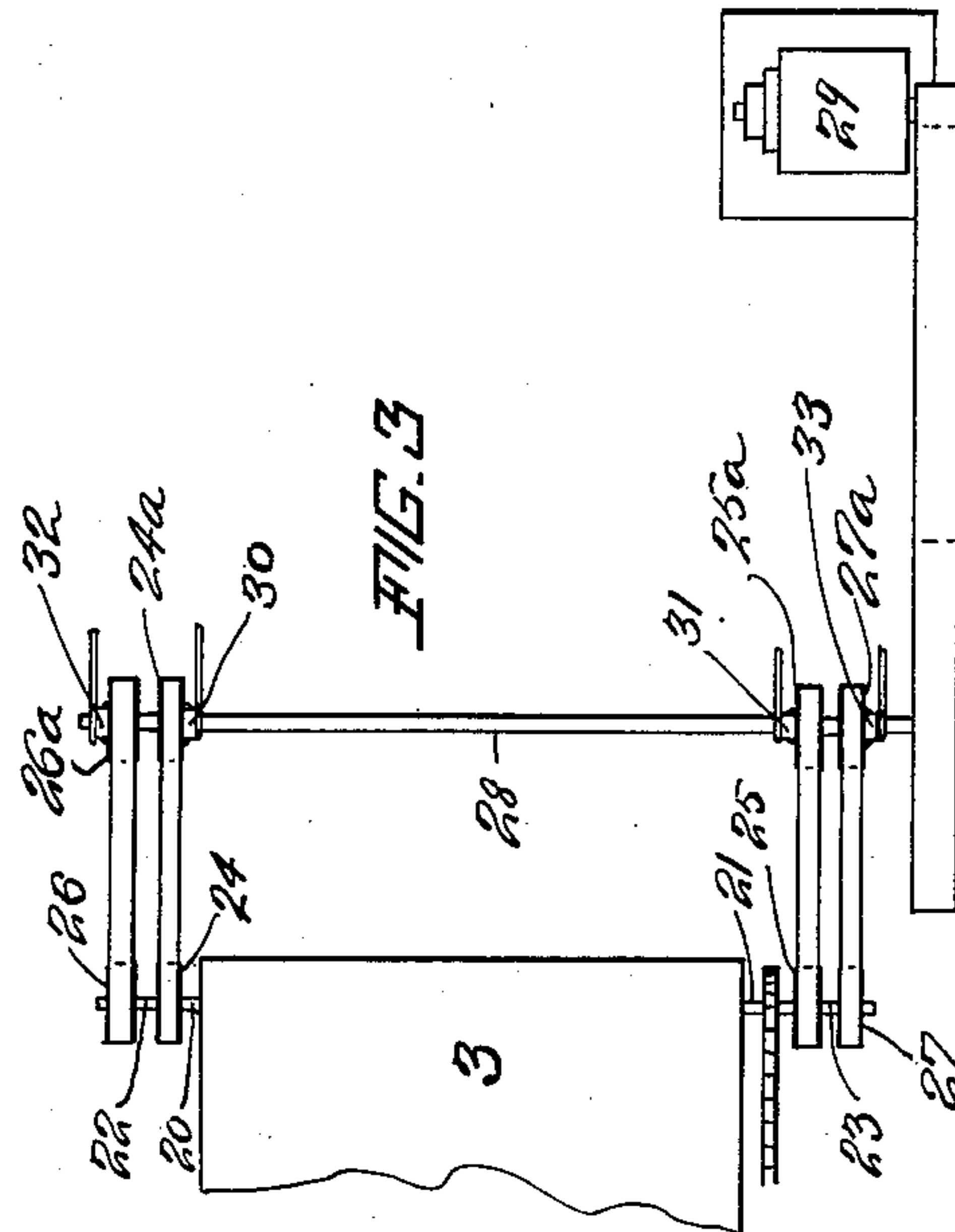
