

No. 685,565.

Patented Oct. 29, 1901.

C. W. BRAY.  
SCRAP BUNDLING PRESS.

(Application filed Dec. 27, 1900.)

(No Model.)

2 Sheets—Sheet 1.

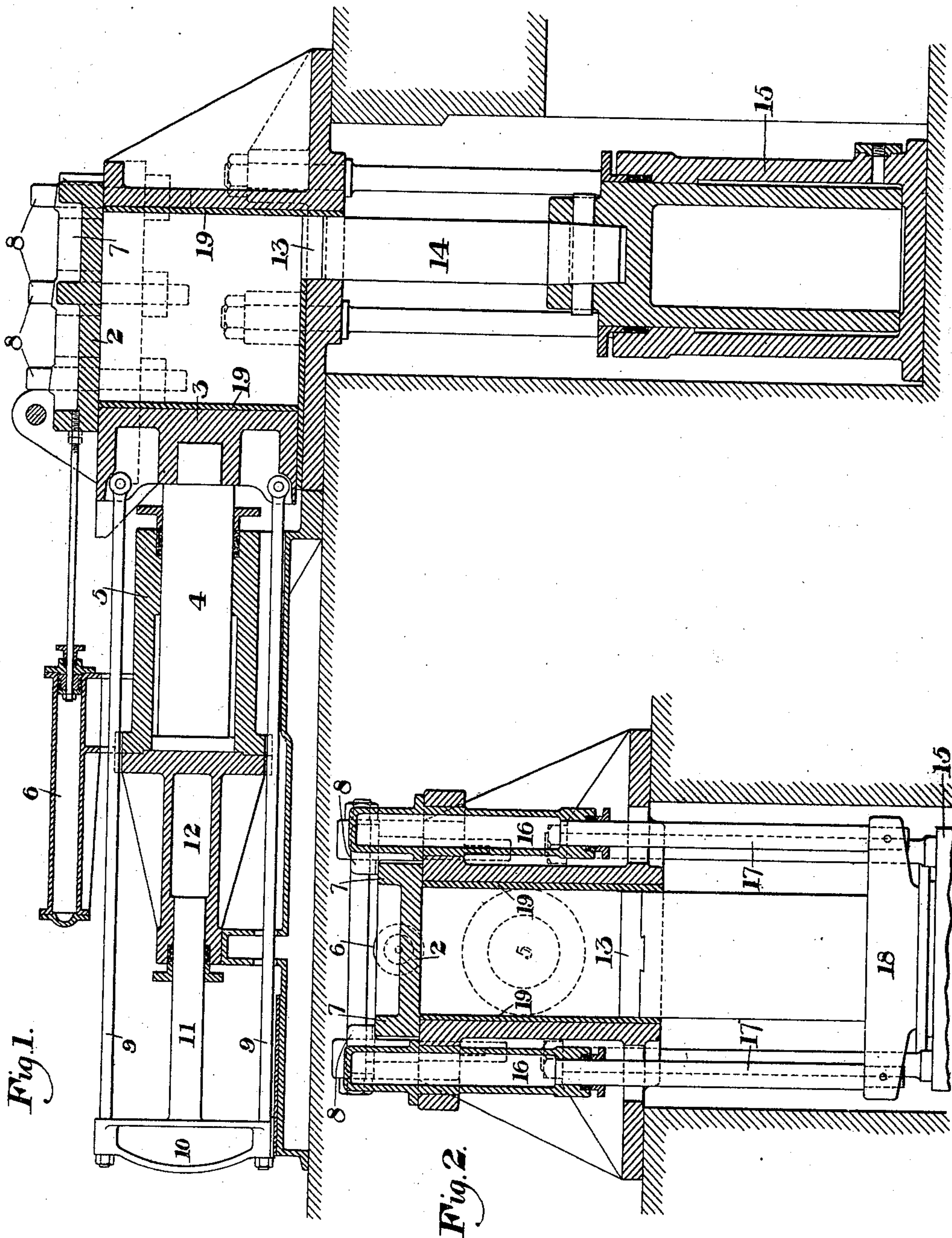


Fig. 1.

Fig. 2.

WITNESSES

Warren W. Swartz  
George B. Blumung

INVENTOR

Charles W. Bray  
by R. A. R. R. R. R.  
his atty.

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Fig. 3.

