

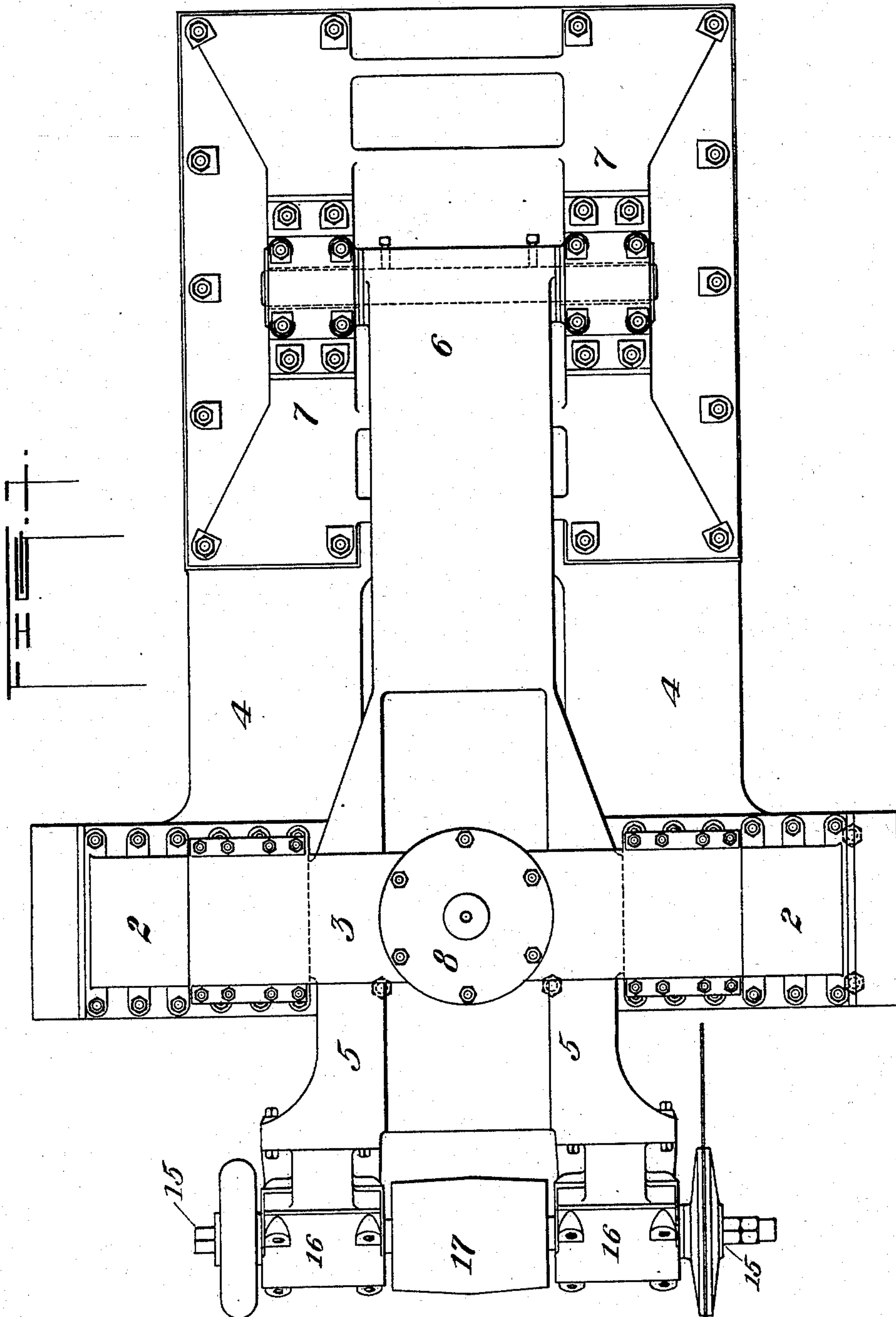
(No Model.)

3 Sheets—Sheet 1.

J. F. LUNDAHL.  
METAL SAWING MACHINE.

No. 518,572.

Patented Apr. 17, 1894.



