No. 720,052. PATENTED FEB. 10, 1903.

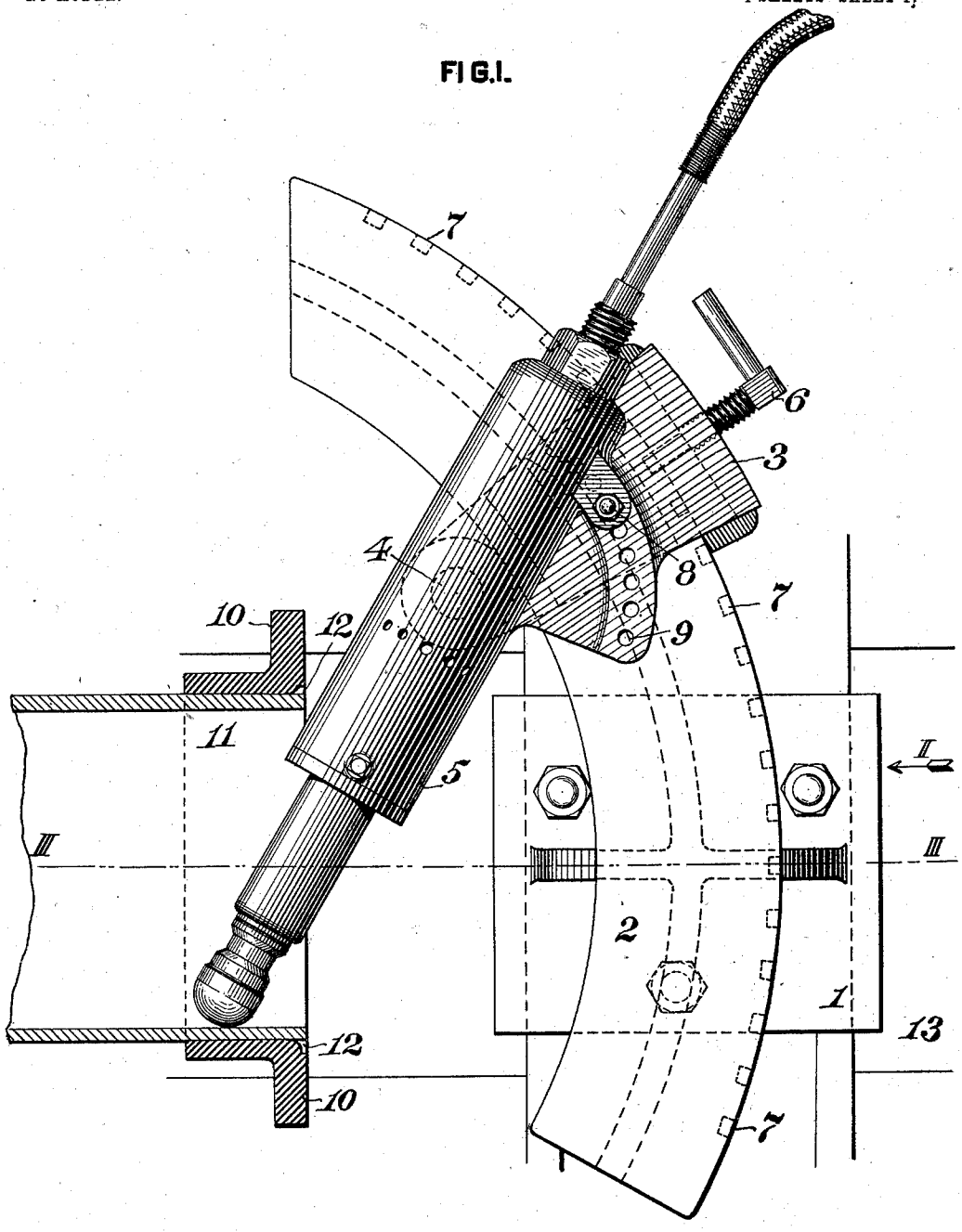
C. R. McKIBBEN.

MACHINE FOR MANIPULATING AUTOMATIC HAMMERS.

APPLICATION FILED JULY 19, 1902.

NO MODEL. 4 SHEETS—SHEET 1.

FIG. I.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 4 SHEETS—SHEET 2.

