

Dec. 2, 1930.

C. J. KLEIN

1,783,797

MATERIAL HANDLING DEVICE

Filed Oct. 24, 1929

2 Sheets-Sheet 1

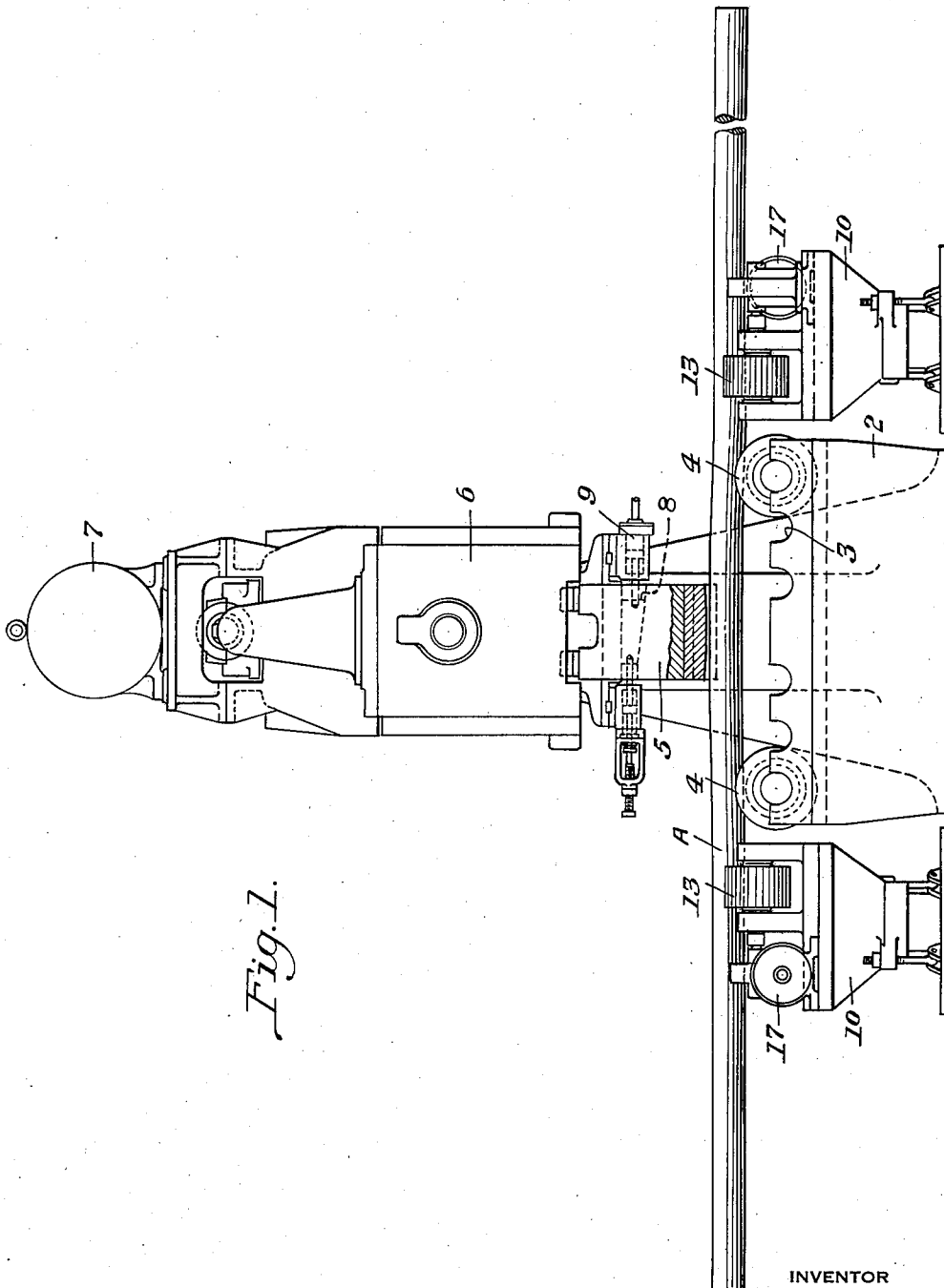


Fig. 1.