Witnesses

*H. M. Corwin*  
*L. Byrnes.*

Inventor

*Johan F. Lundahl*  
by *W. Baxendell & Sons*  
Attorneys

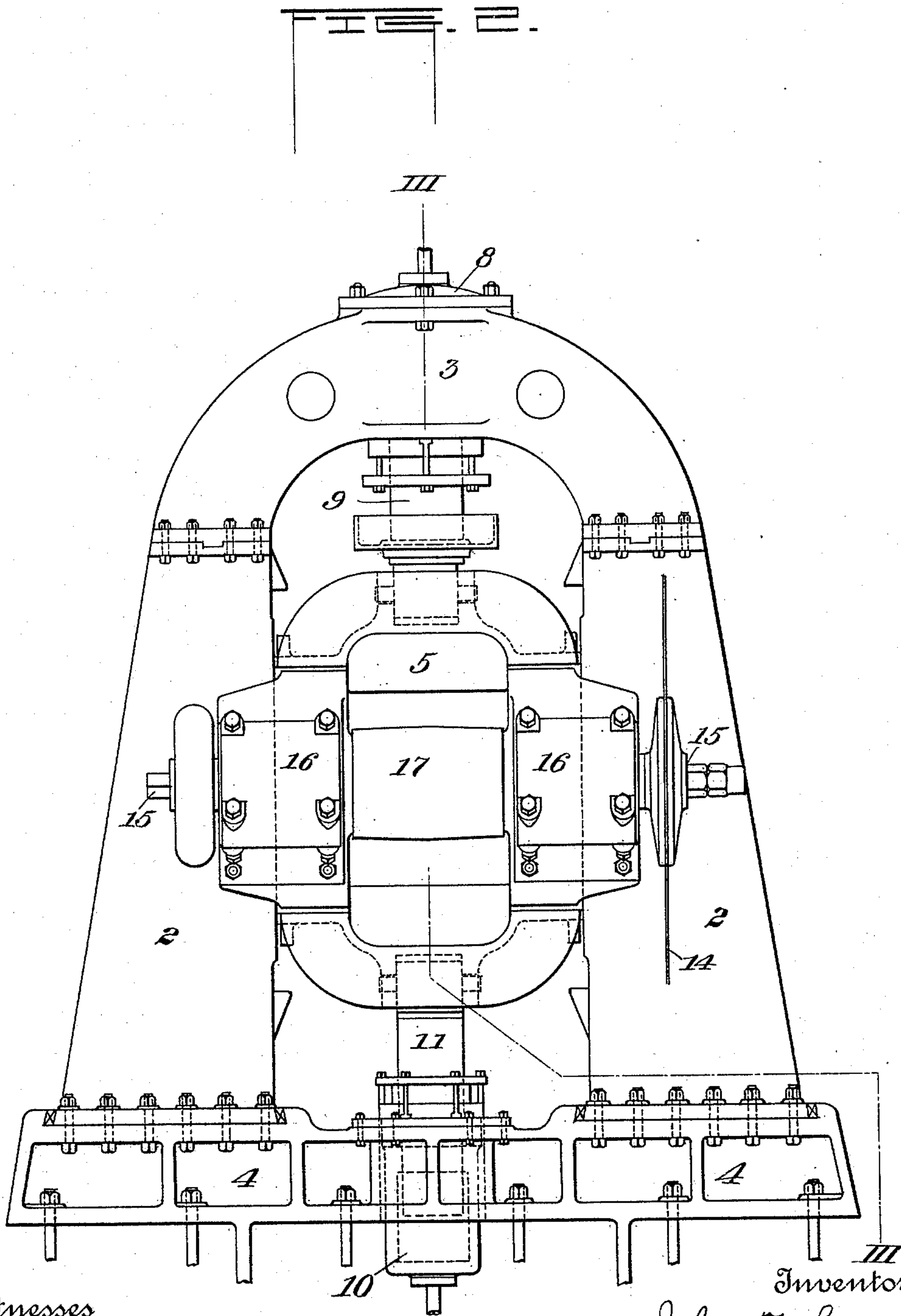
