

(No Model.)

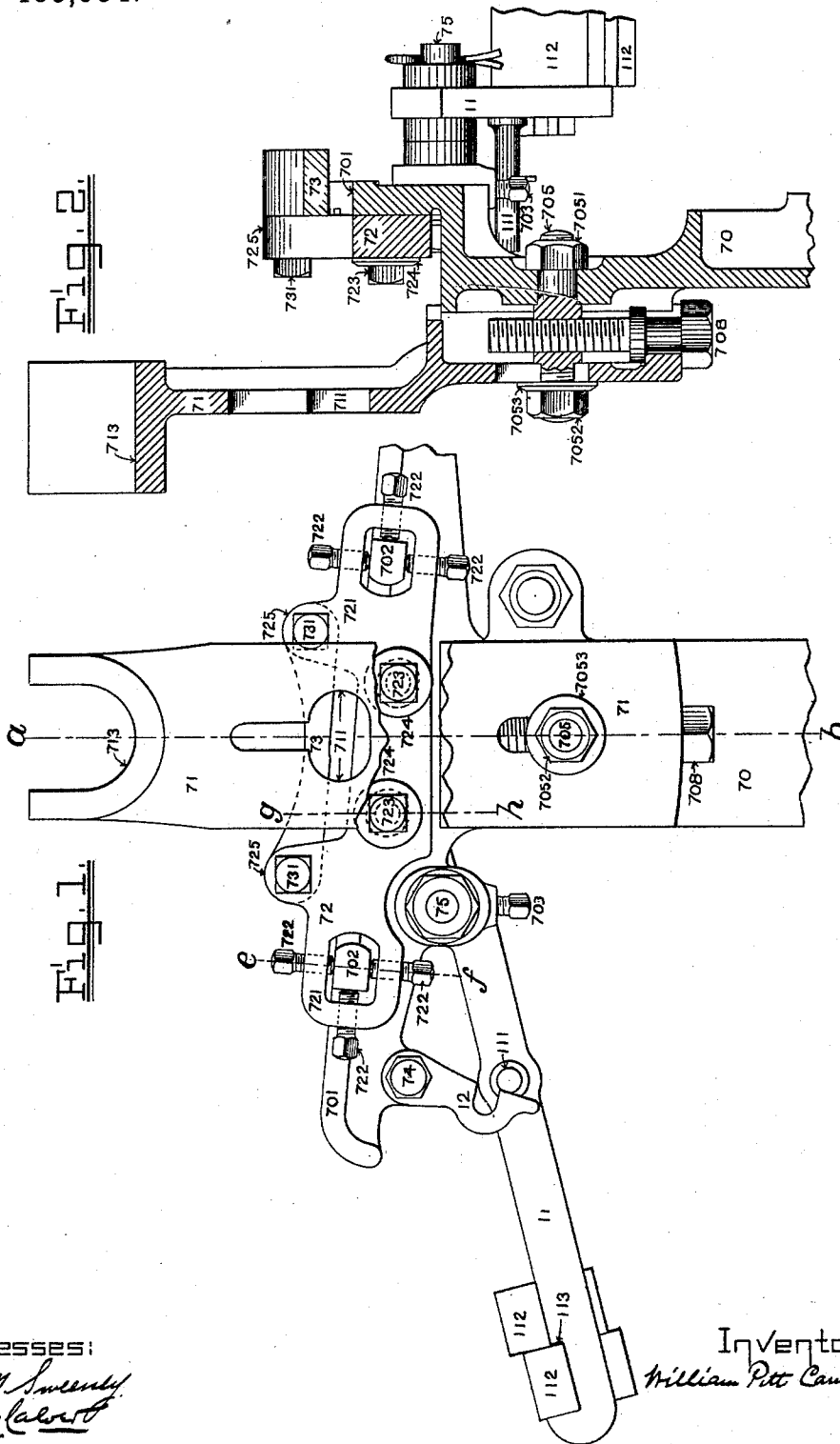
3 Sheets—Sheet 1.

