(Model.)

2 Sheets—Sheet 1.

G. McCULLOCH.

MACHINE FOR LINING RAILROAD CAR BEARINGS.

No. 410,002. Patented Aug. 27, 1889.

Fig. 2.

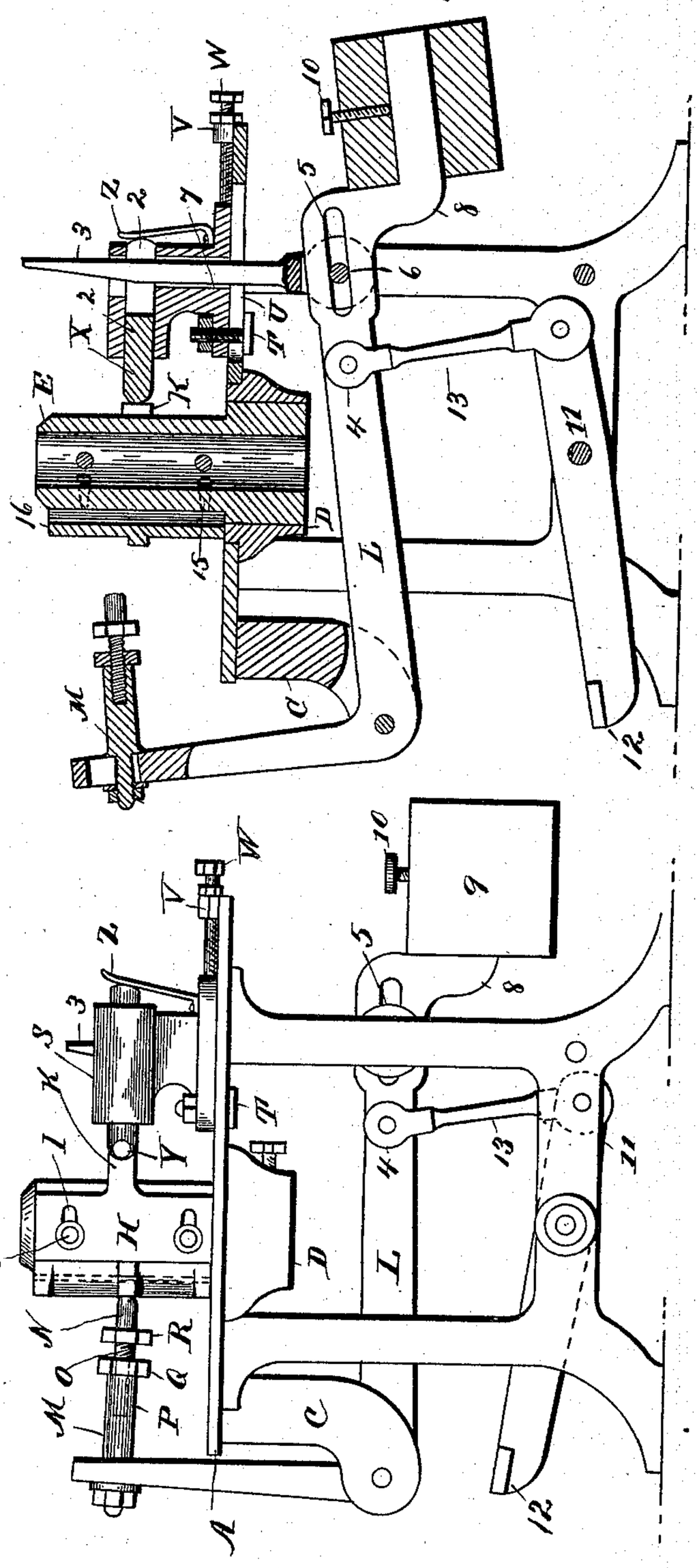

Fig. 1.

Witnesses

E. Hurdeman.

Wm. Bagger.

Inventor

G. McCulloch.

By his Attorneys

C. A. Snow & Co.

N. PETERS, Photo-Lithographer, Washington, D. C.

(Model.) 2 Sheets—Sheet 2.

G. McCULLOCH.

MACHINE FOR LINING RAILROAD CAR BEARINGS.

