

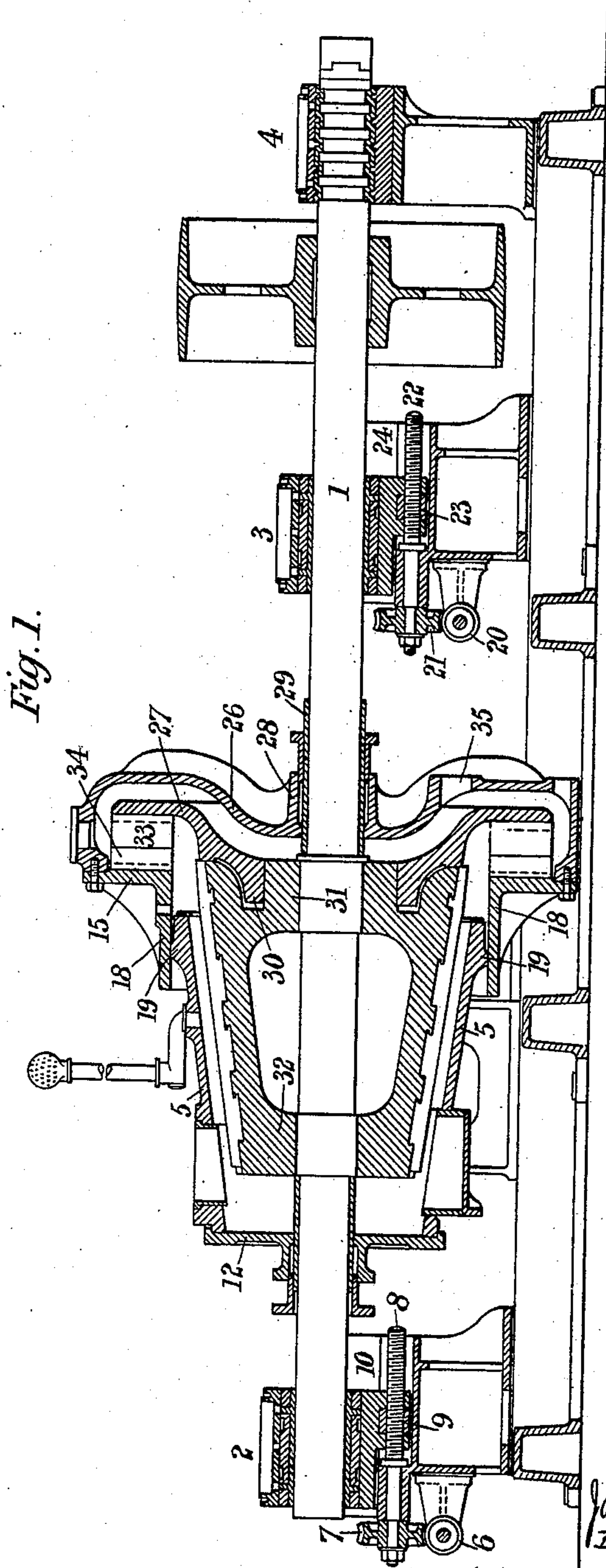
No. 897,225.

PATENTED AUG. 25, 1908.

J. NUTTALL.
PULPING ENGINE.

APPLICATION FILED APR. 3, 1908.