W. P. CANNING.

GRINDING MECHANISM FOR THE FLATS OF TRAVELING FLAT
CARDING MACHINES.

No. 483,534.

Patented Oct. 4, 1892.



Witnesses:
C. M. Sweet
Henry Calvert

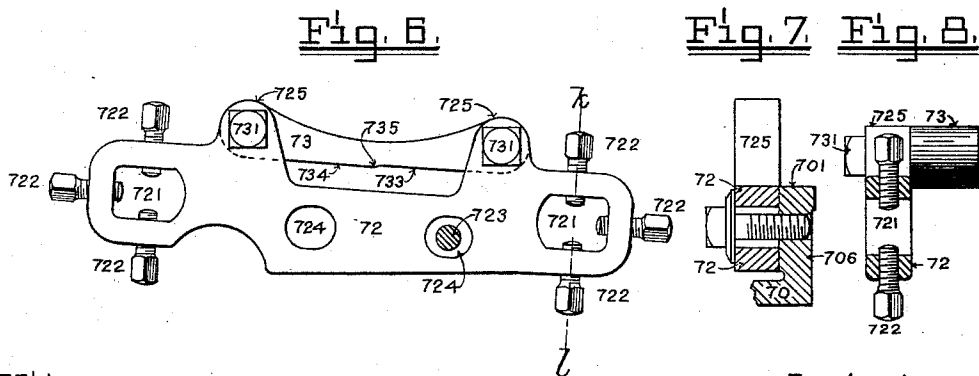
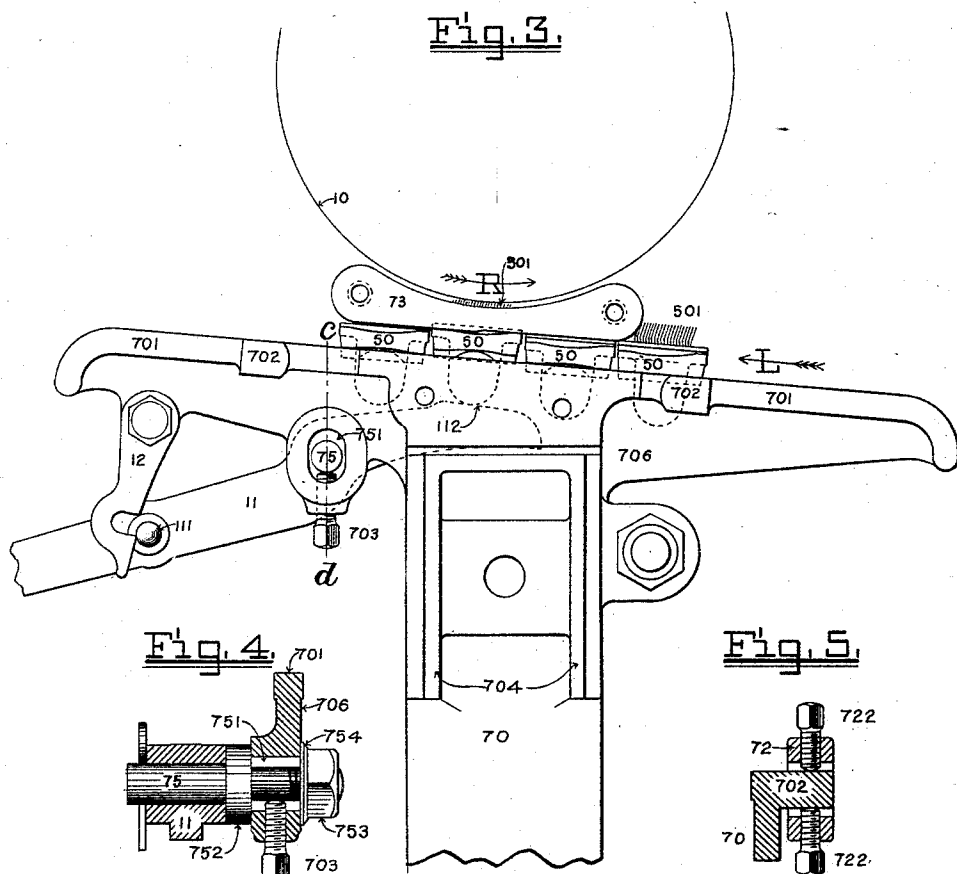
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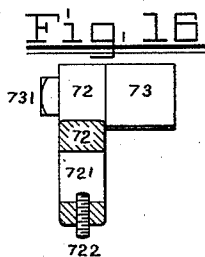
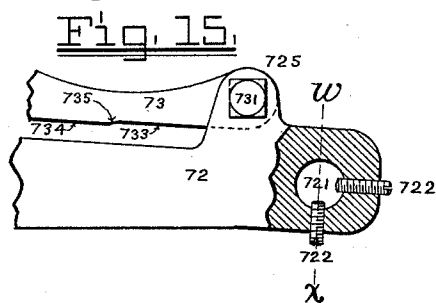
