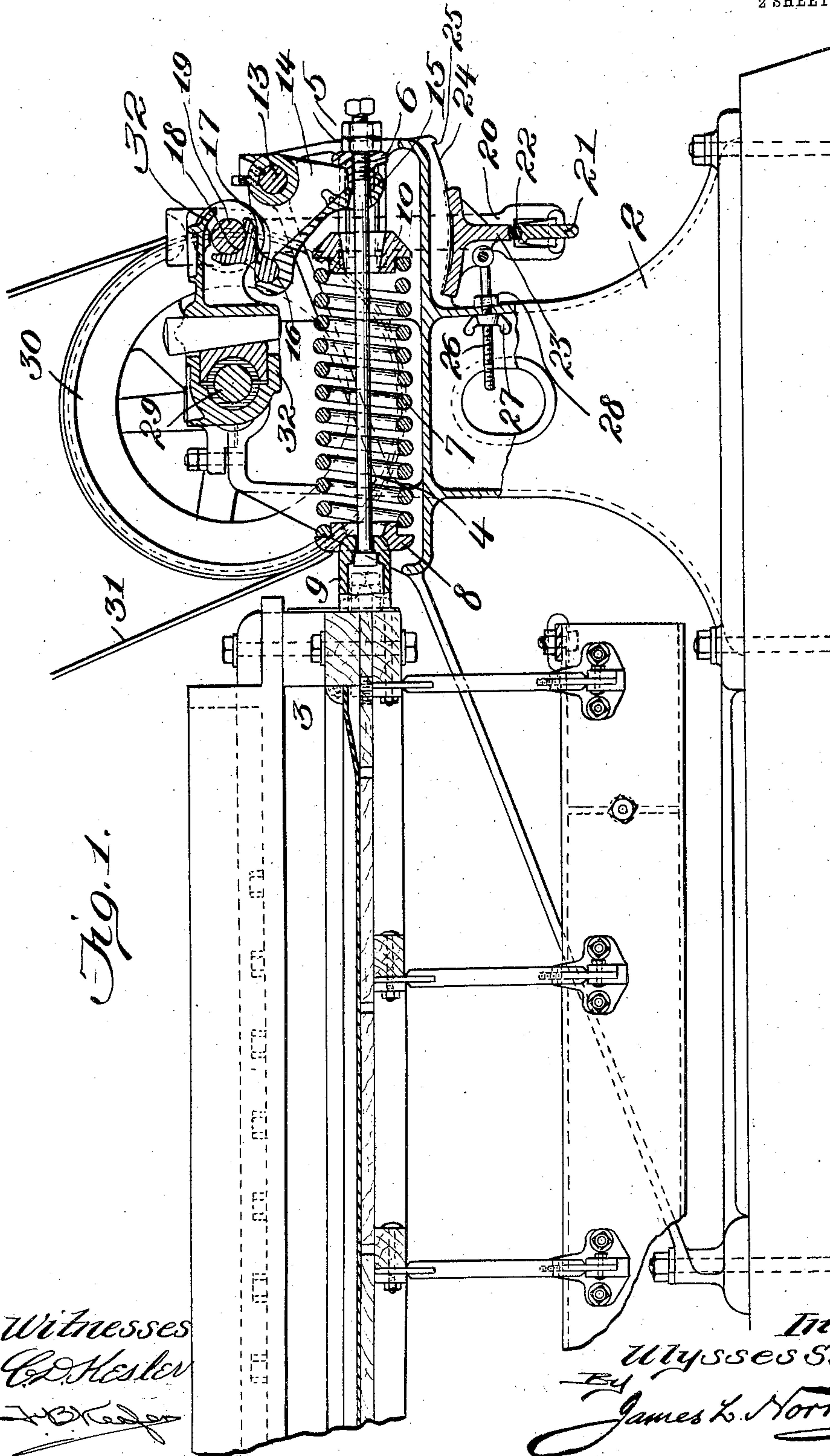


No. 896,547.

PATENTED AUG. 18, 1908.

