C. F. SISSON.

DEVICE OR MACHINE FOR INSERTING FILLER BARS IN BEATER ROLLS.

APPLICATION FILED NOV. 24, 1917.

1,278,045.

Patented Sept. 3, 1918.

2 SHEETS—SHEET 1.

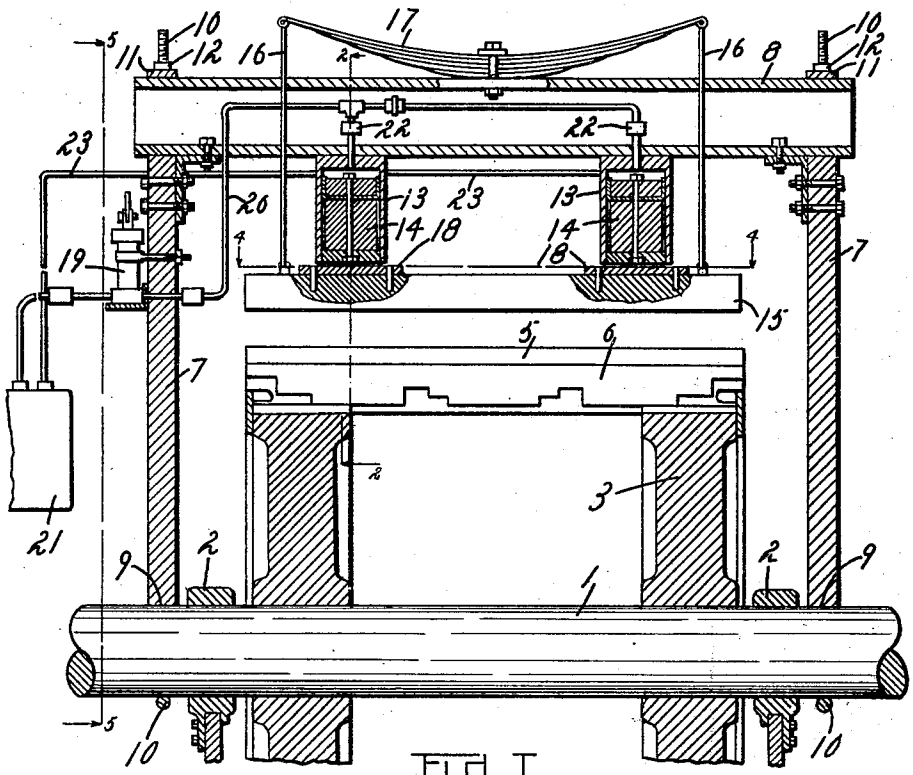


FIG. I.

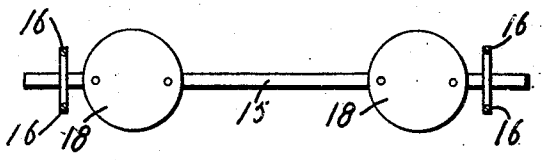


FIG. IV.

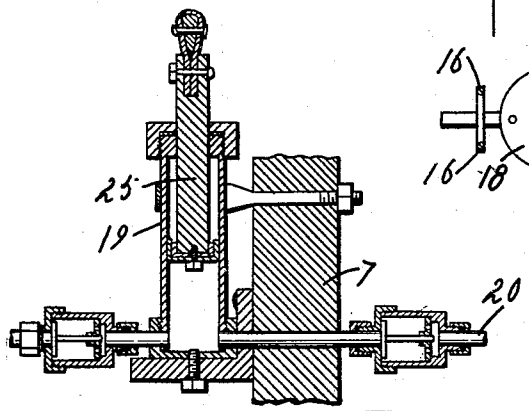


FIG. VI.

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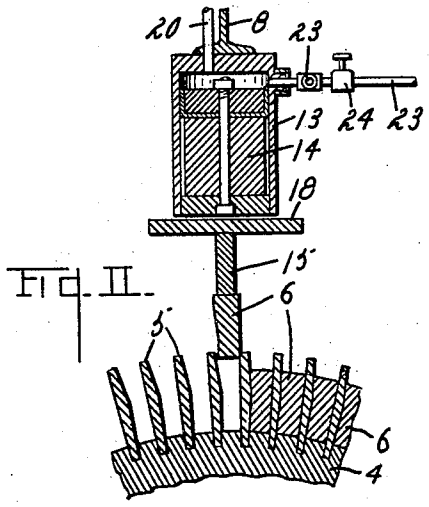


FIG. II.

