

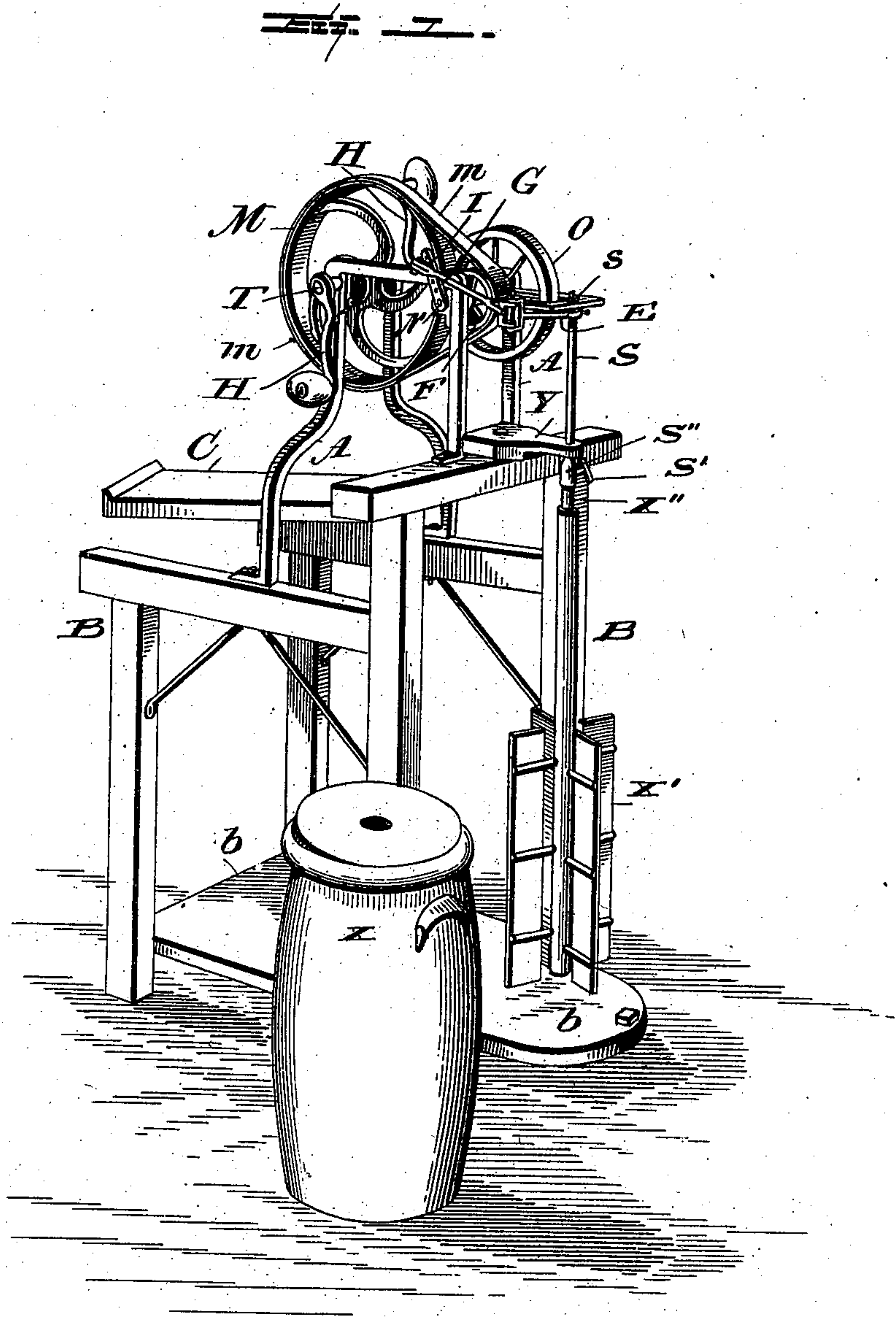
(No Model.)

2 Sheets—Sheet 1.

L. H. SINCLAIR.
MOTOR.

No. 504,056.

Patented Aug. 29, 1893.