U. S. JAMES.
MECHANICAL MOVEMENT.
APPLICATION FILED JUNE 1, 1907.

2 SHEETS—SHEET 1.



Witnesses
C. D. Hester
J. B. Keeler

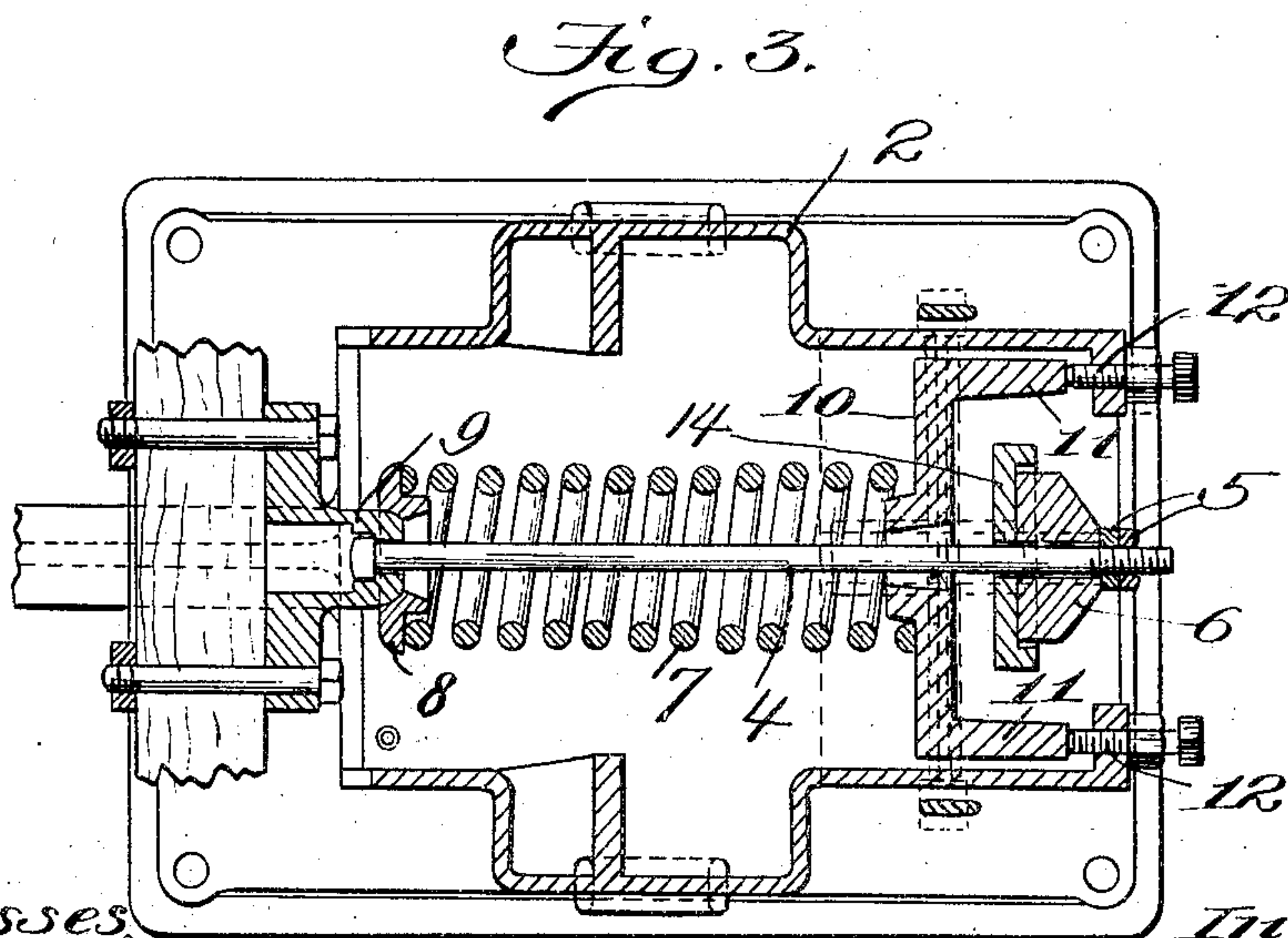
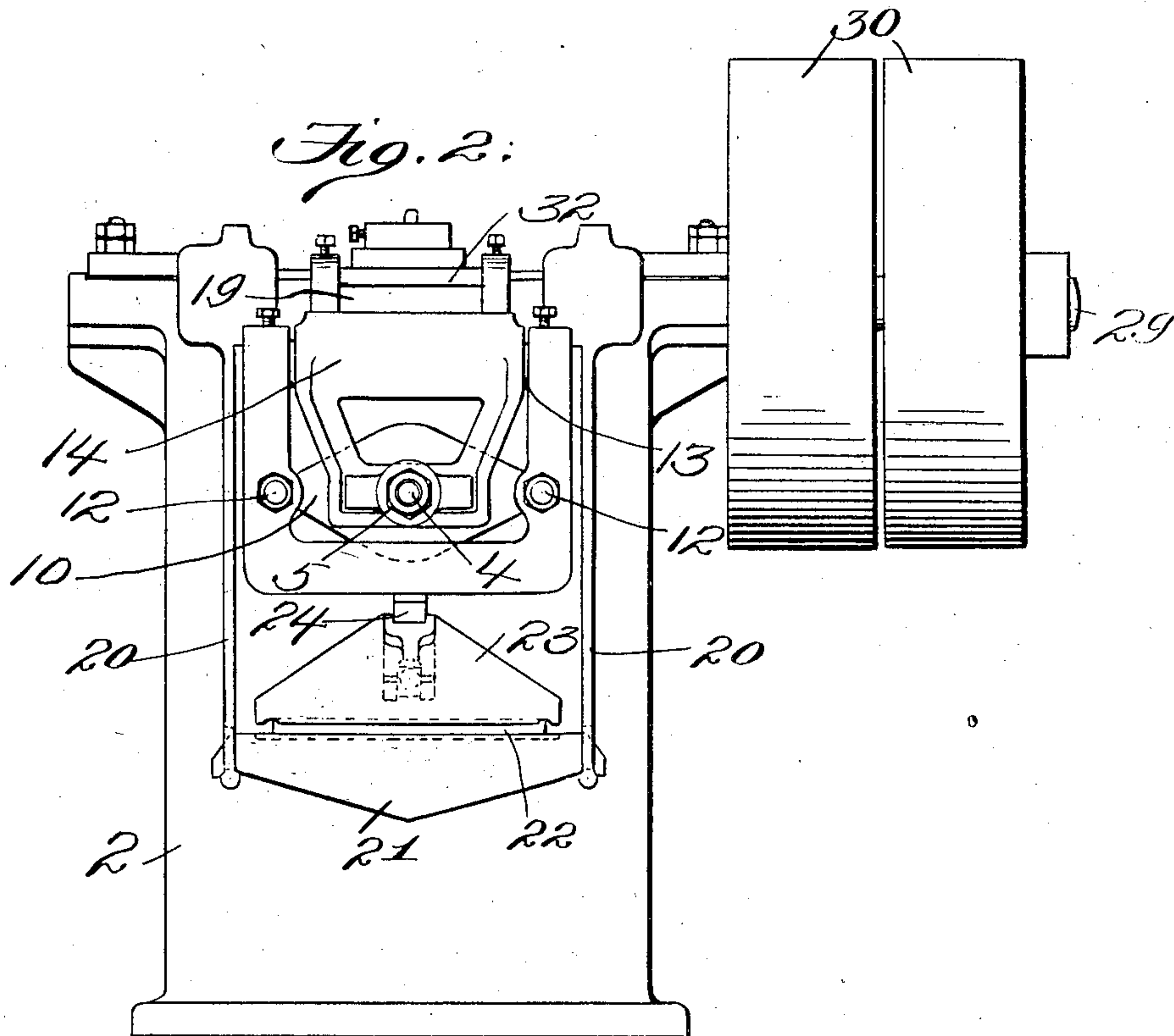
Inventor
Ulysses S. James
By
James L. Norris.
att

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C. D. Hesler
J. B. Keeler

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UNITED STATES PATENT OFFICE.