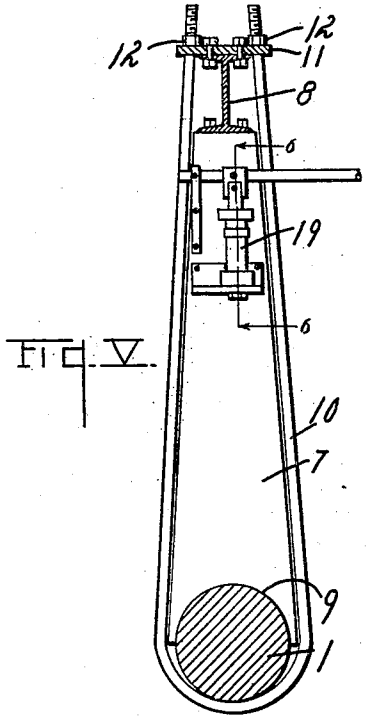


FIG. V.

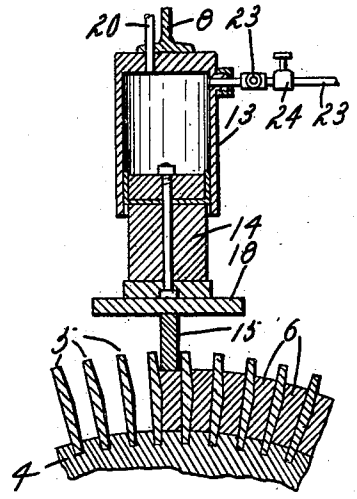


FIG. III.

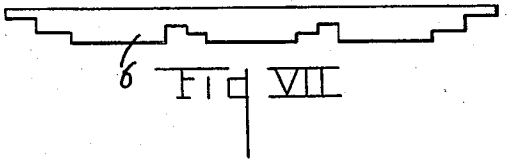


FIG. VII.

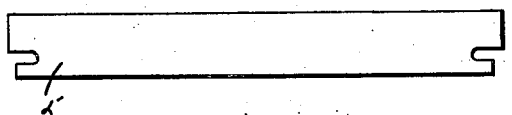


FIG. VIII.

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UNITED STATES PATENT OFFICE.

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DEVICE OR MACHINE FOR INSERTING FILLER-BARS IN BEATER-ROLLS.

1,278,045. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed November 24, 1917. Serial No. 203,868.

To all whom it may concern:

Be it known that I, CLEMENT F. SISSON, a citizen of the United States, residing at White Pigeon, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Devices or Machines for Inserting Filler-Bars in Beater-Rolls, of which the following is a specification.

This invention relates to a device or machine for inserting filler bars in beater rolls.

It has been the common practice to insert the wooden filler bars in beater rolls by driving them in with sledges. This requires a good deal of time and effort and frequently results in the splitting or breaking of bars and quite commonly in the crushing of the grain of the bars hammered upon.

The main objects of this invention are:

First, to provide a device for inserting filler bars into a beater roll by the aid of which the work may be quickly and easily performed and without injury to the filler bars, and also without liability of breaking the filler bars or the beater roll.

Second, to provide a device for this purpose which comprises a hydraulic press adapted to be mounted on the shaft of a beater roll so that the filler bars may be gradually forced to position in the roll.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Figure I is a detail longitudinal section through a beater roll with my improved device mounted thereon, the beater roll being shown mainly in conventional form.

Fig. II is a detail transverse section on a line corresponding to line 2—2 of Fig. I.

Fig. III is a detail transverse section similar to Fig. II, with the parts in actuated position.

Fig. IV is a detail horizontal section on a line corresponding to line 4—4 of Fig. I.

Fig. V is a vertical transverse section on a line corresponding to line 5—5 of Fig. V.

Fig. VI is an enlarged detail section on a line corresponding to line 6—6 of Fig. V.

Fig. VII is a side elevation of one of the filler bars as they are commonly constructed.

Fig. VIII is a side elevation of one of the beater bars.

In the drawing, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

1 represents the shaft of the beater roll supported by bearings 2. The beater roll is shown mainly in conventional form and only such parts are illustrated as are deemed necessary to illustrate my improvements. The beater roll, designated generally by the numeral 3, comprises spiders 4 carrying the iron beater bars 5 between which the filler bars are inserted. The opposed sides of the bars 5 are shaped so as to retain the filler bars when inserted. This shape makes it necessary to exert considerable force on the filler bars in inserting them and it is this condition which frequently causes the injury or destruction of the filler bars when driven to place by means of sledges, besides the large amount of labor required.

I provide a yoke-shaped frame comprising side members 7 and cross member 8. The cross member is preferably an I-beam as shown in Fig. V. The frame is of such dimensions that it is adapted to embrace the beater roll, with the side members 7 resting upon the beater roll shaft at each side of the beater roll, as shown in Fig. I. The ends of the arms have seats 9 therein for the shafts. The U-shaped tie-rods 10 are adapted to embrace the shaft and their ends are disposed through cross pieces 11 mounted on the cross member 8 to receive them. The tie-rods are detachably secured by means of the nuts 12 threaded upon the ends thereof. Cylinders 13 are mounted upon the cross member 8 of the frame so that when the frame is mounted upon the shaft of a beater roll the cylinders are supported radially of the beater roll. The cylinders are open at their inner ends so that the pistons or plungers 14 may be projected therefrom,

as shown in Fig. III. The presser bar 15 is supported to reciprocate radially of the shaft 1 by means of the rods 16 which are arranged through the cross member 8 and connected at their outer ends to the ends of the semi-elliptic springs 17 mounted on the cross member. This spring yields when the pistons are actuated but is of sufficient tension to retract the presser bar and also return the pistons to their initial position. The presser bar is of such width as to pass between the beater bars 5 so that the inserts may be fully seated, see Fig. III. The presser bar has plates 18 secured thereto in alinement with the pistons.