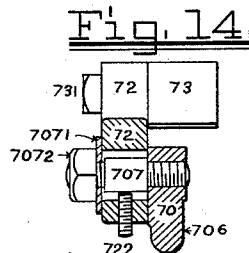
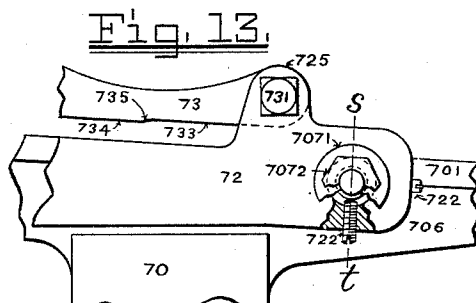
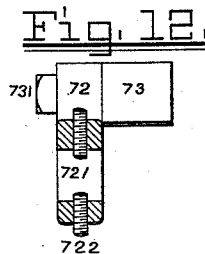
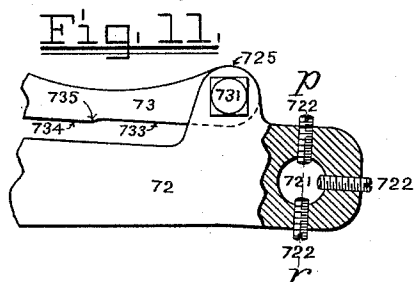
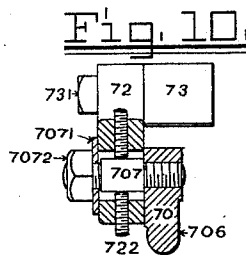
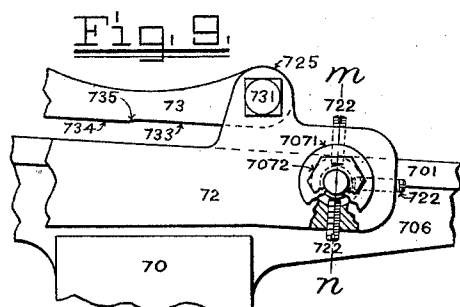
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GRINDING MECHANISM FOR THE FLATS OF TRAVELING FLAT
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No. 483,534.