ULYSSES S. JAMES, OF NEWARK, NEW JERSEY, ASSIGNOR TO JAMES ORE CONCENTRATOR COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MECHANICAL MOVEMENT.

No. 896,547.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed June 1, 1907. Serial No. 376,759.

To all whom it may concern:

Be it known that I, ULYSSES S. JAMES, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to a mechanical movement. Such a device embodying my invention is of advantage in many connections, but is of especial utility when employed to vibrate or reciprocate an ore-concentrating table, which use of it in conjunction with such a table will be hereinafter fully explained. In a table of this character it is desirable that the same be given initially on its working or forward stroke a slow movement and finally an accelerated or rapid motion, to drive the mass on the table forward, and on its return movement be given initially a rapid and finally a slower motion so that the pulp will be retained in its forward position. These results the said movement accomplishes in an effective manner without any lost motion, and provision is made for securing adjustment, by means of which the stroke of the table can be regulated.

In the drawings accompanying and forming part of this specification I have shown in detail one advantageous form of embodiment of the invention which, to enable those skilled in the art to practice the same, will be set forth at length in the following description, while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawings: Figure 1 is a sectional side elevation of a mechanical movement involving my invention and showing the same in connection with a concentrating table. Fig. 2 is an end elevation of said device. Fig. 3 is a horizontal sectional top plan view of the same, the section being taken centrally through the spring shown in Fig. 1.

Like characters refer to like parts throughout the several figures.

The different parts of the device may be supported in any desirable way, for instance, upon a pedestal as 2 which may be conveniently made by casting and which can be bolted or otherwise suitably connected with some kind of foundation. The table is denoted in a general way by 3 and in the present case the parts of the apparatus are so

proportioned and related as to secure the action of the table in the manner set forth in the initial part of the present specification.

To the head end of the table 3 I have shown as connected loosely the inner end of a draw-bar or bolt as 4, the outer end of said bar or bolt having thereon the holding and check nuts each designated by 5. There is shown as loosely mounted on the said draw-bar or bolt 4 the sleeve 6 adapted to bear against the inner of the two nuts 5 as shown clearly in Fig. 1. This sleeve or collar 6 is operable by a lever, as will hereinafter appear, for effecting the rearward stroke of the table 3. In the present case the forward stroke of the table is effected by a spring as 7 surrounding the bar or bolt 4 and bearing at its inner end against the collar 8 which rests against the projection 9 on the head end of the table with which said bar or bolt 4 is connected. The outer end of said spring 7 bears against the member or plate 10 through which the said draw-bar or bolt 4 substantially centrally projects. Said plate 10 has at its opposite ends outwardly-extending arms as 11 which rest against the set-screws 12 tapped through a vertical flange on the pedestal, as clearly indicated in Fig. 3. By the manipulation of these screws 12 the tension of the spring 7 can be regulated. It is obvious that, when the bar or bolt 4 is drawn or moved to the right in Fig. 1 under the action of the lever to which I have briefly referred and which I shall hereinafter describe in detail, the spring 7 is compressed or tensioned, so that, when the table is freed from the action of said lever, the spring by relaxing or expanding can impart to the table the desired working stroke.

The pedestal 2 sustains for rocking movement the shaft 13 to which is pinned or otherwise suitably fastened for movement therewith the lever 14 which in the present instance is of angle type. At the lower corner of said angle lever 14 is a circular channel 15 to receive a bead at the inner end of the sleeve 6. The connection therefore between the angle-lever and the collar 6 is a knuckle one. At the upper inner corner of said angle-lever is a circular channel as 16 to receive the rounded lower portion of the power-transferring member 17. It is therefore obvious that there is a knuckle connection between the member 17 and the angle-lever 14. The member 17 has a circular or rounded