The fluid may be supplied to the pistons under pressure by any suitable means but I find a satisfactory means to be a force pump designated generally by the numeral 19 which is mounted on one of the side members 7 of the frame and connected by the pipe 20 with the outer ends of the cylinders so that a suitable fluid, such as oil, may be drawn from the storage tank 21 and forced into the cylinders. Suitable check valves 22 are provided in the pump connections to the cylinders. I also provide a return pipe 23 which is connected with the storage tank 21 and with the outer ends of the cylinders. This pipe is controlled by the valve 24 which is closed when it is desired to actuate the pistons but which is opened to relieve the pressure and allow the spring 17 to return the presser bar and pistons to their normal position.

In operation the frame is mounted upon the shaft of a beater roll as shown in Fig. I. The filler bar is positioned as shown in Fig. II, the valve 29 of the pump is operated to force the fluid into the cylinders thereby forcing the pistons downwardly and with them the presser bar. When the filler bar is forced to position the valve 24 is opened, thereby releasing the pressure and permitting the spring 17 to return the presser bar and the pistons, displacing the fluid from the cylinders through the pipe connections 23. The beater roll is then rotated to bring another filler bar space to position and the operation repeated.

I have illustrated and described my improvements in the form in which I have embodied the same in practice. I have not attempted to describe various modifications and adaptations which I contemplate within the scope of the appended claims as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as operating and other conditions may render desirable.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device for inserting filler bars into a beater roll comprising a yoke-like frame adapted to be mounted on a beater roll shaft to embrace the roll, cylinders mounted on the cross member of said frame so that they are supported radially of the shaft on which the frame is mounted, pistons, a presser bar actuated by said pistons, a semi-elliptic spring mounted on the cross member of said frame, supporting rods slidably disposed through the cross member of said frame and connected to the end of said spring, means for supplying fluid under pressure to said cylinders for actuating said presser bar, and means for releasing the fluid so that the presser bar and pistons are retracted by said spring.

2. A device for inserting filler bars into a beater roll comprising a yoke-like frame adapted to be mounted on a beater roll shaft to embrace the roll, cylinders mounted on the cross member of said frame so that they are supported radially of the shaft on which the frame is mounted, pistons, a presser bar actuated by said pistons, supporting rods slidably disposed through the cross member of said frame, and means for supplying fluid under pressure to said cylinders for actuating said presser bar.

3. A device for inserting filler bars into a beater roll comprising a yoke-like frame adapted to be mounted on a beater roll shaft to embrace the roll, a cylinder mounted on the cross member of said frame so that it is supported radially of the shaft on which the frame is mounted, a piston, a presser bar actuated by said piston mounted to reciprocate radially of such shaft, a spring for returning said presser bar, means for supplying fluid under pressure to said cylinder for actuating said presser bar, and means for releasing the fluid so that the presser bar and pistons are retracted by said spring.

4. A device for inserting filler bars into a beater roll comprising a yoke-like frame adapted to be mounted on a beater roll shaft to embrace the roll, a cylinder mounted on the cross member of said frame so that it is supported radially of the shaft on which the frame is mounted, a piston, a presser bar actuated by said piston mounted to reciprocate radially of such shaft, and means for supplying fluid under pressure to said cylinder for actuating said presser bar.

5. A device for inserting filler bars into a beater roll comprising a yoke-shaped frame adapted to be mounted on a beater roll shaft to embrace the roll, U-shaped tie rods embracing the shaft and the frame side members and detachably secured at their outer ends to the cross member of said frame, and means mounted on said frame for forcing the filler bars into the beater roll.

6. A device for inserting filler bars into a beater roll comprising a yoke-shaped frame

adapted to be mounted on a beater roll shaft to embrace the roll, tie-rods embracing the shaft and detachably secured to said frame, and means mounted on said frame for forcing the filler bars into the beater roll.

7. A device for inserting filler bars into a beater roll comprising a frame adapted to be mounted on a beater roll shaft, a presser bar mounted on said frame for reciprocatory movement radially of the shaft on which the frame is mounted, and a cylinder and piston for actuating said presser bar.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

CLEMENT F. SISSON. [L. S.]

Witnesses:
SANFORD M. CLYMER,
CLARE M. SISSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."