Patented Oct. 4, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM PITT CANNING, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE
LOWELL MACHINE SHOP, OF SAME PLACE.

GRINDING MECHANISM FOR THE FLATS OF TRAVELING-FLAT CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 483,534, dated October 4, 1892.

Application filed April 29, 1892. Serial No. 431,112. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PITT CANNING, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Grinding Mechanism for the Flats of Traveling-Flat Carding-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the grinding mechanism which is employed in traveling-flat carding-engines for grinding the card-clothed surfaces of the traveling flats, and relates in particular to mechanism of the character of that which is shown and described in United States patent to Thomas Knowles and Roger Tatham, No. 464,029, dated December 1, 1891.

My invention consists, mainly, in an improved means for supporting the milled seat against which the working faces of the ends of the flats rest in turn while the card-clothed surfaces of the said flats are being ground and in an improved means for pivotally supporting the weighted lever which serves to bear or press the flats in succession against the under surface of the milled seat aforesaid.

My invention will first be described with reference to the accompanying drawings and then will be particularly pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a view in side elevation, with a part of the grinder-stand broken out to show parts behind the same, of sufficient of the grinding mechanism of a traveling-flat carding-engine to illustrate the character and relations of my invention, the said invention being represented as embodied in the devices which are shown in the said view. Fig. 2 is a view mainly in section on the line *a b* of Fig. 1. Fig. 3 is a view in side elevation of certain devices which are shown in Fig. 1, but with the grinder-stand and support for the milled seat removed, this view showing, also, part of the grinding-cylinder and part of the endless chain of traveling flats. Fig. 4 is a detail view of certain parts, showing the latter mainly in section on the line *c d* of Fig. 3. Fig. 5 is a detail view

mainly in section on the line *e f* of Fig. 1. Fig. 6 is a view in side elevation of the milled seat and its support. Fig. 7 is a detail view mainly in section on the line *g h* in Fig. 1. Figs. 8 to 16 are views in detail, hereinafter referred to, in part showing modifications.

In the drawings I have shown only the devices which are employed at one side of a carding-engine; but it will be understood that the devices represented in Figs. 1 and 2 will be duplicated, one set thereof being placed at each side of the carding-engine, as usual.

At 70 is represented the upper portion of a grinder-bracket. The said bracket in practice is suitably mounted in known and desired manner upon the framing of a carding-engine.

At 71 is represented the grinder-stand, which at its upper end is formed with a bearing 713 for one journal of the grinding-roll 10, the said roll being shown in part in Fig. 3. The outer face of the grinder-bracket is formed with slideways 704, (see Fig. 3,) to which are fitted corresponding portions on the grinder-stand, the said stand being held in place against the said bracket by clamp-screw 705 and its nut 7052 and washer 7053 and being adjusted lengthwise thereon by the adjusting-screw 708, all as usual.

At 73 is shown the milled seat, against the under face of which the working faces at the ends of the flats are successively pressed as the said ends of the flats come successively between the said under face and the upper surface of the forward arm of the presser-lever 11, the rear arm of this lever being provided with a weight 112, as heretofore. The said weight has heretofore been held to place on the lever by a clamping-screw passing through the side of the weight and bearing against the side of the lever. I prefer to dispense with the screw and to form the lever with a notch 113, in which the weight takes a seat, and thereby is prevented from being jarred out of place.

At 701 is an inclined surface forming a guide, along the top of which the backs of the ends of the flats slide as they approach and pass the grinding-roll. This guiding-surface is at the upper edge of a vertical web 706, forming part of the bracket 70, and is shown

located immediately beneath the outer lateral half of the milled seat 73, the weighted lever 11 being located at a point between the said guide 701 and the middle of the carding-engine, so as to cause its forward arm to support the flats at a point intermediate the middle of each flat and one end thereof.

At 12 is a hook or latch, which is pivoted on the stud 74, projecting from the web aforementioned forming part of bracket 70, and which may be engaged with a pin 111, carried by the rear arm of the lever 11, whenever it is desired to retain the said arm elevated and the forward arm depressed. As heretofore, the under face of the milled seat 73, along which the working faces of the flats travel, is formed with two different surfaces 733 and 734 and a connecting-incline 735 to secure the grinding of the working faces of the ends of the flats with the proper inclination. The upper surface of the said seat is formed, as shown, so as to permit of the unobstructed endwise traverse of the grinding-roll over the said upper surface to such an extent that the wires at the extreme ends of the flats shall be ground uniformly with those on other portions of the flats and as perfectly on the extreme ends of the flats as those on any other portions thereof.