No. 410,002. Patented Aug. 27, 1889.

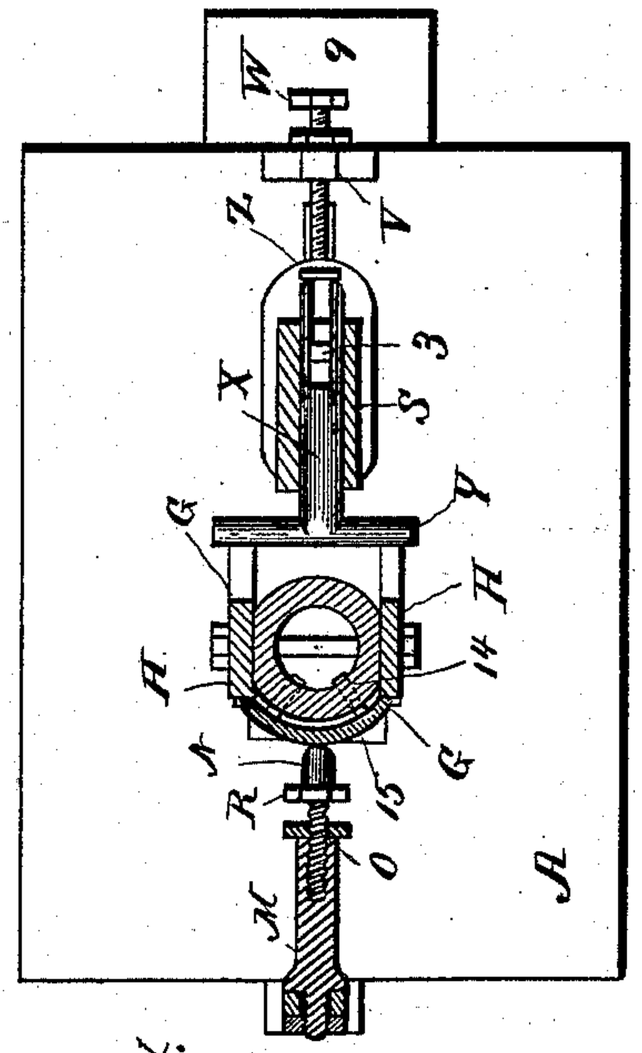

Fig. 4.

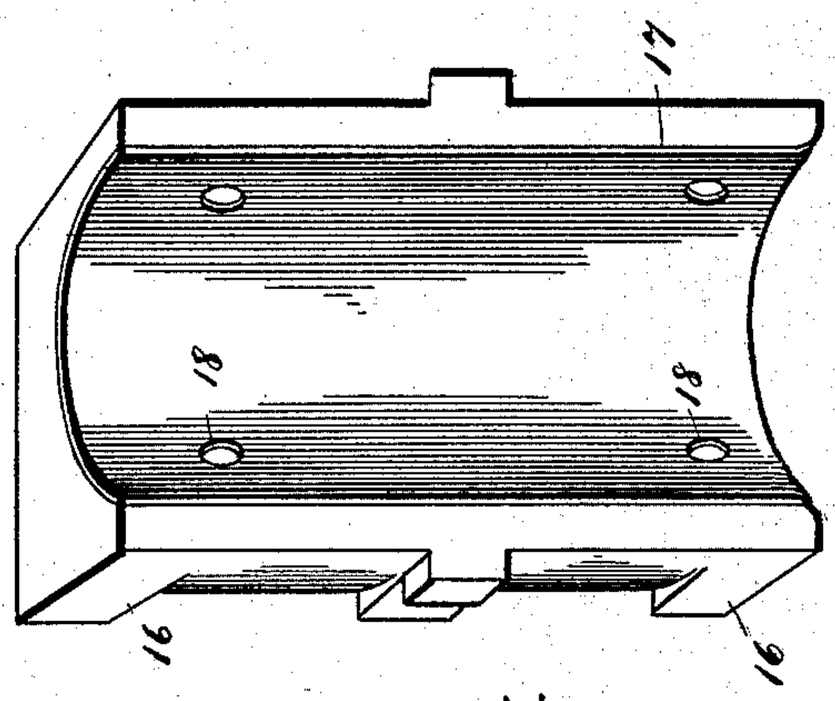

Fig. 5.