Witnesses:

L. C. Mills.
J. H. Johnson Jr.

Inventor:

Lovell H. Sinclair,
by Collamer & Co.
Attorneys

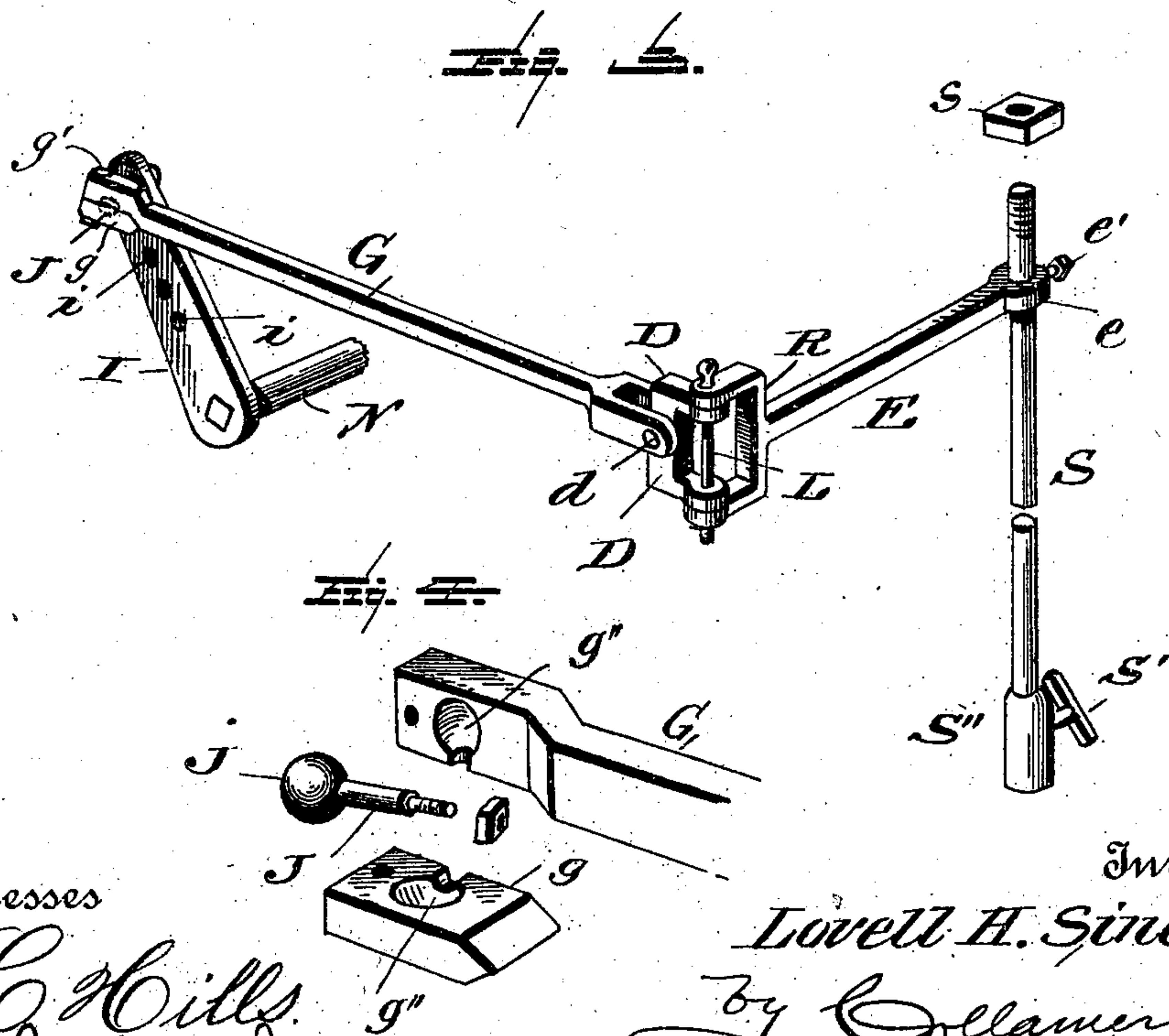