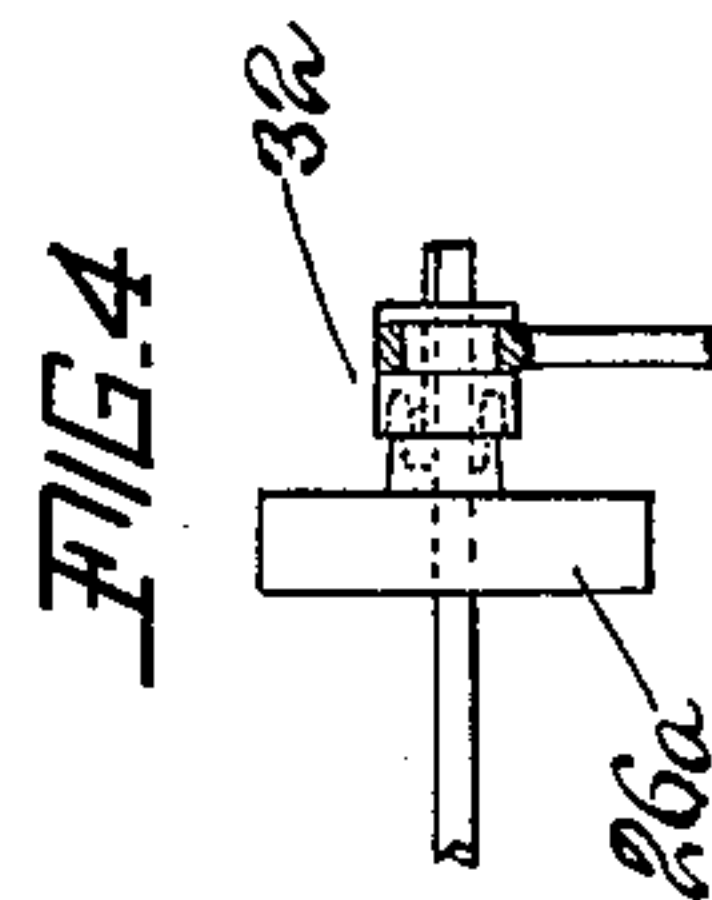
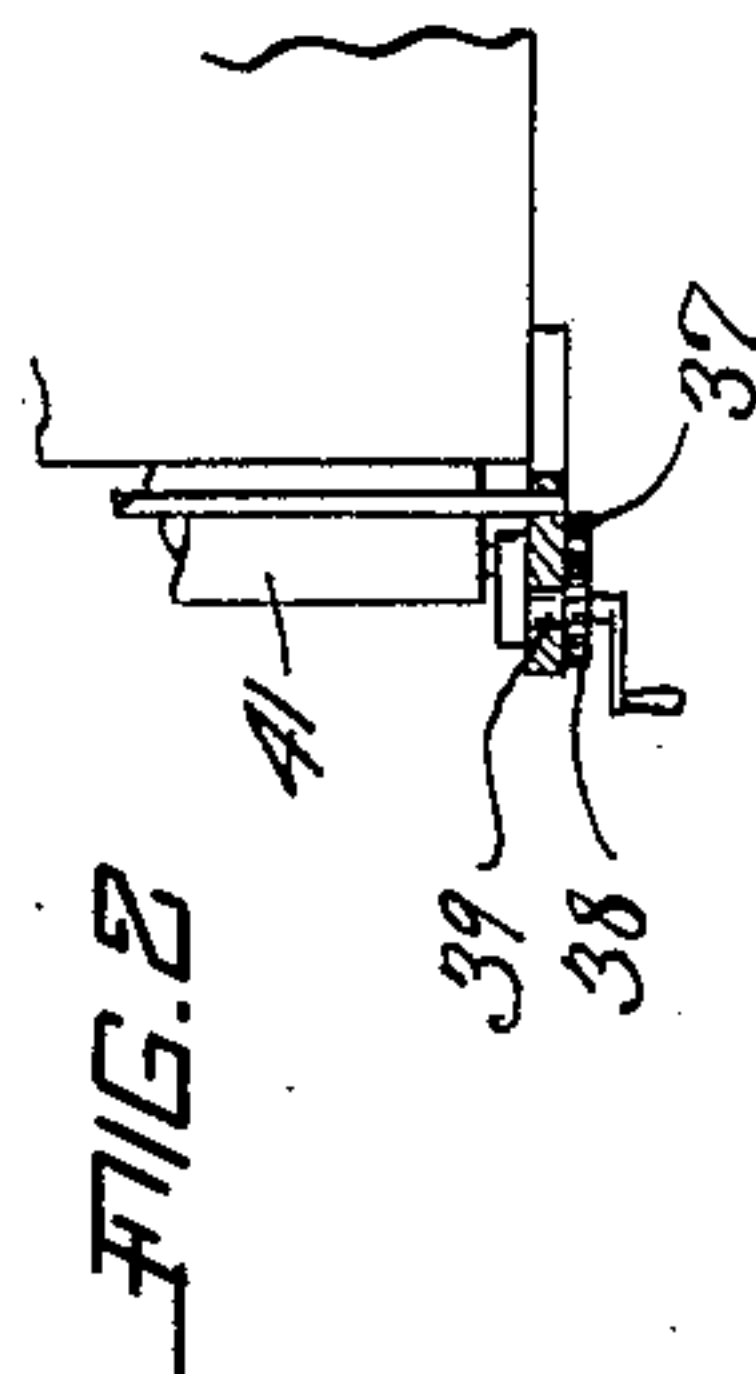
