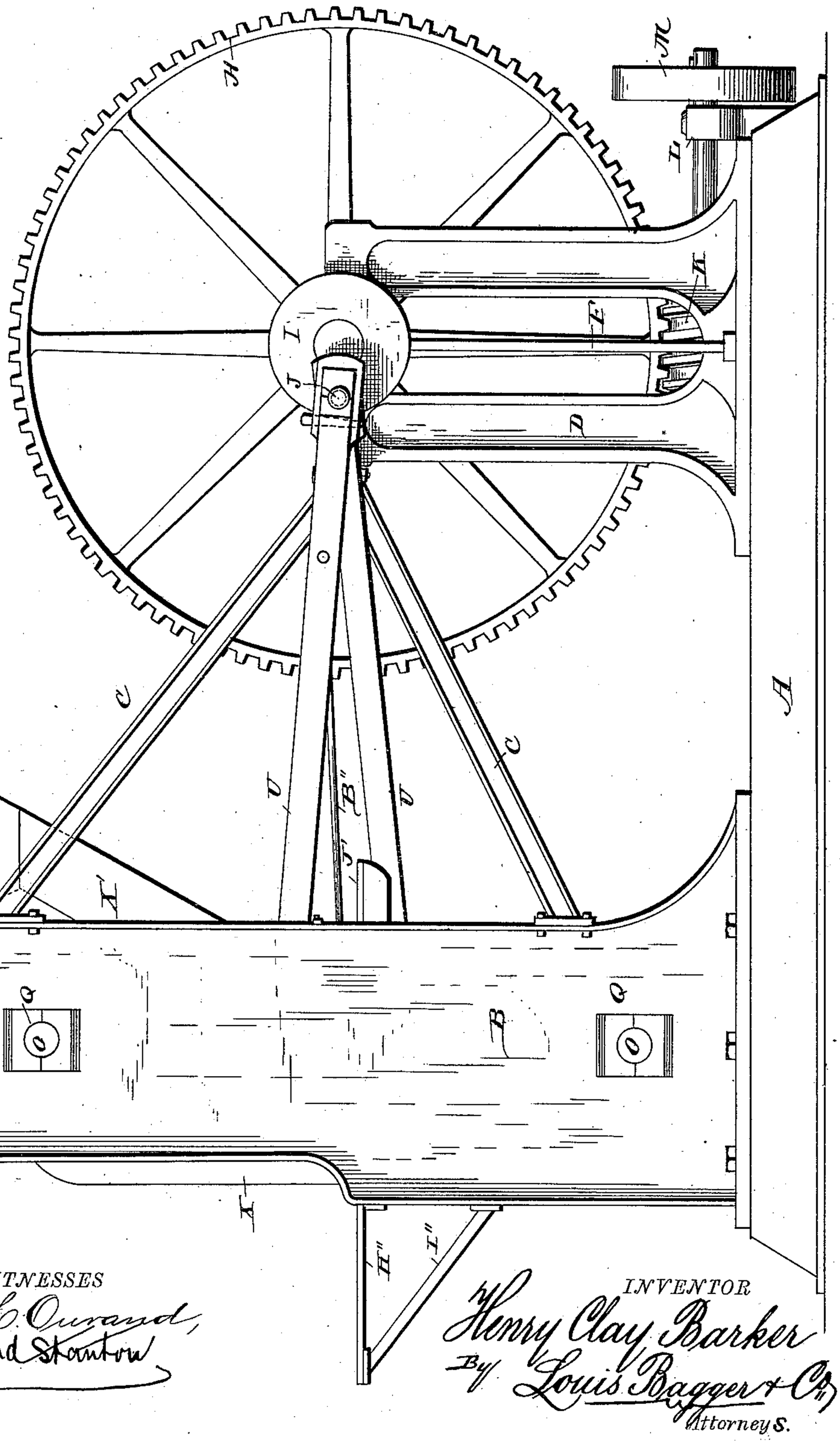
(No Model.) 3 Sheets—Sheet 1.