FIG. 2

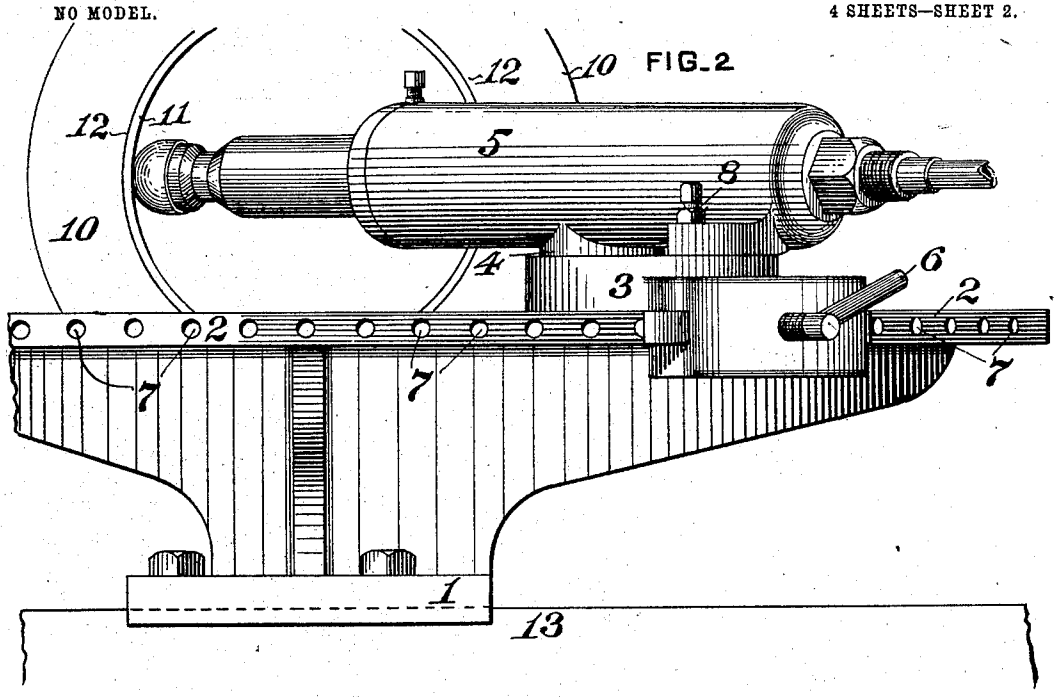
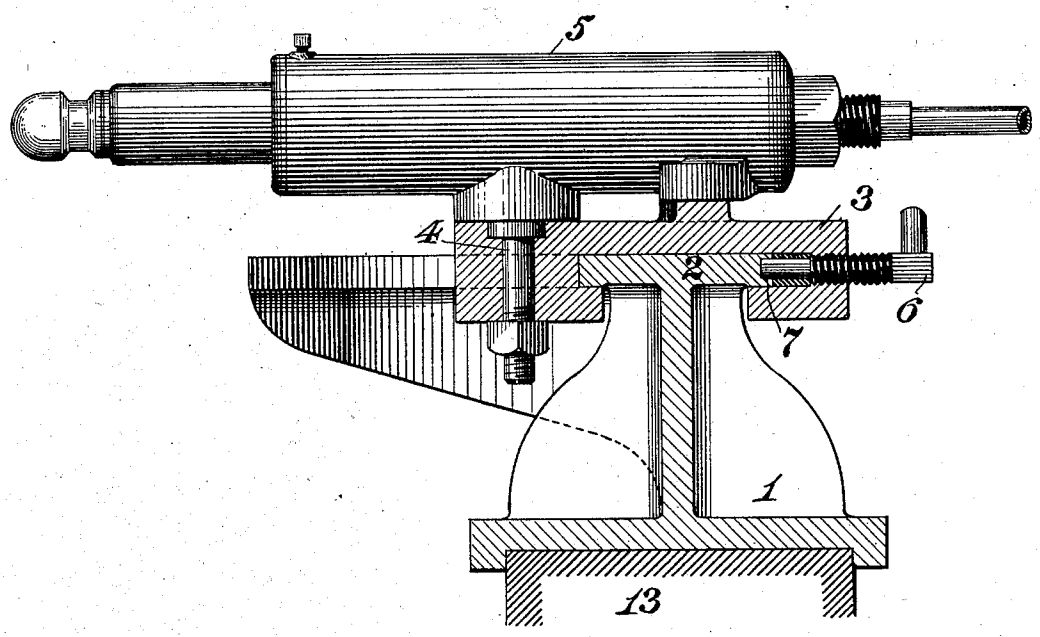


FIG. 3.