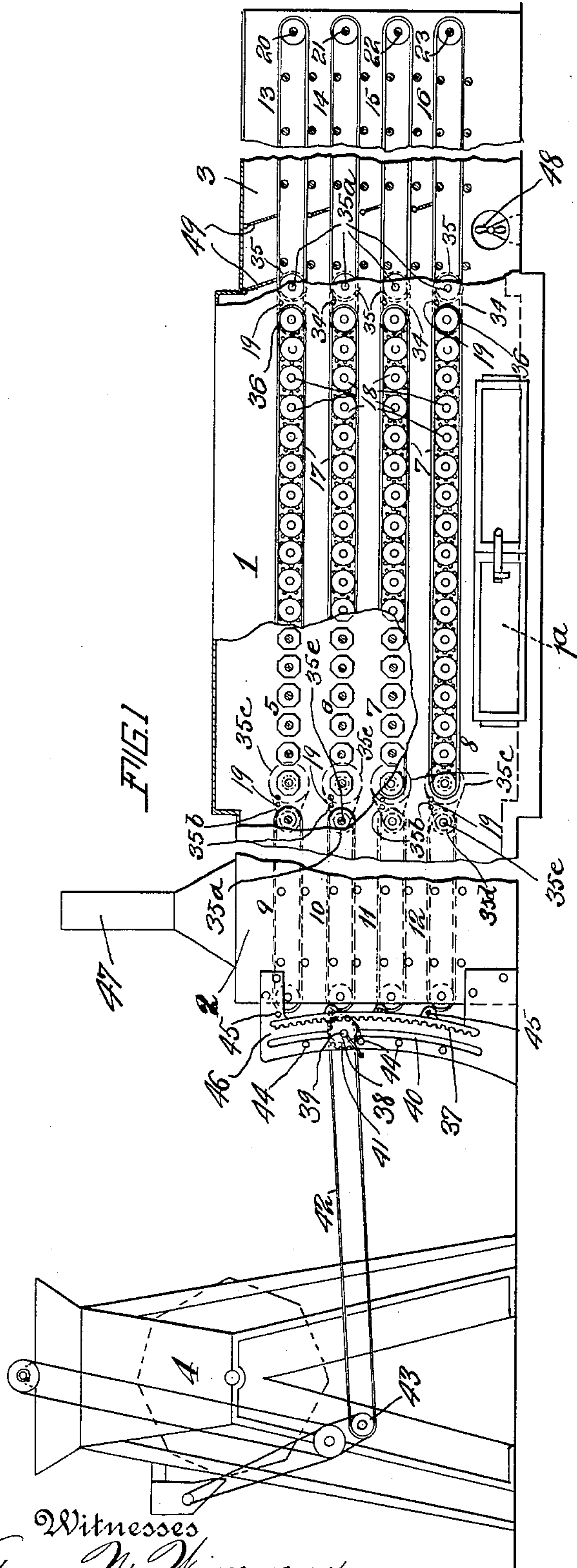