H. C. BARKER.

DRY PRESS BRICK MACHINE.

No. 351,567. Patented Oct. 26, 1886.

Fig. 1.



WITNESSES

C. H. Durand,
Edward Stanton

INVENTOR

Henry Clay Barker
By Louis Bagger & Co.
Attorneys.

(No Model.) 3 Sheets—Sheet 2.

H. C. BARKER.

DRY PRESS BRICK MACHINE.

No. 351,567. Patented Oct. 26, 1886.

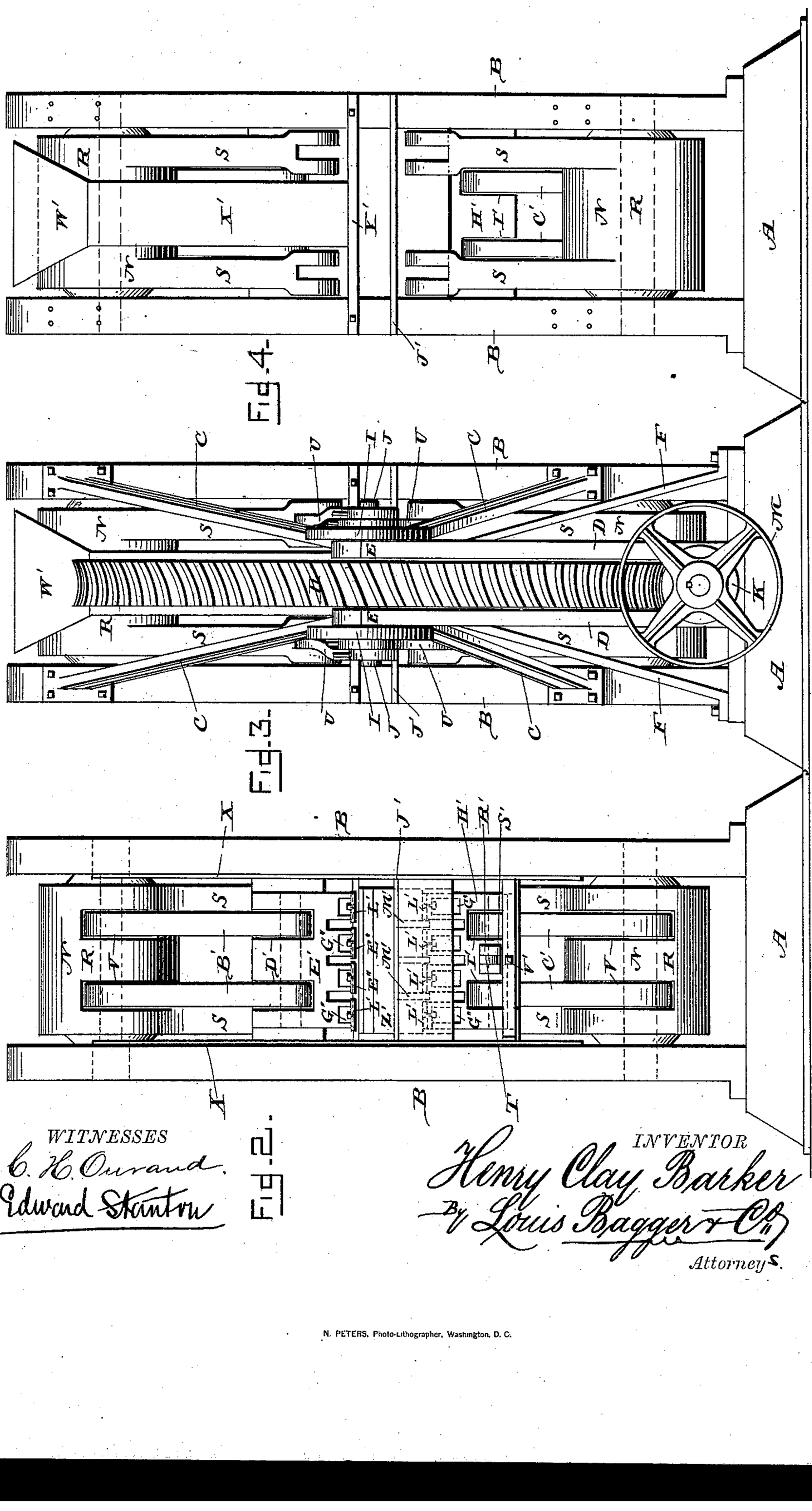


Fig. 4.

