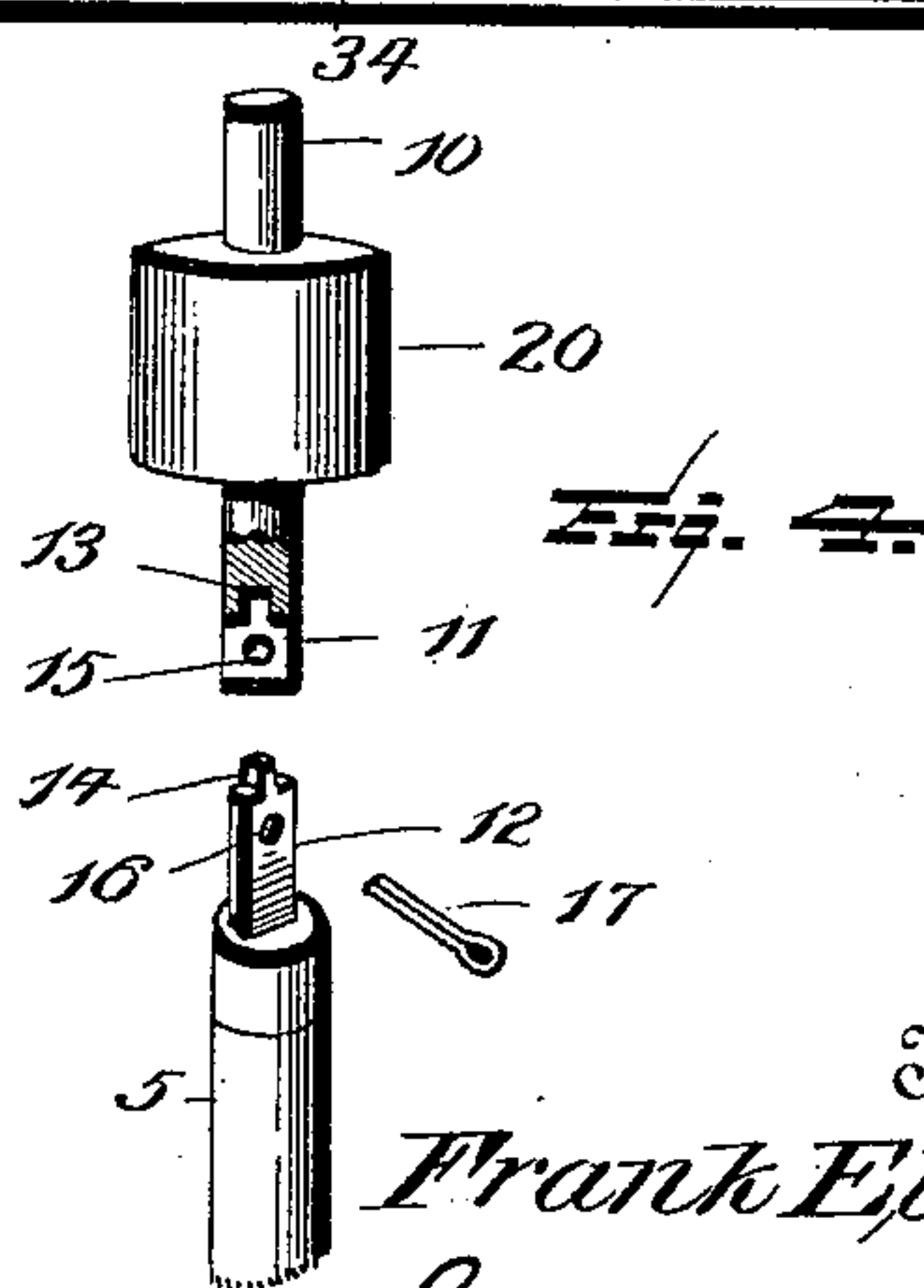
