

Air Blast  
to clean work

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No. 817,795.

W. McKEE PATENTED APR. 17, 1906.

W. McKEE.

Apr. 17, 1906

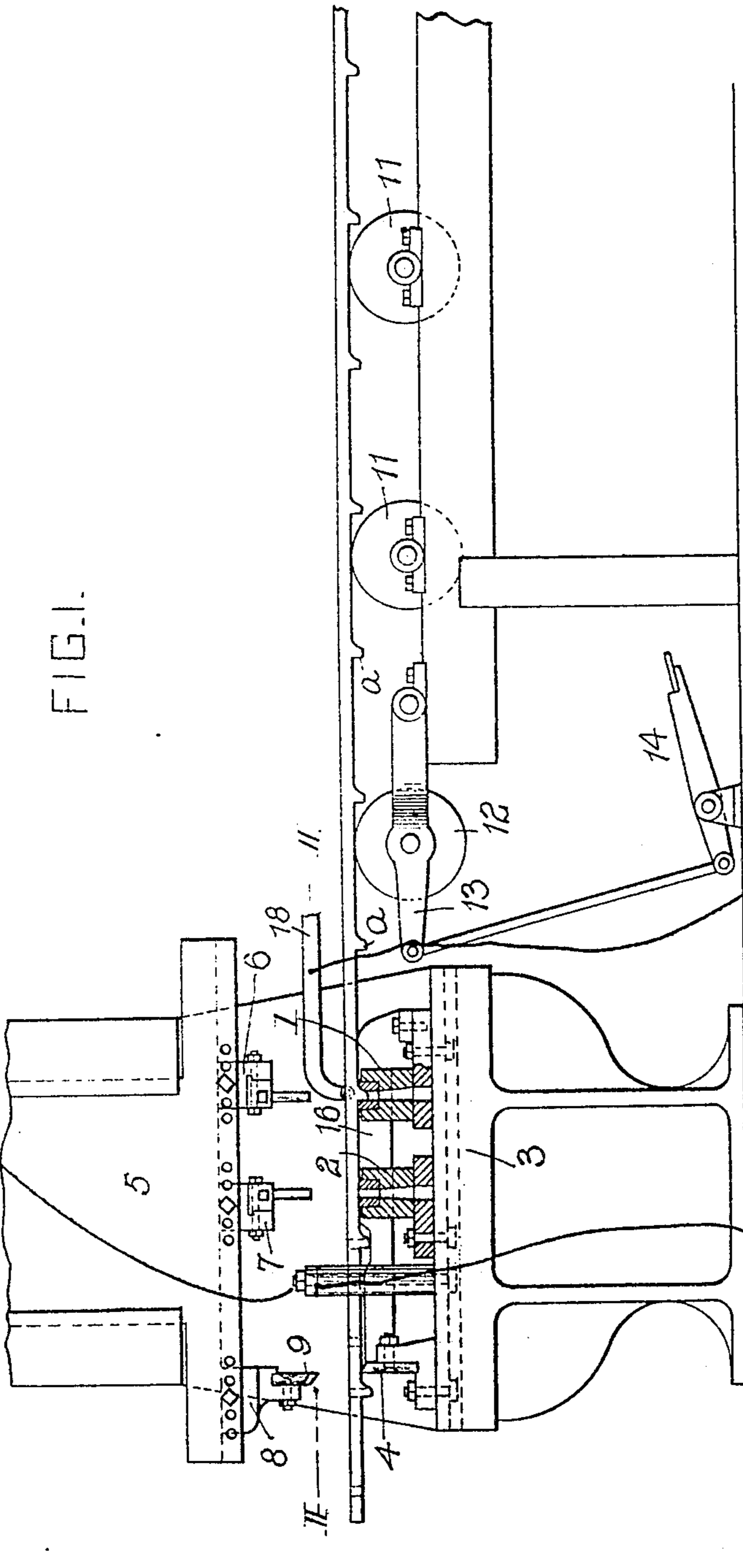
817,795

MACHINE FOR MANUFACTURING TIE PLATES.

APPLICATION FILED JAN. 7, 1905. RENEWED FEB. 24, 1906.

2 SHEETS-SHEET 1.

FIG. 1.



Air Blast  
(to clean  
the work-  
piece)

Stripper  
(Sized)

WITNESSES:

Herbert Bradley

Charles Barnard

VENTOR

Willis McKee,  
by Christy & Christie, Atty's

See  
McKee  
863,204  
(164-157)

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2 SHEETS—SHEET 2.