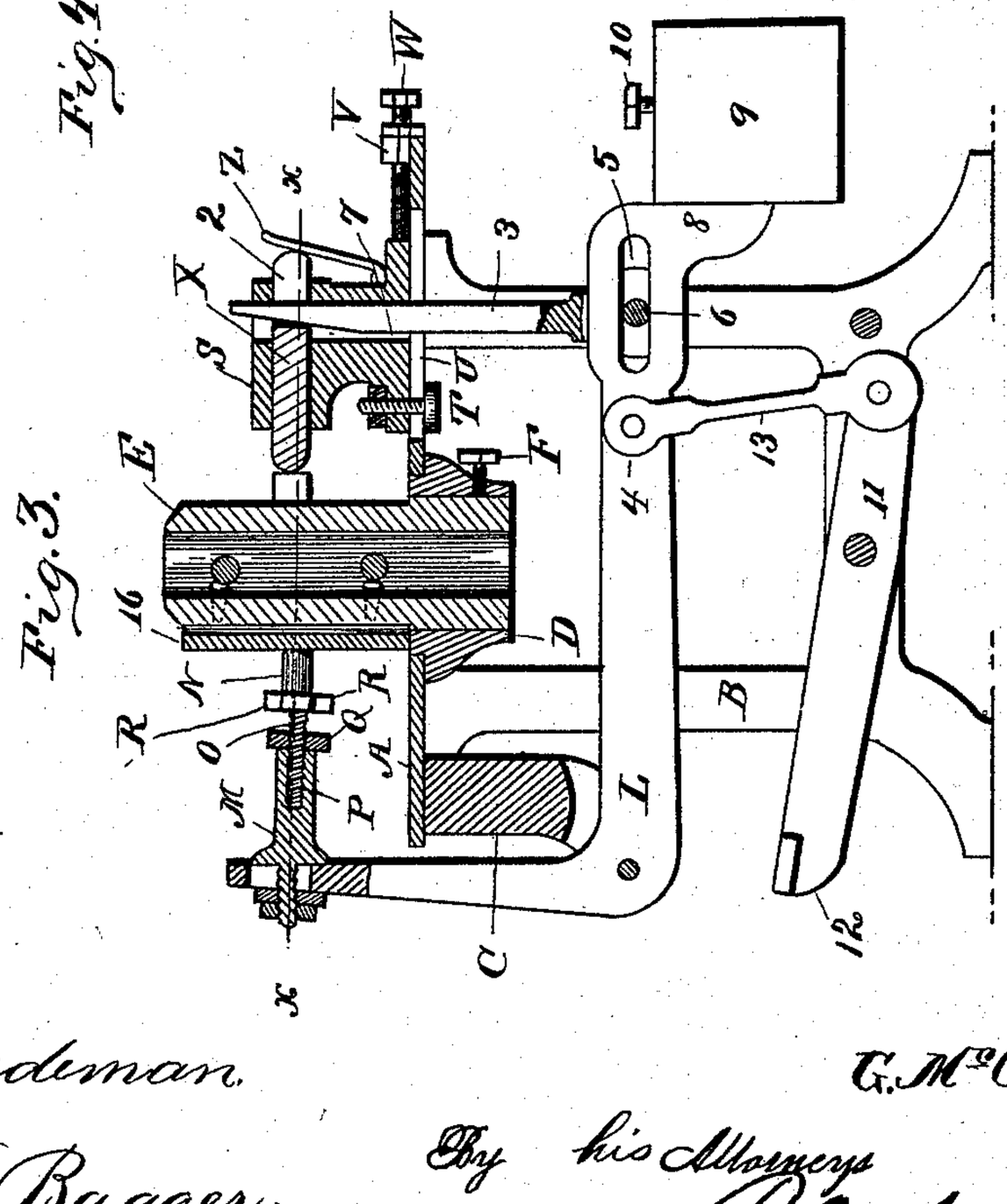

Fig. 3.