The milled seat 73 is held to the bracket by means which will now be described. The said seat is fastened to the side of the seat-support 72 by clamping-screws 731 731, passing through holes in upwardly-extending lugs 725 725 of the seat-support and into the seat, and in turn the seat-support 72 is clamped to the vertical web 706 of the bracket 70 by clamp-screws 723 723, passing through holes 724 724 in the seat-support and into the said web. For bringing the milled seat into required position upon the grinder-bracket it is best and most convenient to provide for universal adjustment of the seat-support in a vertical plane upon the grinder-bracket to vary its position with relation to the grinder-roll. I therefore make the screws 723 723 smaller in diameter than the holes 724 724, so that when the screws have been loosened the seat-support 72 may be moved to a slight extent in any direction in a vertical plane upon the bracket. Owing to the extreme delicacy necessary in the case of the adjustments which must be made in order to insure the accurate and proper grinding of the flats, it is desirable that devices acting with positiveness and without play or backlash shall be employed in fixing the desired position of adjustment of the milled seat: Hence I employ the following provisions for setting and holding the seat-support in place: The seat-support is formed with openings 721 721 therein adjacent to its opposite ends, and when the said seat-support has been put in place upon the bracket these openings are entered by projections from the bracket.

In Figs. 1 and 5 I show projecting pieces

702 702 formed upon the web of the bracket. An equivalent of this construction would be to have the seat-support formed with the projections and the bracket with openings. The openings 721 721 are somewhat larger in each direction than the projections 702 702, so as to permit the seat-support to be moved on the vertical web to a slight extent in any direction in a vertical plane without obstruction from the said projections. Through holes in the seat-support 72 pass screws 722 722, the inner ends of which take against the sides of the projections 702 702. One of these screws bears against the outer side of one of the projections, and another screw placed opposite to the first bears against the other projection, these two screws forming a pair which is arranged in a horizontal position. By preference oppositely-placed vertical screws are employed, as shown in Figs. 1, 5, 6, and 8, which bear against the upper and lower sides of the projections, there being a pair of such screws to each projection. The object of this construction and of the described arrangement of parts is to make it convenient to adjust the milled seats at both sides of the carding-engine into their proper positions relative to each other and to other parts, so as that each flat when parallel to the axis of the main cylinder and being ground shall be acted upon by the grinding-roll at a line which is also parallel to the axis of the main cylinder. This action will be secured if when a straight line parallel to the axis of the main cylinder touches one of the milled seats at any position it will also touch in the position precisely corresponding to the milled seat upon the opposite side of the carding-engine. If desired, the projections 702 702 and the clamp-screws 723 723 may be dispensed with and the combined functions of the projections and clamp-screws may be performed by the studs 707 707, with their nuts 7072 7072 and their washers 7071 7071, as is shown in Figs. 9 to 16. The plain portions of the studs 707 707 replace the projections 702 702, and the studs 707 707, with their nuts 7072 7072 and their washers 7071 7071, replace the clamp-screws 723 723. The holes 721 721 are made larger than the plain portions of the studs 707 707 for purposes of adjustment. In some cases I may dispense with the uppermost vertical screws and depend upon force closure applied through the presser-lever 11 and the flat to take their place, and thereby leave the arrangement of screws 722 722 as shown in Figs. 13 to 16; but I prefer not to dispense with the uppermost vertical screws. In securing the proper relative position of the milled seats upon the opposite sides of the carding-engine the grinder-bracket on one side of the carding-engine first is placed with great but not with absolute precision opposite to the grinder-bracket upon the opposite side of the carding-engine and is adjusted to correspond with it in height by de-