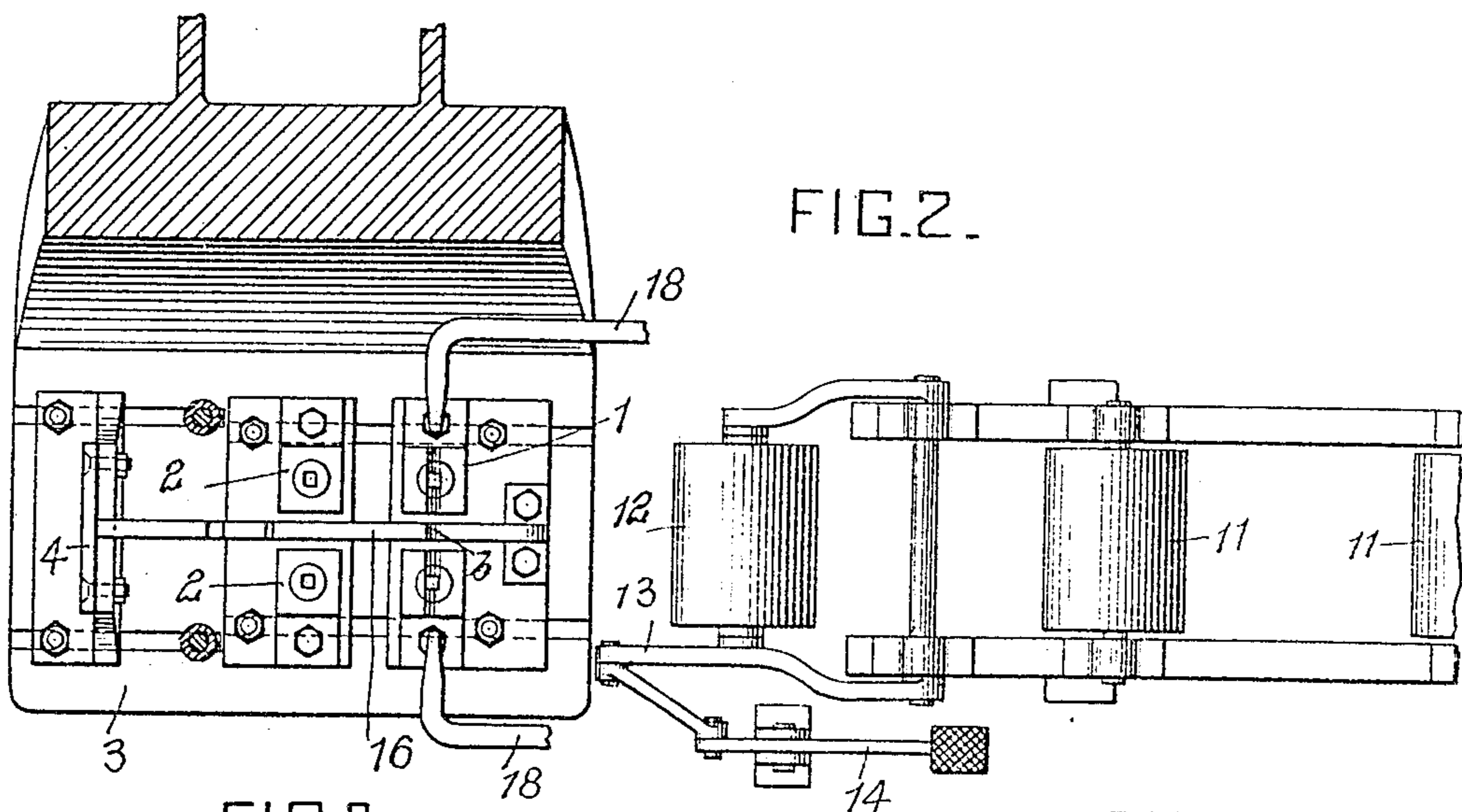
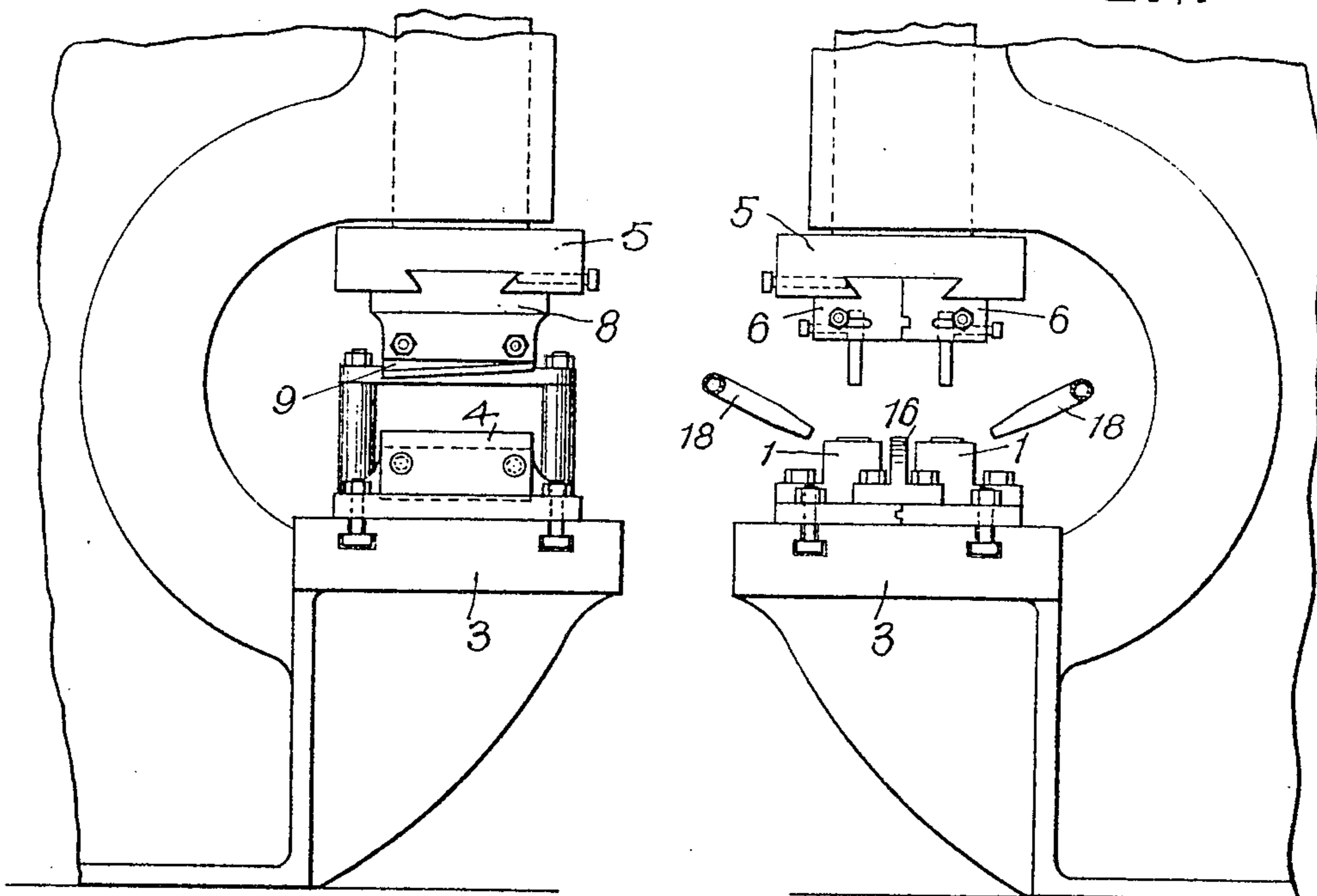