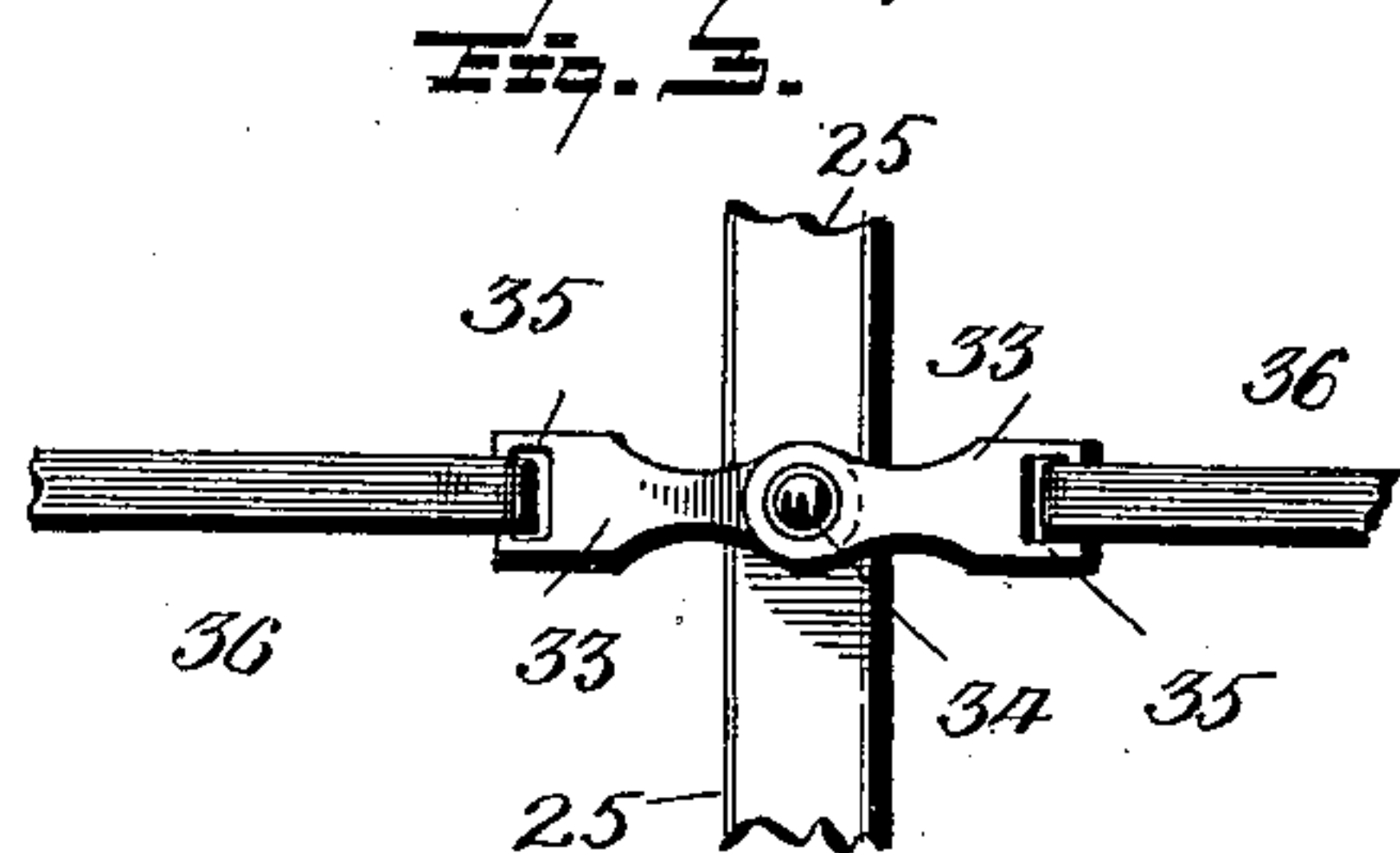
