E. KARDOS.

SCRAP METAL PRESS.

APPLICATION FILED SEPT. 24, 1919.

1,409,726.

Patented Mar. 14, 1922.

2 SHEETS—SHEET 1.

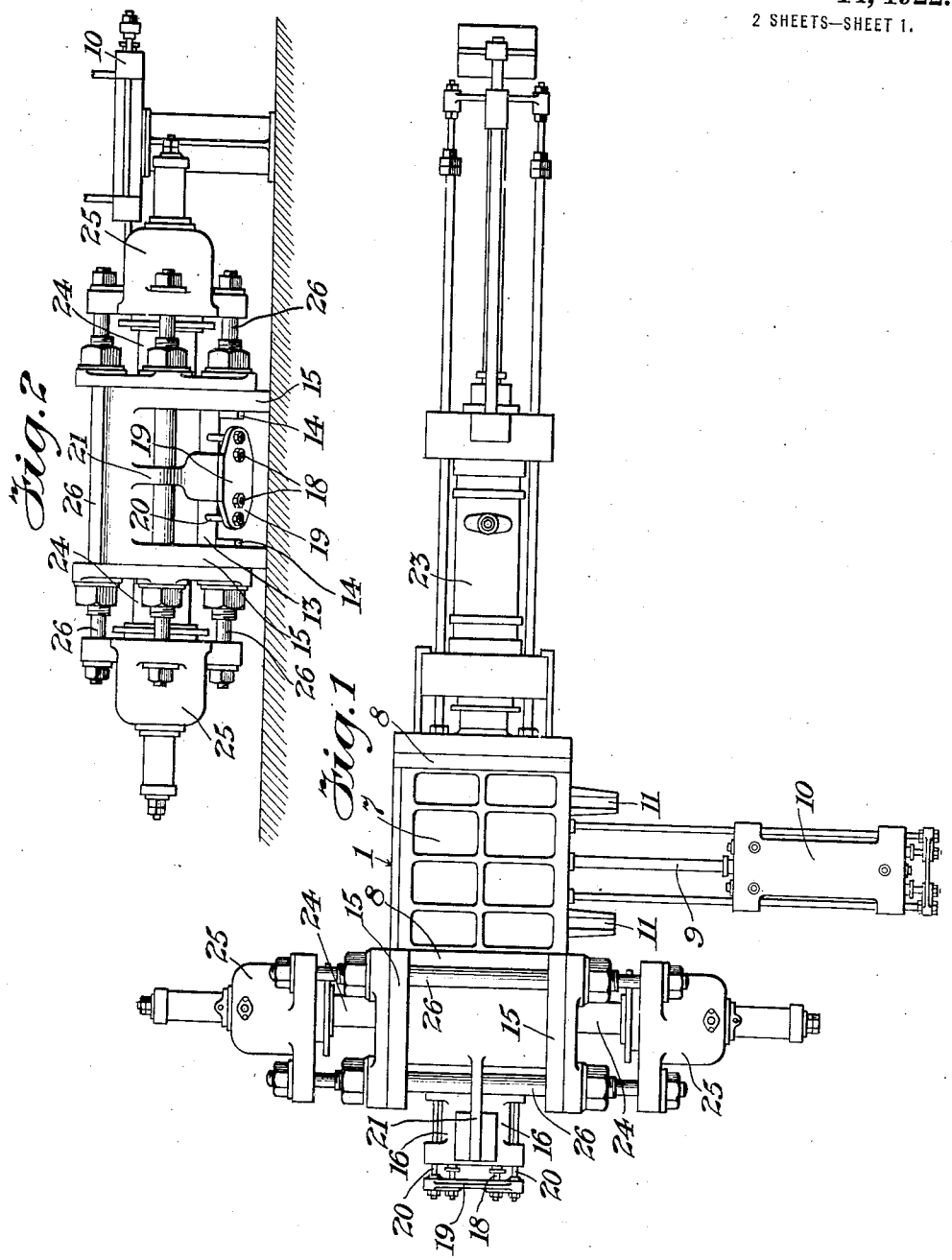


Fig. 2

Fig. 1

INVENTOR

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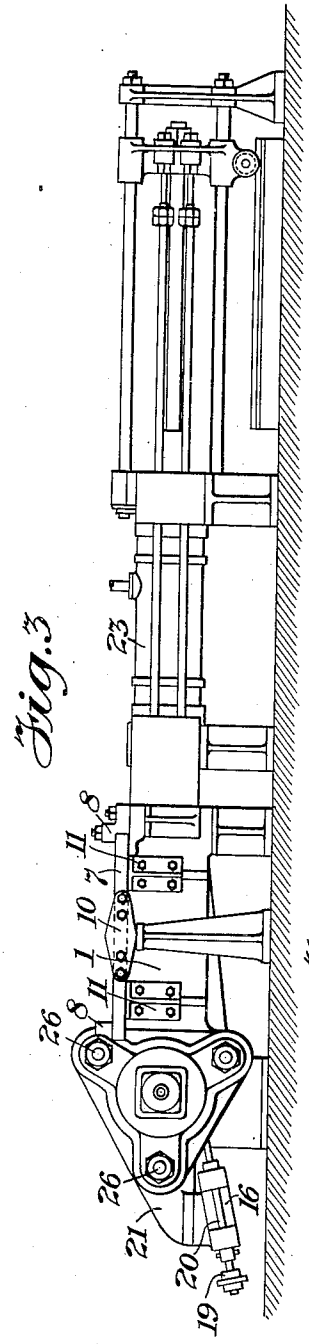


