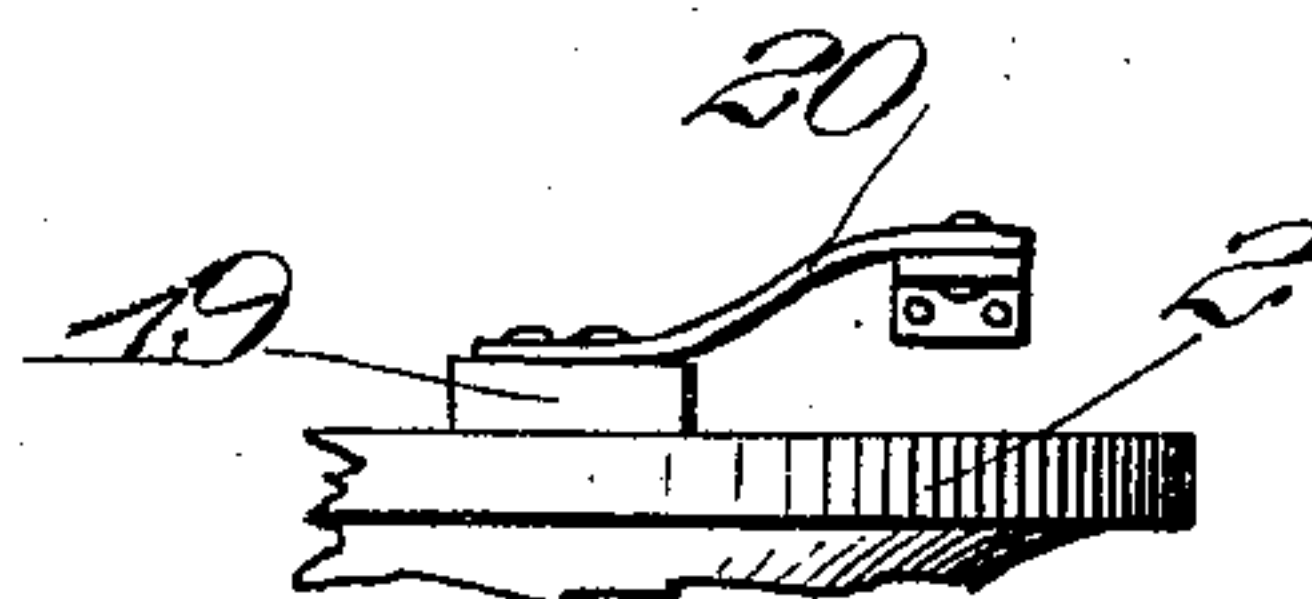
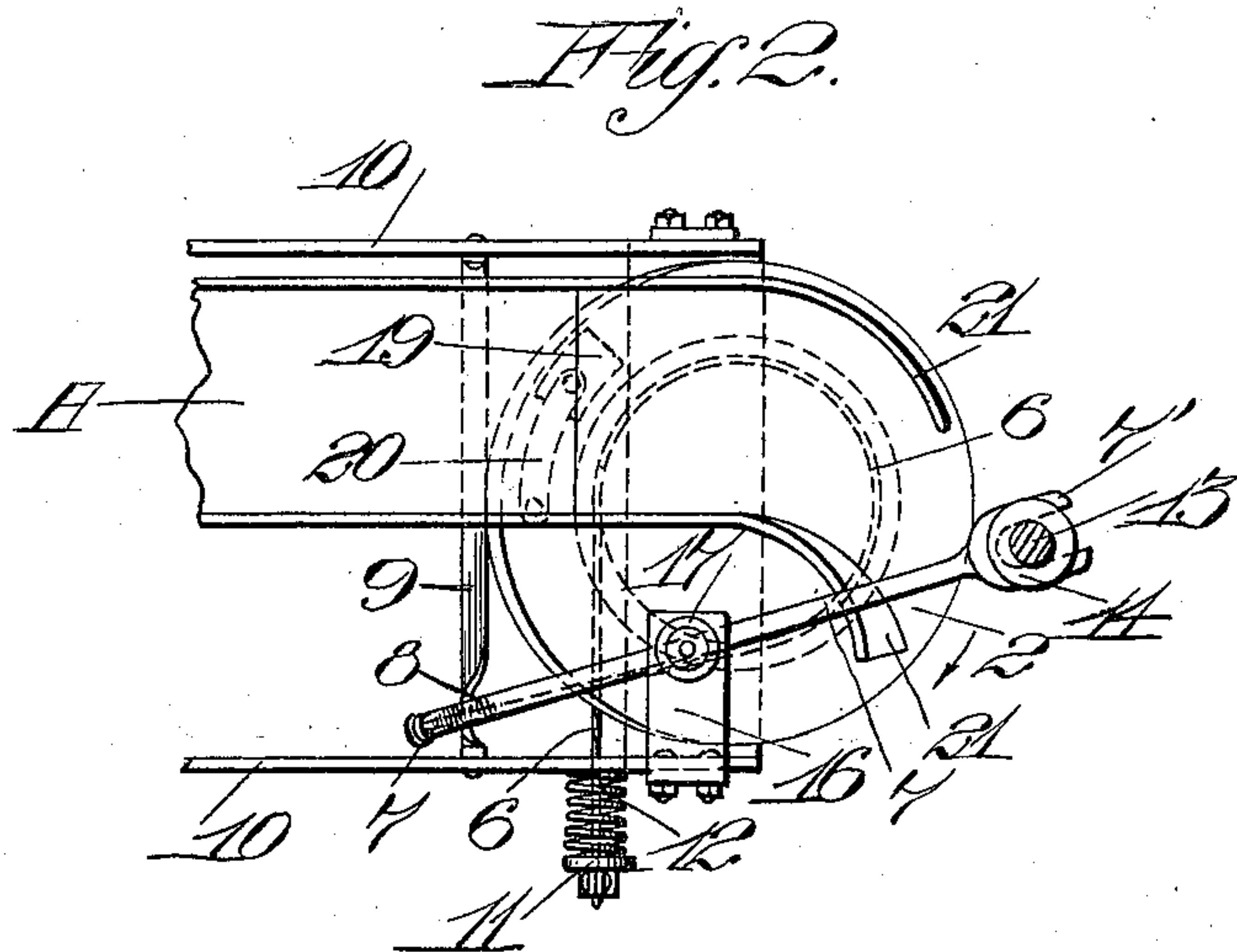