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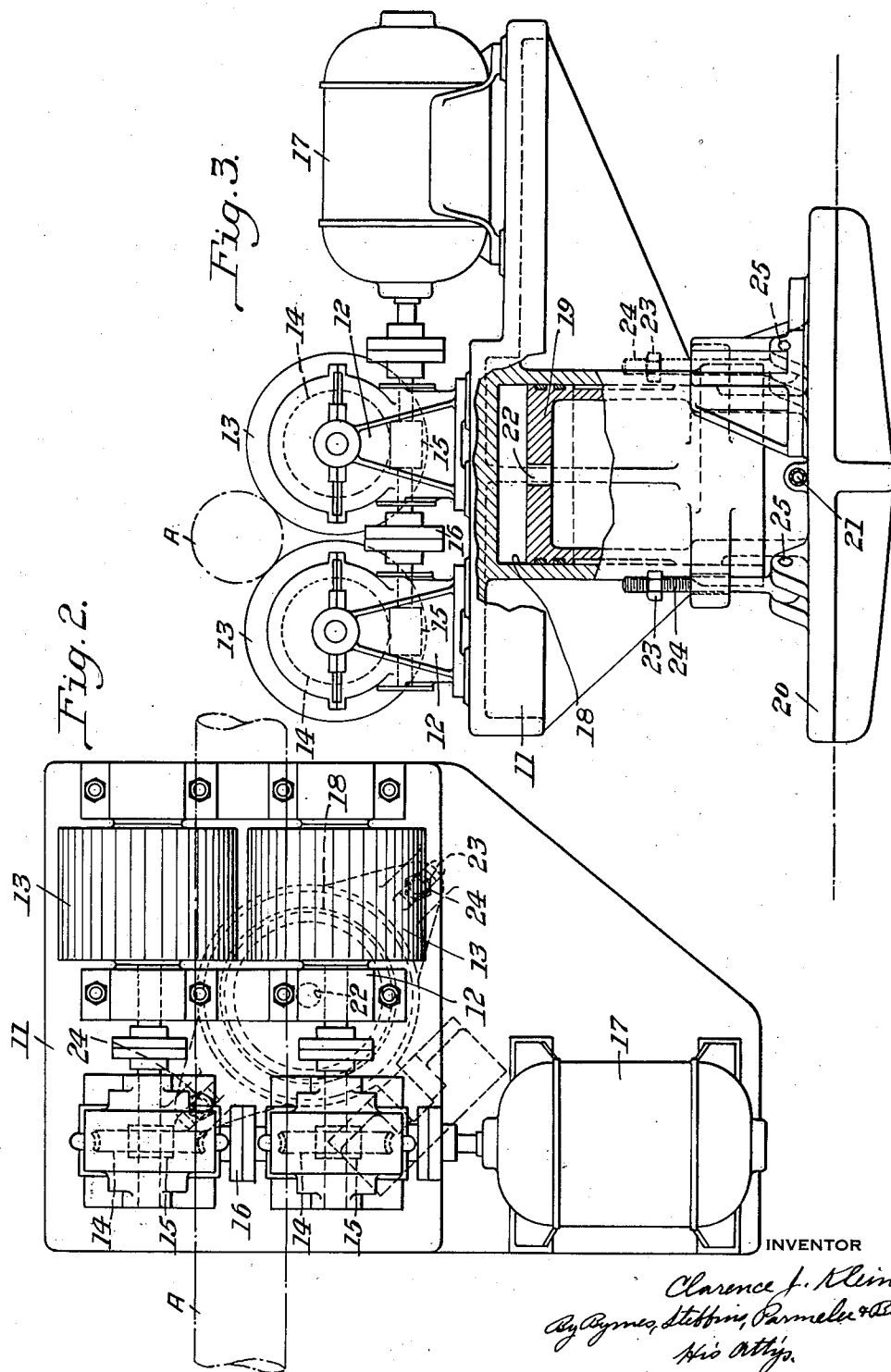
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2 Sheets-Sheet 2



INVENTOR

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UNITED STATES PATENT OFFICE

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MATERIAL-HANDLING DEVICE

Application filed October 24, 1929. Serial No. 402,132.

This invention relates to material handling devices and particularly to a device for use in connection with a straightening machine.

Machines for the straightening of bars, tubes or the like have taken various forms. In one type the article to be straightened is supported at spaced points and a straightening force is applied to a side thereof between the spaced supports. Usually pressure must be applied several times, the article being rotated so as to make certain that the straightening force is applied in the proper plane. Where the article is of large size as, for example, in the case of a large diameter tube or bar, it is difficult and slow to turn the article with hand wrenches or the like. I provide mechanically operated means for turning the article, such means preferably consisting of driven rollers. I also prefer that the turning means be yieldingly mounted so that when the article flexes under the straightening pressure, the turning means will not interfere with the operation.

The turning device may, for example, be mounted on a fluid cylinder which serves to raise it to the operating position which permits of it being lowered when desired. Stop means are provided for limiting the movement, such stops being preferably adjustable.