Fig. 3

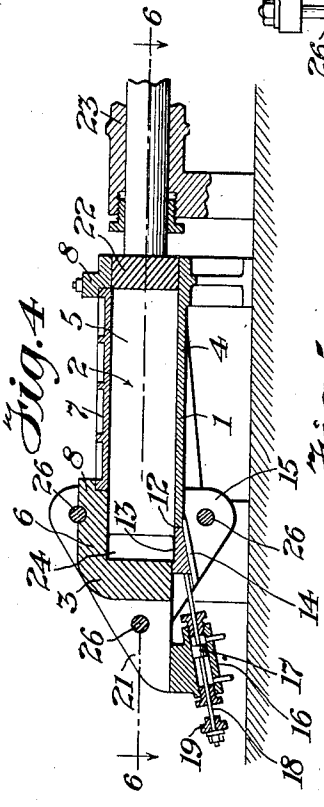


Fig. 4

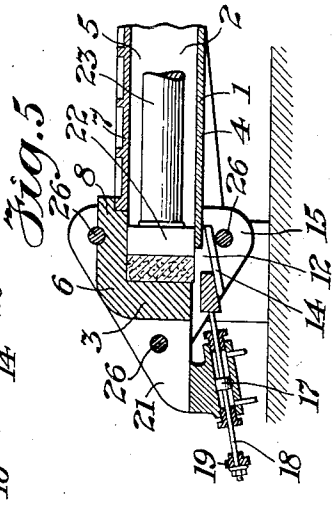


Fig. 5

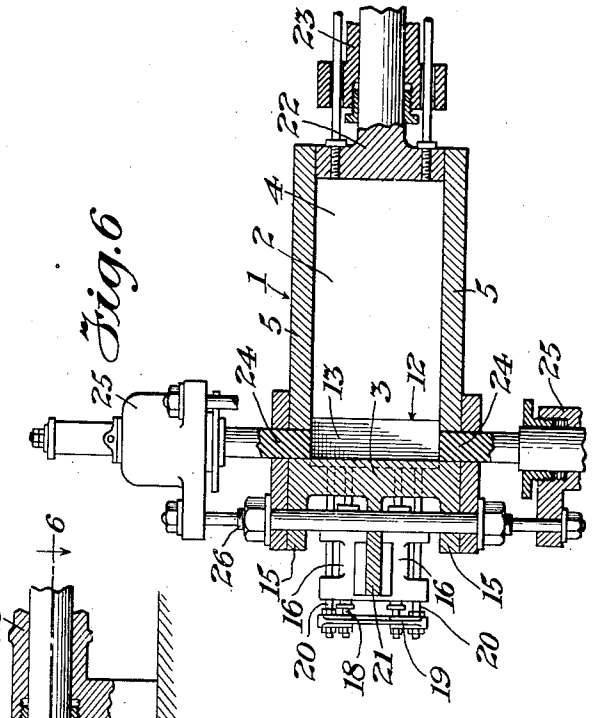


Fig. 6

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# UNITED STATES PATENT OFFICE.

EMANUEL KARDOS, OF NEWARK, NEW JERSEY, ASSIGNOR TO METAL & THERMIT CORPORATION, OF CHROME, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## SCRAP-METAL PRESS.

1,409,726. Specification of Letters Patent. Patented Mar. 14, 1922.

Application filed September 24, 1919. Serial No. 325,933.

*To all whom it may concern:*

Be it known that I, EMANUEL KARDOS, a citizen of Hungary, and resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Scrap-Metal Presses, of which the following is a specification.

My invention relates to improvements in scrap metal presses such as shown in my United States Patent No. 1,036,987, of May 21st, 1912.

One object of the invention is to provide a novel arrangement of rams which will produce the required compression of the scrap metal without placing excessive strain on the walls of the compressing chamber.

Another object is to provide a press in which the friction of the compressed material against the sliding discharge door will be relieved as soon as said door starts on its opening movement.

A further object is the provision of a press in which the blocks of compressed metal will drop by gravity from the machine, rather than requiring an additional ram for their ejection.

With the foregoing in view, the invention resides in the novel features of construction and arrangements of parts to be hereinafter described and claimed, the descriptive matter being supplemented by the accompanying drawings forming part of this application, in which—

Fig. 1 is a top plan view of my improved press.

Fig. 2 is an end elevation thereof.

Fig. 3 is a side elevation.

Fig. 4 is a longitudinal section through the compression chamber and associated parts showing the position of the sliding discharge door until complete compression of the material is effected.

Fig. 5 is a view similar to Fig. 4, but illustrating the discharge door in the act of opening.

Fig. 6 is a horizontal section on the plane of the line 6—6 of Fig. 4.