E. COLE.  
KILN.

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959,996.

Patented May 31, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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KILN.

959,996.

Specification of Letters Patent.

Patented May 31, 1910.

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*To all whom it may concern:*

Be it known that I, EDWARD COLE, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Kilns, of which the following is a specification.

My invention relates generally to kilns, and has more particular reference to an apparatus in which the bricks are dried, burned and cooled in their passage through the same.

The object of the invention is to facilitate the burning of bricks in great quantities in a very short time, and to this end the invention consists of the features of construction and combination of parts as will more fully hereinafter appear.

In the drawings, I have embodied my invention in a suitable form, but changes of construction may of course be made within the scope of the claims.

Figure 1 is a general view showing my complete improved apparatus, partly in section and broken away. Fig. 2 is a detail view of the means for moving the single conveyer into juxtaposition with either of the plurality of tiers of conveyers. Fig. 3 is a detail view of the means for driving either of the tiers of conveyers at will. Fig. 4 is a detail view of one of the clutches.

Similar characters of reference indicate corresponding parts in the different views.

1 indicates a kiln of any suitable construction and having the furnace 1<sup>a</sup>.

2 is a drying chamber, and 3 is a cooling chamber. The kiln is interposed between the two.

Some distance away from the drying chamber there is preferably located a brick molding machine 4 of any suitable construction for automatically molding the bricks.

The kiln is characterized by the fact that I provide a plurality of tiers of rollers 5, 6, 7 and 8 in the said kiln, and in connection with this construction I provide a plurality of tiers of conveyers 9, 10, 11 and 12 in the drying chamber, and a plurality of tiers of conveyers 13, 14, 15 and 16 in the cooling chamber. The rollers in the kiln are preferably polygonal-shaped, the sides of the polygon being of equal length and are suitably driven by means of the sprocket chains

and wheels 17 and 18. These rollers are preferably made of fire clay.

Interposed between the conveyers in the drying and cooling chambers, which are preferably in the form of endless belts or aprons, and the rollers in the burning chamber, I provide a plurality of idlers 19 to facilitate the passage of bricks from the aprons to the rollers. Mounted on the respective shafts 20, 21, 22 and 23 of the carrier aprons in the cooling chamber are the pulleys 24, 25, 26 and 27, which receive their motion by means of belts connecting with pulleys 24<sup>a</sup>, 25<sup>a</sup>, 26<sup>a</sup> and 27<sup>a</sup> on the driving shaft 28. This driving shaft may be operated by any suitable motor, such as the one indicated at 29, and is provided with four clutches 30, 31, 32 and 33 so that motion may be imparted to either one of the four tiers of conveying means. The parts are preferably so arranged that the carrier aprons in the drying chamber are driven at one speed, while the rolls in the burning chamber and the carrier aprons in the cooling chamber are driven at a less speed. This is accomplished by running a chain 34 from a sprocket wheel 35 on each of the four shafts 35<sup>a</sup> over which passes the carrier apron of the cooling chamber to a sprocket wheel 36 mounted on the rear-most roller of each of the four tiers. From these rear-most rollers motion is conveyed to all the other rollers in the same tier by means of the sprocket chains and wheels 17 and 18. The carrier aprons in the drying chamber will be geared to the rollers in the burning chamber by means of the chains 35<sup>b</sup> passing over the large sprocket 35<sup>c</sup> on the first roller in each tier of the burning chamber to the sprocket 35<sup>a</sup> on the shaft 35<sup>e</sup> of each carrier apron in the drying chamber.

Located adjacent to the carrier aprons in the drying chamber is a sector 37 with which engages a gear wheel 38 mounted on the shaft 39, which moves up and down in the slot 40, and on which shaft is supported the roller 41 over which the carrier apron 42 passes. The other end of the carrier apron travels around the roller 43 which is mounted in fixed bearings. This carrier apron moves at a speed higher than that of the carrier aprons in the drying chamber. Means, as the removable pins 44, are pro-



vided whereby the said shaft carrying the gear may be fixed in alinement with any of the tiers of conveying means in the drying chamber and moving with this shaft there  
 5 may be also one or more idlers 45 mounted on the bracket 46 so that the bricks may pass freely from the single conveyer to any of the tiers of conveyers.