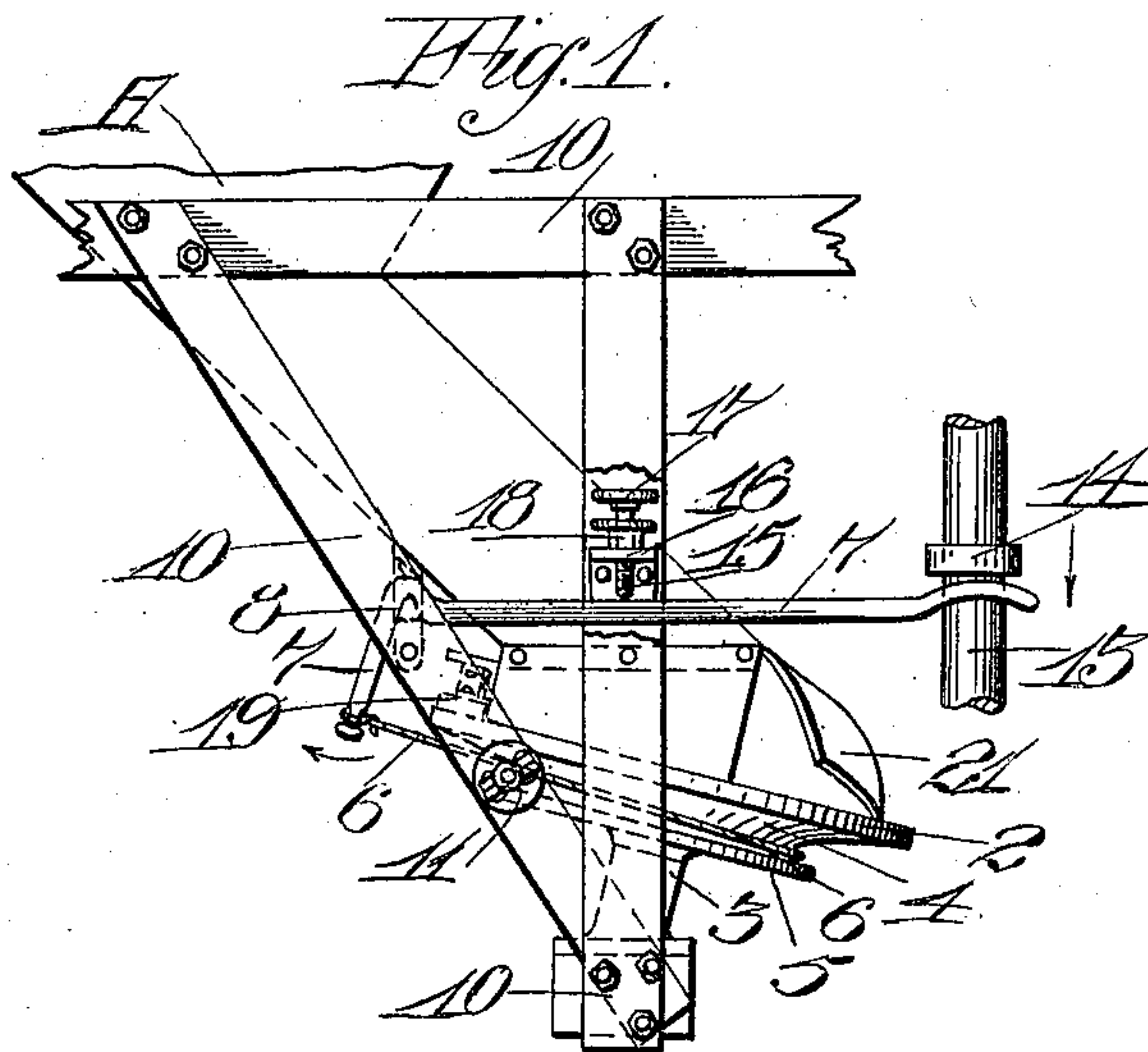