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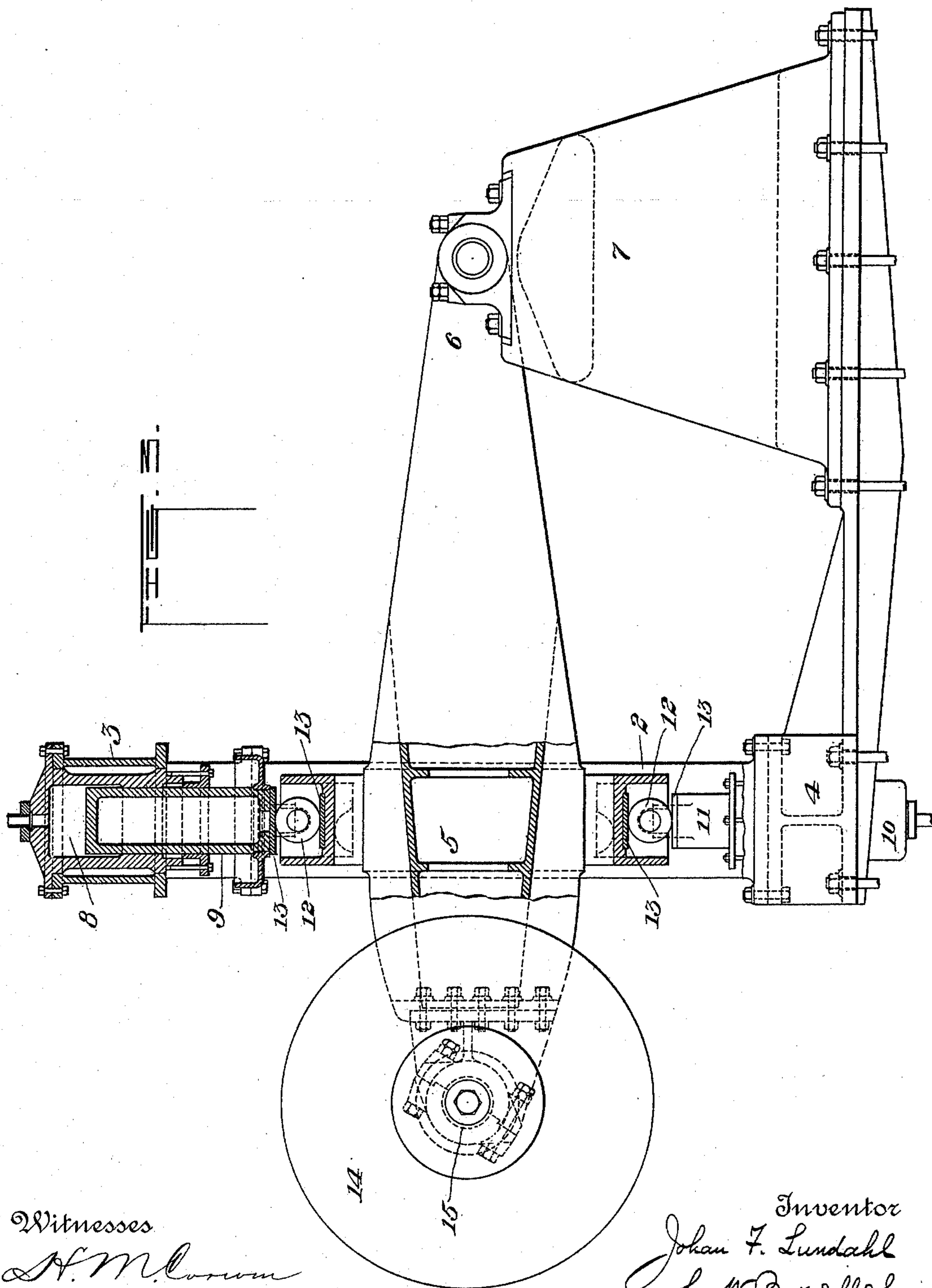
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# UNITED STATES PATENT OFFICE.