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NO MODEL. 4 SHEETS—SHEET 3.

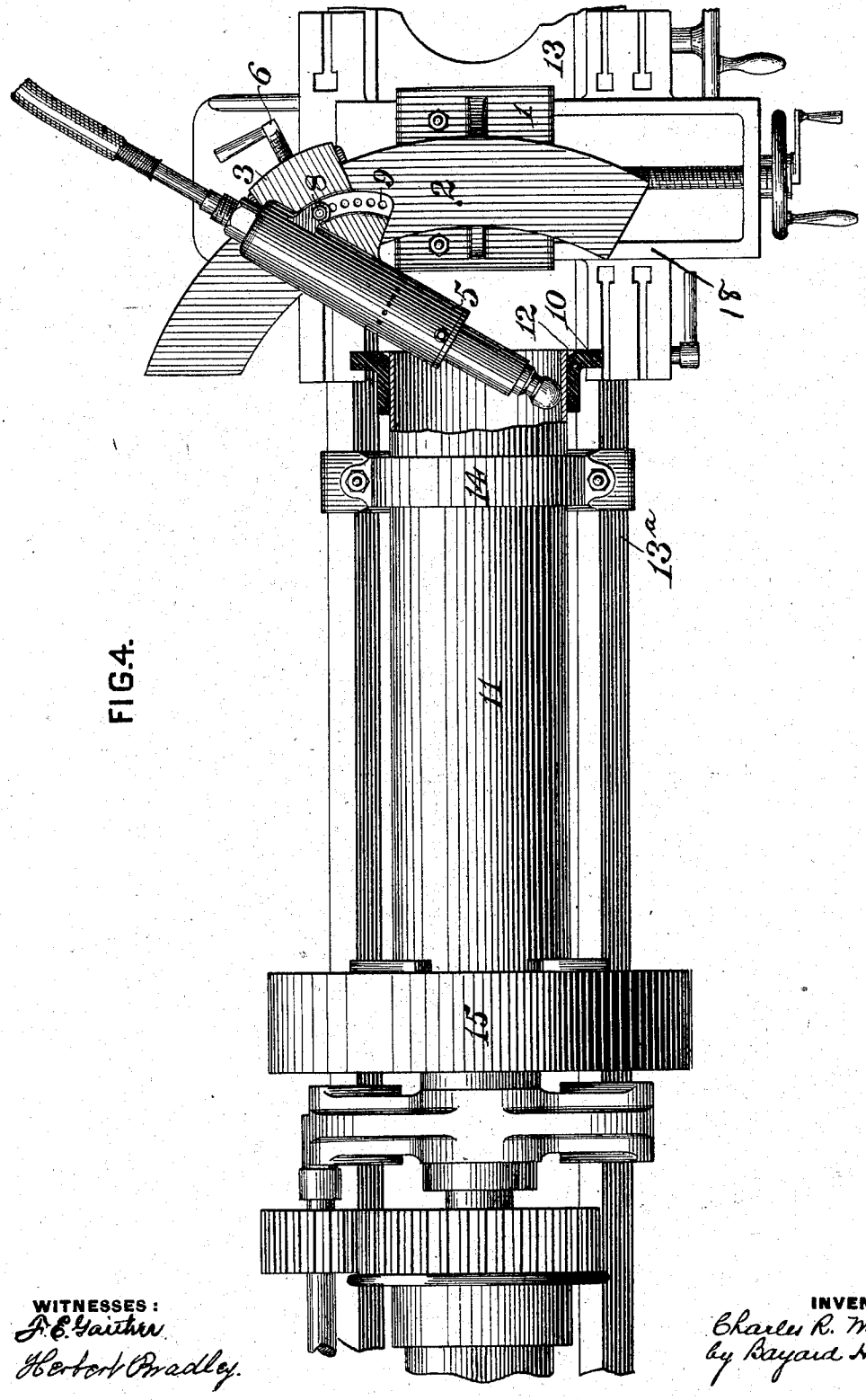


FIG.4.