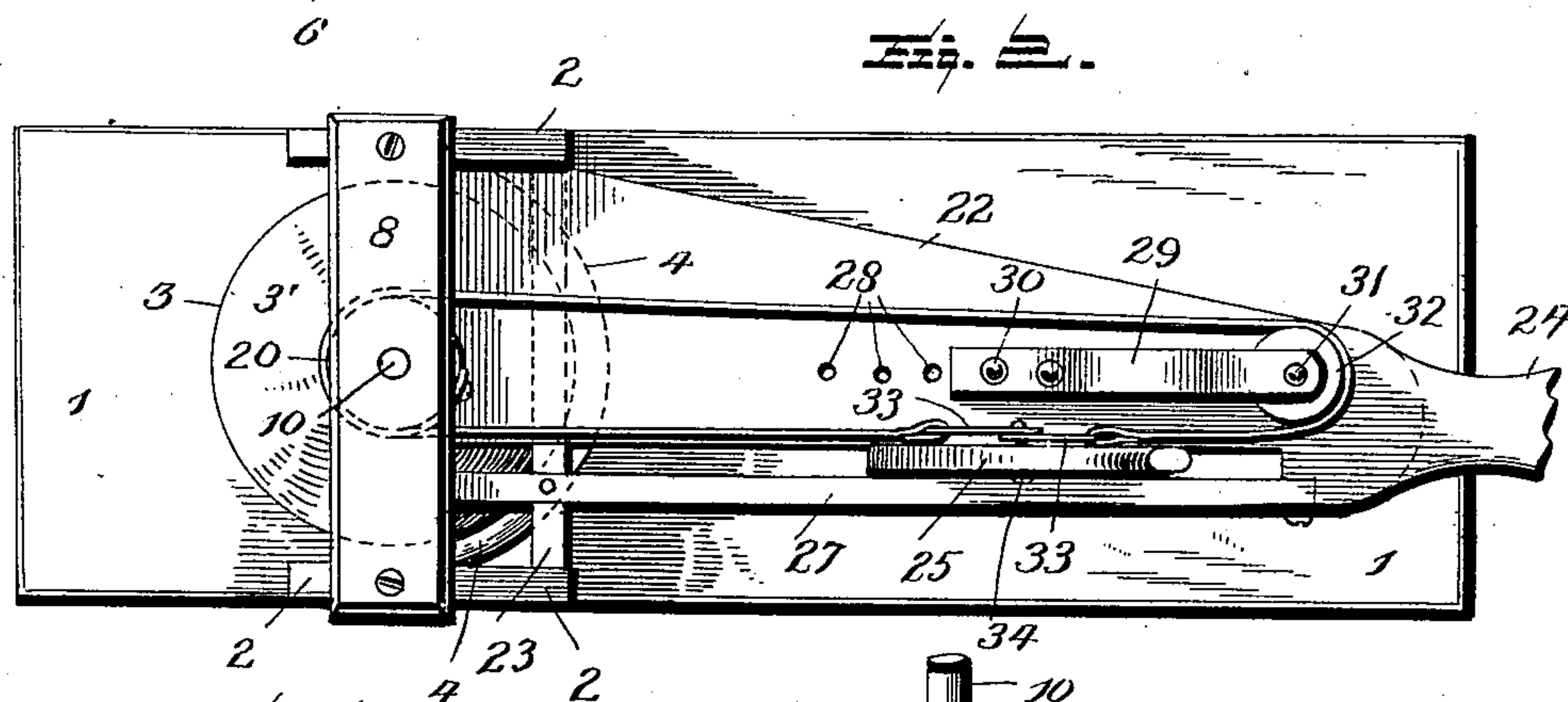