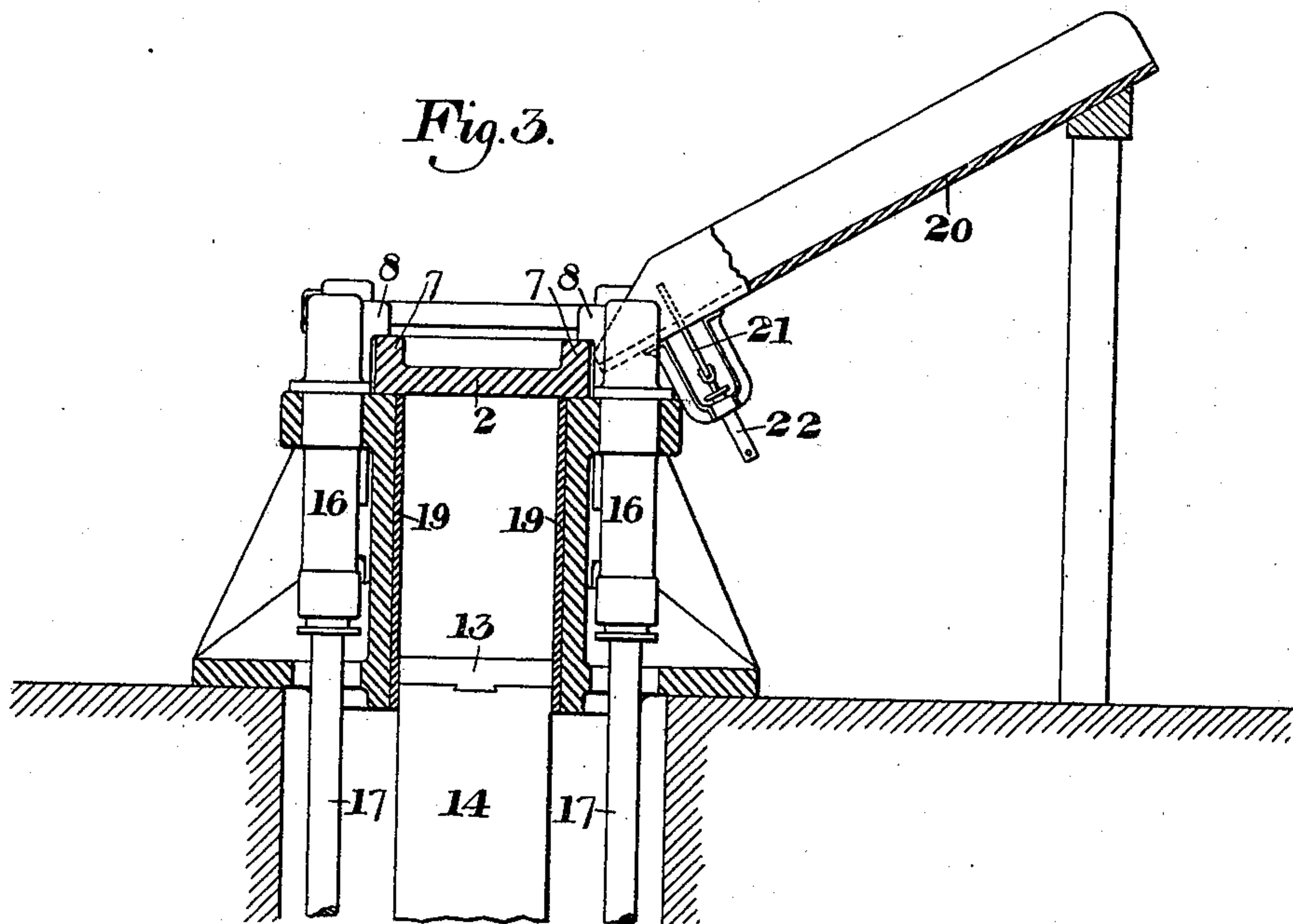
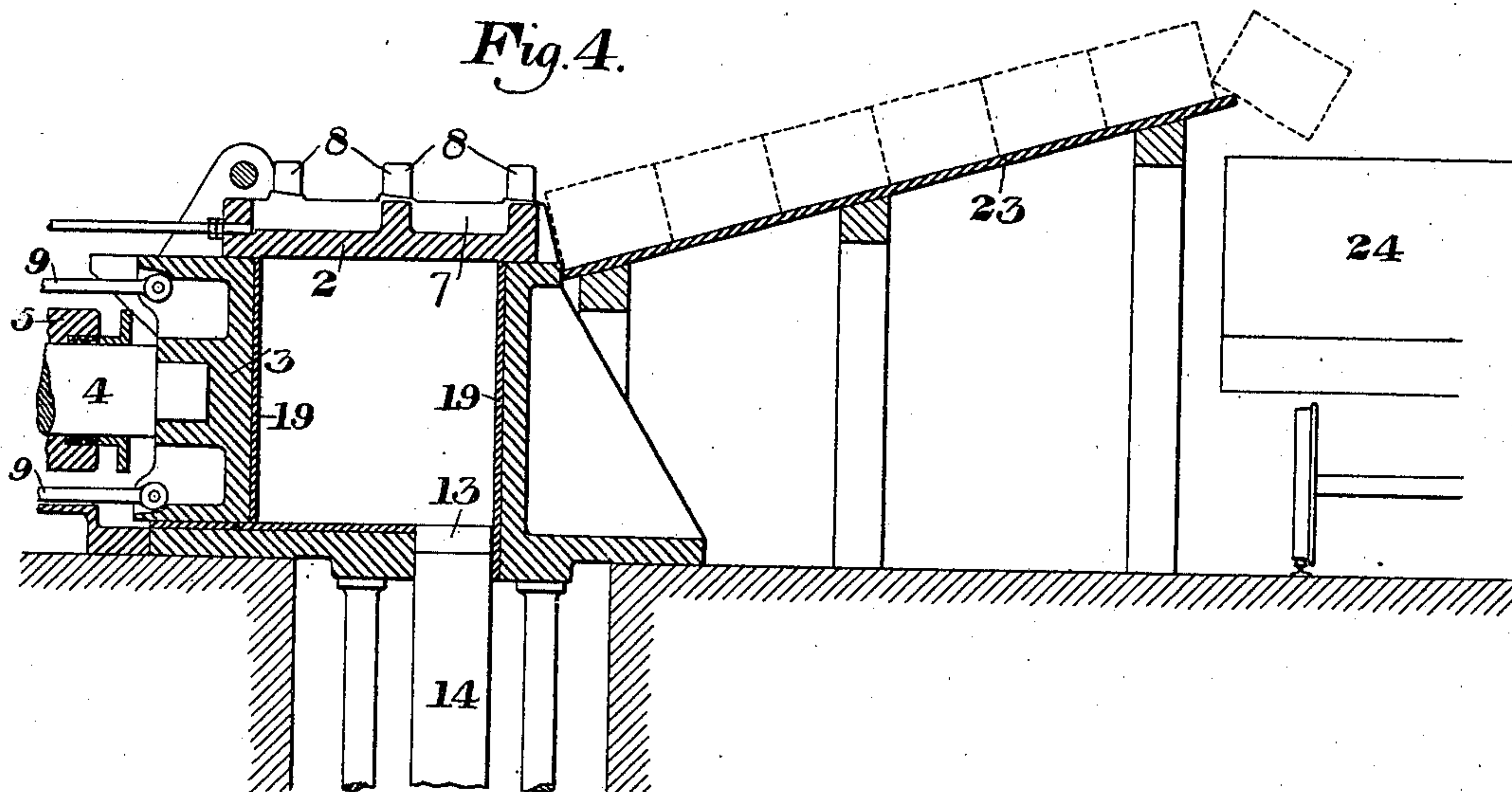