Fig. 3.

Fig. 2.

WITNESSES
C. H. Durand.
Edward Stanton

INVENTOR
Henry Clay Barker
By Louis Bagger & Co
Attorneys.

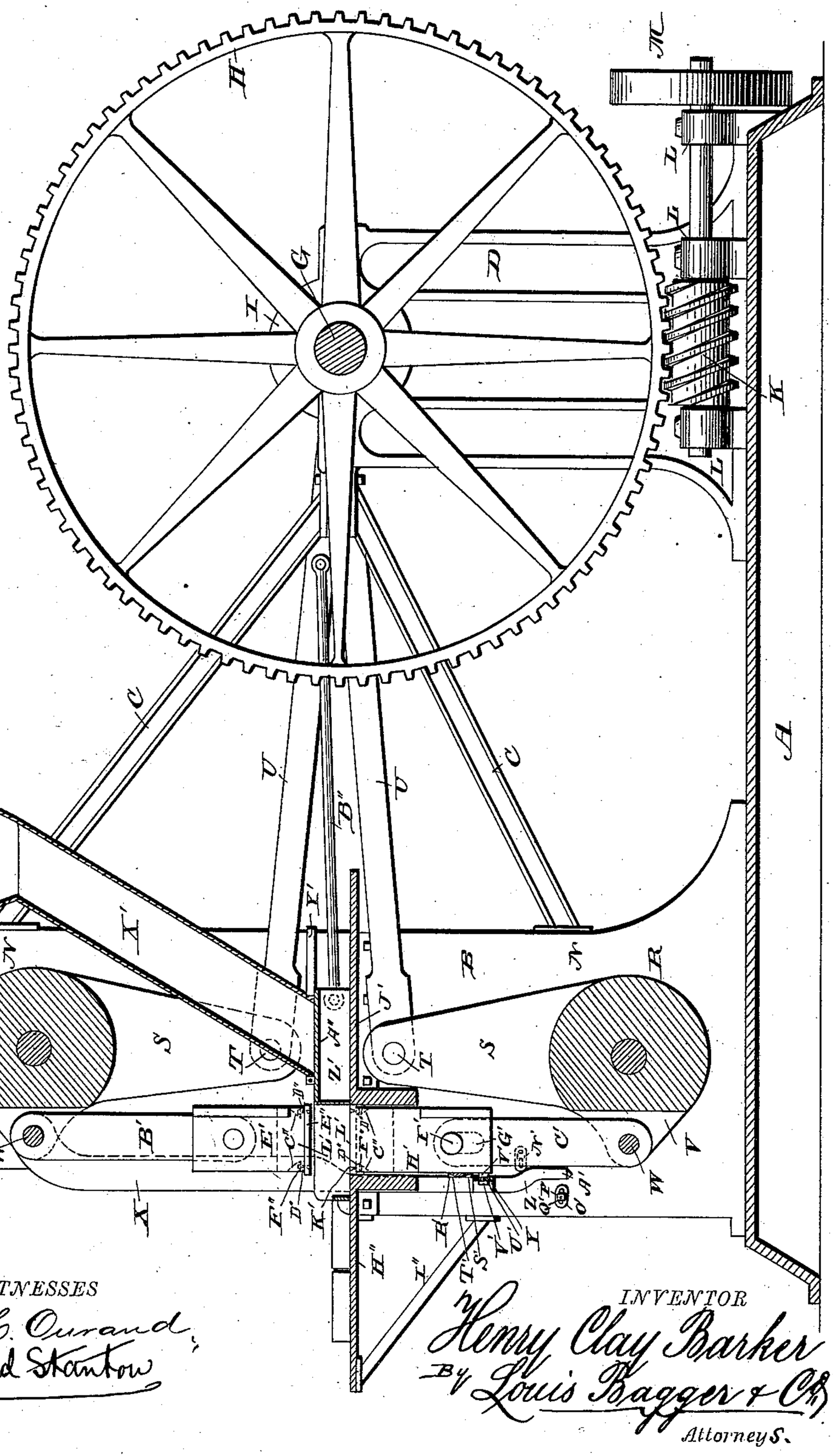
(No Model.) 3 Sheets—Sheet 3.