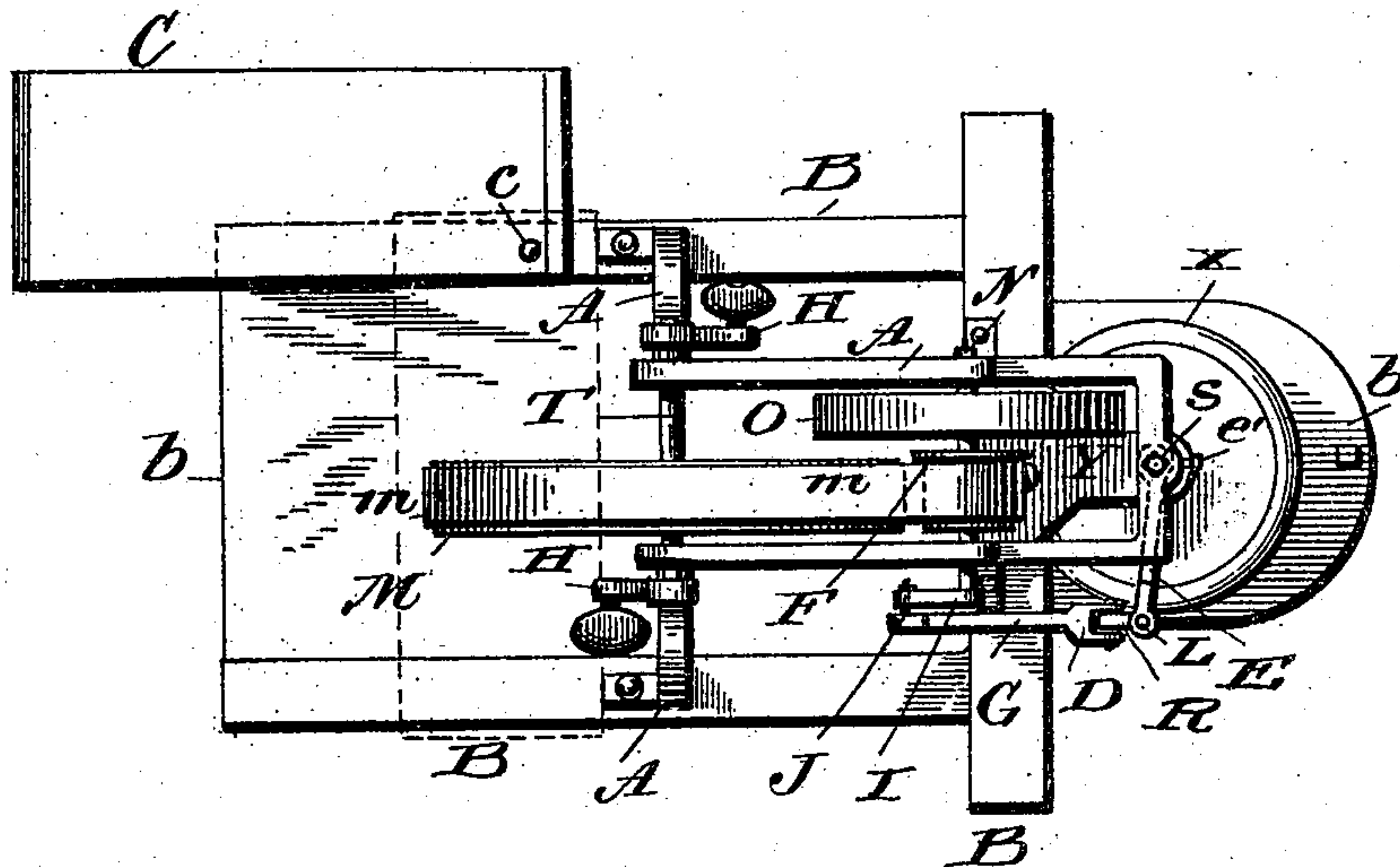
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UNITED STATES PATENT OFFICE.