JOHAN FRITHIOF LUNDAHL, OF HOMESTEAD, PENNSYLVANIA.

## METAL-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,572, dated April 17, 1894.

Application filed June 30, 1892. Serial No. 438,544. (No model.)

*To all whom it may concern:*

Be it known that I, JOHAN FRITHIOF LUNDAHL, of Homestead, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Metal-Sawing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved machine. Fig. 2 is a front elevation thereof; and Fig. 3 is a side elevation, partly in vertical central section, on the line III—III of Fig. 2.

The object of my invention is to provide a metal-sawing apparatus, of cheaper, stronger and simpler construction than has been known heretofore.

The frame or housing of the saw, as shown in the drawings, comprises strong upright posts 2, connected by a cap or entablature 3, and having a suitably secured base-plate 4.

The saw-holder consists of a lever or frame 5 pivotally mounted at its rear end 6 in bearings on a standard 7, and extending between and beyond the posts of the housing, between which posts it has a bearing and is vertically movable radially on its axis. Such vertical radial motion is effected by means of a motor set in the entablature 3 and comprising a hydraulic cylinder 8 and a plunger 9, the movable part of the motor (in this case the plunger) having a bearing upon the saw holder. By projecting the plunger of this cylinder, the saw-holder and saw are moved vertically downward. To raise them I employ a counterbalance consisting preferably of a cylinder 10 which is set in the base of the machine and has a plunger 11, also bearing on the saw holder. There is preferably a constant communication between the counterbalancing cylinder 10 and the accumulator or source of water pressure, so that a continual upward pressure is exerted on the saw-holder, and the cross-section of the cylinder is of sufficient area, relatively to the cylinder 8, that, when the latter is disconnected from the source of supply, the counterbalancing cylinder shall raise the saw-holder and displace the water from the cylinder 8, but that when the supply valve of the cylinder 8 is opened the saw-holder shall be forced down

against the pressure of the counterbalancing cylinder.

In order to accommodate the slight relative lateral motion between the saw-holder and the plungers of the cylinders, caused by the pivoting of the holder, I interpose rollers 12 between the plungers and the holder, providing the latter with retaining cavities or boxes and fitting the plungers and holder with hard steel plates 13, against which the rollers immediately bear and which serve to prevent injurious wear. The saw 14 is fixed to a shaft or arbor 15, journaled in bearings 16 at the end of the saw-holder, and provided with a belt-pulley 17, which extends back to a main driving pulley and derives its power therefrom. The posts 2 are situated between the saw and the pivot of the saw-holding lever, and therefore serve as a bearing for said lever at an intermediate portion of its length.

In using the apparatus, the metal piece to be sawed is placed beneath the saw and then by operating the cylinder, as above described, the saw-holder is depressed so as to force the saw down upon the metal, and the saw being driven by the belt mechanism performs the work of cutting.

The advantages of my invention will be appreciated by those skilled in the art.

The apparatus is strong, durable and cheap, and by reason of the pivotal arrangement of the saw-holder the transmission of power to it is simplified, and the use of the housings which bear upon the pivoted saw-holder at a point between the pivot and the saw steadies the holder and prevents lateral deflection without interfering with the operation of the saw upon the metal to be cut.

Without limiting myself to the precise construction of the parts above described, which may be modified without variance from my invention, I claim—

1. In metal-sawing apparatus, the combination of a pivotally movable saw-holding lever, posts between which it is set and by which it is guided and supported laterally, and a motor by which said lever is moved on its pivot and the saw is forced against the metal piece to be cut; said posts being situated between the position of the saw and the pivot of the lever; substantially as described.

2. In metal-sawing apparatus, the combi-



nation of a pivotally movable saw-holding lever, posts between which it is set and by which it is guided and supported laterally, a motor comprising a cylinder and plunger, acting on  
5 the lever in one direction, and a counterbalance acting thereon in the opposite direction; substantially as described.

3. In metal-sawing apparatus, the combination of a pivotally movable saw-holding lever,  
10 ver, posts between which it is set and by which it is guided and supported laterally, a motor

comprising a cylinder and plunger acting on the lever to force the saw into the metal piece to be cut, and a roller interposed between the lever and the movable part of the motor; substantially as described. 15

In testimony whereof I have hereunto set my hand this 28th day of June, A. D. 1892.

JOHAN FRITHIOF LUNDAHL.

Witnesses:

DAVID LAING,  
W. H. CORBETT.