

No. 657,925

Patented Sept. 18, 1900.

J. F. FAWCETT.
HOISTING DEVICE FOR TIN PLATE MACHINERY.

(Application filed Apr. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.

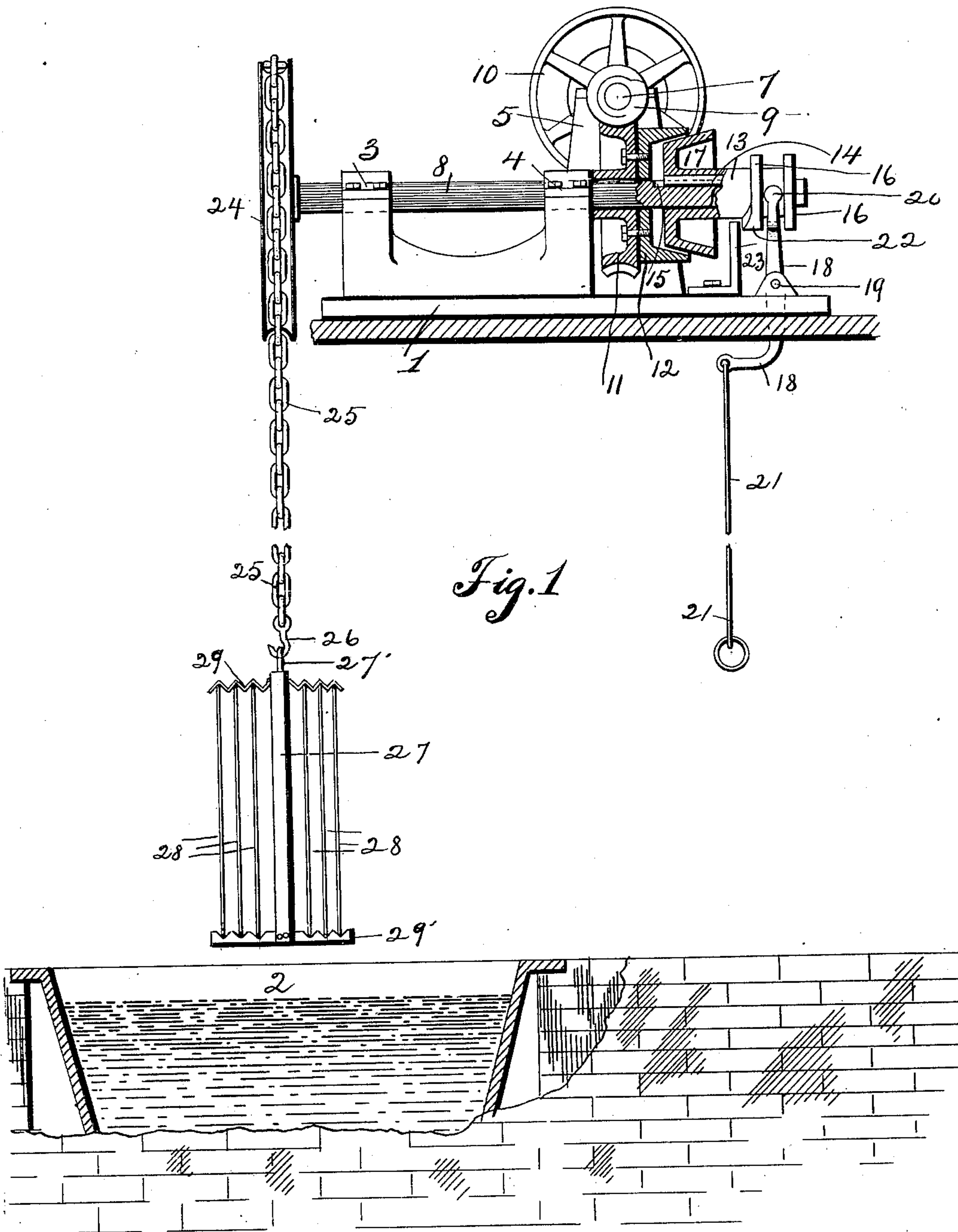


Fig. 1

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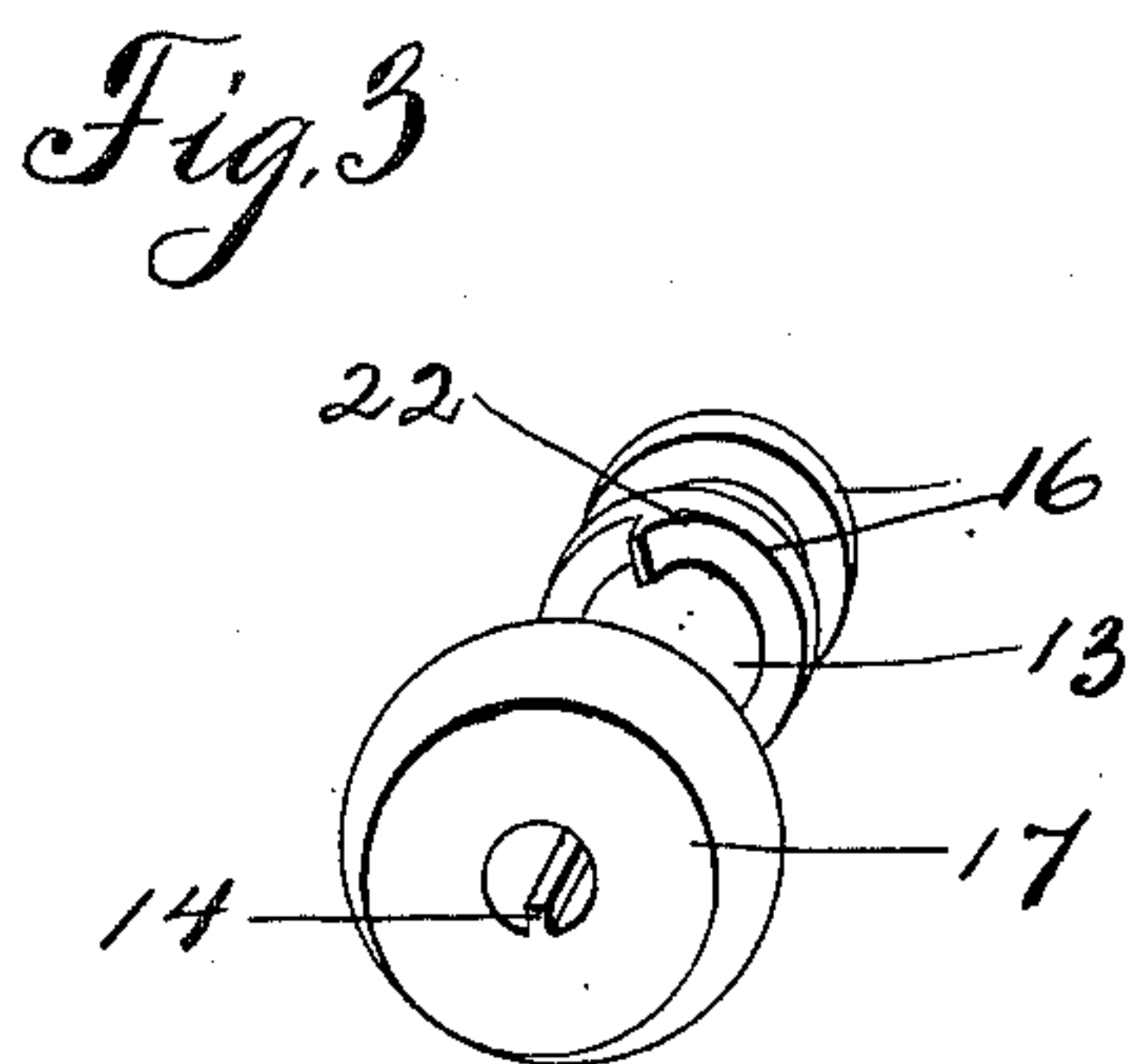
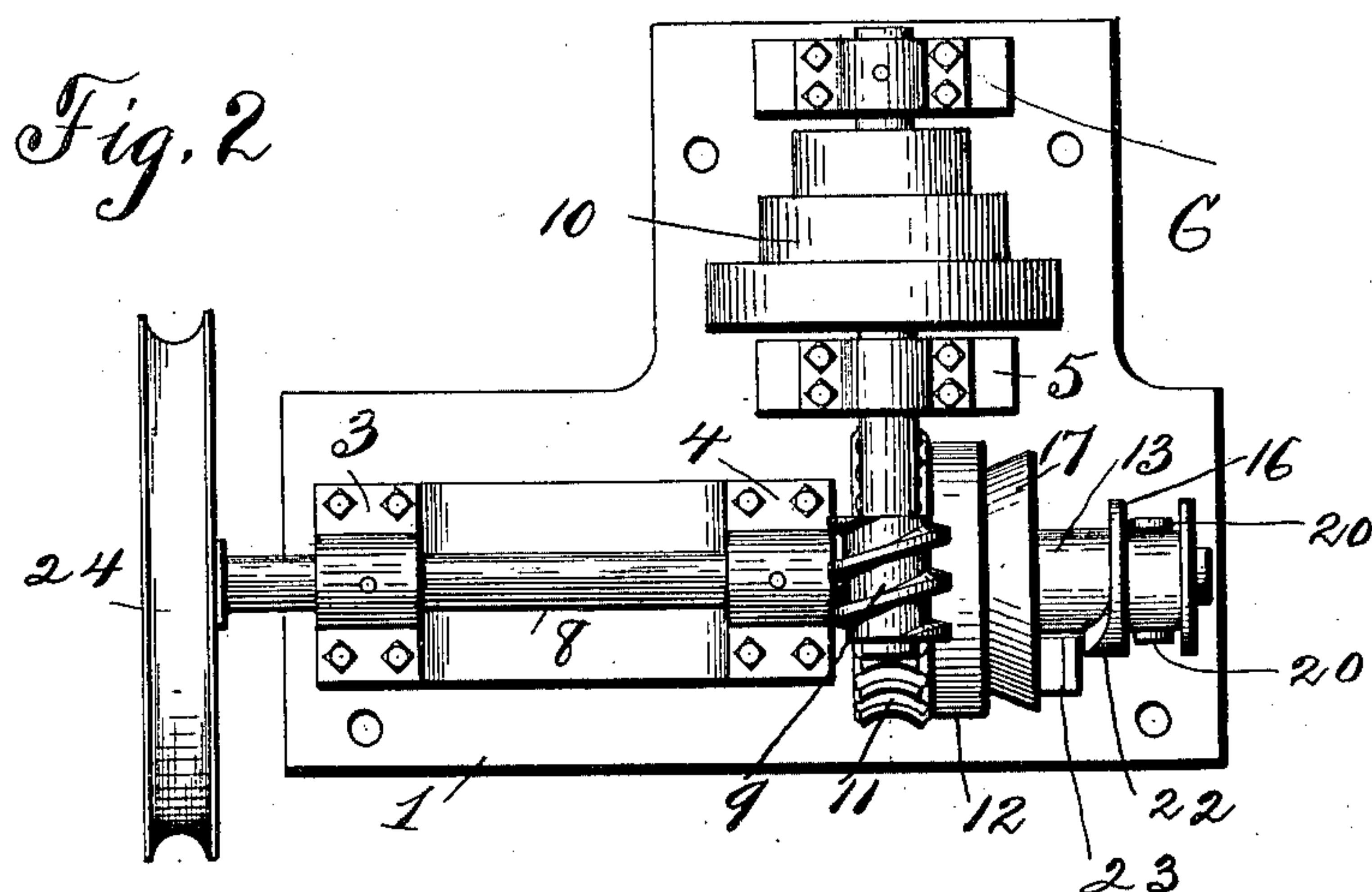
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Witnesses:
J. O. Keppel.
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UNITED STATES PATENT OFFICE.