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MACHINE FOR MANIPULATING AUTOMATIC HAMMERS.

APPLICATION FILED JULY 19, 1902.

NO MODEL. 4 SHEETS—SHEET 4.

FIG. 5.

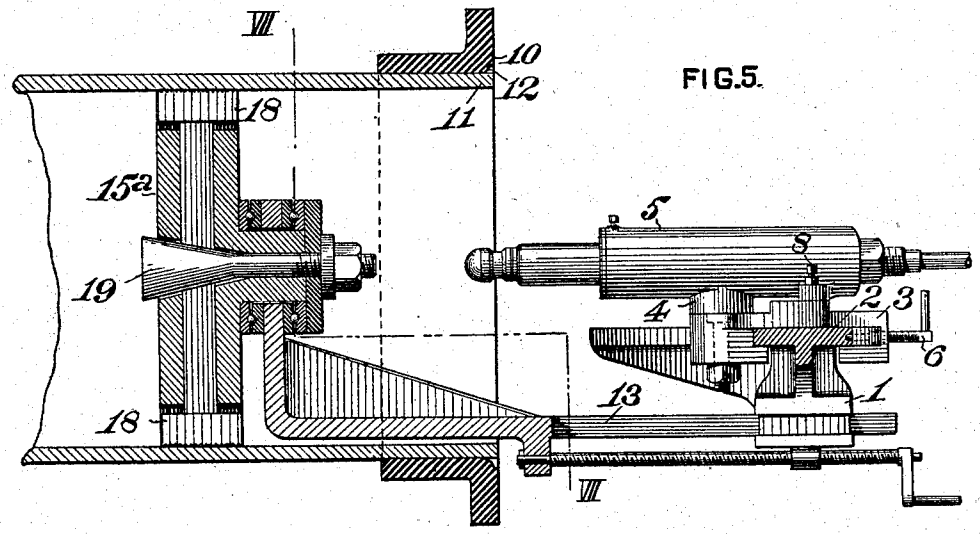


FIG. 6.

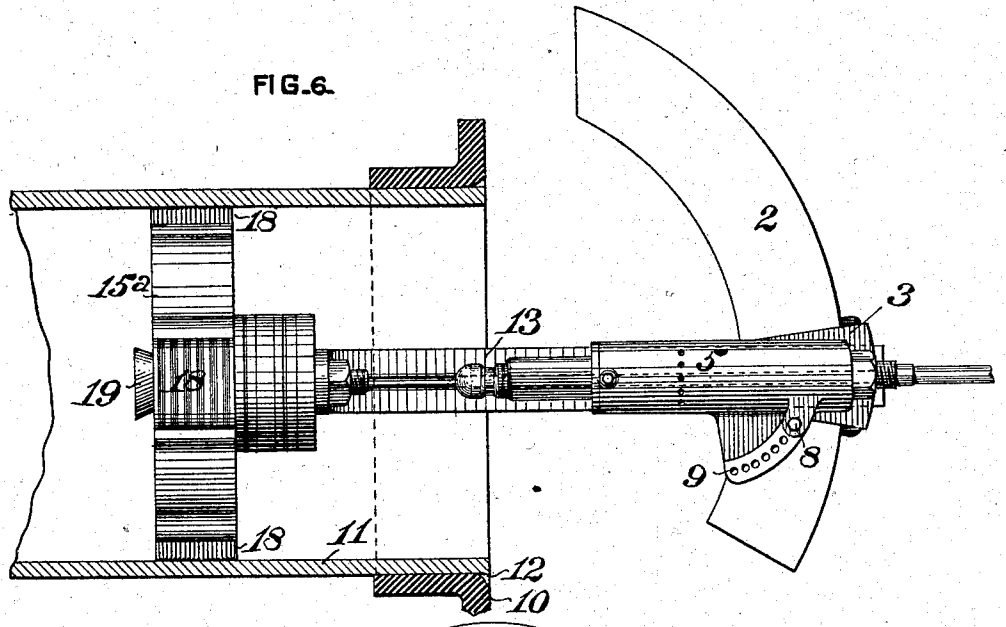
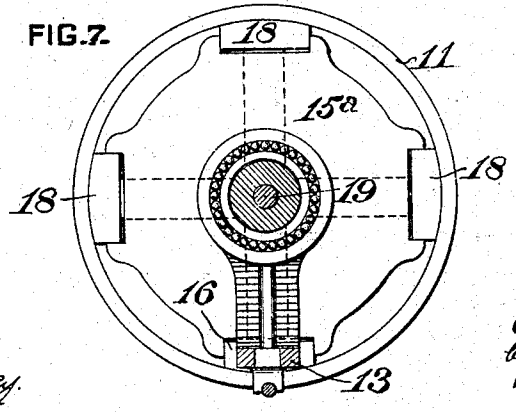


FIG. 7.