LOVELL H. SINCLAIR, OF SWITZ CITY, INDIANA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 504,056, dated August 29, 1893.

Application filed May 1, 1893. Serial No. 472,532. (No model.)

To all whom it may concern:

Be it known that I, LOVELL H. SINCLAIR, a citizen of the United States, and a resident of Switz City, Greene county, State of Indiana, have invented certain new and useful Improvements in Mechanical Motors; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to mechanical motors adapted for churning and other purposes, and more especially to that class of motors which are driven by hand; and the object of the same is to produce a simple and improved machine for converting rotary motion into oscillatory motion and at an increased speed.

To this end the invention consists in the specific details of construction hereinafter more fully described, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a general perspective view of this machine ready for use. Fig. 2 is a plan view thereof showing the seat in full lines as opened for the admission of the operator, and in dotted lines as closed. Fig. 3 is an enlarged perspective detail of the crank on the main shaft, the pitman rod, the rock-shaft, its arm, and the joint between this arm and the pitman rod. Fig. 4 is a perspective detail of the crank pin and the two-part socket for embracing the ball on said pin.

In the said drawings, the letter *b* designates a base or platform from which rises a framework *B* about of the construction shown which comprises four upright legs, two side bars connecting the legs in pairs and open at their rear ends, and a cross-head connecting the forward legs at their upper ends, which ends extend slightly above the side bars. This framework is preferably of wood with suitable braces, and superimposed thereon is a second framework or casting *A* which is preferably of metal, about of the shape shown, and forms a support for the mechanism hereinafter described.

C is a seat pivoted as at *c* at one end of one of the side bars in such manner that it may be swung horizontally as seen in Fig. 2 so as to expose the opening at the rear end of the machine in order that the operator may pass into the framework, after which the seat is swung in under him so that he may sit thereon

with his thighs under the upper framework or casting and his feet resting upon the base.

The letter *X* designates in the present case a vessel which may be a churn, and *X'* is the dasher thereof whose staff passes through the cover of the churn in the usual manner. The upper end of this staff is reduced as at *X''* and is adapted to pass into a coupling *S''* mounted on the lower end of a rock-shaft *S*, after which it may be held in said coupling by a thumb screw *S'*. The rock-shaft *S* stands in a vertical position as shown, and is mounted just above the coupling *S''* in a bearing *Y* supported on a cross-head, while its upper end is journaled in the upper framework or casting and preferably carries a nut above such casting which can be removed when it is desired to withdraw the shaft from its journals.

The letter *T* designates the main shaft having oppositely disposed crank-handles *H* on its extremities. This shaft is journaled in boxes in the casting *A* between which it carries the main driving wheel *M*. The letter *N* designates a crank-shaft also journaled in boxes in the casting *A*, and between these boxes a small wheel *F* is secured on the shaft, which wheel is connected with the main wheel *M* by a belt *m*. On one end of the crank-shaft is a fly wheel *O* of some considerable weight, and on its other end is the crank *I* having a number of holes *i* within any one of which a bolt or crank-pin *J* may be adjustably secured by its nut *J'* in order to regulate the length of the throw of the crank.

The connection between the crank-pin *J* and the rock-shaft *S* forms an essential feature of my invention, and is about as follows: *G* is a pitman rod journaled at one end on the crank-pin *J* and pivoted at its other end as at *d* to a U-shaped yoke *D* forming the smaller member of a joint. *E* is an arm having at one extremity an eye *e* adjustably secured on the rock-shaft by a set screw *e'*, while the other end of this arm carries a larger U-shaped yoke *R* forming the other member of said joint. The extremities of the last-mentioned yoke pass above and below those of the smaller yoke *D*, and *L* is a vertical pin dropped down through aligned eyes in the four extremities. By this means the members of the joint are permitted to turn in a horizontal plane, while the pivot *d*

permits the pitman rod G to move in a vertical plane as required by the motions of the crank N.