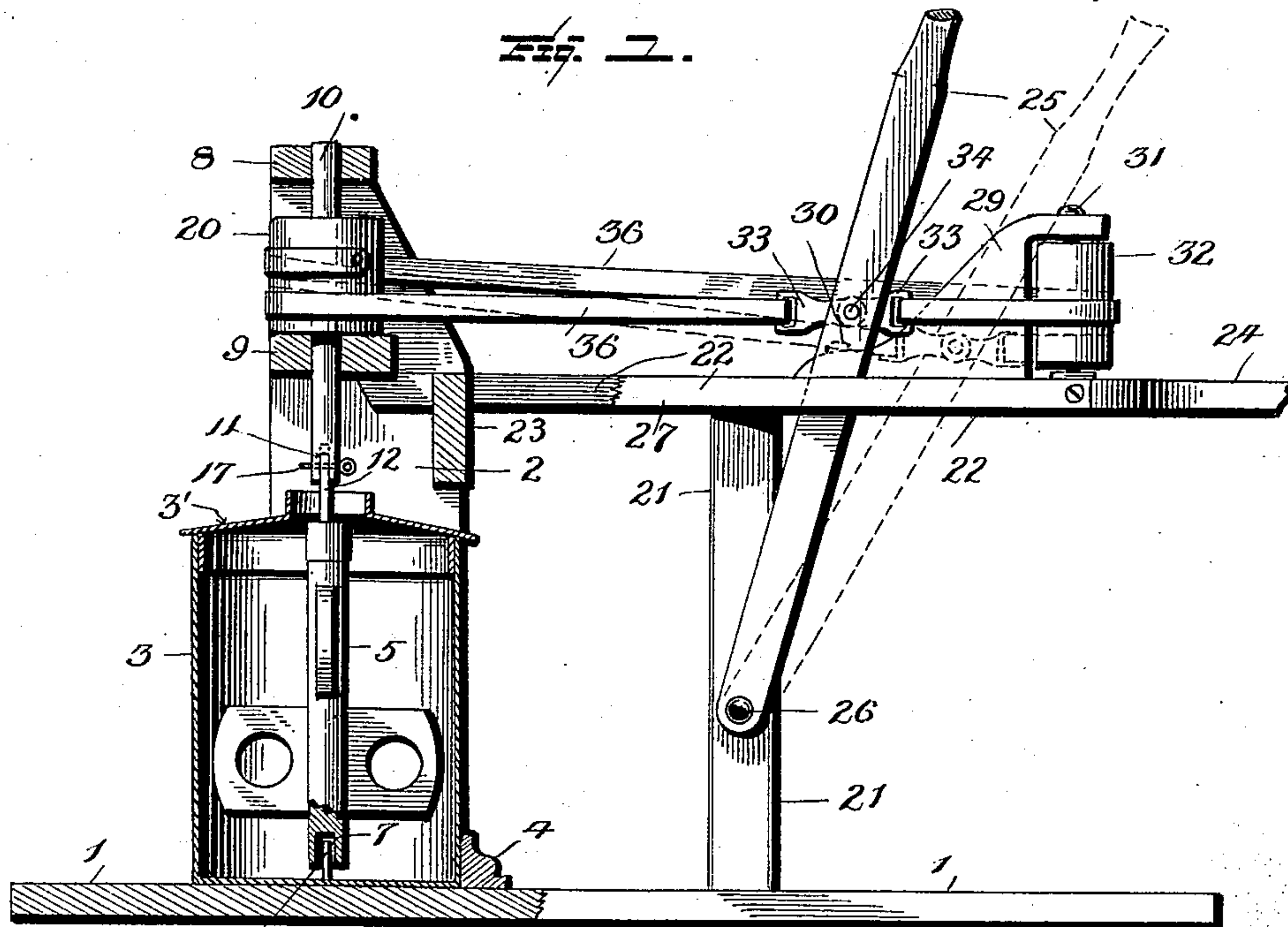