In the drawings above briefly described, the numeral 1 designates a metal box whose interior forms a compression chamber 2 adapted to receive the scrap metal or other material to be formed into blocks. The front end wall 3, the bottom 4 and sides 5 of the box 1 are preferably but not necessarily cast in a single piece, as is also a portion 6 of the box top, the remainder of said top, designated by the numeral 7, being laterally slidable in suitable guiding means 8. A piston rod 9 is connected to the sliding top 7 and is operated by a piston within a fluid pressure cylinder 10, so that the top 7 may be quickly opened and closed when required. Brackets 11 preferably extend from the box 1 to support the top 7 when in open position.

At the front end of the box, its bottom 4 is provided with a discharge opening 12 normally closed by a wedge shaped sliding door 13 mounted on suitable tracks or the like 14 for movement in an inclined although substantially horizontal direction, the aforesaid tracks 14 being preferably in the form of ribs cast upon flanges 15 which depend from the sides of the box at the front end of the latter. One or more fluid pressure cylinders 16 are mounted in any suitable manner upon the front end of the box 1 and are provided with pistons 17 whose rods 18 are connected with the door 13 and with a cross head 19 having rods 20 secured to said door. By this or an equivalent arrangement the door 13 may be easily and quickly opened to discharge the completed block, and due to the fact that this door moves downwardly on a slight incline, the existing friction between its upper side and the block of scrap metal, caused by the inherent resiliency of the latter, will be relieved as soon as said door starts upon its opening movement. Thus, excessive wear upon the door is prevented, with the result that it will be comparatively long lived. As above stated, the cylinders 16 may be mounted in any suitable manner, but I prefer to provide the front end wall 3 of the box 1 with an integral arm 21 extending forwardly and downwardly for this purpose; and the cylinders may well be cast integrally with said arm as shown.