H. C. BARKER.

DRY PRESS BRICK MACHINE.

No. 351,567. Patented Oct. 26, 1886.

Fig. 5.



WITNESSES

C. H. Durand,
Edward Stanton

INVENTOR

Henry Clay Barker
By Louis Bagger & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

HENRY CLAY BARKER, OF ST. JOSEPH, MISSOURI, ASSIGNOR OF THREE-FOURTHS TO RUFUS K. ALLEN, NATHAN D. GOFF, AND ISAAC W. HAYDEN, ALL OF SAME PLACE.

DRY-PRESS-BRICK MACHINE.

SPECIFICATION forming part of Letters Patent No. 351,567, dated October 26, 1886.

Application filed March 10, 1886. Serial No. 194,698. (No model.)

To all whom it may concern:

Be it known that I, HENRY CLAY BARKER, a citizen of the United States, and a resident of St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Dry-Press-Brick Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved brick-machine. Fig. 2 is a front view of the same. Fig. 3 is a rear view. Fig. 4 is a rear view of the forward portion of the machine, and Fig. 5 is a longitudinal vertical sectional view of the entire machine.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to that class of machines for pressing bricks in which the dry clay is fed from a hopper into a reciprocating feeder-box, which again drops the clay into a mold, the bottom of which is formed by a reciprocating plunger, which, together with an upper plunger, presses the brick into shape; and it consists in the improved construction and combination of parts of such a machine, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the bed-plate, the forward portion of which is provided with two upright side pieces, B B, which are connected by means of oblique braces C C to the upper ends of two uprights, D D, the upper ends of which are provided with transverse bearings E E, and which uprights are supported laterally by means of two inclined braces, F F, secured to the upper ends and to the bed-plate.

A shaft, G, is journaled in these bearings, and is provided at its middle between the bearings with a cog-wheel, H, and at its ends with disks I I, provided with registering wrist-pins J J.

A screw or worm, K, is journaled with its smooth portions in bearings L L upon the bed-plate under the cog-wheel, and engages the cog-wheel, and one end of the shaft of the worm is provided with a pulley, M, or other means for communicating motion from an engine or other motor to the shaft.

Two wide levers, N N, or arms are journaled, with trunnions O O projecting from the sides of their outer ends, in bearings Q in the upper and lower ends of the upright side pieces, B, and these levers consist of a head portion, R, which is as wide as the space between the side pieces, and two inwardly-projecting arms, S S, the ends of which are bifurcated and provided with pins T passing through them.

The forward ends of two pairs of pitmen, U, are pivoted between the bifurcated ends of these arms, and the rear ends of these pitmen are pivoted in pairs upon the wrist-pins of the disks upon the shaft of the cog-wheel, each wrist-pin having a pitman from the upper and lower arm at that side of the machine.

The heads of the wide levers project considerably forward and are formed with recesses V, through the centers of which bolts W pass.

Two bars or rods, X X, are pivoted upon the ends of the bolts of the upper lever with their upper inwardly-curved ends, and slide in vertical ways at the forward edges of the side pieces, and these bars are connected at a distance from their lower ends by means of a cross-piece, Y, and have their lower ends below this cross-piece bulged inward, forming rounded shoulders Z, and thereupon again carried downward to form straight portions A′.