vices comprising slideways, adjusting-screws, and clamp-screws, all such as ordinarily are used for the purpose of adjusting brackets upon the sides of carding-engines. The grinder-brackets are thus found to be opposite to each other, although not with absolute precision. Now upon loosening the screws 723 and turning the screws 722 as may be required and in the necessary directions the milled seats may be located with great exactness and close precision just where it is desired to have them. The work of adjusting the parts into proper place is facilitated by forming the stand 71 with a sight-hole 711 through the same of sufficient dimensions to extend above and below the milled seat. The middle portion of the seat-support is shaped, as shown, so as not to obstruct the view through the sight-hole. It is much easier for the machinist to adjust the milled seat into proper position when he is able to look through the sight-hole 711 while performing his work of adjustment than it would be in the absence of such a sight-hole. It is important that the lever 11 shall be set at the proper elevation relatively to the milled seat, and therefore I make provisions for varying the position vertically of the pivot on which such lever is hung. The stud 75, serving as a pivot for such lever, passes through a slot 751 in the web 706 and is provided on one side thereof with a collar 752 and on the other with a nut 753 and washer 754, by which it may be clamped in any desired position of vertical adjustment. The position vertically of the said stud is determined by an adjusting-screw 703 passing up from underneath through a threaded hole in a hub cast upon the web 706 and adapted to bear by its point against the stud 75. The said adjusting-screw is adjusted to the proper position to sustain the weight carried by the stud 75 and to bring the milled face 112 of the lever 11 into the desired position with reference to the backs of the flats 50 50 50 50, and the clamp-nut 753 and washer 754 keep the stud in place after the adjustment has been made. The lever 11 turns freely upon that plain portion of the stud which is farthest from the nut 753. The weighted presser-lever 11 is ordinarily so heavy that I may depend upon force closure to press the stud 75 down upon the adjusting-screw 703 whenever the clamp-nut 753 has been backed off for purposes of adjustment; but if a very light-weighted lever should be used in any case I could substitute for the force closure a vertical adjusting-screw acting opposite to the screw 703.

I do not claim specifically herein the modifications which are represented in Figs. 9 to 16, inclusive, of the drawings and which have been described hereinbefore, the said modifications embodying, substantially, the combination, with the grinder-bracket adjacent to the grinder-roll, of studs projecting from the said bracket, having threaded outer ends, the milled seat with its surfaces against which

the working faces of the ends of the flats bear successively during the grinding operation, the seat-support having holes through which the said studs project and which holes are larger in every direction than the studs to permit of universal adjustment of the seat-support upon the bracket, nuts on the outer threaded ends of the said studs, whereby the seat-support may be held clamped to the bracket in the desired position of adjustment, and devices, as screws, acting against said studs, whereby the desired position of the seat-support and milled seat may be fixed. I have made the said modifications the subject of claim in my application for Letters Patent filed June 3, 1892, Serial No. 435,417.

I claim as my invention—

1. The combination, with the grinder-roll, the grinder-bracket, and the milled seat for guiding the flats as they pass adjacent to the grinder-roller, of the seat-support held to the said bracket and adjustable thereon universally in a vertical plane and setting devices whereby to provide for fixing the seat-support accurately in the desired position of adjustment upon the bracket, substantially as and for the purposes set forth.

2. The combination, with the grinder-roll, the grinder-bracket, and the milled seat for guiding the flats as they pass adjacent to the grinder-roll, of the seat-support held to the said bracket and having openings receiving loosely therein projections from the bracket and horizontal and vertical setting-screws acting against the said projections to provide for fixing the seat-support accurately in the desired position of universal adjustment in a vertical plane upon the bracket, substantially as described, and for the purposes set forth.

3. The combination, with the grinder-roll, the grinder-bracket, and the milled seat for guiding the flats as they pass adjacent to the grinder-roll, of the seat-support having openings receiving loosely therein projections from the bracket and holes for the passage of screws for holding the seat-support to the bracket, screws passing through said holes, and horizontal and vertical setting-screws acting against the said projections to provide for determining the universal adjustment of the seat-support in a vertical plane upon the bracket, substantially as and for the purposes set forth.

4. The combination, with the grinder-roll, the grinder-bracket, and the milled seat for guiding the flats as they pass adjacent to the grinder-roll, of the seat-support held to the said bracket, setting devices whereby to provide for fixing the seat-support accurately in the desired position of universal adjustment upon the bracket in a vertical plane to vary its position with relation to the grinder-roll, and the grinder-stand having formed therein the sight-hole, all substantially as and for the purposes set forth.

5. The combination, with the grinder-roll,

the milled seat, and means for accurately setting the said seat into the desired position of adjustment, of the weighted presser-lever, its pivotal stud, and devices for accurately setting and holding the said stud in the desired position of adjustment, substantially as described, and for the purposes set forth.

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

WILLIAM PITT CANNING.

Witnesses:

CHAS. F. RANDALL,
HENRY CALVER.