In operation, the vessel X is placed on the
5 base b, the dasher is passed into the vessel,
and its reduced upper end X'' is passed upward into the socket S'' and secured therein
by the set screw S' so as to raise the foot of
the dasher slightly above the bottom of the
10 vessel and to sustain the weight thereof. The
seat C is then swung back as shown in Fig. 2,
the operator passes into the rear end of the
framework B, turns the seat under him, sits
on the same with his thighs under the casting
15 A, and grasps the handles of the cranks
H in his two hands. Rotary motion is then
imparted to the main wheel M which is communicated by the belt to the small wheel F
and its shaft N. The crank I on said shaft
20 drives the pitman rod G at quite a high speed,
and the yoke D is moved forward and back in a horizontal plane. This motion of the
yoke D moves the yoke R and the arm E forward
and back according to the distance of
25 the crank-pin J from the shaft N, and hence
the rock-shaft S is rapidly oscillated through
a portion of a complete revolution. When
the churning is finished the operator passes
out of the machine, disconnects the dasher
30 from the socket, removes it from the churn
body, and takes out the butter. It will be
observed that the operator has a firm seat
with his feet resting on the base, his knees
comfortably beneath the casting A, and both
35 hands in ready position to operate the cranks.
The wheels M and F might be connected by
gearing if desired, but I prefer belting because
it renders the entire machine almost noiseless.
I have found that an oscillatory,
40 reciprocatory motion of the churn and dasher
causes the butter to "come" in a very short
time and is more desirable than a rotary motion.
The sizes, proportions, and materials of parts
are not essential, and considerable
45 change in the details may be made without
departing from the spirit of my invention.
One such change which occurs to me at this
writing is that, instead of journaling the pitman
rod loosely on the crank pin J, I may
50 form a ball j on the outer end of such crank
pin and make a socket at the end of the rod
G by securing a detachable piece g thereto as
by a bolt or screw g' and providing both the
adjusting faces of the rod and piece with
55 sockets g'' as shown in Fig. 4.

What is claimed as new is—

1. In a mechanical motor, the combination
with a framework consisting of a base, four
legs rising therefrom, the forward ones of a
60 greater height than the rearward ones, side
bars connecting the legs in pairs and leaving
the framework open at its rear end, a seat
pivoted to one side bar and adapted to swing
over the other, and a cross-head connecting
65 the upper ends of the front legs; of supports
rising from said framework, an upright driving
wheel journaled therein and having op-

positely disposed cranks, and connections substantially as described between said wheel
and the machinery to be driven, as and for 70
the purpose set forth.

2. In a mechanical motor, the combination
with a framework, a driving shaft journaled
therein, a second shaft also journaled therein
and driven from the first, a crank on the second
75 shaft having in its body a number of
holes at various distances from said second
shaft, and a crank-pin removably seated in
one of said holes and having a ball at its outer
end; of an upright rock-shaft mounted in 80
bearings supported by the framework, an agitator
detachably connected with the lower
end of this shaft, an arm secured to the shaft
and having a yoke, a second yoke pivotally
connected with the first by an upright pin, a 85
pitman rod pivotally connected at one end to
said second yoke and having a half-socket at
its other end, a detachable piece having another
half-socket adapted to complement the
first and of a size to loosely embrace said 90
ball, and a bolt detachably connecting said
piece with the socketed end of the pitman
rod, as and for the purpose set forth.

3. In a mechanical motor, the combination
with an upright rock-shaft, an agitator detachably
95 connected with its lower end, and a
horizontal arm secured at one end to said
shaft and having at its other end a rigid U-
shaped yoke; of a second U-shaped yoke
whose extremities pass between those of the 100
first, a vertical pin engaging aligned eyes in
said extremities, a horizontal crank-shaft, a
pitman rod connected to the crank and pivoted
on a horizontal pivot to said second
yoke, and means for rotating the crank-shaft, 105
as and for the purpose set forth.

4. In a churn motor, the combination with
an upright rock-shaft journaled in suitable
bearings and having a threaded upper extremity,
a nut on said extremity above the 110
uppermost bearing, a socket on the lower end
of said shaft beneath the lowermost bearing,
a set screw in the side of said socket, a
churn body and an agitator whose upper extremity
is reduced and adapted to enter this 115
socket, the length of the agitator being such
that at this time its lower end is above the
bottom of the churn body; of a crank-shaft,
means for revolving it, a pitman rod connected
at one end with the crank, an arm 120
having an eye at one end, a set screw in
said eye whereby it is adjustably secured on
said rock-shaft, and a joint substantially as
described between the outer end of said arm
and the other end of said pitman rod, as and 125
for the purpose set forth.

In testimony whereof I have hereunto subscribed
my signature on this the 29th day of
April, A. D. 1893.

LOVELL H. SINCLAIR.

Witnesses:

NETTIE RAINWATER,
W. H. COLE.