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UNITED STATES PATENT OFFICE.

CHARLES R. McKIBBEN, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR MANIPULATING AUTOMATIC HAMMERS.

SPECIFICATION forming part of Letters Patent No. 720,052, dated February 10, 1903.

Application filed July 19, 1902. Serial No. 116,166. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. McKIBBEN, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Machines for Manipulating Automatic Hammers, of which improvements the following is a specification.

My invention relates to a machine for manipulating automatic hammers, and has for its object to provide means for holding and applying the hammer to the object to be operated on.

In the accompanying drawings, which illustrate my invention, Figure 1 is a plan view of my machine, and in it I have shown an article to be operated upon placed in operative position. Fig. 2 is a view of the machine in elevation, the point of view being indicated by the arrow II, Fig. 1. Fig. 3 is a vertical section on the line III III, Fig. 1, the hammer being swung into a position where its axis lies in the plane of section. Fig. 4 is a plan view of the machine combined with a holder for a pipe, thus forming a pipe-flanging machine. Fig. 5 shows, partly in vertical section and partly in elevation, a modification of the pipe-flanging machine, including my machine for manipulating automatic hammers. Fig. 6 is a plan view of the machine shown in Fig. 5, and Fig. 7 is a vertical section on the line VII VII, Fig. 5.

Parts which are repeated in the several figures bear the same reference-numerals in every case.

In the drawings, 2 indicates a track, which is preferably mounted upon a bed-plate 1. It may be of any desired shape. As shown in the drawings, it lies in one plane and is arc-shaped. Upon this track 2 travels a carrier 3, and upon the carrier 3 is pivoted, as at 4, the automatic hammer 5. The form shown is that of a pneumatic hammer. Any desired means of adjusting carrier 3 upon track 2 may be employed. I have found it convenient to use in this particular a set-screw (shown at 6) mounted in carrier 3, and I have indicated upon the periphery of track 2 recesses 7 7, adapted to receive the end of set-screw 6, and thus to hold carrier 3 rigid upon track 2 when moved to the desired position. Any desired means of adjusting hammer 5 upon carrier 3 may be employed. In the drawings I have shown means similar to that just described for adjusting the carrier upon the track. Such means I have found satisfactory. A set-screw 8 passes through a lug formed upon the casing of hammer 5 and is adapted to engage as the hammer swings upon its pivot 4 the several recesses 9, formed in carrier 3 and disposed in the arc of a circle of which the pivot-point is the center.

It will be understood that, having two lines of movement for the hammer, I may vary the point of application with great nicety. In Fig. 1 a section of pipe with a flange to be affixed to it is shown as an illustration of the applicability of my invention.

In Figs. 4, 5, 6, and 7 I have shown a pipe-flanging machine of which my hammer-manipulating machine already described forms a part. It will be understood that this manipulating-machine is adapted to be combined not only with a pipe-holder to form a pipe-flanging machine, but with a holder for work of various kinds in machines for different purposes.

Flanges are united with pipes in the following manner: A flange, such as is indicated at 10, Fig. 1, is placed upon a pipe 11 and encircles the end of the pipe to which it is to be attached. The interior diameter of this flange is slightly greater than the exterior diameter of the pipe to which it is to be applied, and it is usual to form in the flange a groove or recess 12, into which the metal of the pipe is worked. The flange is attached when both flange and pipe are cold, and the process consists in hammering the interior of the pipe where surrounded by the flange until the pipe is expanded into intimate and binding contact with the flange and until a lip is turned at the end of the pipe, which enters and fills the groove or recess 12. This hammering of the interior of the pipe has heretofore been performed by hand. When so conducted, the work is severe and slow. The pipe is commonly placed upon trestles in such manner that it can be revolved by the workmen, and heavy sledge-hammers are used to beat the pipe into contact with the

flange. Not infrequently two men are engaged for an entire day in placing a flange upon a large pipe.