2 SHEETS—SHEET 1.



WITNESSES

Walter Allen
L. H. Grote

INVENTOR

James Nuttall
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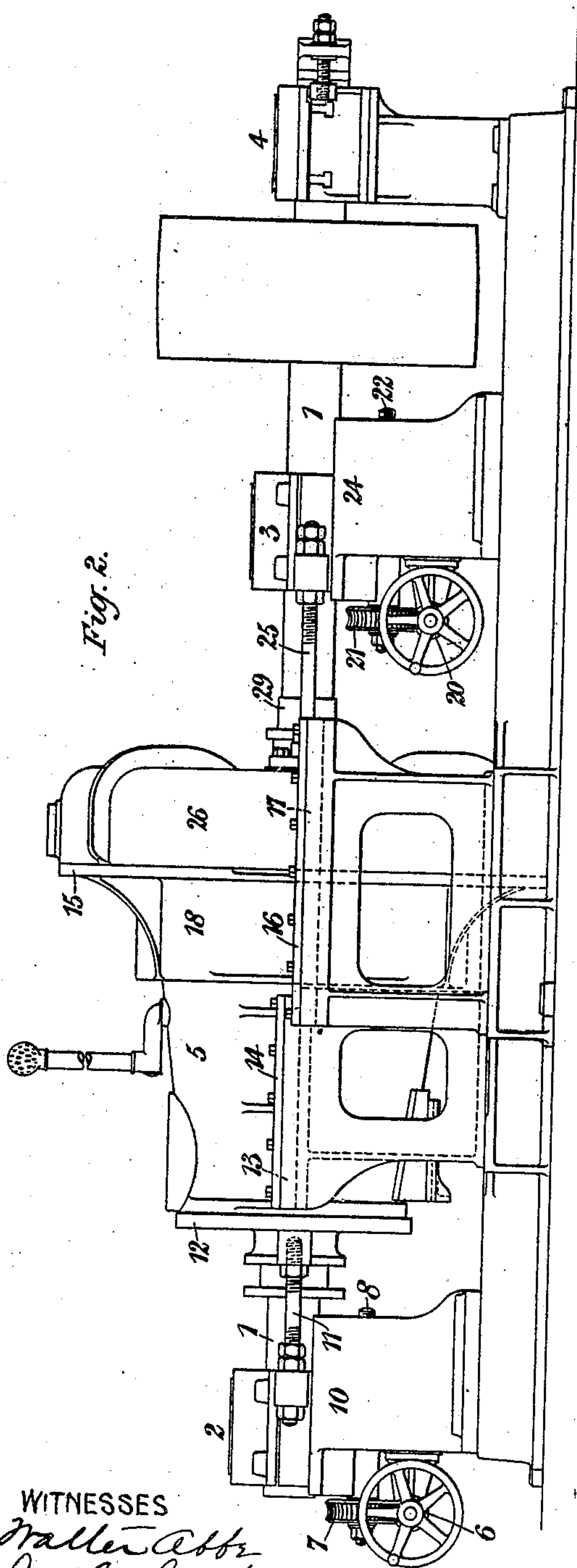
ATTORNEYS