C. T. HUTCHINSON.  
 AUTOMATIC ORE FEEDER.  
 APPLICATION FILED MAY 23, 1910.

983,621.

Patented Feb. 7, 1911.



*Witnesses.*  
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# UNITED STATES PATENT OFFICE.

CHARLES T. HUTCHINSON, OF OAKLAND, CALIFORNIA.

AUTOMATIC ORE-FEEDER.

983,621.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed May 23, 1910. Serial No. 562,801.

*To all whom it may concern:*

Be it known that I, CHARLES T. HUTCHINSON, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Automatic Ore-Feeders, of which the following is a specification.

This invention relates to an automatic ore feeder, and particularly pertains to the suspended type of ore feeders employed in delivering crushed rock and the like to stamp-mills.

It is the object of this invention to provide an automatic ore feeder which is simple in its operation and construction, which can be manufactured at small cost, and which can be easily and cheaply kept in repair.

A further object is to provide an ore feeder in which there is a minimum of wearing parts, and which device can be readily applied and requires no replacements.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side view of the invention. Fig. 2 is a plan view. Fig. 3 is a detail of the brake shoe.

In the drawings, A represents an inclined feed chute leading from any suitable hopper or other source of ore supply, not shown. The chute A terminates at its lower end just above an inclined revoluble distributing table or disk 2 supported on an inclined trunnion mounted in a bearing 3; the chute A contacting with the table top or disk 2 to one side of and above its center, as shown in Fig. 2. The table 2 is preferably circular in plan, and is so mounted as to stand out of a horizontal position and have its top surface slightly inclined in the same direction as the incline of the chute A.

A circumferential groove 4 is formed on the periphery of a downwardly extending portion or drum 5 formed on the under side of, and integral with, the table top 2. A flexible strap or cable 6 passes around the drum 5 in the circumferential groove 4, thence tangentially leaving the drum 5, has one termination secured to the end of the short arm of a bell-crank lever 7 fulcrumed at 8 on a rod 9. The rod 9 forms a part of a frame work 10 of any suitable construction, which supports the bearing 3 and other

parts of the device. The other termination of the cable 6, leaving the drum 5 at a tangent and at right angles to the other termination, passes through a side member of the frame 10 and ends in a disk 11. A coil spring 12 is interposed between the disk 11 and the frame 10 and normally tends to exert a pull upon the cable 6 in opposition to the bell-crank lever 7.

The outer end of the long arm of the lever 7 is bifurcated or forked at 7' so as to extend on each side of the vertical stamp shaft or tappet 13 of a stamp-mill, not shown. A collar 14 is provided on the shaft 13 above the forked end 7' of the lever 7, and is adapted to engage the long end of the lever and move it downward so as to rock the lever on its fulcrum at 8. The fulcrum joint at 8 is formed by hooking the lever 7 over a rounded portion of the bar 9, and permits of the lever 7 being lifted upward free from the bar 9, and does away with the use of pivot bolts or pins.