(No Model.)

F. ELLIOTT.  
CHURN MOTOR.

No. 521,282.

Patented June 12, 1894.



Witnesses:

*L. C. Mills*  
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Attorneys.



# UNITED STATES PATENT OFFICE.

FRANK ELLIOTT, OF NORTH VERNON, INDIANA.

## CHURN-MOTOR.

SPECIFICATION forming part of Letters Patent No. 521,282, dated June 12, 1894.

Application filed January 31, 1894. Serial No. 498,581. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK ELLIOTT, a citizen of the United States, and a resident of North Vernon, Jennings county, State of Indiana, have invented certain new and useful Improvements in Churn-Motors; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with a claim particularly specifying the novelty.

This invention relates to churn motors of that character employing lever mechanism; and the object of the same is to effect certain improvements over the device patented September 4, 1880, to C. S. Wiley, No. 233,161.

To this end the invention consists in a churn motor embodying the specific construction of parts hereinafter more fully described and claimed, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of this device partly in section, and Fig. 2 is a plan view thereof. Fig. 3 is an enlarged detail of the double link. Fig. 4 is a perspective detail of the driving pulley and shaft, and of the upper end of the dasher staff, and its connection with the lower end of said shaft.

In the said drawings, the numeral 1 designates a base adapted to rest on the floor and from one end of which rise two uprights 2 spaced a sufficient distance to receive a can 3 forming the body of the churn. This can may be of metal, pottery, wood, or any suitable material, and when passed in place between the two uprights 2 rests against a stop 4 secured to the base in such position as to hold the can centered beneath the driving shaft hereinafter described. Within the churn body or can 3 hangs the dasher 5 which may be of any suitable construction forming no part of the present invention. But this dasher is supported above and out of contact with the bottom of the can so as not to wear the latter, although from the center of said bottom rises a pin 6 which fits loosely in a hole 7 in the lower end of the dasher staff as shown—the object being to prevent the lateral movement of such lower end of the staff. The wings or blades of the dasher may be of any suitable construction. The uprights 2 are connected at their upper ends by two

these cross pieces is the driving shaft 10 whose lower end is bifurcated as at 11 to receive the flattened upper extremity 12 of the dasher staff; and in the bottom of the bifurcation is a socket 13 adapted to receive a pin 14 rising from the center of said flattened upper end 12 of the staff, so as to center the staff and shaft exactly. The arms of the bifurcation are provided with aligned transverse holes 15 and the flattened portion 12 with a hole 16 adapted to register therewith when the parts are properly assembled; and through these registering holes is passed a removable split pin 17 for holding the parts connected.

20 is the driving wheel which is rigidly secured on the shaft 10 between the cross pieces 8 and 9, and the vertical length of this wheel is less than the distance between these cross pieces whereby the driving shaft may be slid vertically in its bearings for a purpose to appear below.

21 is a standard rising from the base 1 at about its center, and 22 is a horizontal board preferably supported at one end by a cross beam 23 connecting the uprights, and passing over and supported by the standard 21; beyond which it may extend for a considerable distance and be formed into a seat 24, if desired, upon which the operator can sit to drive the churn.

25 is a lever pivoted at 26 at its lower end to one side of the standard 21 and rising alongside one edge of the board 22, and 27 is a strip connected at one end with the beam 23 and at the other end with the board 22 in such manner as to form a horizontal slot which serves as a guide for the body of the lever. In said board 22 is preferably formed a series of holes 28, and 29 is a bracket adjustably connected by a bolt 30 with one of said holes and carrying at its outer end an upright shaft 31 whereon is journaled a vertical pulley 32 of considerable length.

33, 33 are two links having eyes at one end pivoted on a pin 34 in the lever 25 above the board 22, and having slotted eyes 35 at their free outer ends; and connected with these slotted eyes are straps 36—one of which leads to and part way around the driving pulley 20, and the other of which leads around the loose pulley 32, and then to and part way around



the driving pulley 20 in the opposite direction. The ends of these straps are either secured rigidly to the driving pulley 20, or are connected with each other whereby the whole becomes one strap. Obviously cords or chains could be used instead of a strap if desired, but I consider the strap preferable.

All parts of this machine are of the desired sizes, shapes, proportions, and materials, and considerable change may be made from the details of construction without departing from the principle of my invention.