FIG. 2.

FIG. 3.

FIG. 4.



WITNESSES:

Herbert Bradley.  
Charles Barnard.

INVENTOR

Willis McKee,  
by Christy & Christy, Attys

# UNITED STATES PATENT OFFICE.

WILLIS McKEE, OF ELYRIA, OHIO.

## MACHINE FOR MANUFACTURING TIE-PLATES.

No. 817,795.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed January 7, 1905. Renewed February 24, 1906. Serial No. 302,769.

*To all whom it may concern:*

Be it known that I, WILLIS McKEE, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented or discovered a certain new and useful Improvement in Machines for Manufacturing Tie-Plates, &c., of which improvement the following is a specification.

The invention described herein relates to certain improvements in the manufacture of tie-plates for railways.

The preferred tie-plates are constructed with ribs or flanges on their upper sides parallel with the direction of the rail resting thereon and on the under side with ribs or flanges at right angles to the direction of the rail. These tie-plates are preferably formed by rolling in continuous lengths, having the ribs formed thereon in the rolling operation, as described and claimed in application filed January 13, 1905, Serial No. 240,964, and to complete the tie-plates it is necessary to punch holes therein for the passage of the spikes and also to divide the continuous plate into sections. As it is practically impossible in the rolling operation to so conduct the reduction of the plate that the distance between the transverse ribs shall be always the same, on account of the difference of elongation in different parts of the plates, and, further, it is necessary that the holes punched in the plates should have a certain fixed or definite position with relation to the transverse ribs, it is impossible in shearing and punching the plates to employ a stop which shall abut against the end of the strip.

It is the object of the present invention to provide in such a shearing mechanism a stop which shall engage the rib with relation to which the holes must be punched.

It is a further object of the machine to provide improvements for feeding the continuous strip to the shearing and punching mechanism and to relieve the strip or plate from the dies, so that it may be fed along after each shearing and punching operation.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of my improved shearing and punching mechanism, the female dies being shown in section. Fig. 2 is a sectional plan view, the plane of section being indicated by the line II II, Fig. 1. Figs. 3 and 4 are end elevations, respectively, of opposite

ends of the shearing and punching mechanism.