Arms B′ B′ and C′ C′ are pivoted, respectively, with their upper and lower ends in the recesses in the heads of the upper and lower lever, and the upper arms have their lower ends pivoted in recesses D′ D′ in the upper plunger, E′, while the lower arms have their upper ends slotted longitudinally, as shown at F′, and have a bolt, G′, passing through the lower portion of the lower plunger, H′, sliding in the slots, the upper slotted ends of the arms projecting into recesses I′ I′ in the lower portion of the plunger, and being pivoted in the recesses upon the bolt.

The table J′ is secured between the side pieces, and is formed at the point where the plungers operate toward each other with one

or more slots, K′, through which the dies L of the plungers may pass, and the molds M′ are formed at these apertures, having the dies of the lower plunger sliding within them and forming bottoms for them.

Two oblong and longitudinally-slotted trip-blocks, N′ and O′, are secured upon the inner side of each side piece, one above the other, and the upper block slightly to the rear of the lower block, both blocks sliding upon bolts P′, and having nuts Q′ for adjusting them upon the bolts, and the lower ends of the lifting-bars X slide between these blocks, the outer block serving to prevent the bars from swinging too far out, and the upper blocks serving to bear against the bulged lower portions of the bars, and to force them outward when the bars are drawn upward.

The forward face of the lower portion of the lower plunger is provided with a rounded bulge, R′, the middle of which is formed with a rounded groove or notch, S′, passing from the lower edge to the middle of the bulge, gradually merging into the face of the bulge, and a cut-away portion, T′, extending from a distance above the middle of the bulge to the upper edge, forming an upwardly-facing recess.

The middle of the cross-piece connecting the lifting-arms is provided with a screw-bolt, U′, passing through the cross-piece, and this bolt is provided at both sides of the cross-piece with jam-nuts V′ V′, which may secure the bolt in the cross-piece, projecting in any desired degree from the inner side of the cross-piece, and this bolt and the inner nut may project into the notch and recess of the bulge, the cross-piece bearing against the bulge and raising the plunger when the bars are lifted, and as the bars are forced outward by the upper trip-blocks the bolt and nut will continue to bear into the notch until it has passed over the middle of the bulge, when the bolt and nut will enter the recess and allow the plunger to drop.

The bolt may be adjusted by means of its jam-nuts to project farther into the notch or to project less into it, causing the bolt and cross-piece to bear longer or shorter time in the bulge and notch, raising the plunger higher or lower, as desired, and retaining it raised for a longer or shorter time.

A hopper, W′, is secured at the rear edges of the upper ends of the side pieces, and is provided with a downwardly-inclined spout, X′, the lower end of which projects a short distance above the table, slightly to the rear of the upper plunger, being supported there by means of suitable brackets or bars, Y′, and a drawer, Z′, or feeder slides under the end of the spout, having an open forward portion into which the clay may fall from the spout when it is brought to register with the spout, and a closed rear portion, the upper closed side, A″, of which will close the mouth of the spout when slid under it.

The forward ends of connecting-rods B″ B″ are pivoted to the rear ends of the side pieces of the feeder, and are pivoted at their rear ends to the rear portions of the upper pair of pitmen, so that the feed-drawer will be reciprocated by the upper pair of pitmen.

When the machine is in operation, the worm-shaft is revolved by its connection to the motive power and the worm will revolve the cog-wheel, drawing the pitmen forward and back, and consequently rocking the wide levers. The hopper is filled with dry clay, which passes down through the spout and enters the feed-drawer when the open portion of the same is brought under the end of the spout. The drawer is now forced forward at the same time that the plungers are drawn apart, the lower plunger being, however, retained with the faces of its dies at a level with the table by means of the lifting-rods and their cross-piece engaging the bulge, so that the forward end of the feed-drawer may push the bricks which have been pressed forward and bring its open under side above the molds, depositing the clay in them, the lower plunger having dropped as soon as the feed-drawer arrived above the molds. This will prevent the molds from being unevenly filled, as they are liable to be in machines where the plunger will drop immediately after the bricks have been pushed off from the upper faces of the dies, the clay falling heavier in the rear end of the mold, which is first filled, than in the forward portion, causing an even brick to be made. When the plungers are forced toward each other, the upper plunger is forced down to cover the upper sides of the molds, and the lower plunger is raised, when the upper plunger and the arms for the lower plunger are drawn apart, the lifting-arms raising the plunger, so that it brings the upper faces of the dies level with the table. The ends of the die portions of the plunger have oblique recesses C″ C″ in their forward and rear ends, having perforated lips D″ covering their wide ends, and face-plates E″ are secured upon the faces of the dies, having nutted bolts passing through their ends and through the lips, as shown at F″, and air-vents G″ are formed in the face-plates and lips, allowing air to escape from the molds into the oblique recesses.