Initial compression of the scrap or material is effected by a ram 22 operated by any adequate means, such as the hydraulic cylinder 23, and it will be seen that this ram will compress the metal or the like against the front end wall 3 of the box 1. When this has taken place and while the ram 22 remains in its forward position, a pair of opposed rams 24 come into play to compress the material in a direction at right angles to the line of motion of the ram 22. The rams 24 slide through the sides of the box 1 and

are operated by appropriate fluid pressure cylinders 25 which are tied together and secured to the box 1 by suitable bolts 26. The box end 3 is sufficiently strong to resist the initial compression of the material and it will be observed that during the final compression, the greater part of the strain is taken entirely by the opposed rams 24, thus relieving the sides of the box from excessive pressure. This permits the compression box to be constructed with the use of comparatively little metal, and yet be sufficiently strong to meet the requirements.

After complete compression of the material by the rams 22 and 24 has taken place, the compressed block will rest upon the sliding door 13 with considerable outward pressure causing friction, which, with a door sliding in a truly horizontal direction, would produce great wear upon the door as well as its guiding and operating means. Due, however, to the inclined direction in which the door 13 moves when it is opened, the friction will be instantly relieved, and when the three rams are withdrawn slightly the block will readily drop by gravity through the opening 12.

Particular emphasis is laid upon the direction of motion of the door 13, upon the fact that no ejector is necessary for the blocks of compressed metal, and upon the fact that the compression chamber walls are relieved of excessive strain during the final compression of the material, due to the opposed rams 24. While these rams are operating, there will of course be considerable additional strain placed upon the end wall 3 and the ram 22, but this strain is infinitesimal in comparison with that received by the rams 24.

From the foregoing, it will be seen that although my invention is of a comparatively simple nature, it is highly efficient and in every way desirable. Since probably the best results are obtained from the details shown and described, such details may well be followed, but within the scope of the invention as claimed, considerable latitude is allowed for making such minor changes as occasion may dictate.

I claim:

1. In a press for scrap metal and other material, a box having a discharge opening in its bottom, rams slidable longitudinally and transversely of said box to initially and finally compress the material within the box, a door for closing said discharge opening and moving obliquely toward and from said opening, and means for operating said door and holding the same in closed position.

2. In a press for scrap metal and other material, a box, a ram operating against one wall of said box for initially compressing the material, a pair of rams slidable through the opposite sides of said box and movable transversely of the line of movement of said first-named ram for further compressing the material confined between said first-named ram and the box wall, said box having an opening for the discharge of the block of compressed material, a sliding door for said opening against which the block bears while under pressure from said rams, and means for guiding said door obliquely outward from the block as it is opened.

3. In a press for scrap metal and other material, a horizontally disposed box having a removable top and having in its bottom an outlet opening adjacent one of its ends, a sliding door normally closing said opening, a ram movable longitudinally in said box for initially compressing the material against said box end, a pair of opposed transversely movable rams slidable through the sides of the box for further compressing the material while held under compression by said longitudinal ram, the block of compressed material then resting on said door, and means for guiding said door downwardly in an inclined direction from the block as it is opened whereby to relieve friction between said door and the block.

4. In a press for scrap metal and other material, means for compressing the material into a block, a sliding door against which the block bears, said door being adapted for opening to discharge said block, and means for guiding said door obliquely away from the block as it is opened.

5. In a press for scrap metal and other material, means for compressing the material into a block, a door against which the block bears, said door being adapted for opening to discharge said block, and means for guiding said door obliquely away from the block as it is opened.

Signed at New York city in the county of New York and State of New York this 3d day of Sept., A. D. 1919.

EMANUEL KARDOS.