Fig. 4.



WITNESSES

Warren W. Swartz  
George B. Blumley

INVENTOR

Charles W. Bray  
by Balcomb Balcomb  
his attys.



# UNITED STATES PATENT OFFICE.

CHARLES W. BRAY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE AMERICAN TIN PLATE COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## SCRAP-BUNDLING PRESS.

SPECIFICATION forming part of Letters Patent No. 685,565, dated October 29, 1901.

Application filed December 27, 1900. Serial No. 41,232. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. BRAY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Scrap-Bundling Presses, 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 sectional side elevation of my improved press. Fig. 2 is a partial vertical section at right angles to Fig. 1. Fig. 3 is a view similar to Fig. 2, showing one form of feeding-in chute; and Fig. 4 is a partial vertical section showing the discharge apparatus.

My invention relates to the bundling of metal scrap, such as the refuse cuttings of black sheets or plates, and is designed to provide a simple and effective machine for condensing and compacting this scrap into small easily-handled blooms or blocks. In former attempts toward this bundling of metallic scrap the pressure has been exerted in one direction only in compressing the mass and difficulty has been found in causing the scrap to intermesh and adhere, so as to form a compact block. I have found that by exerting pressure in more than one direction upon the mass of loose pieces they will be caused to adhere and form a compact block or bloom in which the pieces are not liable to loosen and separate.

My invention consists in a press in which a compressive action is exerted in more than one direction, and, further, in the construction and arrangement of the machine, as hereinafter more fully described, and set forth in the claims.

In Figs. 1 and 2 of the drawings I show a mold having a sliding top 2 and a movable side 3, secured to the projecting end of a plunger 4, carried in a single-acting hydraulic cylinder 5. The cover is of strong ribbed construction, as shown, and is moved back and forth by a double-acting hydraulic cylinder 6. When moved forward into closed position, its side flanges or ribs 7 engage the heads of T-headed bolts 8, secured to the sides of the mold. These ribs and bolt-heads may

have inclined engaging surfaces, as shown in Fig. 1, to close the cover tightly in place, or other suitable means may be provided for this purpose. The head 3 is connected by pivoted links or rods 9 with a cross-head 10, secured to the plunger 11 of a single-acting hydraulic pull-back cylinder 12, arranged in tandem relation with the cylinder 5. The bottom of the mold is provided in its outer portion with a transverse hole the entire width of the mold, within which plays the head 13 of a ram 14, secured to the plunger of a single-acting hydraulic cylinder 15. In order to move this head downwardly after the compression action in case there is any sticking, I provide the two small cylinders 16, whose plungers are connected by rods 17 with a cross-head 18, secured to the ram. These two small pull-back cylinders may be supplied with constant uniform pressure, if desired, or automatic valve mechanism may be provided for all the pull-back cylinders. Removable lining-plates 19 are preferably used for the inner faces of the mold and the faces of the compressing heads or rams.

