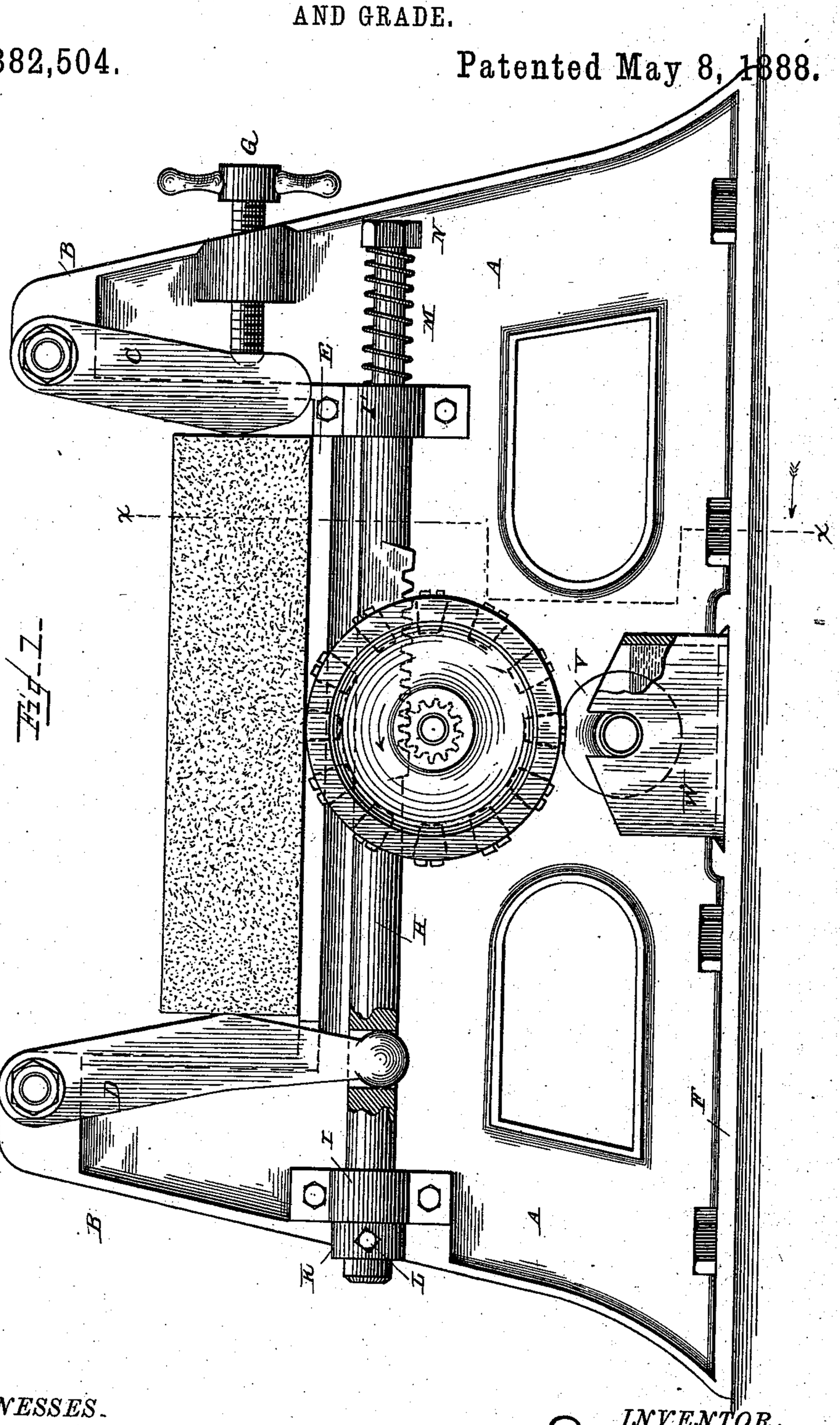
(No Model.) 2 Sheets—Sheet 1.

J. C. ANDERSON.

METHOD OF ASSORTING BRICKS WITH RELATION TO THEIR COLOR AND GRADE.