The drying chamber is provided with a  
 10 chimney 47 and the cooling chamber is provided with a fan 48 so as to more readily establish a circulation of air through the whole apparatus, whereby cool air is drawn in through the cooling chamber, thereby aid-  
 15 ing in cooling the bricks, is then carried through the burning chamber and out through the chimney 47 in the drying chamber, thereby aiding in drying the green bricks. Thus the current of air created is  
 20 in a direction opposite to that of the progressive motion of the bricks.

Suitable hinged flaps as 49 may be provided both in the cooling and drying chambers in order to prevent improper circulation of the air through the apparatus.  
 25

The operation of the device is as follows: The single carrier apron is moved into alinement with any tier of conveying means in the apparatus and the proper clutch is then  
 30 thrown in. The bricks will now pass over from said single carrier apron to the tier of conveying means with which it is in alinement, and will pass through the drying chamber where the green bricks are dried.  
 35 In passing over the idlers 45 and onto the slower moving apron in the drying chamber, the distance between the bricks will be closed up. When one tier of the drying chamber has been filled, the single carrier apron will  
 40 then be moved to another tier of conveying means, and power thrown off from the first tier of conveying means and applied to another tier of conveying means. This is continued until the drying chamber is filled.  
 45 After this, the single carrier apron is moved back to the tier with which it was first in alinement and power is again applied. This will cause the bricks already in the first drying chamber to travel over the idler and  
 50 onto the tier of rollers into the burning chamber in alinement with the same. Owing to the fact, however, that the rollers in the burning chamber are driven at a less speed, the distance between the bricks which  
 55 is caused by shrinkage, will be closed up in passing over the idlers, and the burning chamber will thus be completely filled. This is continued until one tier of the burning chamber is filled, when the other tiers will  
 60 successively be brought into action and power applied until all the tiers in the burning chamber are filled. Power will now be applied to the tier which was first filled,

and the bricks in that tier will be caused to move out of alinement therewith in the cool- 65 ing chamber. This will be continued until all the bricks in all the tiers have been moved into the cooling chamber. In the meanwhile, of course, other bricks coming from the machine will have taken the place of those 70 which have been moved out of the drying and burning chambers.

What is claimed is:

1. In a kiln, the combination with a burning compartment, means for conveying a 75 plurality of rows of bricks, there being a distance between each row of bricks, and means for decreasing the distance between each row of bricks in the direction of their progression prior to their being burned. 80

2. In a kiln, the combination with a burning compartment, of means for conveying a plurality of rows of bricks, there being a distance between each row of bricks, means 85 for decreasing the distance between each row of bricks prior to their being dried, and means for decreasing the distance between each row of bricks after they have been dried and before they are burned.

3. In a kiln, the combination of a burn- 90 ing compartment, a plurality of polygonal-shaped rolls located in the same, means for driving said rolls, means for conveying the bricks to the burning chamber and for carrying them from the burning chamber, and 95 one or more stationary rolls interposed at each end of the burning chamber between the polygonal-shaped rolls and the means for conveying the bricks to and from the same. 100

4. The combination with a kiln, of a drying chamber located in front of the same, and a cooling chamber located in the rear of the same, of a plurality of tiers of rollers for conveying the bricks through the said 105 kiln, a plurality of tiers of carrier aprons located in the drying chamber, a plurality of tiers of carrier aprons located in the cooling chamber, and means for feeding bricks to either of the said tiers of carrier aprons in 110 the drying chamber.

5. In a kiln, the combination of a burning chamber, a plurality of tiers of rolls located therein, a drying chamber, a plurality of tiers of carrier aprons located therein, a cool- 115 ing chamber, a plurality of tiers of carrier aprons located therein, and means for driving the rolls and carrier aprons of any one tier located in the same plane at will.

6. In a kiln, the combination of a drying 120 chamber, a burning chamber, and a cooling chamber, conveying means located in each of the said chambers, and means for driving the conveying means in the burning chamber and cooling chamber at a less speed than 125 the conveying means in the drying chamber.

7. In a kiln, the combination of a drying chamber, a burning chamber, and a cooling chamber, conveying means located in each of the said chambers, means for driving the  
5 conveying means in the burning chamber and cooling chamber at a less speed than the conveying means in the drying chamber, and means for allowing the bricks to pass

from the conveyer in one chamber to the conveyer in the other chamber.

Signed at New York this 25 day of January 1906. 10

EDWARD COLE.

Witnesses:

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