In operation, the dasher staff is passed through a hole in the center of the cover 3' of the churn body and dropped into the churn, and the cover is placed on the top thereof, and the pin 6 and hole 7 are engaged so as to properly center the lower end of the staff within the churn body. The driving shaft 10 and driving pulley 20 are then raised and turned so that the bifurcation at the lower end of the shaft will stand parallel with the machine; and the churn body and dasher are then passed between the uprights 2 until the body strikes the stop 4 which I consider an important feature of my device. This movement passes the flattened upper end 12 of the dasher staff into the bifurcation at the lower end of the driving shaft; and the shaft is now borne downward and the staff raised to seat the pin 14 at the upper end of the staff in the hole or socket 13 in the bottom of the bifurcation of the shaft. I consider the pin and socket an important feature of my invention. This brings the horizontal holes 15 and 16 in register, and the split pin 17 is then passed through them to lock the parts rigidly in alignment. The pin and registering holes (which I consider an important feature of my device) will not only hold the shaft and staff in register but will support the staff and dasher above the bottom and around the pin 6 in the bottom of the churn body. When it is desired to remove said churn body and staff, the split pin 17 is withdrawn thus allowing the staff to fall until it rests upon the bottom of the churn. At the same time the pin 14 will become disengaged from the hole or socket 13 and the whole may be easily removed by sliding the flattened portion 12 out of the bifurcation 11. If the seat 24 is employed, the operator seats himself thereon, and if not he stands adjacent the machine at the end opposite the churn body. In either event, he grasps the upper end of the lever 25 and reciprocates it back and forth around its pivot 26—its body sliding in the guide formed by the strip 27 and the edge of the board 22. This motion causes the strap 36 to act in the nature of an endless belt passing around the pulleys 20 and 32, and the reciprocating motion of the lever is conveyed to the driving pulley 20 and thence to the dasher—causing

the latter to have a reciprocating oscillatory motion within the churn body. It will be obvious that when the lever is vertical the pivot pin 34 is at its highest height above the pivot pin 26, and at either side of the vertical position this pivot pin 34 is depressed toward the board 22; hence, in order to avoid the kinking or bending of the strap, I have made use of the links 33 above described, which links turn at their inner ends on a common pivot 34 and have slotted eyes 35 at their outer ends to which the ends of the strap are connected. Again, at the outer end of the stroke of the lever, the pin 34 stands quite near the board 22 as seen in Fig. 1, and in order to prevent the strap which passes around the pulley 32 from binding thereon and therefore being undesirably tightened, I have made this pulley of considerable height vertically, which height causes the pulley to accommodate itself to the strap at all times. Said pulley is preferably mounted in a bracket 29 which is adjustably supported on the board 22 by a bolt 30 taking into one of a number of holes 28 in the board; and when the strap or chain becomes loose, it may be tightened by properly adjusting the bracket.

What is claimed as new is—

In a churn motor, the combination with a pair of uprights connected by two cross pieces, a driving shaft journaled and sliding vertically in said cross pieces, its lower end being bifurcated and having a vertical socket at the bottom of the bifurcation and a transverse hole through the arms thereof, a pulley secured to said shaft and shorter than the distance between the cross pieces, and means for driving the pulley; of a churn body provided with a pin rising from its bottom, a dasher staff having a hole in its lower end fitting loosely around the pin, its upper end being reduced and flattened to fit said bifurcation, having a transverse hole adapted to register with that in the arms of the bifurcation, and having a pin at its upper extremity adapted to enter the socket in the bottom of said bifurcation when the holes align, and a split pin removably passing through said aligned holes for detachably connecting said shaft with the staff, the length of the latter being such that when the pulley rests on the lower cross piece the lower end of the staff will be raised above the bottom of the churn and the bottom of the hole off the tip of the pin, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 27th day of January, A. D. 1894.

FRANK ELLIOTT.

Witnesses:

JAMES W. ZEAGLER,  
CRIST W. HARRIS.