

(No Model.)

A. M. MORRILL.

PISTON.

No. 379,711.

Patented Mar. 20, 1888.

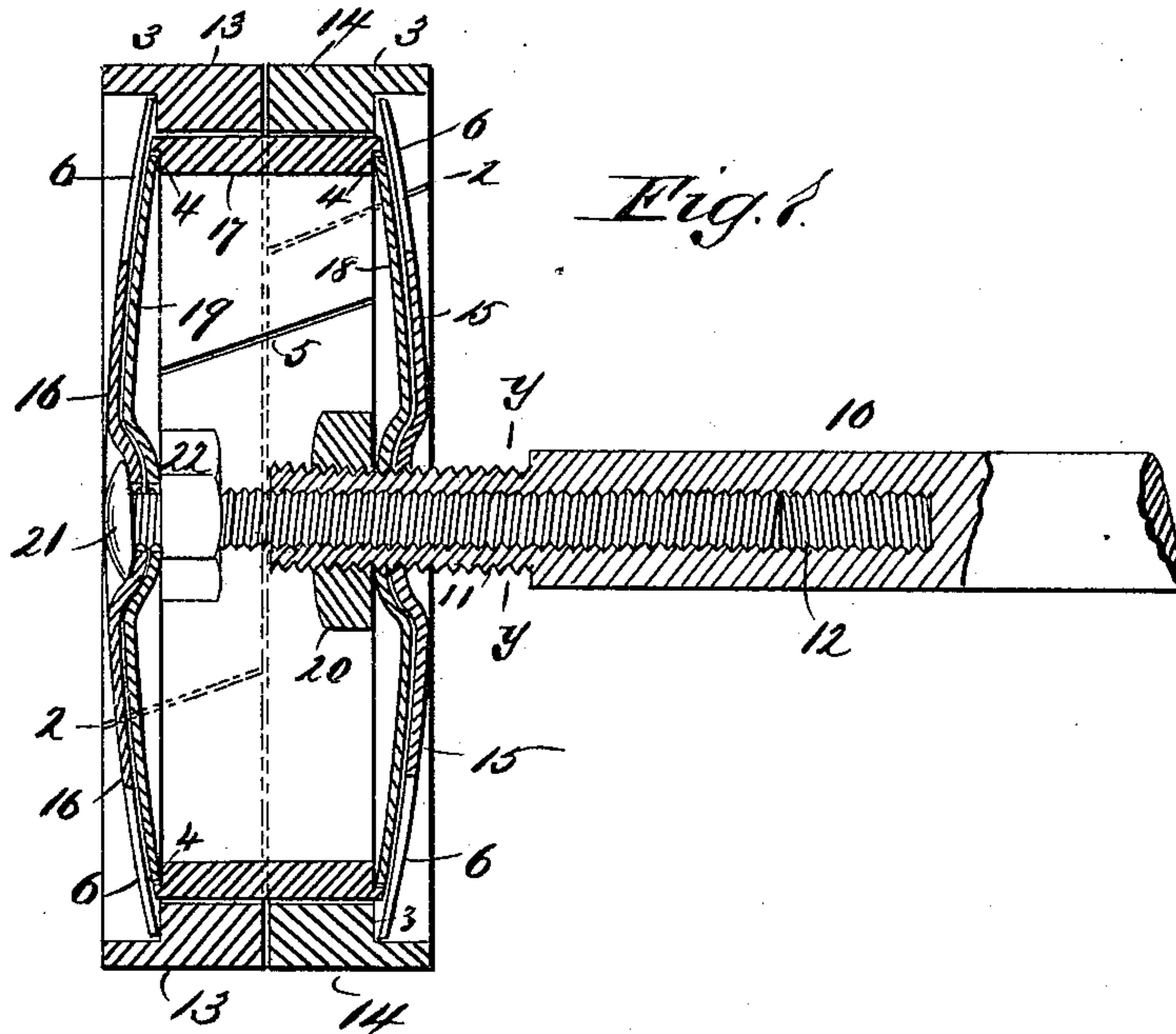
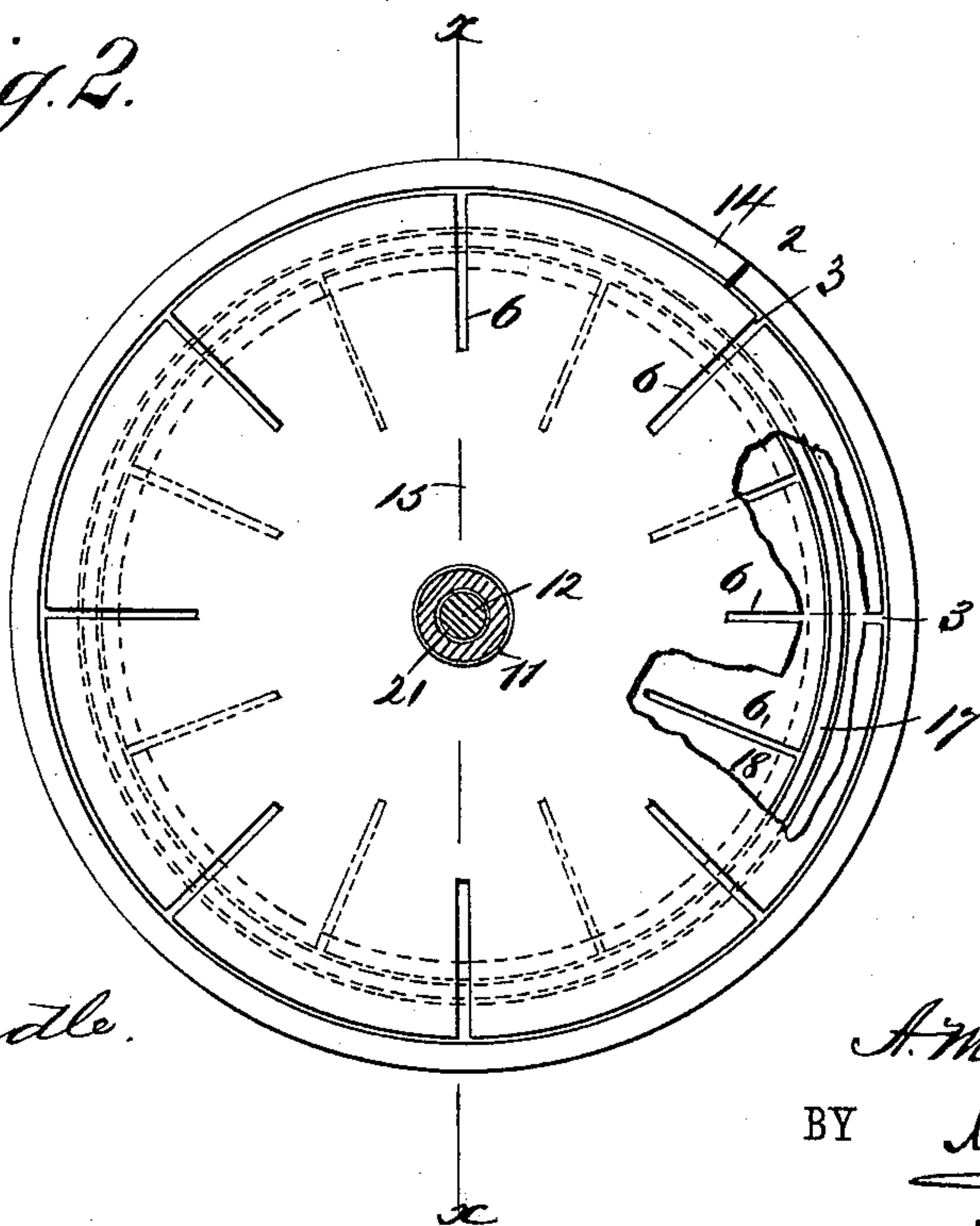