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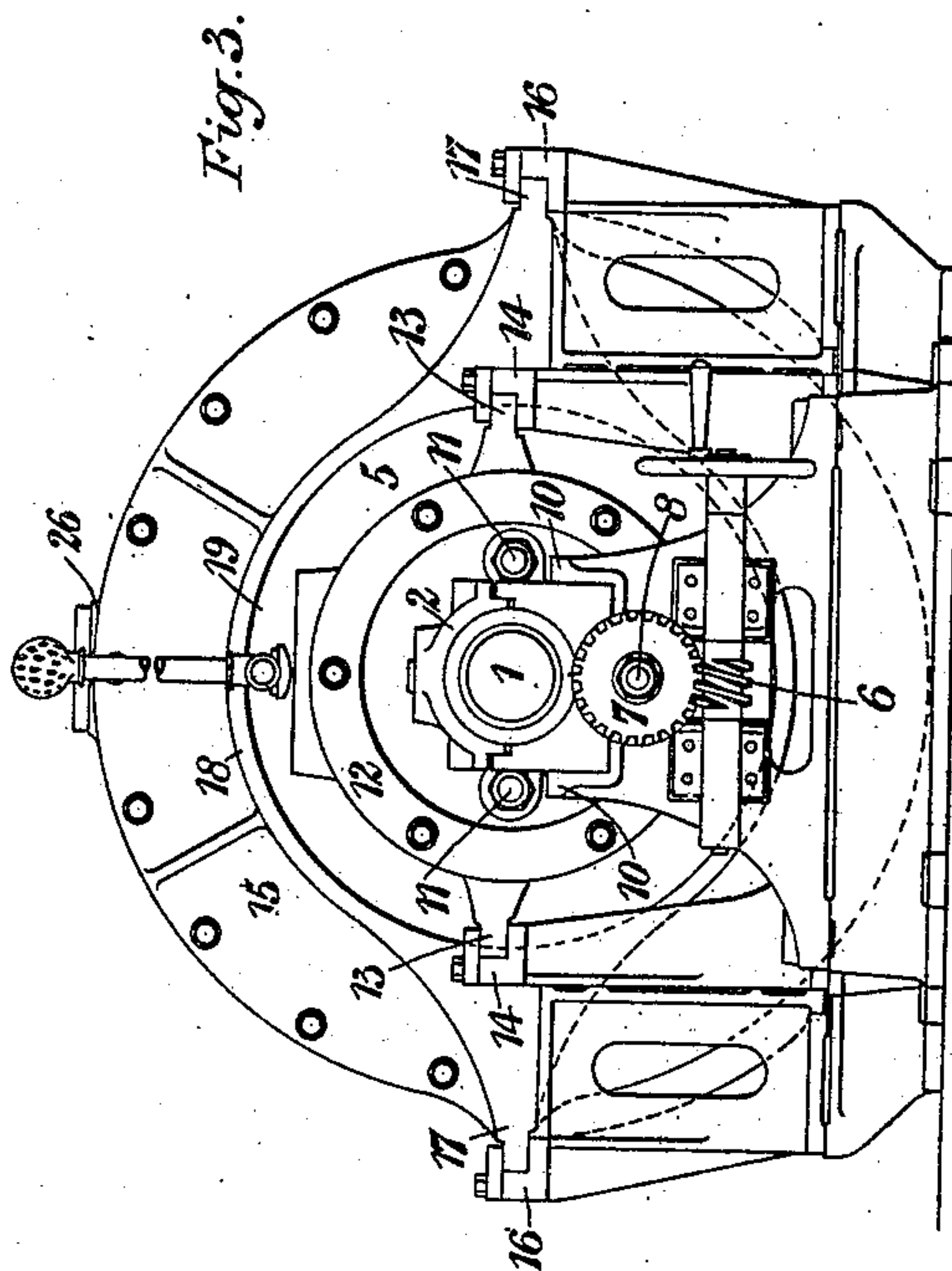
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WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES NUTTALL, OF BURY, ENGLAND.

PULPING-ENGINE.

No. 897,225.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed April 3, 1908. Serial No. 424,996.

To all whom it may concern:

Be it known that I, JAMES NUTTALL, a subject of the King of Great Britain and Ireland, of Park View, Walmersley Road, Bury, in the county of Lancaster, England, engineer, have invented new and useful Improvements in Pulping-Engines, of which the following is a specification.

My invention relates to pulping engines of the class known as Marshall's pulping engine, (the subject matter of British Letters Patent No. 1808 A. D. 1887), improved according to British Letters Patent No. 26,262 A. D. 1901, granted to me conjointly with Thomas Downham Nuttall and George Bentley, the engine being of the kind wherein the knife-carrying conical casing, or outer shell, covering the conical series of revoluble knives, is adjustable lengthwise, and the normally stationary disk, carrying one of the circular series of knives, to which the material being operated on passes from the conical series of knives, is adjustable (relatively to the set of knives carried by the rotatable disk) independently of the conical casing, or outer shell, of the conical series of knives.

The object of my present invention is to simplify and improve the general construction of the engine and render its adjustment truer than hitherto.

In describing my invention I will refer to the accompanying drawings.

Figure 1 is a longitudinal section, Fig. 2 a side elevation, and Fig. 3 an end elevation of a pulping engine constructed according to my present invention.

The driving shaft 1 of the engine is carried in the bearings 2, 3 and 4, and the longitudinal adjustment of the conical casing, or outer shell, 5 of the conical series of knives may be effected after the manner described and shown in the specification of the aforesaid Patent No. 26,262 A. D. 1901, for instance, by a worm 6, and worm-wheel 7, actuating a screw 8, working in a nut 9, confined in the block of the longitudinally movable bearing 2, so that the said bearing-block can be adjusted along the slides 10, the said bearing-block being connected by rods 11 to the end cover 12 of the shell 5, slides 13 on the shell 5 being mounted to slide in guideways 14 carried by supports at each side of the shell 5.