JAMES F. FAWCETT, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN HAMILTON, OF SAME PLACE.

HOISTING DEVICE FOR TIN-PLATE MACHINERY.

SPECIFICATION forming part of Letters Patent No. 657,925, dated September 18, 1900.

Application filed April 20, 1900. Serial No. 13,567. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. FAWCETT, a citizen of the United States of America, residing at Boquet and Frazier streets, Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Hoisting Devices for Tin-Plate Machinery; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

One object of my invention is to provide a means whereby each set of plates to be tinned will be removed from the tinning-bath at exactly the same speed, thereby producing plate of uniform grade.

Another object in view is to provide a means whereby the time consumed in withdrawing the plates may be increased or decreased, thereby producing plate of either light or heavy grade, as may be desired.

I accomplish these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device and tinning vessel, in which parts of both are shown in section. Fig. 2 is a plan of the device. Fig. 3 is a perspective view of the clutch-sleeve.

In the drawings similar detail parts are designated by numerals of like character.

Referring to the drawings, the numeral 1 designates a bed-plate which is secured in position at an elevation above the tinning vessel. Said bed-plate is provided with standards 3, 4, 5, and 6 to support the shafts 7 and 8. To the said shaft 7 is affixed the worm-wheel 9 and the step cone-pulley 10. Loosely mounted upon the said shaft 8 is the worm-wheel 11, which engages with and is adapted to be continually rotated by said worm. A friction-clutch is employed to lock said worm-wheel to the shaft when it becomes necessary to do so. This clutch consists of the shell 12, formed upon or affixed to one side of the worm-wheel, and the sleeve 13, slidably mounted upon the shaft by means of a key 14 and groove 15. This sleeve is provided at one end with a pair of flanges 16 and at the opposite end with a tapered head 17 to engage

the wheel-shell. To force the sleeve into engagement with the wheel-shell, a lever 18 is employed. Said lever consists of a bent rod pivoted at 19 to the bed-plate and is provided at its upper end with a fork 20 to engage between the sleeve-flanges, and at its lower end is attached a rope or rod 21. An automatic release is provided for the friction-clutch. This release consists of a cam or projection 22, formed upon the outer side of the inner sleeve-flange, and an upwardly-projected stop-bar 23, fixed to the bed-plate. To the opposite end of the shaft 8 is secured a grooved pulley-wheel 24, having a chain 25 secured thereto. This chain is provided at its lower end with a hook 26 to engage a suitable plate-holding rack or frame 27. For the purpose of illustrating the operation of the device I have shown in Fig. 1 a rack or plate-holding frame 27, attached to the chain-hook. Briefly speaking, the frame or rack consists of an arch-shaped piece of metal having notched arms 29 and 29' to engage the plates 28 and secure them in an upright position. In practice power is applied to one of the three speed-wheels which forms the step cone-pulley by means of a belt, thereby transmitting a rotary motion to the worm-wheel.

The operation of dipping tin-plate by the use of this machine is as follows: Assuming that the workman has just placed a rack of plates upon the chain-hook in the position shown at Fig. 1, the chain is then pulled down by hand to immerse the plates and rack in the molten metal. When the plates have remained in the tin-bath the required time, the lever controlling the clutch is pulled upon to engage the clutch-sleeve with the shell, thereby locking the worm-wheel to the shaft. The worm-wheel being now locked to the shaft and the latter rotated, the chain will be wound up upon the grooved pulley, which will elevate the plates out of the tin-bath, and when the cam 22 comes into engagement with the stop-bar 23 the clutch will be automatically released, thereby arresting further elevation of the plates. The rack full of plates is then removed and another one dipped in the same manner. It can be readily understood that by this means every set of plates lowered into the tinning-bath will be withdrawn at exactly

the same speed. When it is desired to make plate with a thin coating of tin, the belt is placed upon the smallest part of the conical speed-pulley, and in making plate of heavy coat the belt is placed upon the largest part.

I do not wish to confine myself to the exact construction shown, as several of the parts may be altered in various ways without departing from the principle involved.

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

1. A device for the purpose set forth, comprising a drive-worm, a worm-wheel loosely mounted upon a shaft and driven by said worm, a clutch slidably secured upon said worm-wheel shaft, a pulley arranged upon said shaft, a chain attached to said pulley, a lever arranged to engage said clutch and lock said worm-wheel to the shaft and a means whereby the speed of said worm may be increased or decreased to produce coatings of various thickness.

2. A device for the purpose set forth, comprising a drive-worm, a worm-wheel loosely mounted upon a shaft and driven by said worm, a clutch slidably secured upon said worm-wheel shaft, a pulley arranged upon said shaft, a chain attached to said pulley, a lever arranged to engage said clutch and lock said worm-wheel to the shaft, a means whereby the speed of said worm may be increased or decreased to produce coatings of various thicknesses, and a means of automatically

disengaging said clutch and arresting further elevation of the plates after leaving the bath.

3. A device for the purpose set forth, comprising a drive-worm, a worm-wheel loosely mounted upon a shaft and driven by said worm, a clutch slidably secured upon said worm-wheel shaft, a pulley secured to said shaft, a chain attached to said pulley, a lever arranged to engage said clutch with the worm-wheel to lock the same to the shaft, a cam carried by said clutch, and a fixed stop adapted to engage said cam and automatically disengage said clutch from the wheel, as shown and set forth.

4. A device for the purpose set forth, comprising a drive-worm, a worm-wheel loosely mounted upon a shaft and driven by said worm, a clutch slidably secured upon said worm-wheel shaft, a pulley attached to said shaft, a chain secured to said pulley, a lever arranged to engage said clutch with the worm-wheel and lock the same to the shaft, a cam carried by said clutch, a fixed stop adapted to engage said cam and automatically disengage said clutch from the worm-wheel, and a step cone-pulley arranged upon the drive-wheel shaft, as shown and set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JAMES F. FAWCETT.

Witnesses:

RICHARD S. HARRISON,
JAS. J. MCAFEE.