In the accompanying drawings illustrating the present preferred embodiment of the invention as applied to a machine for the straightening of pipes or round bars,

Figure 1 is a front elevation of the straightening machine with the turning device at either side thereof;

Figure 2 is a top plan view of one of the turning devices; and

Figure 3 is a side elevation thereof partly broken away.

The straightening machine shown in Figure 1 comprises a bed 2 having notches 3 to receive the rollers 4. The round article A to be straightened lies on the rollers 4 and is engaged by a straightening head 5 under the control of the operator. The head 5 is carried by a reciprocable ram 6 operated by a motor 7. A backing wedge 8,

whose position is controlled by fluid cylinders 9 determines the lowermost position of the straightening head 5. In operation the article to be straightened is engaged by the straightening head so as to flex it and then the article is turned so as to present it in the proper plane to the head 5 for another straightening stroke.

This turning is effected by means of turning devices indicated generally by the reference character 10 and located one at either side of the bed 2. One of such devices is illustrated in detail in Figures 2 and 3. It comprises a frame 11 having brackets 12 thereon in which are journaled rollers 13. Each roller 13 is provided with a worm wheel 14 meshing with a worm 15. The worms 15 are connected through couplings 16 to one another and to a motor 17 whereby the rollers 13 may be rotated in either direction as desired.

The frame 11 is bored as indicated at 18 to form a cylinder which fits over a piston 19 formed on a base 20. Air is supplied inside the piston 19 through a supply pipe 21 and passes upwardly into the cylinder through an opening 22. The air pressure is sufficient to urge the frame 11 with the motor and rollers carried thereon upwardly. This upward movement is limited by stops in the form of nuts 23 carried by bolts 24, which bolts are connected to the base 20 by pins 25 extending through lugs in the base. The nuts 23 may be adjusted so as to check the upward movement at different points above the floor level. This is of particular value when articles of different sizes are to be handled.

If those portions of the article A extending beyond the rollers 4 tend to flex downwardly during the straightening operation, the rotating devices are free to move downwardly because of their yielding mounting. If desired, air pressure supplied through the pipe 21 may be cut off so as to permit the turning device to lower. Ordinarily, however, this will not be necessary. After straightening pressure has been applied the motors 17 are energized so as to rotate the

article into position for the application of another straightening force.

The device readily accommodates itself to the handling of articles of different sizes, the only adjustment necessary being the adjustment of the nuts 23. It will be noted that the cylinder 18 is so located that the center of gravity of the frame 11 with the mechanism carried thereon lies generally in the axis of the cylinder.

I have illustrated and described a present preferred embodiment of the invention. It will be understood, however, that it is not limited to the forms shown but may be otherwise embodied within the scope of the following claims.

I claim:—

1. In combination with a straightening machine, effective for applying a force on the side of an article to be straightened, means for turning the article, said turning means being yieldably mounted.

2. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article and fluid actuated means for urging the turning means to a desired position.

3. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article, fluid actuated means for urging the turning means to a desired position and a stop for the fluid actuated means.

4. In combination with a straightening machine, effective for applying a force on the side of an article to be straightened, rolls for turning the article and driving means therefor, the rolls and their driving means being yieldably mounted.

5. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article, and means for yieldably urging the turning means to a desired position and a stop for limiting the action of such means.

6. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article, and means for yieldably urging the turning means to a desired position and a stop for limiting the action of such means, the stop being adjustable.

7. A turning device comprising a frame, a cylinder and piston mounting therefor whereby the frame may be moved by the application of fluid pressure, supporting rolls on the frame, and means mounted on the frame for rotating at least one of the rolls.

In testimony whereof I have hereunto set my hand.

CLARENCE J. KLEIN.

DISCLAIMER

1,783,797.—*Clarence J. Klein*, Bellevue, Pa. MATERIAL HANDLING DEVICE. Patent dated December 2, 1930. Disclaimer filed July 24, 1931, by the assignee, *United Engineering & Foundry Company*.

Hereby enters this disclaimer to that part of the claims in said specification which is in the following words, to wit:

"1. In combination with a straightening machine, effective for applying a force on the side of an article to be straightened, means for turning the article, said turning means being yieldably mounted."

"5. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article, and means for yieldably urging the turning means to a desired position and a stop for limiting the action of such means.

"6. In combination with a straightening machine effective for applying a force on the side of an article to be straightened, means for turning the article, and means for yieldably urging the turning means to a desired position and a stop for limiting the action of such means, the stop being adjustable."

[*Official Gazette August 18, 1931.*]