No. 382,504. Patented May 8, 1888.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

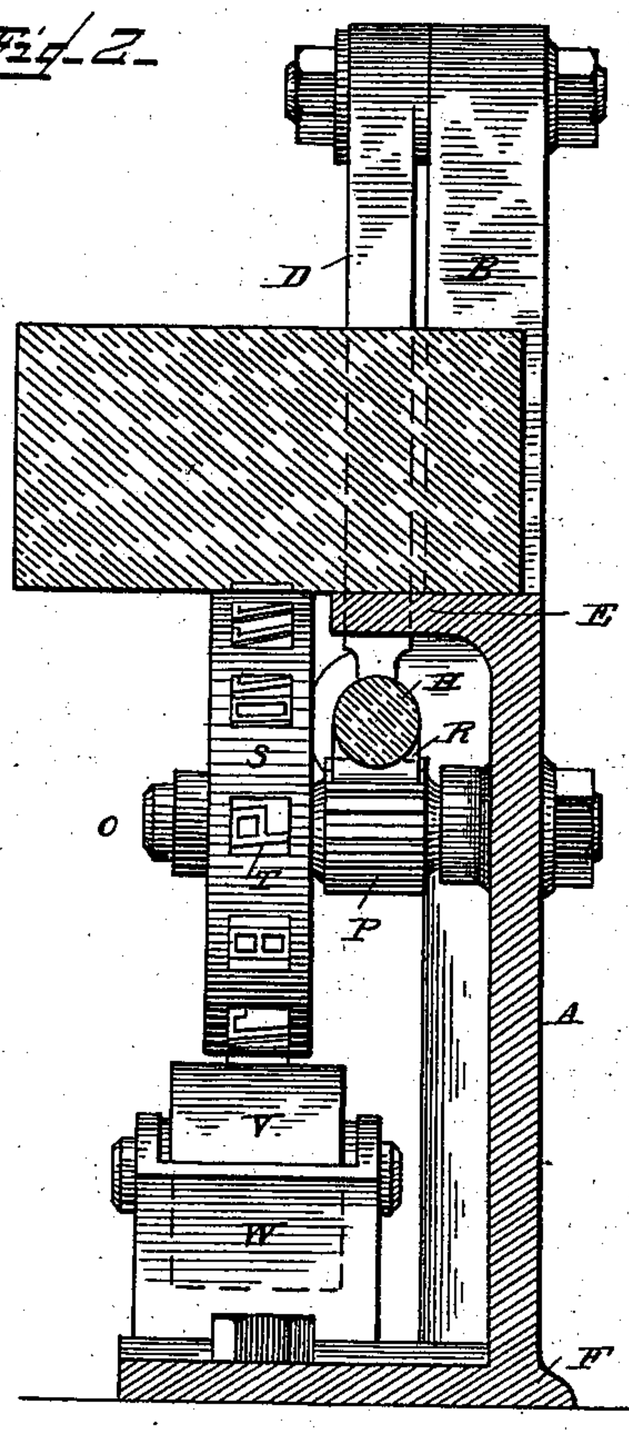


Fig. 3.

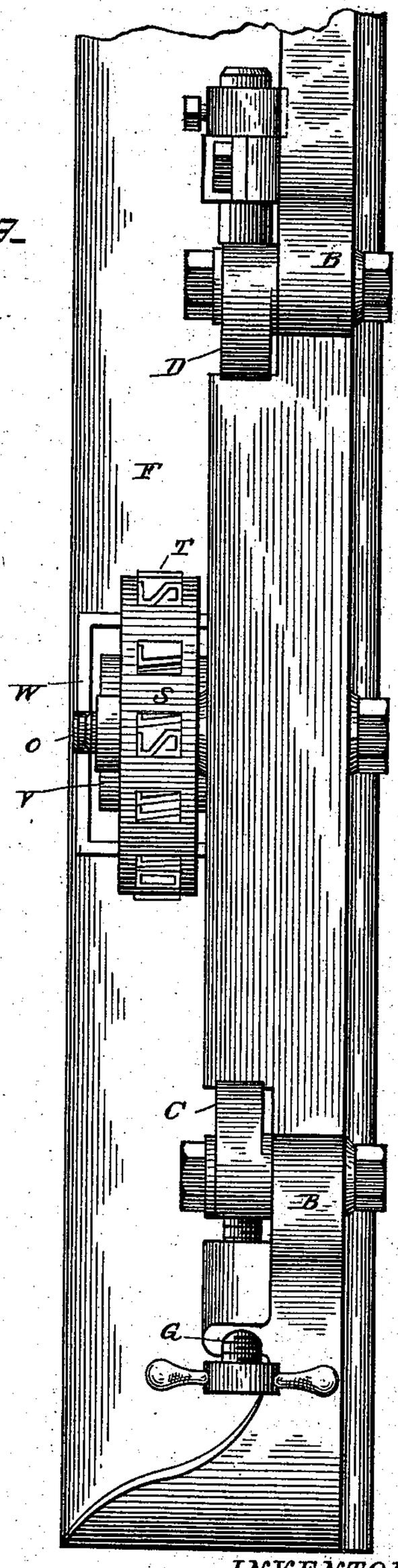
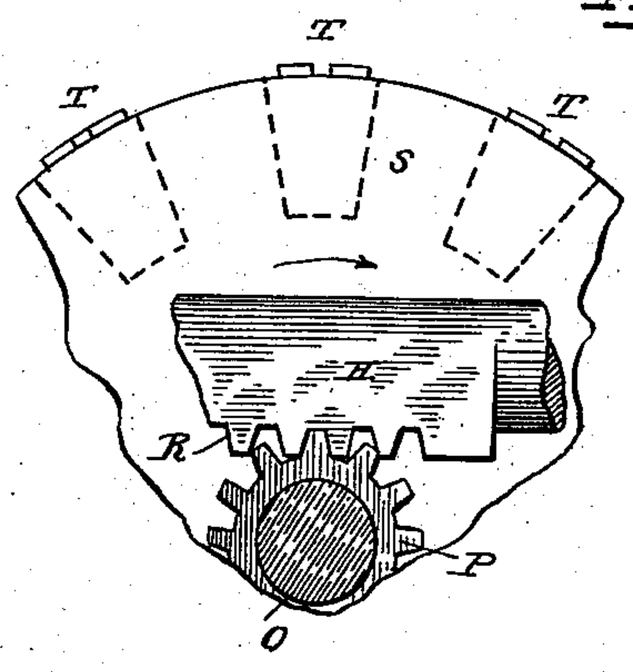