The normally stationary knife-carrying disk 15 and its attachments are made longitudinally adjustable on horizontal slideways

16 on supports at each side of the engine, with which slideways engage slides 17, formed on, or fixed to, the cover-part 18, formed on, or fixed to, the disk 15, which cover-part 18 also constitutes a guideway for a cylindrical part 19 on the forward end of the shell 5, the said cylindrical part 19 in turn forming a guideway for the part 18. The aforesaid horizontal slideways 16, or the parts in which they are formed, or to which they are fixed, are in such rigid connection with the slideways 14, or the parts in which they are formed, or to which they are fixed, that there is perfect alinement, or parallelism, of the respective slideways and slides for the longitudinal adjustment of the shell 5 and the disk 15 respectively. The disk 15 is longitudinally adjustable independently of the shell 5, the adjustment of the said disk being conveniently effected by means of a worm 20, worm-wheel 21 and screw 22 engaging with a nut 23 confined in the block of the bearing 3, which can thus be moved along the slides 24, the block of the bearing 3 being connected by rods 25 to the cover 26, which, at its central part, is supported by the shaft 1, and extends over the disk knives and is secured to the disk 15 as shown, so as to leave a space for the passage of the pulp from the disk knives to the outlet, the arrangement being designed to allow the material under treatment to pass from the inside to the outside of the disk knives, the said cover 26 extending down forward of the rotatable disk 27, and being provided with a boss and gland 28, which encircles a bush, or sleeve, 29, on the driving shaft 1. The rotatable disk 27 is preferably formed cup-shaped as shown (to correspond with the similar formation of the cover 26) and has a boss 30, secured to the boss 31 of the body 32, carrying the inner conical series of knives, and secured to the rotating shaft 1, the said rotatable disk 27 carrying its series of knives on its rearward face so as to be opposed to the series of knives 34 on the forward face of the normally stationary disk 15, there being the aforesaid space between the cover 26, and the peripheries of the series of knives 33, 34, and the forward side of the said disk 27, through which space the treated material passes, from the outer periphery of the knives carried by the disks, to the outlet 35. There may be any desired number of closable outlets in the cover. The slides 16

may be only on the part 18, or they may be only on the cover 26, but they are preferably in alinement on each of those parts.

Having now particularly described and as-
5 certain the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In pulping engines of the aforesaid kind, a normally stationary knife-carrying disk
10 having formed on, or fixed to, it a part, or parts, provided with slides which are longitudinally movable in horizontal slideways on each side of the engine, these slideways, or the parts in which they are formed, or to
15 which they are fixed, being secured to, or formed in one with, the slideways in which the conical knife-carrying casing, or outer shell, is adjusted, or the parts in which such last named slideways are formed, or to which
20 they are fixed.

2. In a pulping engine of the aforesaid kind, a normally stationary knife-carrying disk having formed on, or fixed to, it a part
25 slidable with respect to a cylindrical part on the conical knife-carrying casing, or outer

shell, the said normally stationary knife-carrying disk having, in connection with it, slides engaging horizontal slideways on each side of the engine, these slideways, or the parts in which they are formed, or to which
30 they are fixed, being secured to, or formed in one with, the slideways in which the conical knife-carrying casing, or outer shell, is adjusted, or the parts in which such last named slideways are formed, or to which
35 they are fixed, the normally stationary knife-carrying disk having a cover affixed to it, the said cover being supported at its central part on the shaft, so as to be longitudinally movable with respect thereto, and means, con-
40 nected to the said cover, for moving it, and the normally stationary knife-carrying disk, longitudinally.

In testimony whereof I have signed my name to this specification in the presence of
45 two subscribing witnesses.

JAMES NUTTALL.

Witnesses:

ERNOLD SIMPSON MOSELEY,
MALCOLM SMETHURST.