide in elevation, the paper ribbon or tape being broken away to show parts lying in the rear thereof; and Fig. 4 is an elevation of a portion of the paper ribbon or tape.

In the drawings, the numeral 1 designates a housing or casing rectangular in shape and provided with a hinged cover or top 2. This casing is designed so as to conceal the parts arranged therein, and the cover 2 may be fastened or locked by any suitable means. Near the center of the casing and the top and bottom thereof longitudinal guide-rods 3 are arranged. On these rods a carriage 4, adapted to travel longitudinally of the casing, is arranged. The carriage 4 comprises a vertical plate 6, which slides in guides 5, secured to the ends of the casing at the top and bottom thereof, so as to permit the cover 2 to be raised without disturbing the same. From the rear side of the plate 6 a shelf or platform 7 extends horizontally a short distance above the bottom of the casing and the lower rod 3. From this shelf a lug 8, engaging freely about the lower rod 3, depends, while a hanger 9, secured to the rear side of the plate 6, extends upwardly and engages freely about the upper rod 3. The rods 3 receive coiled springs 10, which bear against the lug 8 and hanger 9 when extended and act to hold the carriage at the right-hand end of the casing, as shown in Figs. 1 and 2. The carriage is adapted to be moved against the tension of these springs, which are compressed, so that when the carriage is released the springs act to return the same to its normal position. At one end the plate 6 is rounded, as indicated at 11, and is provided near its opposite end with a vertical slot 12, having one side rounded.

About the end 11 and through the slot 12 a paper ribbon or diagram-tape 14 is passed, so as to extend across the face of the plate 6 in a vertical plane. On the shelf 7 pins 15 are arranged and receive spools or arbors 16, about which the tape is wound. This tape is suitably lined, and as an instance of such lining I have shown in Fig. 4 a portion of the tape on which vertical lines 17 are provided to indicate inches and horizontal or longitudinal lines 18 for indicating the pressure. The manner of carrying out this operation will be hereinafter described.

For traversing the carriage 4 I arrange on the front side of the plate 6 a pair of pulleys or sheaves 19, while at the left-hand end of the casing a suitable pulley or sheave 20 is disposed. A cord 21, secured to the left-hand end of the casing, is passed over the upper pulley 19, then back about the pulley 20, from there over and about the lower pulley 19, and back through the end of the casing, the cord being of suitable length and having its free end attached to the ram or other movable part, so that the carriage will be moved to the left as the ram moves out and allowed to be returned by the springs 10 when the ram is moved in.

The casing 1 is mounted on the upper end of a cylinder or piston casing 22, which latter is provided with a lower contracted portion 23. A piston-rod 28, passing through the parts 22 and 23, also extends through the bottom of the casing and carries on its upper end a barrel 24, in which is arranged an indelible pencil 25, the latter having a washer

26 fixed thereto, against which a coiled spring 27, confined within the barrel, bears. This barrel and the pencil are placed at substantially right angles to the diagram-tape, so that the spring 27 acts to hold the pencil in contact therewith. About the piston-rod 28 I secure a piston-head 29, against which a coiled resistance-spring 30 bears, the latter being confined within the cylinder 22. A suitable packing 31 is provided about the lower end of the piston-rod, as shown in Fig. 2, while a thimble 32, screwed into the lower end of the reduced portion 23, has connection with the pressure means, so that the same pressure exerted on the work is exerted on the lower end of the piston 28. In this way the spring 30 resists the pressure and allows the piston-rod to ascend in proportion to the increase of the pressure.

The operation is as follows: The cord 21 being connected to the ram or other movable part causes the carriage, and thus the diagram-tape 14, to travel to the left in relation to Figs. 1 and 2. At the same time the pressure exerted on the piston-rod 28 causes the same to ascend, so that the pencil 25 traces the movement on the diagram-sheet. In this way both the travel of the ram and the pressure are recorded. After the ram is drawn in and the pressure relieved the springs 10 return the carriage and the spring 30 forces down the piston and the pencil, thus returning the latter to its starting-point. In Fig. 4 the heavy black line 33 illustrates the travel of the pencil or the marking of the pencil on the diagram-sheet as the same travels, indicating that the work has been properly carried out. After each successive operation the tape is wound by any suitable means, so that a fresh diagram is presented for the next operation. It is obvious that should the pressure vary the longitudinal part of the line 33 would waver, as the pencil would be caused to either ascend or descend, and likewise should the movement of the ram vary the curved part of the line 33 would be irregular. By this means one is enabled to ascertain the exact travel of the ram and the pressure used on each piece of work.

What I claim is—

1. In a device of the character described, the combination with an indicator casing, of a piston-casing supported upon the upper end of said indicator-casing, a plunger arranged in the piston-casing and projecting into said indicator-casing, guide-rods extending longitudinally of the indicator-casing, a carriage removable longitudinally in said indicator-casing and having portions which encircle said guide-rods, springs bearing between said encircling portions and the indicator-casing, said springs tending to force said carriage toward one end of the casing, a marking-point carried by the plunger and adapted to move adjacent said carriage, said carriage comprising a vertical front portion and a horizontal portion, and tape-supporting rolls mounted upon said horizontal portion.

2. In a device of the character described, the combination with a casing, of guide-rods mounted in said casing, a carriage mounted to travel in said casing and having portions which encircle said guide-rods, springs encircling the guide-rods and bearing between said portions and one end of the casing, tape-supporting rolls mounted to travel with the carriage, means for moving said carriage against the tension of the springs, a pressure-operated piston, and a marking-point carried by said piston which travels adjacent the face of the carriage.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL DUNN.

Witnesses:
MARY DUNN,
MARY KENNEY.