channel 18 to receive the shaft 19 which in the present case is sustained by a rocker consisting of the two similar arms 20. It will be understood that the member 17 has a knuckle connection with the shaft 19. Said shaft 19 is fastened in any desirable way to the two arms 20 which latter depend from said shaft and are shown as connected at or near their lower ends by a foot-piece or bridge as 21. Said foot-piece or bridge 21 is illustrated as having a longitudinal cross-sectionally circular or arcuate channel in its upper edge in which is represented as mounted the journal or pivot 22 which also fits an approximately V-shaped channel in the lower edge of the bracket 23. Said pivot 22 in the present case does not turn during the normal operation of the machine but the foot-piece or bridge 21 rocks on the same during such action. The pivot, however, may be turned by hand at any time to compensate for wear thereon. I prefer to make the pivot of case-hardened steel so that very little adjustment of the same to take up wear will be necessary. The bracket 23 fits at its upper end against the circular or arcuate portion 24 on the pedestal 2 and is capable of movement longitudinally of said arcuate portion 24, for the purpose of regulating the stroke of the table. The bracket 23 is at the inner end of said arcuate portion in Fig. 1, to secure the minimum stroke of the table. As the bracket is moved along said arcuate portion the stroke is increased, the maximum being reached when the bracket strikes against the stop 25. It will be apparent, therefore, that the two similar arms 20 present together an angularly-adjustable rocker and that this adjustment is effected by the operation of the bracket 23. Said bracket may be operated in any desirable way, for example, by the screw 26 pivoted thereto and extending freely through a perforation in the wall of the pedestal. The threaded portion of the screw is shown as provided with a winged adjusting nut as 27, access to which may be had by way of a hand-hole in said pedestal, for the purpose of effecting the adjustment of the bracket 23. Said screw 26 is equipped with a second or check-nut 28 for maintaining the adjustment, the two nuts, when set up, bearing against opposite faces of the wall of the pedestal. The power-shaft is designated by 29 and it is supported for rotation by suitable bearings on the pedestal and it carries fast and loose pulleys each denoted by 30, said fast pulley being adapted to be driven by a belt as 31. To the crank portion of the shaft 29 is connected the inner end of the rod 32, the opposite end of said rod being loosely connected or partially straddling the shaft 19.

On the rotation of the shaft 29 the connecting rod or pitman 32 is reciprocated for reciprocating the shaft 18 in an arcuate direction.

During the forward movement of said shaft 18 the same imparts a downward inward angular thrust to the member 17 and the latter in turn swings the angle-lever 14 outward to impart a rearward stroke, through the intermediate parts, to the table 3, the spring 7 during said rearward stroke, being compressed. As the shaft 19 starts rearward the spring 7 becomes effective for imparting a forward stroke to the table and in opposition to the lever 14 and the parts which actuate the latter. The stroke of the table can be changed at any time by the angular adjustment of the two connected arms 20 in the manner previously set forth. The arcuate face or portion 24 is concentric with the axis of the shaft 19 which, although it travels through a circular path, moves on an arc of very long radius. This path is practically straight.

What I claim is:

1. The combination of a rocker provided with a foot-piece having a channel, a bracket also having a channel, a journal to fit in the respective channels, a part stationary with respect to said rocker, having an arcuate face along which said bracket is movable, and means for operating the rocker.
2. The combination of swinging arms, said arms constituting together a rocker, a foot-piece connecting said arms and having a channel in its upper edge substantially arcuate in cross section, a stationary part having an arcuate face, a bracket movable along such arcuate face and provided with a channel substantially V-shaped in cross section, a journal fitted in the channels, and means for operating said arms.
3. The combination of a rocker, a rock shaft connected and operative with the rocker, a relatively stationary part having an arcuate face, a bracket movable along said arcuate face, means involving a journal interposed between the bracket and the rocker, a power-transferring member connected by a knuckle-joint with said shaft, and a rocking angle-lever connected with said power-transferring member by a knuckle-joint.

4. The combination of a rocker having a part provided with a channel, a hollow pedestal having an arcuate face, a bracket movable along said arcuate face and having a channel, a journal fitted in the respective channels, a screw movably connected with the bracket and extending into the pedestal, and a nut on the screw within the pedestal.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ULYSSES S. JAMES.

Witnesses:

HEATH SUTHERLAND,
CHAS. S. HYER.