The forked end of the lever 7 is normally retained in its uppermost position by means of the spring 12 pulling on the cable 6, which uppermost position is limited by an adjustable stop 15. This stop 15 is formed by mounting a threaded bolt in a bracket 16 mounted on and extending inwardly from the frame 10. A hand-wheel 17 is secured to the upper end of the stop bolt 15 so as to enable its easy adjustment, and a lock-nut 18 provided to insure the bolt 15 remaining in a set position.

A brake or friction shoe 19 mounted on a sheet spring 20 secured to a bracket on the under side of the chute A, normally bears against the upper surface of the revoluble table 2 at this point, for the purpose of insuring the rotation of the table 2 in one direction.

The operation of the invention is as follows: Crushed rock or ore being delivered to the feed chute A travels down the inclined bottom thereof and is deposited upon the inclined surface of the distributing table 2. The incline of the latter is such that the ore will not pass over the top of the table freely, but will collect thereon and tend to pile up in and choke the chute A, deflecting flanges 21 being provided on the lower end of the chute A to insure the ore collecting on the table 2 within a certain limit. The stamp-mill now being set in motion, the shaft 13 on making a downward stroke causes the



collar 14 to engage the forked end 7' of the bell-crank lever 7 and carry it downward the length of the stroke. This rocks the lever 7 on its fulcrum 8 to exert a strong pull upon the cable 6 in opposition to the spring 12. This first slight pull on the cable 6 in this manner causes it to bite or take hold of the drum 5, and continued pull causes the latter to rotate or revolve during the remainder of the pull, which is limited by the downward movement of the lever 7. As the shaft 13 moves up, the cable 6 is slackened by reason of the spring 12 so as to cease the rotative pull of the latter, and in conjunction with the friction of the brake shoe 19, causes the table 2 to come to a standstill, until another downward stroke of the shaft 13 takes place. An intermittent rotary motion is thus transmitted to the table 2 from the shaft 13, this motion, which will be of an impulsive or jarring nature, causing the crushed rock or ore on the table 2 to be shaken off over the lower edge thereof into the stamp-mill hopper, not shown. In this manner a steady and uniform delivery of ore to the stamp-mill will be effected.

The brake shoe 19 is so disposed that the table 2 will revolve freely when the cable 6 is actuated through the lever 7, but will act to resist any movement of the table as may be occasioned by the return of the cable 6 to its normal position by the spring 12.

The length of the stroke or travel of each impulsive movement of the table may be regulated by adjusting the stop bolt 15 so as to lengthen or shorten the stroke of the lever 7.

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

1. An ore feeder comprising the combination of an inclined revoluble table, and means to give the table an intermittent step by step revolving motion, said means including a flexible cable engaging frictionally in a grooved part on the table, means for supporting one end of the cable yieldingly to allow of a limited lengthwise movement of

the cable around and in unison with the table, and means connected with the other end of the cable to give it said lengthwise movement.

2. In an ore feeder, the combination with an ore feeding chute, of a revolving disk supported in an inclined position across the mouth of the chute and receiving the material therefrom, and means for giving the disk a step by step rotary motion, said means including a flexible member circumferentially engaging the disk, means for reciprocating said flexible member, means whereby on one reciprocation of the flexible member it frictionally grips the disk to move the latter, and on alternate reciprocations moves backward, and means for maintaining the disk stationary on said backward movement.

3. An ore feeder comprising an inclined feed table, said table having a circumferentially grooved pulley on its underside, a flexible cable engaging frictionally in the groove of the pulley, said cable having one end spring supported to allow a limited lengthwise movement of the cable around and in unison with the table, and an actuator connected to the other end of the cable to give said cable lengthwise movement in opposition to said spring support, and means for limiting the retrograde movement of the table.

4. In an ore feeder, the combination of an inclined, revolubly mounted feed table, said table having a grooved pulley concentric with its axis of rotation, a flexible cable yieldably supported at one end and passing around said grooved pulley, and having its opposite end extending tangentially from the table and arranged substantially at right angles to the first named end of the cable, and a bell-crank with which the second named end of the cable is connected.

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

CHARLES T. HUTCHINSON.

Witnesses:

RAYMOND A. LEONARD,  
CHARLES EDELMAN.