Witnesses

E. C. Wiesdeman.

Wm. Bagger.

Inventor

G. McCulloch,

By his Attorneys

Church & Church

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GILBERT McCULLOCH, OF ALTOONA, PENNSYLVANIA.

MACHINE FOR LINING RAILROAD-CAR BEARINGS.

SPECIFICATION forming part of Letters Patent No. 410,002, dated August 27, 1889.

Application filed November 13, 1888. Serial No. 290,708. (Model.)

To all whom it may concern:

Be it known that I, GILBERT MCCULLOCH, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented new and useful Improvements in Machines for Lining Railroad-Car Bearings, of which the following is a specification.

This invention relates to machines for lining the bearings of railroad-car-axle boxes with Babbitt metal or other soft metal; and it has for its object to provide a machine by means of which the process of lining such bearings may be carried out rapidly and efficiently, and in such a manner that the bearings when finished shall all be of an even and accurate diameter.

The invention consists in an organized machine comprising a table or platform, a stationary core, a pair of longitudinally-movable wings or side pieces, mechanism for forcing the bearing which is to be lined up against the core and the longitudinally-movable wings, and for retaining it in position at a suitable distance from the former while the molten metal is being poured into the mold thus formed, mechanism for loosening the bearing from the core after the operation of lining has taken place, and mechanism for effecting the necessary adjustments.

The invention further consists in the improved construction and arrangement of detailed parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side view of my improved machine, showing a bearing in position for being lined. Fig. 2 is an elevation, partly in section, of the machine, showing the same in position for discharging the bearing after being lined. Fig. 3 is a partly sectional elevation showing the machine in the same position as in Fig. 1, with a bearing in position for being lined. Fig. 4 is a horizontal sectional view taken on the line *x x* of Fig. 3. Fig. 5 is a perspective view of a bearing lined by means of my improved machine.

The same letters refer to the same parts in all the figures of the drawings.

A designates a table or platform supported upon a suitable frame B, and provided at its front end with a depending bracket C. The table A is provided with a flange or collar D, in which the core E is mounted and retained by means of a set-screw F. The said core consists of a tubular cylinder having flattened sides G G, as will be clearly seen in Fig. 4 of the drawings, against which slide the longitudinally-movable wings H H, which are provided with slots I to receive the bolts J, by means of which they are secured to the said core in such a manner as to be capable of moving freely with relation thereto. The wings H H are provided with rearwardly-extending arms or brackets K.

L designates the bell-crank lever, which is secured pivotally to the lower end of the bracket C, and the vertical arm of which is provided with a bracket M, suitably secured thereto and extending horizontally in a forward direction over the table A. The front end of the bracket M is provided with a longitudinally-adjustable ram-head N, which is provided with a screw-threaded stem O, entering a socket or recess P in the arm M, and having a jam-nut Q, by means of which it may be secured in any position to which it may be adjusted. The ram-head N has a wrench-seat R to enable the necessary adjustment to be made.

S designates a box, which is mounted adjustably upon the table A, in rear of the core, by means of a bolt or set-screw T, extending downwardly through a longitudinal slot U in the table A. The latter is also provided at its rear end with a bracket V, in which works a set-screw W, bearing against the rear side of the boxing S, the movement of which in a rearward direction is thereby limited. The boxing S is provided with the bearing for a longitudinally-sliding stem X, the front end of which is provided with a transverse arm Y, forming a cross-head adapted to bear against the rearwardly-extending arms or brackets K of the sliding wings H, which may thereby be forced in a forward direction.

Z designates a spring suitably mounted upon the boxing S and bearing against the rear end of the stem X, which is thereby forced automatically in a forward direction. The rear end of the stem X is provided with a longitudinal slot 2, which is adapted to receive a vertically-movable wedge 3, the lower

end of which is bifurcated to receive the rear end of the horizontal arm 4 of the bell-crank lever L. The said arm is provided at its rear end with a longitudinal slot 5, adapted to receive the pin 6, extending transversely through the lower end of the wedge 3, with which the said lever-arm is thus connected. The wedge 3 is confined in a suitable bearing 7, provided for its reception in the boxing S. The rear end of the arm 4 of bell-crank lever L is provided with a bracket 8, to which a weight 9 is secured adjustably by means of a set-screw 10.