Fig. 2.



WITNESSES:

F. M. Ordle.
C. Sedgwick

INVENTOR:

BY *A. M. Morrill*
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

AMOS M. MORRILL, OF RAVANNA, MISSOURI.

PISTON.

SPECIFICATION forming part of Letters Patent No. 379,711, dated March 20, 1888.

Application filed June 4, 1887. Serial No. 240,265. (No model.)

To all whom it may concern:

Be it known that I, AMOS MATISON MORRILL, of Ravanna, in the county of Mercer and State of Missouri, have invented a new and
5 Improved Piston-Head, of which the following is a full, clear, and exact description.

This invention relates to pistons, the object of the invention being to provide a piston-head wherein the use of followers and flat or spiral
10 springs is dispensed with, and wherein the piston-rod will always be accurately centered.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate
15 corresponding parts in both the views.

Figure 1 is a central sectional view of my improved piston, the view being taken on a line corresponding with that of the line *xx* of Fig. 2; and Fig. 2 is a view taken on the line *yy* of
20 Fig. 1, part of the outer spring-head being broken away to disclose the inner spring-head.

In constructing such a piston-head as the one illustrated in the drawings above referred to I provide a rod, 10, that is externally threaded
25 at 11 and formed with a central threaded socket, 12, this socket 12 being made as large as is consistent with the required strength of rod.

The piston-head employed in connection with the rod above described consists of two
30 outer rings, 13 and 14, that are made from single strips of metal bent to proper form, the ends of these strips being cut at an angle and abutting, as shown at 2, but not being connected. The rings are formed with shoulders
35 3, which serve as bearing-faces for the outer edges of spring-heads 15 and 16, while within the rings 13 and 14 there is placed a third ring, 17, which is formed with shoulders 4, which shoulders serve as bearing-faces for inner
40 spring-heads, 18 and 19, this ring 17 being formed from a single strip of metal, the ends of which abut, as shown at 5. The spring-heads 15, 16, 18, and 19 are formed from plate-steel and are thicker at their centers than to-
45 ward their edges, and the two sets of rings are formed with radial cuts 6, the cuts of the two heads in each set being arranged to break joint, as shown in Fig. 2.

In connecting the piston-head to the rod 10
50 the spring-heads 15 and 18, which are formed with central threaded apertures, are brought

into engagement with the external thread, 11, of the rod 10, being held against any external pressure by a nut, 20, which is also brought into engagement with the threaded section 11
55 and turned up so as to bear against the inner face of the head 18. The ring 14 is then adjusted so that the outer edge of the head 15 will rest upon its shoulder 3, and the ring 17 is placed within the ring 14, so that one of its
60 shoulders 4 will be borne upon by the head 18. The heads 16 and 19 are then placed upon a bolt, 21, which passes through apertures formed in the centers of the heads named, and a nut, 22, is turned up upon the bolt, so as to bear against
65 the inner face of the head 19. The ring 13 having been placed in position, the bolt 21 is brought into engagement with the threaded socket 12 of the rod 10 and turned inward until the edges of the spring-heads are brought
70 to bear hard against the horizontal flanges which extend outward beyond the shoulders of the ring, thus forcing the rings outward, so that they will fit closely within the cylinder in connection with which the piston is to be
75 employed, a proper adjustment of the outer rings being obtained by turning the bolt 21, it being understood that as the bolt is advanced toward the rod 10 the rings will be expanded, and that as the bolt is turned from said rod the
80 rings will be suffered to slightly collapse.

From the construction described it will be seen that the rod 10 will always be properly
centered, irrespective of the adjustment of the parts, and in practice it will be found that the
85 piston-head, having once been properly adjusted, may be used for a long time without being removed from the cylinder.

Having thus fully described my invention, I claim as new and desire to secure by Letters
90 Patent—

1. A piston-head consisting, essentially, of outer expansible rings, spring-heads arranged in connection with the rings, and a means, substantially as described, for adjusting the spring-
95 heads, as and for the purpose stated.

2. A piston-head consisting, essentially, of outer expansible rings, an inner expansible ring arranged in connection therewith, spring-
100 heads mounted in connection with the expansible rings, and a bolt arranged for connection with a piston-rod, substantially as described.

3. In a piston-head, the combination, with
outer expansible rings formed with shoulders
3 and an inner expansible ring formed with
shoulders 4, of two sets of spring-heads ar-
5 ranged to rest upon said shoulders, and a bolt
arranged in connection with one set of spring-
heads and for connection with a piston-rod, the
other set of spring-heads being arranged for
connection with the piston-rod, substantially
10 as described.

4. The combination, with a piston-rod formed
with an external threaded section, 11, and a
threaded socket, 12, of spring-heads 15 and 18,
which engage with the section 11, a nut, 20,

which also engages with the section 11, rings 15
14 and 17, formed, respectively, with shoulders
3 and 4, against which the spring-heads 15 and
18 bear, a bolt, 21, which engages the threaded
socket 12, spring-heads 16 and 19, carried by
said bolt, and a ring, 13, formed with a shoul- 20
der, 3, the spring-head 16 resting upon said
shoulder; while the spring-head 19 rests upon
the shoulder of the ring 17, substantially as
described.

AMOS M. MORRILL.

Witnesses:

AARON L. MASTIN,
SAMUEL P. STEWART.