In the practice of my invention the punching-dies 1 and 2 are adjustably secured on the bed 3 of a suitable power-press, the dies being arranged in accordance with the positions desired for the holes in the finished tie-plate. It will be understood that two, three, or four dies may be used and that when four holes are to be punched the dies are arranged in pairs, as shown. These dies are provided with longitudinal holes there-through for the passage of the material removed from the plates. As in the shearing operation the flanges *a* on the other side of the plates are arranged to project downwardly, so that such flanges will not be mutilated in the shearing operation, provision is made for the reception of these flanges in the tops of the dies 1 by means of grooves formed in the upper ends of the dies. The dies 2 are made with flat tops, as shown. In the rear of the punching-dies and at a distance from the punching die or dies a little greater than the length of the tie-plate is arranged a stationary shear-blade 4, preferably secured with capability of adjustment on the bed 3 of the machine.

To the movable head 5 of the press are adjustably secured two, three, or four blocks 6 and 7, each provided with means for holding a punch. These blocks are so adjusted that the punches will be in line with the vertical passages of the several dies 1 and 2. To the head 5 is also secured with a capability of adjustment a block 8, carrying a shear-blade 9. While not necessary, it is preferred to arrange a feed-table in front of the machine having rollers 11, which may be positively driven to feed a continuous strip to the machine. In order to lift the plate so that the rib *a* thereon will clear the groove in the dies 1, a roller 12 is mounted upon an arm 13, pivotally secured to the feed-table and having its free end connected to a treadle 14. By depressing this treadle the strip is lifted so that the ribs *a* will clear the dies and the strip can be fed forward.

As the holes to be punched must have a certain predetermined relation to the transverse ribs *a*, I provide a stop which shall engage these ribs and arrest the forward movement of the strip. In the construction shown this stop consists of a plate 16, extending rearwardly from a point adjacent to front die or dies and having notches or recesses

therein for the reception of the transverse ribs *a*. The determining notch or recess *b* is formed in line with the grooves in the upper ends of the dies 1, as shown in Fig. 1, or if the holes are to be at one side of the transverse rib the positions of the dies relative to the notch in the stop-plate will be correspondingly shifted. It will be readily understood by those skilled in the art that when holes are to be punched through the rib *a* or in such proximity thereto as to require grooves in the ends of the dies that such grooves or notches may serve as stops. In the construction shown the plate 16 is fixed as regards the dies 1; but the dies 2 are movable with reference to the notch in said plate.

It will be observed that in my improved machine the punching of the holes in one plate and the shearing off of the previously-punched plate are simultaneously effected, so that at each movement of the movable head of the press a plate is formed. As scale or other material may lodge in the notches or grooves in the dies 1 and the stop-plate it is preferred to arrange a blast-nozzle 18 in such relation thereto that each time the plate is lifted a blast of air will blow transverse these notches and remove any foreign material.

I claim herein as my invention—

1. In a machine for manufacturing tie-plates, &c., the combination of stationary dies, vertically-movable punches and a stop arranged to permit the passage of the body of the article but adapted to engage a projecting portion of the article to be punched, substantially as set forth.

2. In a machine for manufacturing tie-plates, &c., the combination of stationary dies, a stationary shear-blade, movable punches and shear-blade and a stop arranged to permit the passage of the body of the article but adapted to engage a projecting por-

tion of the article operated on, substantially as set forth.

3. In a machine for manufacturing tie-plates, &c., the combination of adjustably-mounted punching-dies, an adjustable shear-blade, a movable head, punches and a shear-blade adjustably mounted in the head, and a stop arranged to engage a projecting portion of the article operated on, substantially as set forth.

4. In a machine for manufacturing tie-plates, &c., the combination of punching-dies, a stop arranged to engage a projecting portion of the article operated on, dies adjustable with reference to said stop, a movable head, punches carried by said head, one or more of said punches being adjustable and a stop arranged intermediate of the dies adapted to engage a projecting portion of the article operated on, substantially as set forth.

5. In a machine for manufacturing tie-plates, &c., the combination of dies, a movable head, punches carried by said head, a plate provided with a stop-shoulder adapted to engage a projection on the under side of the article to be punched, and means for raising said article clear of the stop, substantially as set forth.

6. In a machine for manufacturing ribbed tie-plates, &c., the combination of vertically-movable punches and stationary dies provided in their upper faces with grooves for the reception of the ribs on the plates whereby a firm bearing for the plate on the dies is provided, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIS McKEE.

Witnesses:

FRANK H. PHILLIPS,  
ROBT. M. HUBLER.