11 is a lever suitably pivoted in the lower part of the frame and provided at its front end with a treadle 12, by means of which it may be conveniently operated. The rear end of the lever 11 is connected, by means of a pitman or connecting-link 13, with the rearwardly-extending horizontal arm 4 of the bell-crank lever L.

The core E of the machine is provided on its front side with a series of radial openings or perforations 14, in which are fitted the tapering studs or plugs 15, which project slightly beyond the face of said core. The distance which the said plugs project beyond the face of the core is equal to the thickness which the lining is desired to have.

16 designates an ordinary bearing of the pattern which is used in car-axle boxes of ordinary construction, and 17 is the lining of the same. The said lining, it will be observed, has the recesses or depressions 18 formed by the studs or plugs 15 of my improved machine.

The operation of my invention is as follows: By depressing the front end of the lever 11 by means of the treadle 12 the horizontal arm of the bell-crank lever L will be raised to the position shown in Fig. 2, and it will thus serve to raise the wedge 3 and bring it into contact with the longitudinally-movable stem X, which is thereby forced in a rearward direction. After the wedge 3 ceases to act against the said stem the latter is further forced in a forward direction by the action of the spring Z. The cross-head Y at the front end of said stem will thus impel the longitudinally-movable wings in a forward direction. At the same time the vertical arm of the bell-crank lever L, carrying the ram-head N, will be moved forwardly, away from the core D, thus admitting of the insertion of a bearing 16 between the said ram-head and the core. By releasing pressure upon the treadle 12 the weight 9 will restore the bell-crank lever L to its normal position, and the ram-head N, pressing against the rear side of the bearing 16, will force the latter in the direction of the core E. The sides of the bearing 16 will rest against the front sides of the wings H, which, together with the studs or plugs 15, limit the movement of the bearing 16 in the direction of the core. The ram-head N, actuated by the weighted bell-crank lever 12, serves to retain the bearing in position while the molten metal is being poured into the mold, which is formed by the said bearing, the core, and the wings H H. The treadle 12 is then again depressed and the wedge 3, being thereby raised, serves to force the stem X, carrying the cross-head Y, in a forward direction, together with the wings H H, which, by pressing against the bearing, force the latter in a rearward direction away from the core, and loosening the lining from the studs or plugs 15, projecting from the face of the latter. After the bearing has thus become disengaged from the core it is forced farther in a forward direction by the action of the spring Z, and it may then be conveniently removed and another bearing inserted in its place, after which the operation may be repeated.

It will be observed that the stroke of the bell-crank lever L may be regulated by properly adjusting the ram-head N in the bracket M, extending horizontally from the vertical arm of said bell-crank lever. The thickness of the lining may be regulated by the distance which the plugs 15 are allowed to project beyond the face of the core.

As will be seen by reference to Fig. 5 of the drawings, the lining with which the bearing is provided is quite thin. It follows that although the pins or plugs 15 extend radially from the core and would resist or even prevent the removal of the bearing, if the lining were made of considerable thickness, no such result does actually take place, as, the lining being thin and of soft metal, it may be readily disengaged from the projecting ends of the pins by the power applied, as herein described. The projecting ends of the pins may also, when desired, be slightly tapered or rounded to assist in their being disengaged from the lining.

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

1. In a machine for lining bearings, the combination of a core, longitudinally-sliding wings fitted against the sides of said core, and mechanism for forcing the bearing which is to be lined in a rearward direction toward the face of said core and into contact with the front edges of the said sliding wings, substantially as herein described, and for the purpose set forth.

2. In a machine for lining bearings, the combination of the core, studs or plugs mounted in perforations in and projecting from the face of said core, longitudinally-movable wings fitted against the sides of said core, and mechanism for forcing the bearing which is to be lined in a rearward direction toward the face of said core and into contact with the front edges of the said sliding wings, substantially as herein described, and for the purpose set forth.