Referring to Fig. 4, it will be seen that the pipe-flanging machine there shown consists of the hammer-manipulating mechanism already described and a pipe-carrier. Plate 1 of the hammer-manipulating mechanism may be adjustably mounted upon any suitable support—such, *e. g.*, as guide 18, carried by bed-plate 13 after the manner of the tool-support of an ordinary lathe. In the drawings the head of the hammer is shown bearing upon the inner surface of pipe 11, and the flange 10 is shown in proper relative position. Pipe 11 is suitably supported in operative position, as by a bearing 14, and it is secured in a chuck 15, adapted to be revolved by suitable mechanism. (Indicated in the drawings.) Pipe 11 is so secured in chuck 15 that when the latter revolves the pipe, too, revolves upon its axis, and in so doing its entire inner surface within the range of movement of the hammer is brought beneath the hammer-head. Bearing 14 is suitably mounted upon guides 13^a, formed integral with or secured to bed-plate 13.

It is not essential that the hammer should be mounted on a stationary support and the pipe revolved under it.

The modification shown in Figs. 5 to 7 I consider applicable where flanges are to be placed on large pipes to form boilers and other large cylinders. The difference lies in the manner of mounting the hammer and the pipe so that one shall rotate with respect to the other. In this modification I employ a chuck 15^a of suitable size to enter the pipe. The chuck is so constructed as to make rigid bearing on the pipe within. I accomplish this preferably by providing the chuck 15^a with radially-extensible arms 18, which when the chuck is inserted in the pipe are extended and held in contact with the inner surface of the pipe. Their bearing-surfaces are suitably prepared, as by being roughened. The arms may be held extended by any suitable means, as by a tapered bolt 19. The bed-plate 13 is rotatably mounted upon chuck 15^a, and to this end bolt 19 may be prolonged to serve as an axis of rotation, as shown. With this construction the pipe may be revolved and the hammer maintained in the position shown, or the pipe may remain at rest and the hammer revolve within it.

I claim herein as my invention—

1. In a machine for manipulating an automatic hammer the combination of a track, a carrier adapted to move upon the track, an automatic hammer pivotally mounted on said carrier, and means for securing the hammer in successive positions on the carrier, substantially as described.

2. In a machine for manipulating an automatic hammer the combination of an adjustable track, an automatic hammer adjustable upon the track, and a lock between the hammer and the track, substantially as described.

3. In a machine for manipulating an automatic hammer the combination of an adjustable track, a carrier adjustable upon the track, an automatic hammer pivotally mounted on the carrier, and a lock between the hammer and the carrier, substantially as described.

4. In a machine for manipulating an automatic hammer the combination of an adjustable track, a carrier adjustable upon the track, an automatic hammer pivotally mounted on the carrier, and a lock between the carrier and the track, substantially as described.

5. In a hammering-machine the combination of a track, a carrier adapted to move upon the track, an automatic hammer pivotally mounted on the carrier, and a work-holder secured in operative relation to the track, substantially as described.

6. In a hammering-machine the combination of an automatic hammer, a carrier for the hammer, and a work-holder, the carrier and the work-holder being capable of movement with respect to one another on the axis of the work-holder, substantially as described.

7. In a hammering-machine the combination of a track, a carrier adapted to move upon the track, an automatic hammer pivotally mounted on the carrier, and a work-holder, the hammer and the work-holder being capable of movement with respect to one another on the axis of the work-holder, substantially as described.

8. In a pipe-flanging machine the combination of a pipe-holder and a hammer-support, the one capable of rotation with respect to the other on the axis of the pipe-holder, substantially as described.

9. In a pipe-flanging machine the combination of a pipe-holder and hammer-support, means for moving the hammer in two lines, and means for revolving the pipe and the hammer with respect to one another, substantially as described.

10. In a pipe-flanging machine the combination of a hammer-support, a pipe-holder, means for moving the hammer in two directions, and means for revolving the pipe beneath the hammer, substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES R. McKIBBEN.

Witnesses:
C. R. RHODES,
F. E. GAITHER.