A table, H″, forming an extension of the machine-table, may be secured at the forward end of the said table, and is supported by suitable braces, I″, forming a resting-place for the bricks as they are pushed off from the machine-table and before they are removed.

It will be seen that the machine may be operated at any desired speed, as the levers reciprocating the plungers are connected to the wrist-pins of the revolving disks by pitmen having solid heads, there being no slotted heads for the pitmen, which, in the case of an attempt to run the machine at high speed, will cause continual jars, which will injure the machine and render its working unsatisfactory.

Having thus described my invention, I claim

and desire to secure by Letters Patent of the United States—

1. In a reciprocating machine for making bricks, the combination of a shaft having a cog-wheel upon its middle between its bearings, and having two disks upon its ends provided with registering wrist-pins, a worm having means for revolving it and engaging the cog-wheel, two levers pivoted, respectively, at the upper and lower end and operating the plungers, and pitmen pivoted to the free ends of the levers and to the wrist-pins, as and for the purpose shown and set forth.

2. In a reciprocating machine for making bricks, the combination of the lower plunger having recesses in its lower portion provided with a transverse bolt, arms pivoted with their longitudinally-slotted upper ends upon the bolt and having means for forcing them upward, bars sliding at the sides of the plunger and having means for drawing them up when the plunger-operating arms are drawn down, and formed with inwardly-bulged lower portions and straight lower ends and connected above the bulged portions by a cross-bar, trip-blocks upon the side pieces of the frame for forcing the bulged portions of the bars out and for preventing the bars from swinging too far out, a bulge upon the forward face of the plunger having a curved notch extending from the lower edge to near the middle, and having a recess from above the middle of the bulge to the upper edge of the same, and a bolt passing through the middle of the cross-bar, and having jam-nuts at both sides of the cross-bar engaging the notch of the bulge, as and for the purpose shown and set forth.

3. In a reciprocating machine for making bricks, the combination of the lower plunger provided with a bulge upon its forward face, having a curved notch in the lower portion of its middle and a recess in the upper portion, two lift-bars having means for raising them and having their lower portions curved to form inward bulges and straight lower ends, oblong longitudinally-slotted blocks secured to the inner sides of the side pieces by means of nutted bolts one above the other, and with the upper blocks slightly to the rear of the lower blocks guiding the lower portions of the lifting-bars, and a cross-piece connecting the lower portions of the lifting-bars above the bulged portions, and having a bolt through its middle provided with jam-nuts at both sides of the cross-piece, as and for the purpose shown and set forth.

4. In a reciprocating machine for making bricks, the combination, with the molds, of an upper and a lower plunger, each having a recess in its outer end, a bell-crank lever above and below said plungers, an arm or link connecting each of the short arms of said levers with one of the plungers, a pair of lifting-rods, and a pitman connecting each of the long arms of said levers with the wrist-pins of the operating-shaft, substantially as and for the purpose set forth.

5. In a reciprocating machine for making bricks, the combination of a plunger having die portions formed with oblique recesses in the ends, having perforated lips in the wide portions of the recesses, with face-plates having their ends bolted to the lips, and having vent-holes in their ends registering with holes in the lips, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

HENRY CLAY BARKER.

Witnesses:
NATHAN DUVALL GOFF,
ISAAC WILEN HAYDEN.