3. In a machine for lining bearings, the combination, with a suitable table or platform, of a core having flattened sides, the longitudinally-sliding wings fitted against the sides of said core, mechanism for forcing the said

wings in a forward direction, and mechanism for forcing the bearing which is to be lined in a rearward direction toward the face of said core and into contact with the front edges of the said sliding wings, substantially as set forth.

4. In a machine for lining bearings, the combination of a core having flattened sides, longitudinally-sliding wings fitted against the sides of said core and having rearwardly-extending arms or brackets, a box mounted upon the frame or table in rear of the core, a longitudinally-sliding cross-head mounted in said box and bearing against the rearwardly-extending arms of the longitudinally-sliding wings, and mechanism for operating the said cross-head, substantially as set forth.

5. The combination of the core, the longitudinally-sliding wings fitted against the sides of said core, the boxing mounted upon the frame or table in rear of said core, a cross-head sliding longitudinally in said boxing and bearing against the longitudinally-sliding wings, a spring arranged to press against the rear end of the stem of said cross-head, and a vertically-movable wedge working in a slot in the said stem, and serving, when moved in an upward direction, to force the cross-head in a forward direction, assisted and continued by the said spring, substantially as herein set forth.

6. In a machine for lining bearings, the combination of the core, the longitudinally-sliding wings fitted against the sides of said core, mechanism for forcing the said wings in a forward direction, a bell-crank lever having an arm extending vertically in front of the said core, and provided with a horizontal bracket extending toward the said core and having an adjustable ram-head, and mechanism for operating the said bell-crank lever, substantially as set forth.

7. In a machine for lining bearings, the combination of a frame or table, a core mounted on the same, a bracket extending downwardly from the front end of said table, a bell-crank lever pivoted to said bracket, a ram-head mounted adjustably in a bracket extending forwardly from the vertical arm of said bell-crank lever, a boxing mounted adjustably in rear of the said core and having a longitudinally-sliding cross-head, a wedge moving vertically in said boxing and forcing the said cross-head in a forward direction, a pin connecting the lower end of said wedge with a longitudinal slot in the horizontal arm of the bell-crank lever, and a link connecting the latter with the rear end of a lever, the front end of which is provided with a treadle, substantially as set forth.

8. In a machine for lining bearings, the combination of a core, the face of which is provided with radial openings, with studs or plugs fitted in the said openings and projecting beyond the face of the said core, and the longitudinally-sliding wings, substantially as and for the purpose set forth.

9. The combination, with the table having a flange or collar, of the cylindrical tubular core mounted in the said collar and secured in position by means of a set-screw, and the longitudinally-sliding wings, substantially as herein set forth.

10. In a machine for lining bearings, the combination, with the core having the longitudinally-sliding wings, of the longitudinally-adjustable boxing having a longitudinally-movable cross-head arranged to bear against the said wings, and mechanism, substantially as described, for forcing the said wings in a forward direction, substantially as set forth.

11. In a machine for lining bearings, the combination of the frame or table, the core, the longitudinally-adjustable boxing having the longitudinally-movable cross-head, a bell-crank lever, the vertical arm of which is provided with a bracket having a ram-head extending horizontally in front of the core and the horizontal arm of which is provided with a slot, connected with the lower end of a vertically-movable wedge sliding in a bearing in the longitudinally-adjustable boxing and serving to force the cross-head in a forward direction, a weight mounted adjustably at the rear end of the horizontal arm of the bell-crank lever, and a link connecting the latter with an operating-treadle, substantially as and for the purpose herein set forth.

12. In a machine for lining bearings, the combination, with the core having the longitudinally-sliding wings, of the longitudinally-adjustable boxing, a cross-head arranged to move longitudinally in the said boxing and bearing against arms or brackets extending rearwardly from the longitudinally-movable wings, a vertically-movable wedge adapted to bear against the cross-head and force the latter in a forward direction, and a spring mounted upon the base of the said longitudinally-adjustable boxing and bearing against the rear end of the stem of the longitudinally-sliding cross-head, serving to force the same in a forward direction, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GILBERT McCULLOCH.

Witnesses:
WM. M. WITHEROW,
G. M. MEADVILLE.