In operating the press the cover is drawn back and the metallic scrap is filled into the mold. The cover is then forced forward to close the mold, and the head 3 is then forced into the side of the mold until the scrap is compressed laterally to a block of substantially the thickness of the ram 14. The movable side or head 3 then being maintained in this position, the ram 14 is forced upwardly to compress the material in a direction at right angles to that of the other head. The material is thus compressed into the form of a parallelepipedon, and being compressed in different directions the pieces are interlaced or intermeshed in such a way that they will not come apart, and a compact block is formed. After the block is formed the lower ram may be stopped and the cover drawn back, and the lower ram then being further actuated until its head is substantially flush with the top of the mold the cover may be forced forward to remove the block. The parts are then restored to their normal position and the operation repeated.

In order to facilitate the operation and do



away with manual handling of the loose scrap and the compressed blocks, I preferably provide feeding-in apparatus, which I show in Fig. 3 as comprising an inclined chute 20, leading to the side edge of the mold-top and having a stop 21, controlled by a motive cylinder 22, under the control of the operator. The scrap is fed into the chute, and the operator by lowering the stop at the proper time allows the scrap to slide down into the mold. He then elevates the stop and proceeds with the compressing. To do away with handling of the blocks, I also preferably provide a feeding-out channel or chute 23, leading from the upper side edge of the mold opposite the front end of the cover and along which the blocks are moved successively by the action of the cover and ram above described. As each block is forced out of the mold the cover moving forward into place actuates the row of blocks and causes the forward one to drop into a car 24 or suitable receptacle.

The advantages of my invention result from the compressing of the material in different directions to compact and solidify the mass, and, further, from the peculiar arrangement of the plungers and parts which gives facility in filling the mold and removing the compressed blocks.

Many changes may be made in the form and arrangement of the mold and the compressing mechanisms without departing from my invention.

I claim—

1. In scrap-bundling apparatus, a mold having a movable top, a horizontally-movable side, mechanism for forcing the movable side inwardly against the entire side face of the scrap and a movable ram projecting upwardly through the bottom, said ram extending entirely across the mold while constituting a portion only of the bottom, and arranged to compress the scrap upwardly after the movable side has been forced inwardly to substantially the width of the ram; substantially as described.

2. In scrap-bundling apparatus a mold having three stationary sides, and a movable side, mechanism for moving the movable side inwardly to compress the entire face of the contained scrap, and a ram movable through one end and extending entirely across the mold while forming a portion only of the end, said ram being arranged to compress the scrap

after it has been compressed to substantially the width of the ram; substantially as described.

3. In scrap-bundling apparatus, a mold having a horizontally-sliding top, mechanism for opening and closing the same, and three stationary sides, the third side constituting a compressing-head, mechanism for actuating the said side, and a ram movable upwardly through the bottom and of the same width as the mold, said ram being arranged to compress the scrap after it is acted upon by the side, and to eject the block when the top is withdrawn; substantially as described.

4. In scrap-bundling apparatus, a mold having one side forming a movable closure, another movable side, mechanism for moving the latter side inwardly to compress the scrap, and a compressing-ram moving through a hole in the side opposite to the movable closure and of substantially the entire width of the mold; substantially as described.

5. In scrap-bundling apparatus, a mold having a movable compressor side, mechanism for moving the side positively in both directions, a compressor-head movable within a hole in another side extending at an angle from the compressor side, and mechanism for moving the head positively in both directions; substantially as described.

6. In scrap-bundling apparatus, a mold having a sliding top closure, a movable side secured to a single-acting plunger, a pull-back plunger connected to the said side, a compressor-head of the width of the mold, and movable upwardly through a hole in the mold-bottom, and cylinder mechanism for moving the head positively in both directions; substantially as described.

7. In scrap-bundling apparatus, a mold having a movable top closure, a vertically-movable head in its bottom, and a feed-out channel leading from the top of the mold; substantially as described.

8. In scrap-bundling apparatus, a mold having a movable top closure, feeding-in mechanism, and compressing mechanism arranged to act upon the scrap in different directions; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES W. BRAY.

Witnesses:

H. M. CORWIN,  
L. M. REDMAN.