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES C. ANDERSON, OF HIGHLAND PARK, ILLINOIS.

METHOD OF ASSORTING BRICKS WITH RELATION TO THEIR COLOR AND GRADE.

SPECIFICATION forming part of Letters Patent No. 382,504, dated May 8, 1888.

Application filed January 9, 1888. Serial No. 260,141. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States of America, residing at Highland Park, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in the Method of Assorting Bricks with Relation to their Color and Grade, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a novel method of indicating the color of brick and marking the same, so as to indicate their grade or shade of color.

The object of my invention is to accurately assort the various colored bricks as they are taken from the kiln, and mark the same to indicate the grade or shade of color without the use of skilled labor.

My invention consists in the method, hereinafter described, of mechanically assorting brick into grades of like color, which consists in placing the brick in a suitable measuring device which will determine the size of the brick, and at the same time mark the brick to indicate the grade or shade of color to which it belongs.

In carrying out my method I have designed and constructed the machine, as illustrated in the accompanying drawings, as being the best means thus far devised for carrying out the same, and in which—

Figure 1 is a front view of my machine. Fig. 2 is a sectional view on the line *x x* of Fig. 1. Fig. 3 is a top or plan view. Fig. 4 is a detached view of a portion of the printing or impression wheel and rack-bar for operating it.

In explanation of my invention it may be proper in this connection to state that all fine grades of pressed brick, although made in the same mold with same amount of clay and with uniform pressure, vary in shades of color from light to dark red, in proportion to the intensity of heat they receive in the firing or burning, which depends much on the position in which the different courses are placed in the various kinds of kilns used in burning. The lighter brick in color are those that receive the smaller degree of heat, the brick becoming darker where the more intense heat is brought to bear upon them. The best skill yet attained in the construction of kilns and firing the same thoroughly fails to give any line of uniformity by which the brick can be taken from the kiln and piled in separate piles, each of which will be of a uniform shade of color. It has become necessary, and the universal practice is, to remove the brick from the kilns to suitable sheds, which must be arranged to allow a good strong light to fall upon the face of the piles, and expert sorters who have a good eye for color are employed to sort these bricks, one at a time, comparing each brick with the face of those in the various piles. This, it will be understood, requires not only skill but a special eye for color, which is scarcely found possessed by one man in several hundred, and as a consequence enormons prices are not only paid for this kind of labor, but business is hampered very much on account of not being able to obtain suitable men educated for the work. Usually the red brick are sorted into twelve (12) different piles, representing twelve (12) separate shades of color, which are numbered on the books and advertised as Nos. 1, 2, &c., No. 1 being the lightest in color and No. 12 the darkest; but heretofore no means have been employed of designating or marking the brick themselves as to color, so that they could be identified by others when delivered in the market to the respective buildings; and it often happens where different shades of color were to be used in the walls of the same building, although care has been taken to slip in separate lots, a general mixing up would occur at the building, and thus the walls would often be built in patches or splotches, and no end of confusion and annoyance occurs in this way.

By my invention I have effectually overcome the above difficulties by the conception of a mechanism which not only sorts the bricks to their proper color, but stamps and prints thereon the proper number. For a more correct understanding of my invention it will be necessary to explain another point which takes place in the firing of brick—viz., the shrinkage of clays.

It will of course be understood that all of the clays, whether the bricks are made by the wet or dry process, shrink in the firing in proportion to the amount of heat they receive, the shrinkage of the clays when treated by the dry process, however, being considerably less than those produced by the wet process.

The shrinkage on red brick—that is, between the lightest and darkest colored brick--is three-fourths of an inch. The No. 1 brick, which is the lightest, is three-fourths of an inch longer than No. 12, which is the darkest. Now, when you divide this shrinkage into twelve parts you have one-sixteenth of an inch difference in length of each number or shade of color. I find in comparing the numbers and measurements that I can get more accurate color results by measuring to size than by depending on the eye in sorting to color.

Referring to the drawings, A indicates a frame or support made of cast-iron or other suitable material provided with the projections B, on which are pivoted the jaws C and D. The frame between the projections B is provided with a shelf or table, E, to support the brick, and a flange or base, F, by which it is secured to any suitable base. The jaw C is held in place and rendered adjustable by means of set-screw G, so that in cases where different kinds of brick are made from clays having more or less shrinkage than the standard brick the machine may be adjusted to the shortest of its kind, and then the same rule of gaging and numbering will apply. The jaw D is longer than the jaw C and projects into an opening in the sliding bar H, said bar being loosely mounted in suitable supports, I and I', which are bolted to the frame A. One end of the bar H is provided with a sleeve, K, which is adjustably secured to the bar by a nut or bolt, L. The object of said sleeve is to prevent the bar from being drawn too far to one side by the action of the spring M.

M is a spring which is coiled around the other end of the bar H, one end of which is held against the support I' by means of the nut N, the tension of said spring being also regulated by means of the bolt N. The office or function of the spring N is to return the bar H to its original position after the pressure has been withdrawn from the jaw D.

O is a shaft secured in suitable supports in the frame A, and on which is mounted a pinion-wheel, P, which meshes with the teeth or rack R, formed on the underside of the bar H.

S is an impression or type wheel mounted on the shaft O, in the periphery of which the type T are secured, said type being formed of rubber or other suitable material and representing numerals or letters, as may be required.

V is an inking-roller mounted on the box W, said roller being made of rubber or other suitable material and adapted to be readily removed from the box in case it should need to be cleaned.

The box or well W is designed to hold the ink or other substance for inking the type which forms the impression on the brick, the bottom of said box being beveled off to engage with beveled lugs on the base, and by which means the box is held securely in position.

The operation of my device is as follows: The brick as they are taken from the kiln after being burned are passed by the workman between the jaws of the machine, which are adjusted to allow the No. 12 brick, which is the shortest one of the series, to fit snugly between the same, in which case it rests upon the No. 12, which comes in position to print the number on the side of the brick. In case the brick should be one-sixteenth of an inch longer, the spring of the sliding bar will yield to the pressure at the left-hand side of the machine, the rack of the sliding bar connecting with the pinion fixed to the shaft of the impression or number wheel, and will rotate the wheel one-twelfth, which will bring the No. 11 in position to register against the brick and print thereon the number, and so on up to the largest or No. 1 brick.

The machine is intended to be placed in position in the kiln close to the wheelbarrow, upon which the brick are transported to the yard, so that as the workman picks up each of the brick to pile them on the barrow he simply passes them between the jaws, allowing them to slide down onto the number without taking his hand from the brick, and then passing it onto the barrow, the force of less than the gravity of the brick being requisite to operate the machine. The number then serves as a guide to the men in placing them in their proper piles, and afterward as a guide in shipping the same and to the workman in placing them in the building.

Ordinarily the bricks are taken from the kiln as soon as they are cool enough to handle and while they are still warm, so that the ink or other material used in marking the brick will be readily absorbed, and thus the smearing or blurring of the numbers is obviated.

While I have found, as before stated, that the machine as herein described is the best adapted for carrying out my improved method, it will, however, be readily seen that various modifications may be made in the form of the receptacle, the jaws, and the numbering devices without departing from the spirit or intent of my invention.

One or more inking-rolls may be used, and they may be arranged around the printing-wheel so as to insure the proper inking of the type, or the operator may push the rack-bar over by hand, so as to bring Nos. 10, 11, 12, &c., in contact with the inking-roll prior to inserting the brick into the machine.

What I claim, and desire to secure by Letters Patent, is—

1. The method of assorting bricks with relation to their grade of color, which consists

in gaging the amount of shrinkage which each brick has sustained in drying and burning, as set forth.

2. The method of assorting brick with relation to their grade of color, which consists in determining by measurement the amount of shrinkage which each brick has sustained in drying and burning, and then marking the same with a symbol indicating the grade or shade of color to which it belongs, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

J. C. ANDERSON.

Witnesses:
L. W. SINSABAUGH,
ALEX. MAHON.